12/19

Job No. J9S3670

Replaces Bridge No. S0734

Missouri Department of Transportation

Bridge Survey Location Request

Page 1 to be completed by District staff.

Bridge over: Saline Creek Route: T

County: Perry Section: 36 Township: 35 North Range: 9 East

Latitude: 37°41'16.6"N Longitude: 89°59'1.43"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
9.9" Below (1990)	Below West End of Bridge Floor	HW Book 8182

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:

Page 2 & subsequent pages to be completed by Bridge Division

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: Wayne Elliott, Phone No. 573-526-5414 & email Wayne.Elliott@modot.mo.gov

Survey Type: **2D Survey**

Stream Crossing Survey Location Details (2D)

Item	Requirement	Standard Guidance		Specific Guidance	
LIDAR Data (EPG 38.3.36.3.5.1)	Elevation	5' min. Above Extreme High Water [on Overbanks Perpendicular (more or less) to Stream Flow]		Minimum Elevation =	560' +/-
	Upstream & Downstream Distance	Contraction and Expansion Limits of Existing/Proposed Crossing		Use Upstream and Downstream Limits shown in Image and kmz files	
Streambed Profiles** (EPG 38.3.36.3.6)	Length	To limits of LIDAR data		Use Standard Guidance	
	Elevation Intervals	Within 500' of Crossing	Natural Stream 25'	Use Standard Guidance	
		Beyond 500' from Crossing	At Vertical and Horizontal Break Points (200' max.)	Use Standard Guidance (see EPG 238.3.36.3.6 if a significant slope change is encountered)	
Bathymetric Channel Sections	Location	At or near the locations shown in the image and kmz files.		Use Standard Guidance Location of sections may be moved to nearby locations that are transition points in width or slope of the channel. Additional sections may be added if more sections are needed to capture these transitions adequately.	
	Orientation	Perpendicular to channel		Use Standard Guidance	
	Terminal Point	Water Surface Elevation or Ordinary High Water Elevation Mark for dry or shallow streams (EPG 127.4.1.1) **Note: OHW Mark may be different at each section**.		See Bathymetric Channel Section Details Below	

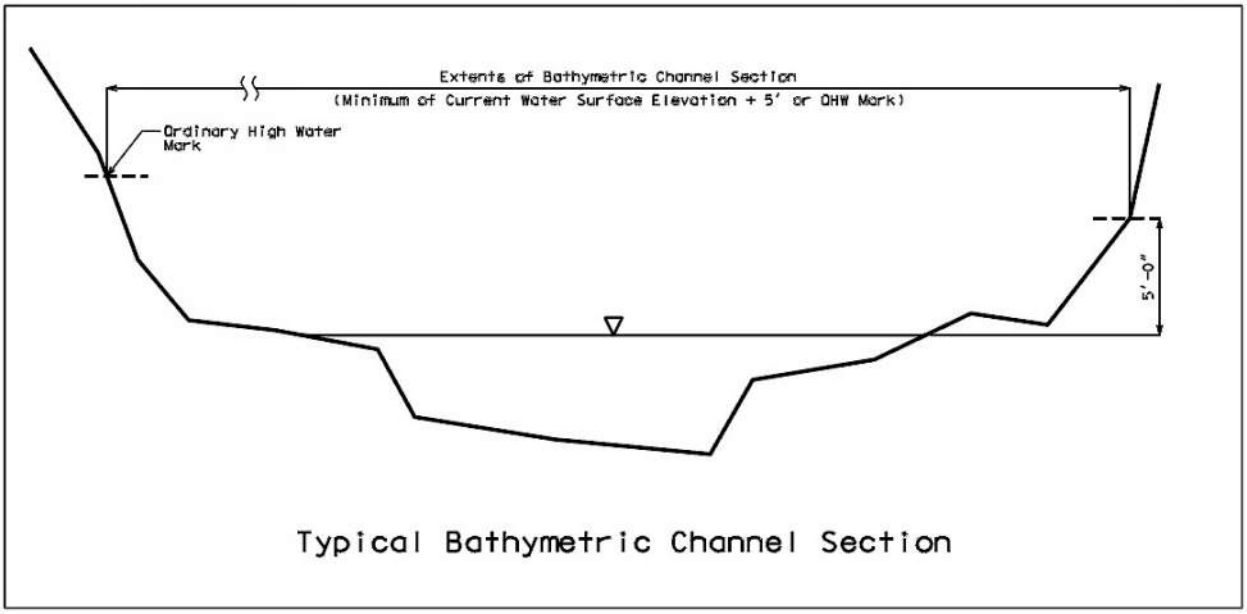
Item	Requirement	Standard Guidance		Specific Guidance
Water Surface Profile (EPG 238.3.36.3.7)	**Water Surface Profile Data Needed?** ☐ Yes ☒ No			
	Locations with flowing water	Drainage Ditch	100' and 200' each side of Crossing	Use Water Surface Profile Standard Guidance

Item	Requirement	Standard Guidance	Specific Guidance
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

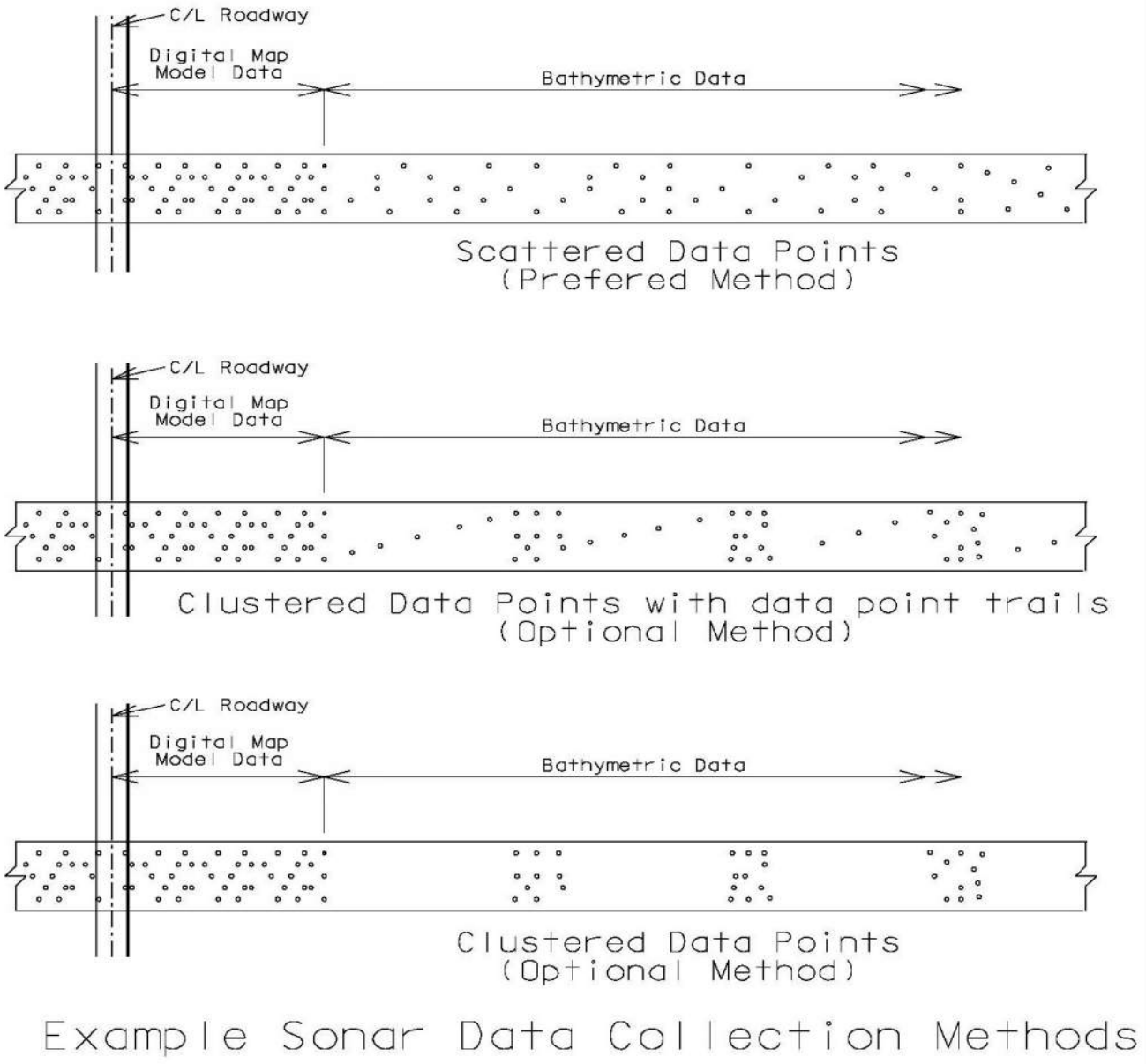
Bathymetric Channel Section Details:

- **Dry or Shallow Streams** - Sections should extend to an elevation equal to:
  - Minimum of the current water surface plus 5',
  - or the Ordinary High Water mark (EPG 127.4.1.1.)
  - May be single row of field shots or cluster of shots near the section location.



Typical Bathymetric Channel Section

- **Floatable Streams:**
  - Conventional Survey:
    - Sections should extend to an elevation equal to the current water surface elevation.
    - May be single row of field shots or cluster of shots near the section location.
  - Sonar Survey:
    - Data should extend as near to the current water surface elevation as feasible.
    - Example data collection methods are shown below:
      - Scattered data points for the full extent of the survey are preferred.
      - Data points concentrated at survey cross section locations are an acceptable alternative.



Additional Information:

The streambed profile data and bathymetric channel section data should **not** be included in the terrain file. 3rd party LIDAR, MoDOT survey data (conventional or LIDAR) should be provided as separate terrain files.

Additional Documents Provided:

Image & kmz file showing LIDAR Data Limits and special channel section locations.

Details for Completion of Stream Crossing Bridge Survey				
Item	**Requirement**	**Standard Guidance**		**Specific Guidance**
Centerline and Offset (3 Line) Profiles (EPG 238.3.36.1.3 & EPG 747.2.3.4.1)	**Centerline and Offset (3-Line) Profiles Needed?** ☒ Yes ☐ No			
	C/L Profile	Terminal Point	Sufficiently Past End of Bridge	Use Standard 3-Line Profile Guidance
	Upstream Offset Profile	Terminal Point	Sufficiently Past End of Bridge	Use Standard 3-Line Profile Guidance
		Offset Distance	On Natural Ground	Estimated Distance = 30'
	Downstream Offset Profile	Terminal Point	Sufficiently Past End of Bridge	Use Standard 3-Line Profile Guidance
		Offset Distance	On Natural Ground	Estimated Distance = 30'
	Special			
Contracted Profile (EPG 747.2.3.4.2)	C/L Profile	Terminal Point of Grade Change		Use Standard Contracted Profile Guidance
	Note: • **Only the centerline profile is needed.** • **The full centerline profile may be included with 3-Line profile when practical, and the Contracted Profile Sheet eliminated.**			

Roadway Design Notes for Bridge Survey:

The Bridge Survey should include all the pertinent items listed in EPG 747 and the Bridge Survey Checklist except for the following:

- Valley Section sheets
- Channel Section sheets
- Water Surface Profile
- Other structures

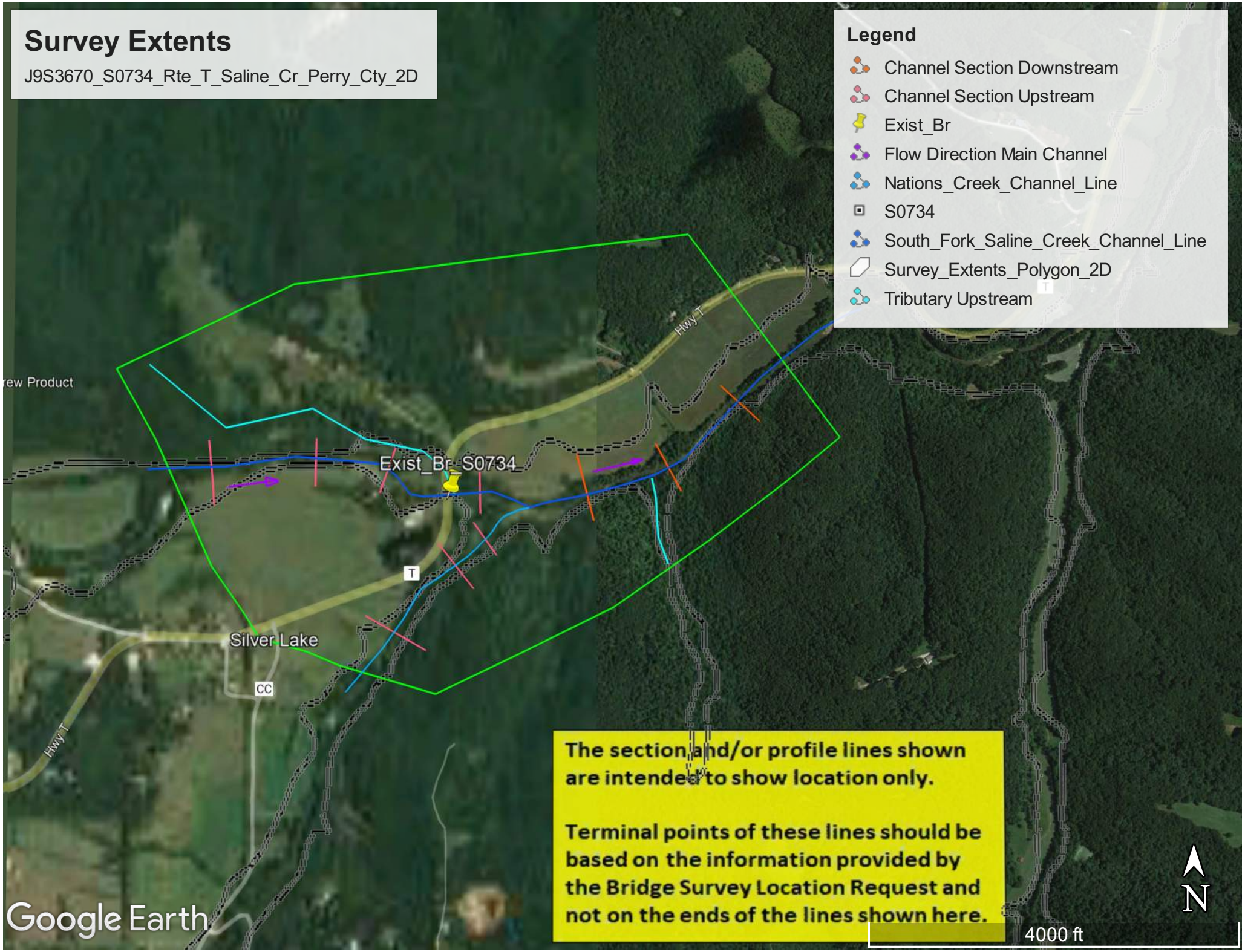
A geo file will be needed for use in developing the bathymetric terrain in the hydraulic model.

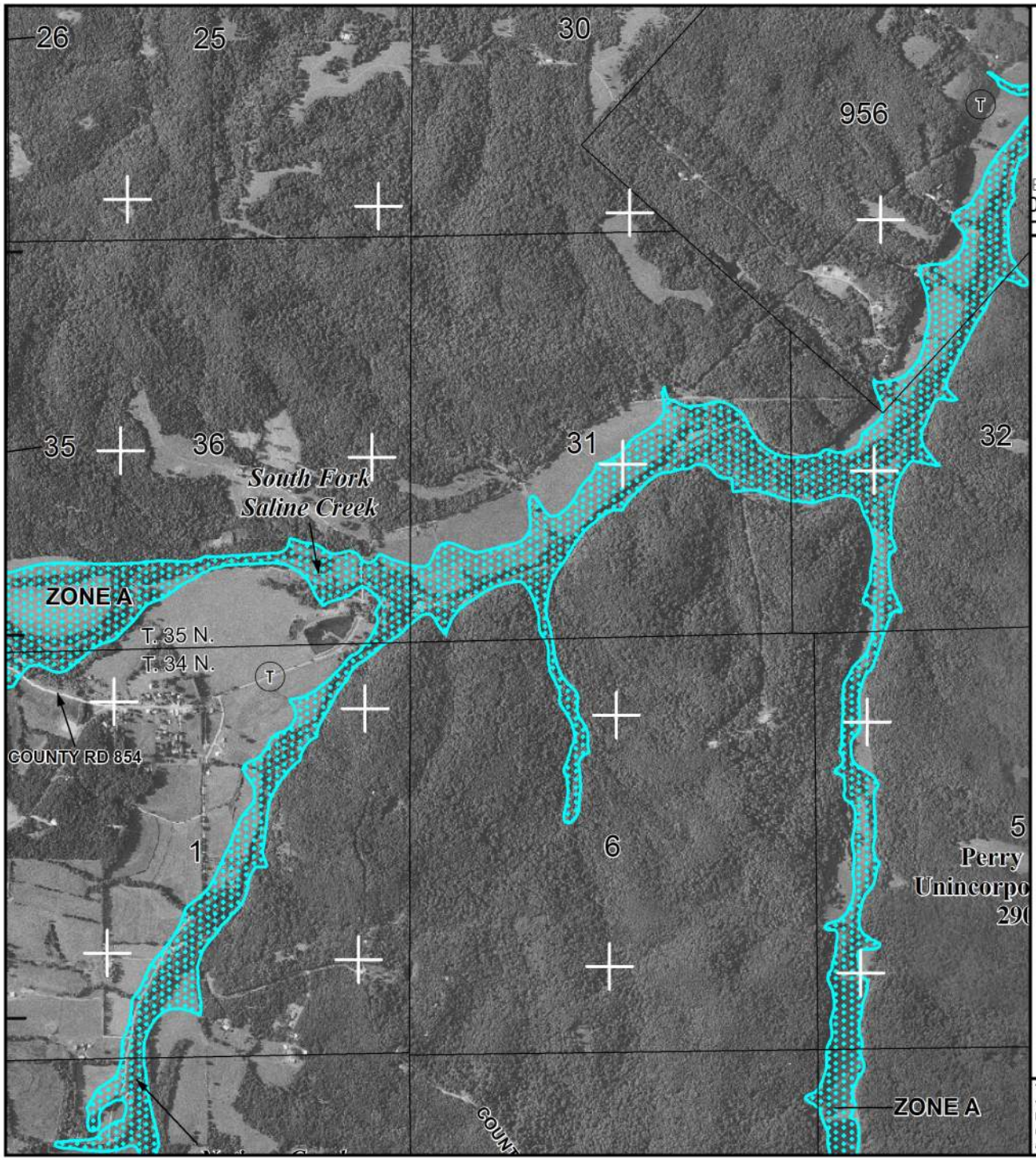
Geo file requirements:

- The geo file should contain:
  - the streambed profile,
  - offset profiles
  - and Bathymetric Channel Section survey data
- In the GEO/HEC Converter spreadsheet the Bathymetric Channel Sections can be placed in either the Valley Section or Channel Section fields.
- If the stream bed profile is not provided, or does not extend to all the sections, use the coordinates and elevation of the low point of channel section as the coordinates and elevations to create a profile or extend the surveyed profile.

Bridge Design Notes:

TMS Flood Report Data, FEMA Zone A or FIS Data FM29157C0225C, Special Conditions. etc.


Survey Extents
J9S3670_S0734_Rte_T_Saline_Cr_Perry_Cty_2D
Legend
Channel Section Downstream
Channel Section Upstream
Exist_Br
Flow Direction Main Channel
Nations_Creek_Channel_Line
S0734
South_Fork_Saline_Creek_Channel_Line
Survey_Extents_Polygon_2D
Tributary Upstream
Hwy T
Exist_Br_S0734
T
Silver Lake
CC
Hwy T
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
4000 ft
Google Earth



MAP SCALE 1" = 2000'

1000 0 2000 4000 FEET

00 0 600 1200 ME

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0225C

FIRM

FLOOD INSURANCE RATE MAP

PERRY COUNTY, MISSOURI

AND INCORPORATED AREAS

PANEL 225 OF 475

(SEE LOCATOR DIAGRAM OR MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

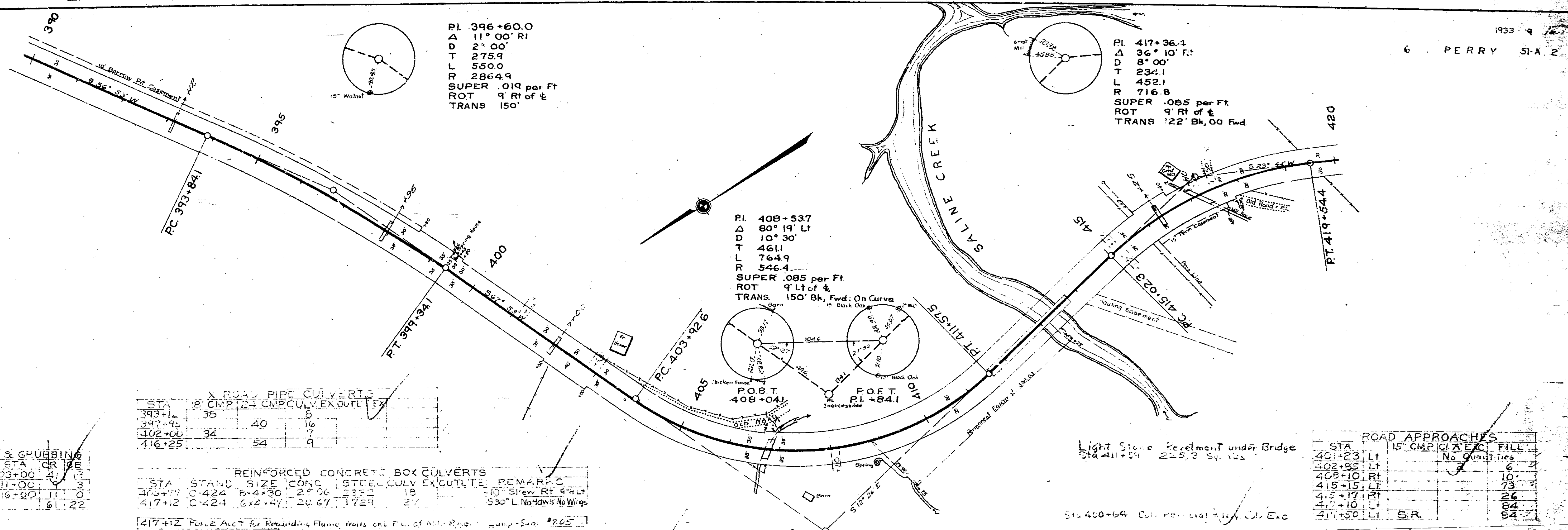
COMMUNITY	NUMBER	PANEL	SUFFIX
PERRY COUNTY	290280	0225	C

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
29157C0225C

EFFECTIVE DATE
AUGUST 2, 2011

Federal Emergency Management Agency



CLEARING & GRUBBING			
STA	TO STA	CR	GE
396+00	403+00	41	19
405+00	411+00	9	3
413+00	416+00	11	0
TOTAL		61	22

X-ROAD PIPE CULVERTS

STA	18" CMP	24" CMP	CULV. EX	OUTL'T EX
393+16	38		8	
397+95		40	16	
402+00	34		7	
416+25		54	9	

REINFORCED CONCRETE BOX CULVERTS

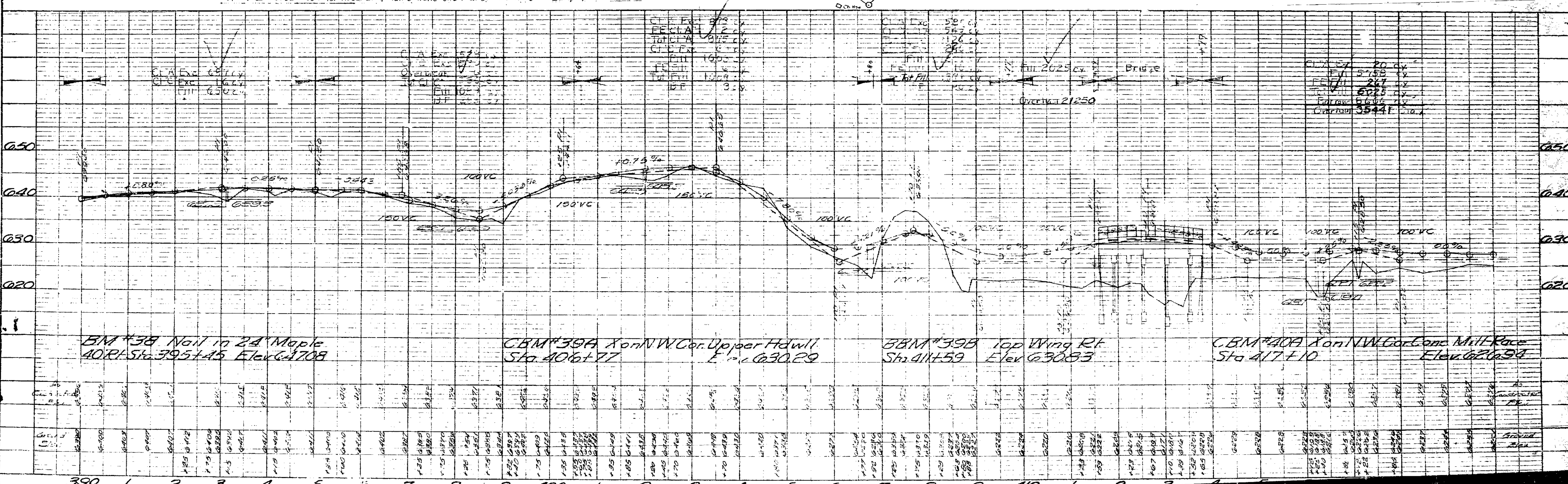
STA	STAND	SIZE	CONC	STEEL	CULV EX	OUTL'T E	REMARKS
406+77	C-424	8×4×30	25.06	2332	18		10° Skew Rt 9' Rt Lt
417+12	C-424	6×4×47	20.67	1729	27		S30° L. No Hdwls No Wings

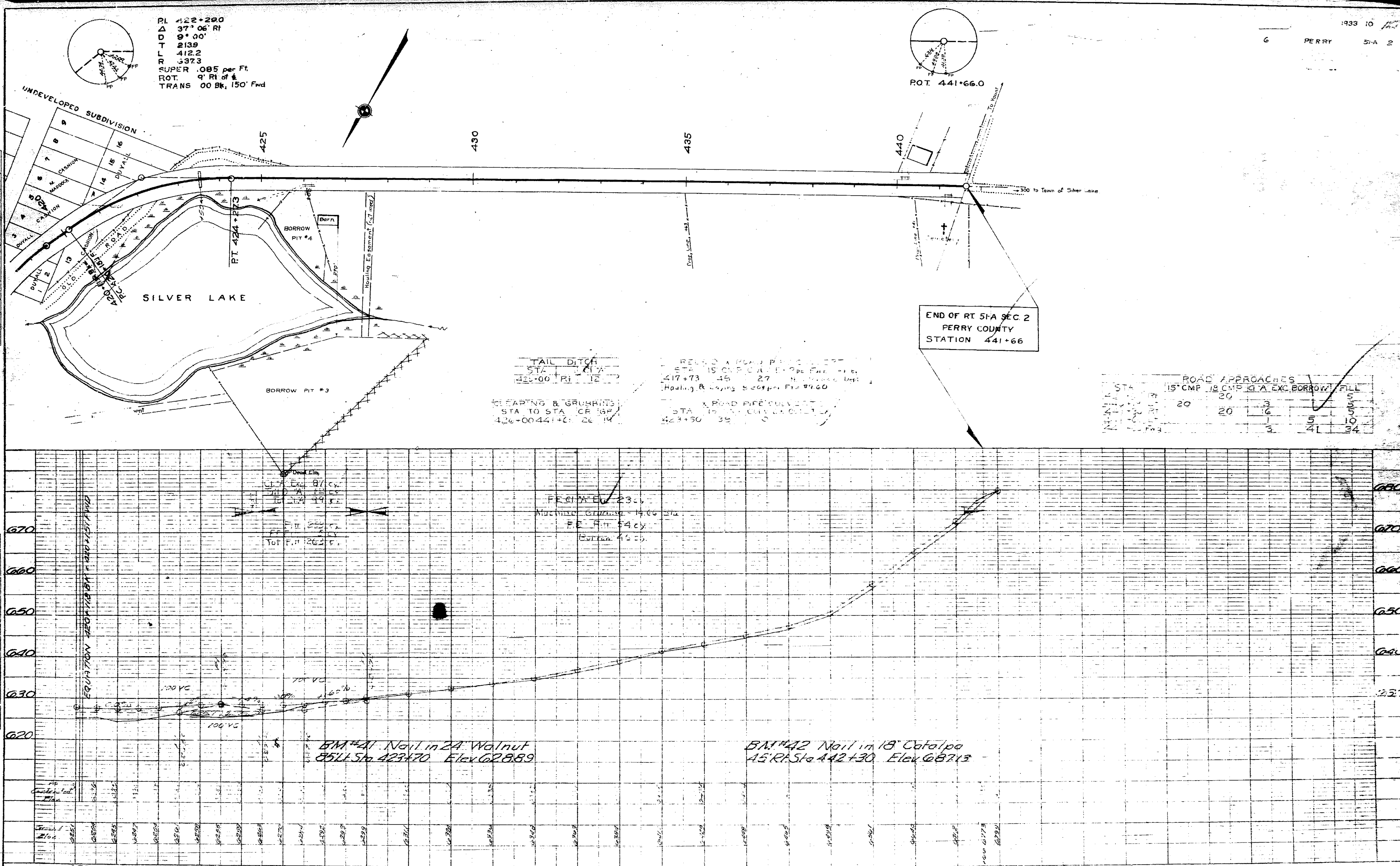
417+12 Force Acct for Rebuilding Flume Walls and Floor of Mill Race Lump-Sum $7.05

Light Stone Revetment under Bridge
Sta 411+59 225.3 Sq. Yds

Sta 400+64 Culv. Removal ... Cl. Exc

ROAD APPROACHES				
STA		15" CMP	CL "A" EXC	FILL
401+23	Lt	No Quantities		
402+85	Lt		2	6
408+10	Rt			10
415+15	Lt			73
415+17	Rt			26
41?+10	Lt			84
41?+50	Lt	S.R.		84

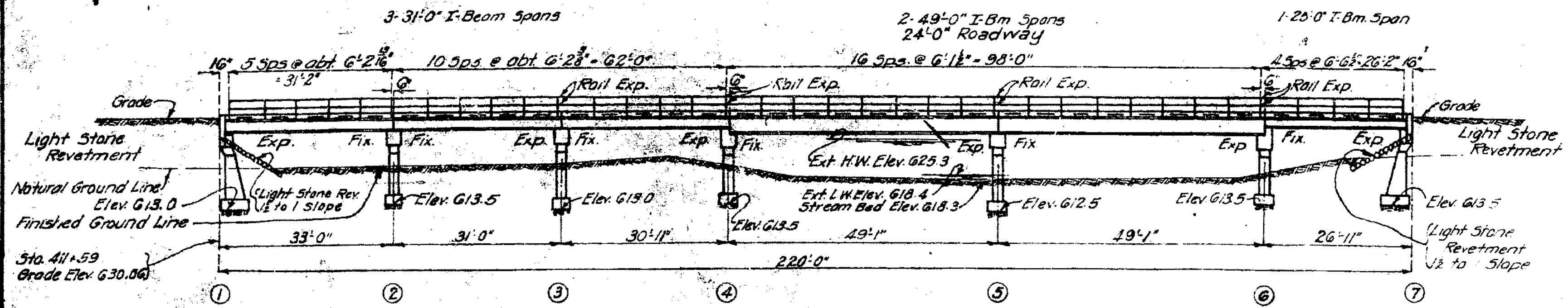




1933 10
6 PERRY 5-A 2
P.I. 422+29.0
Δ 37° 06' Rt
D 9° 00'
T 213.9
L 412.2
R 637.3
SUPER .085 per Ft.
ROT. 9' Rt of ℄
TRANS 00 Bk, 150' Fwd
ROT. 441+66.0
UNDEVELOPED SUBDIVISION
DUVALL
CASHION
MADDOX
SILVER LAKE
BORROW PIT #4
BORROW PIT #3
Barn
P.T. 424+27.3
P.C.
Hauling Easement
300 to Town of Silver Lake
END OF RT. 5-A SEC. 2
PERRY COUNTY
STATION 441+66
TAIL DITCH
CLEARING & GRUBBING
ROAD APPROACHES
Machine Grading - 14.66 Sta.
EQUATION 420+11.8 Bk = 420+15.1 Fwd
BM #41 Nail in 24" Walnut
85' Lt Sta 423+70 Elev 628.89
BM #42 Nail in 18" Catalpa
45' Rt Sta 442+30 Elev 687.13
100' VC
420 1 2 3 4 5 6 7 8 9 430 1 2 3 4 5 6 7 8 9 440 1 2 3 4 5

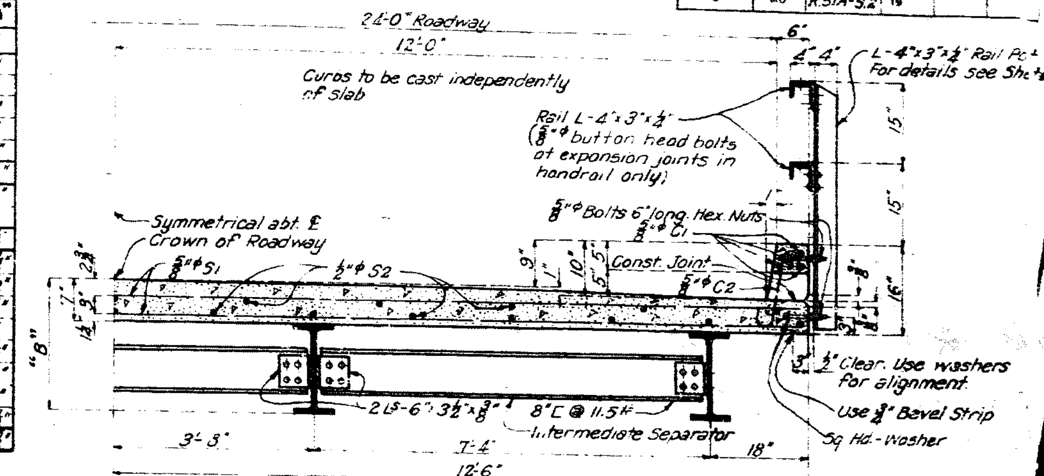
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	R51A-S.2	19		



GENERAL ELEVATION

Note: Carry all footings at least 18" into shale and other soft rock or 6" into solid hard rock.

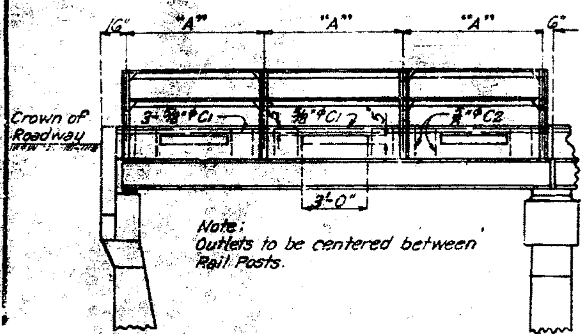


DIMENSION "B"	
SPAN "S"	"B"
15'-0"	20 7/8"
17'-0"	21"
19'-0"	22 7/8"
21'-0"	23"
23'-0"	23 1/8"
25'-0"	2'-1 1/4"
27'-0"	2'-1 1/8"
29'-0"	2'-3"
31'-0"	2'-4 1/4"
33'-0"	2'-4 1/8"
35'-0"	2'-4 1/4"
37'-0"	2'-6 7/8"
39'-0"	2'-7"
41'-0"	2'-7 1/8"
43'-0"	2'-7 1/8"
45'-0"	2'-10"
47'-0"	2'-10 1/8"
49'-0"	2'-10 3/8"

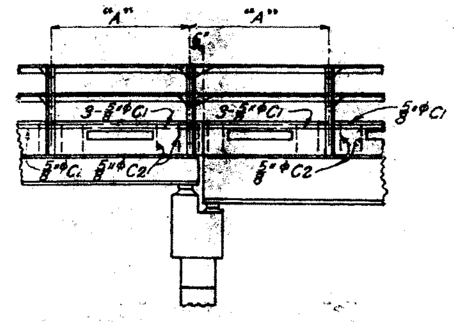
Note: Top of channel separators at ends of each I-Beam Span to be flush with bottom of floor slab as shown in section thru end bent at ℄.

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.

HALF SECTION THRU SPAN

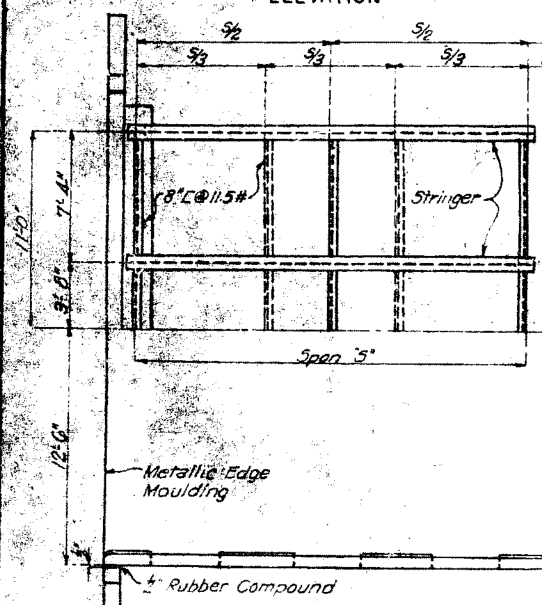


ELEVATION

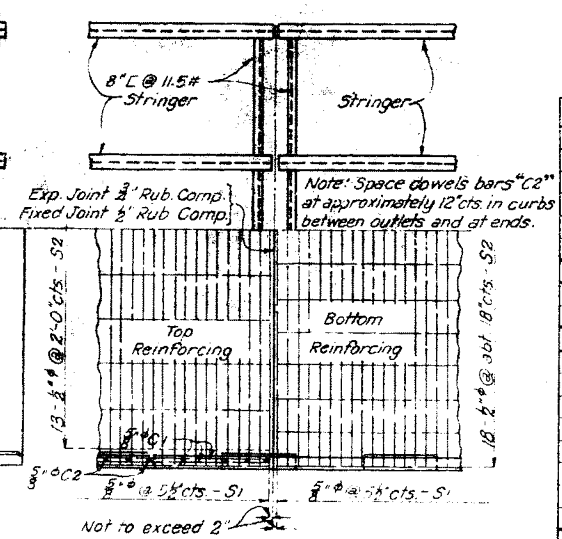


PART ELEVATION AT INT. BENT

HANDRAIL SPACING					
SPAN "S"	NO. PANELS	"A" DIMENSIONS			
		SINGLE SPAN	1ST END SPAN	ALL INT. SPANS	LAST END SPAN
15'-0"	3	5'-5 5/16" abt.	5'-0 11/16" abt.	5'-0"	5'-4 11/16" abt.
17'-0"	3	6'-1 5/16" abt.	5'-8 11/16" abt.	5'-8"	6'-0 11/16" abt.
19'-0"	3	6'-9 5/16" abt.	6'-4 11/16" abt.	6'-4"	6'-8 11/16" abt.
21'-0"	4	5'-7"	5'-3 1/2"	5'-3"	5'-6 1/2"
23'-0"	4	6'-1"	5'-9 1/2"	5'-9"	6'-0 1/2"
25'-0"	4	6'-7"	6'-3 1/2"	6'-3"	6'-6 1/2"
27'-0"	5	5'-8"	5'-5 3/16" abt.	5'-4 13/16" abt.	5'-7 3/8" abt.
29'-0"	5	6'-0 13/16" abt.	5'-10"	5'-9 5/8" abt.	6'-0 3/8" abt.
31'-0"	5	[illegible] abt.	6'-2 13/16" abt.	6'-2 5/8" abt.	[illegible] abt.
33'-0"	6	5'-8 11/16" abt.	5'-6 3/16" abt.	5'-6"	5'-8 3/16" abt.
35'-0"	6	6'-0 11/16" abt.	5'-10 3/16" abt.	5'-10"	6'-0 5/16" abt.
37'-0"	6	6'-4 11/16" abt.	6'-2 5/16" abt.	6'-2"	6'-4 5/16" abt.
39'-0"	7	5'-9 3/8" abt.	5'-7 1/8" abt.	5'-6 7/8" abt.	5'-8 7/8" abt.
41'-0"	7	6'-0 3/16" abt.	5'-10 9/16" abt.	5'-10 5/16" abt.	6'-0 5/16" abt.
43'-0"	7	6'-4"	6'-2"	6'-1 11/16" abt.	6'-3 11/16" abt.
45'-0"	8	5'-9 1/2"	5'-7 3/4"	5'-7 1/2"	5'-9 1/4"
47'-0"	8	6'-0 1/2"	5'-10 3/4"	5'-10 1/2"	6'-0 1/4"
49'-0"	8	6'-3 1/2"	6'-1 3/4"	6'-1 1/2"	6'-3 1/4"

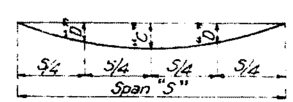


PLAN



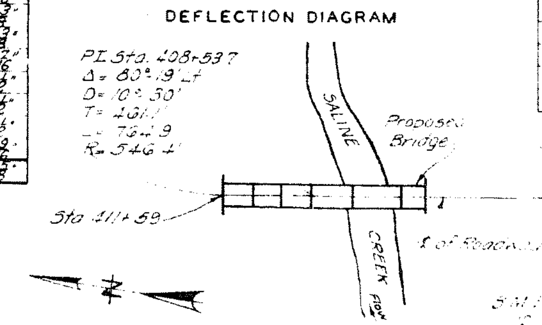
PART PLAN AT INT. BENT SHOWING REINFORCING

DEFLECTION		
SPAN "S"	"C"	"D"
15'-0"	1/16"	1/32"
17'-0"	1/8"	3/32"
19'-0"	1/8"	3/32"
21'-0"	3/16"	1/8"
23'-0"	1/4"	3/16"
25'-0"	1/4"	3/16"
27'-0"	5/16"	1/4"
29'-0"	5/16"	1/4"
31'-0"	3/8"	5/16"
33'-0"	7/16"	5/16"
35'-0"	1/2"	3/8"
37'-0"	1/2"	3/8"
39'-0"	9/16"	7/16"
41'-0"	5/8"	1/2"
43'-0"	11/16"	1/2"
45'-0"	11/16"	1/2"
47'-0"	3/4"	9/16"
49'-0"	7/8"	5/8"



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



LOCATION SKETCH

TABLE OF STRINGERS						
SPAN "S"	PER PLANS		PERMISSIBLE SUBSTITUTIONS			
	CARNEGIE BEAMS		STANDARD I-BEAMS		BETHLEHEM BEAMS	
	Inside	Outside	Inside	Outside	Inside	Outside
15'-0"	14"@30#	14"@30#	12"@40.8#	12"@35#	14"@30#	14"@30#
17'-0"	14"@33#	14"@33#	15"@42.9#	15"@42.9#	14"@33#	14"@33#
19'-0"	16"@37#	16"@37#	15"@42.9#	15"@42.9#	16"@37#	16"@37#
21'-0"	16"@40#	16"@37#	15"@50#	15"@45#	16"@40#	16"@37#
23'-0"	16"@45#	16"@40#	18"@54.7#	18"@54.7#	16"@45#	16"@40#
25'-0"	18"@57#	18"@47#	18"@70#	18"@54.7#	18"@57#	18"@47#
27'-0"	18"@52#	18"@47#	18"@60#	18"@54.7#	18"@52#	18"@47#
29'-0"	20"@55#	20"@55#	20"@65.4#	20"@65.4#	20"@55#	20"@55#
31'-0"	21"@67#	21"@58#	20"@81.4#	20"@65.4#	22"@67#	22"@58#
33'-0"	21"@62#	21"@58#	20"@75#	20"@70#	22"@62#	22"@58#
35'-0"	21"@67#	21"@62#	20"@81.4#	20"@75#	22"@67#	22"@62#
37'-0"	24"@70#	24"@70#	24"@79.9#	24"@79.9#	24"@70#	24"@70#
39'-0"	24"@74#	24"@70#	24"@79.9#	24"@79.9#	[illegible]4#	24"@70#
41'-0"	24"@81#	24"@74#	24"@85#	24"@79.9#	[illegible]1#	24"@74#
43'-0"	24"@85#	24"@81#	24"@100#	24"@90#	[illegible]@85#	26"@81#
45'-0"	27"@85#	27"@85#	24"@105.9#	24"@100#	26"@85#	26"@85#
47'-0"	27"@91#	27"@85#	24"@105.9#	24"@105.9#	28"@91#	28"@85#
49'-0"	27"@112#	27"@91#			28"@112#	28"@91#

ESTIMATED QUANTITIES				
ITEM		SUPERSTR.	SUBSTR.	TOTAL
Bridge Excavation Class 1	Cu. Yds.		[illegible]	[illegible]
Bridge Excavation Class 2	Cu. Yds.		[illegible]	[illegible]
Concrete 1:2:4 mix "B"	Cu. Yds.		[illegible]	[illegible]
Concrete 1:2:3½ mix "X"	Cu. Yds.	124.4		124.4
Fabricated Structural Steel	Lbs.	[illegible]		[illegible]
Reinforcing Steel	Lbs.	31930	[illegible]	[illegible]

[illegible] Bridge excavation above El. 620.0 will be paid for as Class 1 Bridge Excavation.
Bridge excavation below Elev. 620.0 will be paid for as Class 2 Bridge Excavation.

CURVE DATA:
PI Sta. [illegible]
Δ = [illegible]
D = 8°
T = 234
[illegible]

GENERAL NOTES:

Loading: One 10 Ton Truck, 80% of weight on rear axle, 30% im[pact], 14'-0" wheel base, 6'-0" gage, 10" tire.

Exposed edges to be beveled ¾" where no other bevel is noted.
Concrete in slabs and curbs to be 1:2:3½ mix, Class "X".
All other concrete to be 1:2:4 mix, Class "B".
Bridge excavation in accordance with Section I of Standard Specifications issued April 1, 1930, except that quantities paid for will be computed from Ext. L.W. Elev. 618.4 where existing ground line is below this elevation.

I-Beams with fastenings, spacers, handrail, handrail posts with fastenings, will be paid for as structural steel. Cost of metallic edge moulding will be included in unit bid price for concrete.
Rivets ¾"ϕ, holes 13/16"ϕ, except in handrail where rivets shall be ⅝"ϕ, holes 11/16"ϕ. Field connections riveted except as noted.
See Special Provisions in regard to permissible beam substitutions and basis of payment.

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 with bolted field connections one coat red lead and surfaces inaccessible after erection three coats of red lead. No other paint [illegible] applied by contractor. All paint required will be furnished by the Missouri State Highway Department.

BRIDGE OVER SALINE CREEK

STATE ROAD FROM PERRYVILLE TO SILVER LAKE

ABOUT 8 MILES S.W. OF PERRYVILLE

PROJECT NO. R.51A-S.2 STA. 411+59

PERRY COUNTY

Submitted by [signature] 1/26/33

[signature] 1/26/33

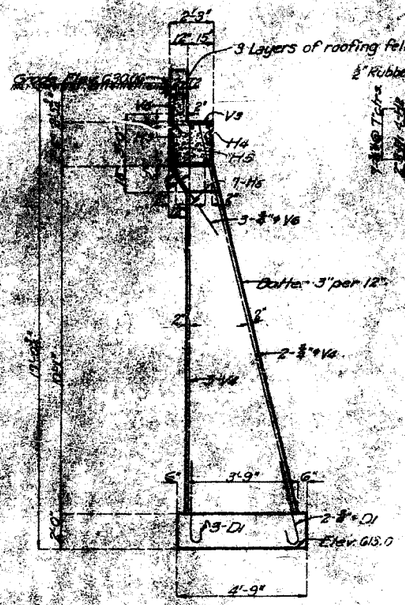
Designed Nov. 1929 By F.W.H.
Drawn Mar. 1930 By R.J.G.
Traced Dec. 1931 By R.J.G.
Checked Dec. 1931 By [illegible]
Assembled Jan. 1933 By L.B. & W.
Checked Jan. 1933 By P.H.S.

Sheet No. [illegible] of [illegible]

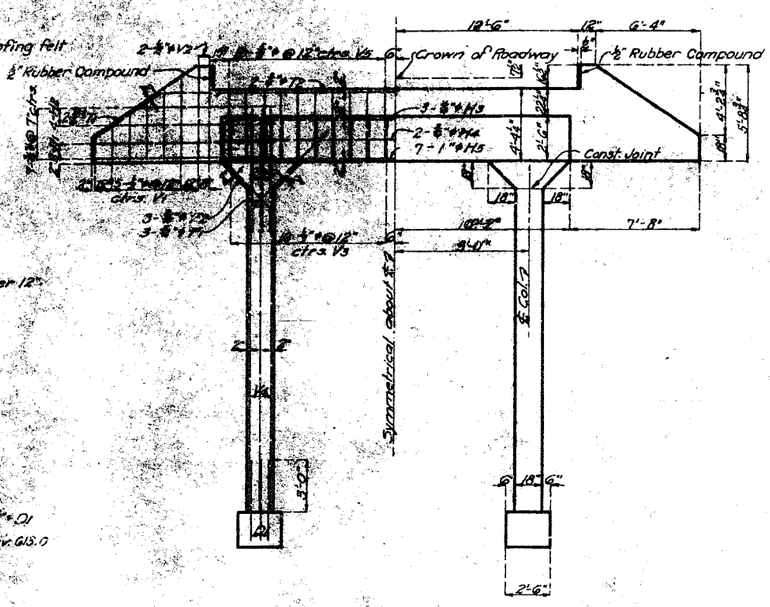
S-734

MISSOURI STATE HIGHWAY DEPARTMENT

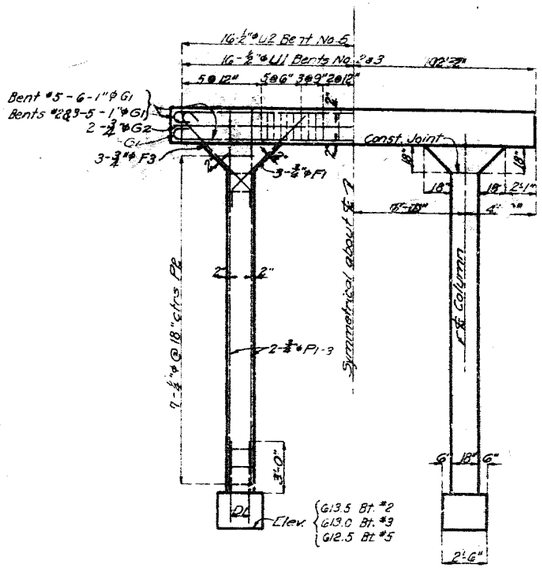
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO	R-51A-52	19		



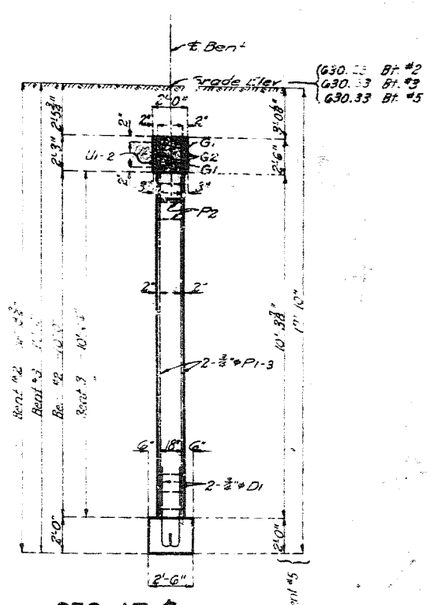
SEC. AT ℄



ELEVATION

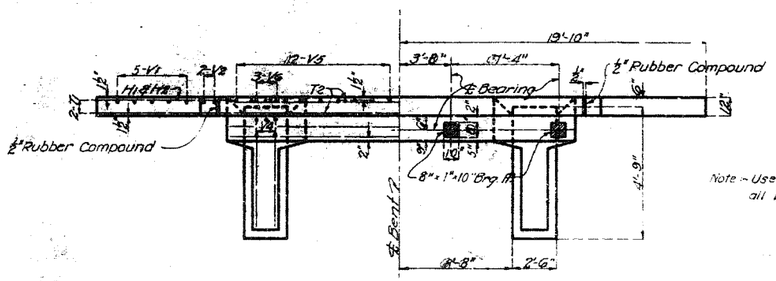


ELEVATION



SEC. AT ℄

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

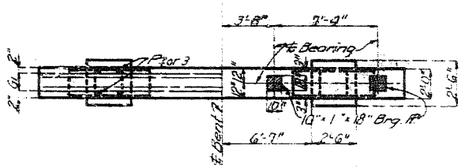


Note - Use ⅛" Grout under all bearing plates.

PLAN

DETAILS OF BENT NO. 1

Note - U1-P1 bars Bt. #2
U1-P3 bars Bt. #3
U2-P3 bars Bt. #5



PLAN

DETAILS OF BENTS NO. 2, 3 & 5

BRIDGE OVER SALINE CREEK

STATE ROAD FROM PERRYVILLE TO SILVER LAKE

ABOUT 8 MILES S.W. OF PERRYVILLE

PROJECT NO R-51A-5.2 STA 411+59

PERRY COUNTY

Assembled Jan. 1933 by I.B. & H.E.C.
Checked Jan. 1933 by J.H.S.
Drawn Nov. 1930 by C.A.F.
Checked Aug. 1932 by P.H.S.

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