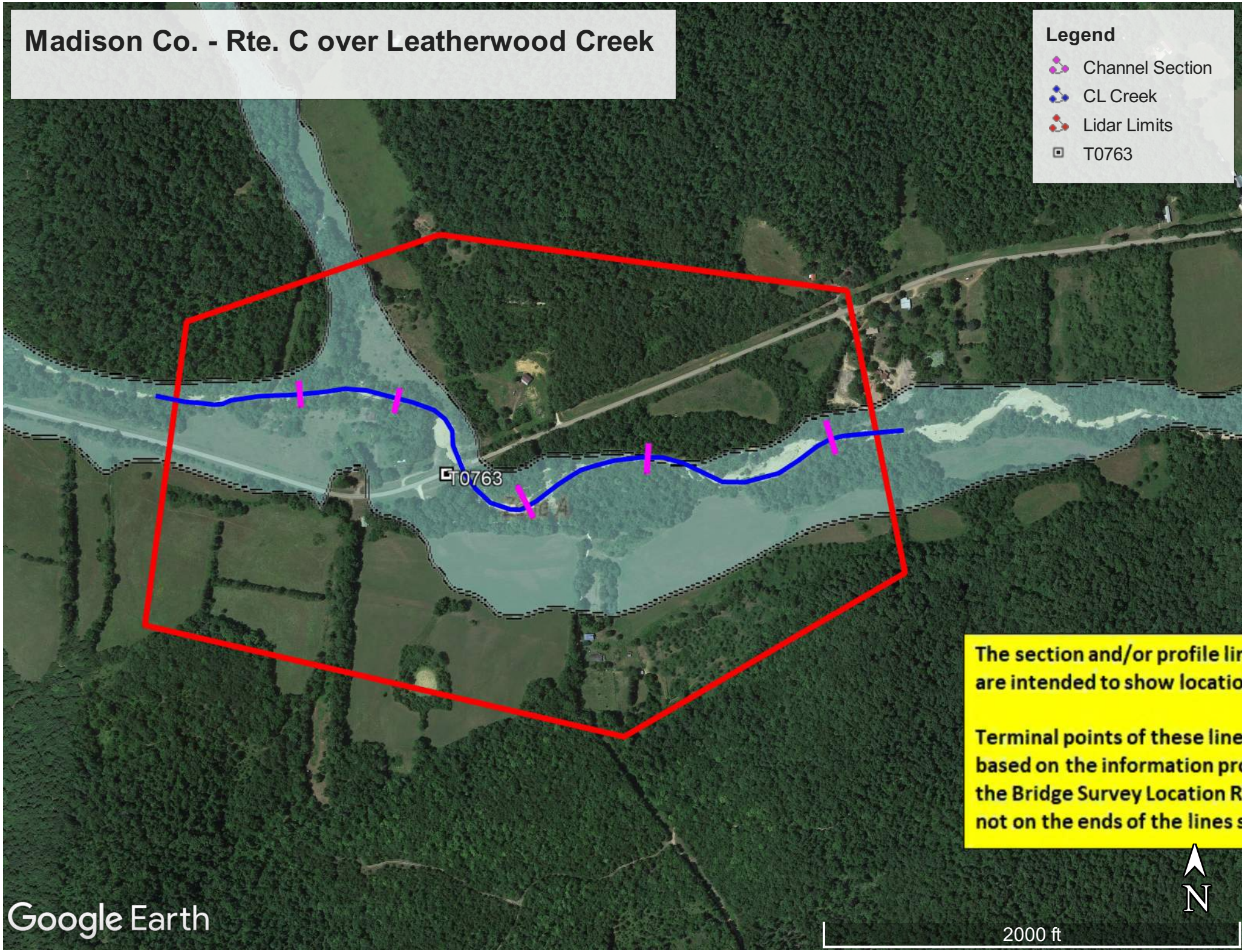

Madison Co. - Rte. C over Leatherwood Creek
Legend
Channel Section
CL Creek
Lidar Limits
T0763
T0763
The section and/or profile lin
are intended to show locatio
Terminal points of these line
based on the information pr
the Bridge Survey Location R
not on the ends of the lines s
N
2000 ft
Google Earth

12/19

Job No. SE0035

Replaces Bridge No. T0763

Missouri Department of Transportation

Bridge Survey Location Request

Page 1 to be completed by District staff.

Bridge over: Leatherwood Creek Route: C

County: Madison Section: 9 Township: 31 North Range: 5 East

Latitude: 37°22'49.79"N Longitude: 90°29'59"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
10.5" Below (1991)	Below West End of Bridge Floor	HW Book 8181

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: Kenneth Shamet, Kenneth.Shamet@modot.mo.gov, 573-522-2560

Survey Type: **2D Survey**

Stream Crossing Survey Location Details (2D)

Item	Requirement	Standard Guidance		Specific Guidance	
LIDAR Data (EPG 238.3.36.3.5.1)	Elevation	5' min. Above Extreme High Water [on Overbanks Perpendicular (more or less) to Stream Flow]		Minimum Elevation =	1090'(min) as shown in image and kmz file
	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 238.3.36.3.6)	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	

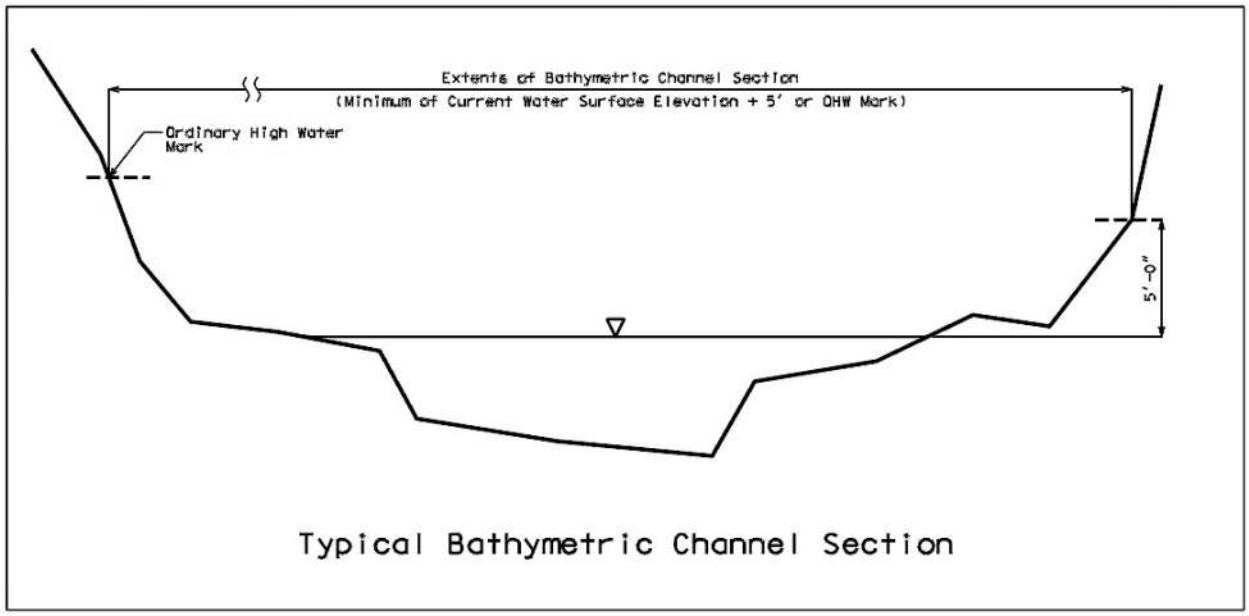
Item	Requirement	Standard Guidance		Specific Guidance
Water Surface Profile (EPG 238.3.36.3.7)	**Water Surface Profile Data Needed?** ☐ Yes ☒ No			
	Locations with flowing water	Drainage Ditch	100' and 200' each side of Crossing	Use Water Surface Profile Standard Guidance

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

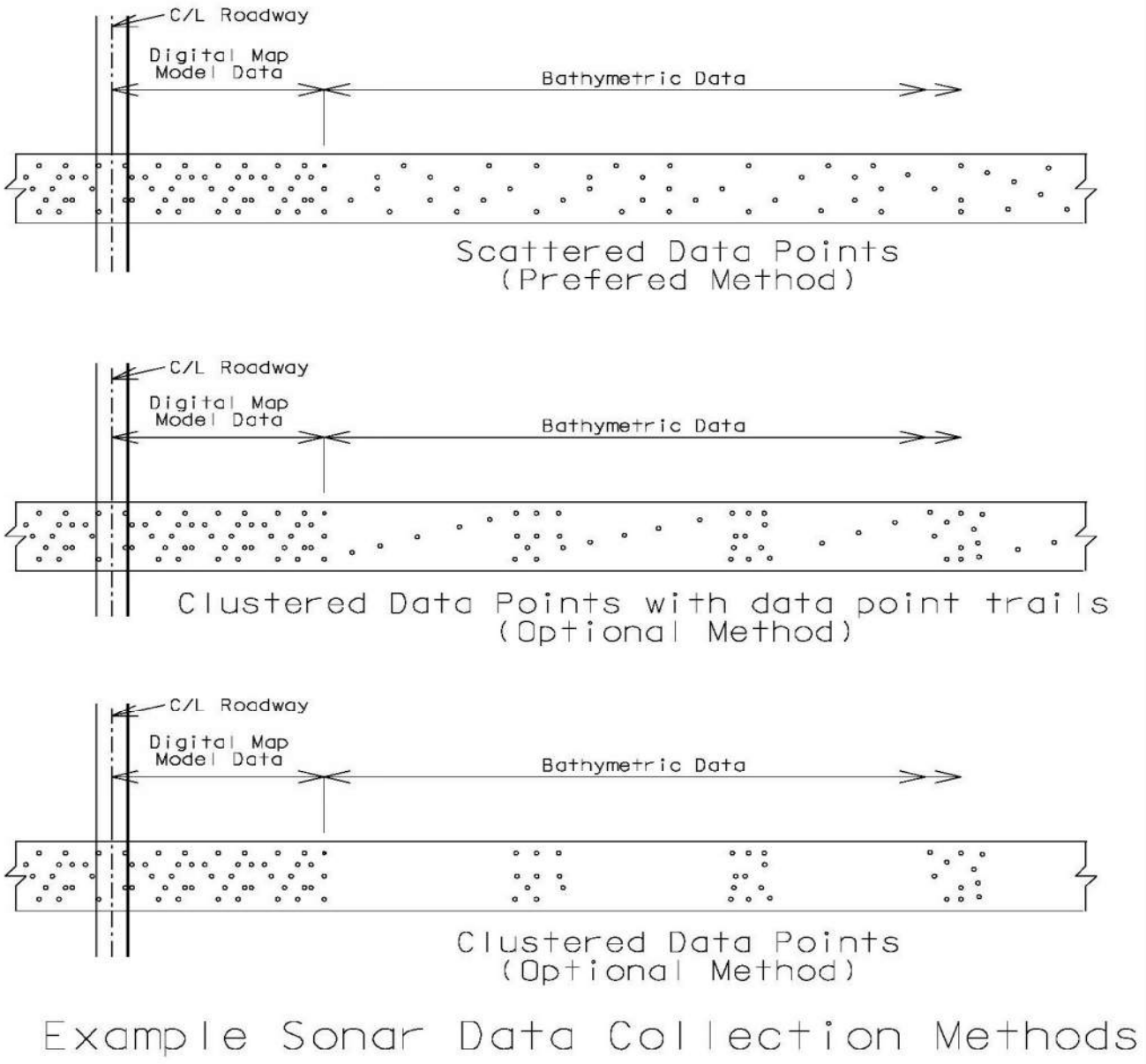
Bathymetric Channel Section Details:

- **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: • **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:

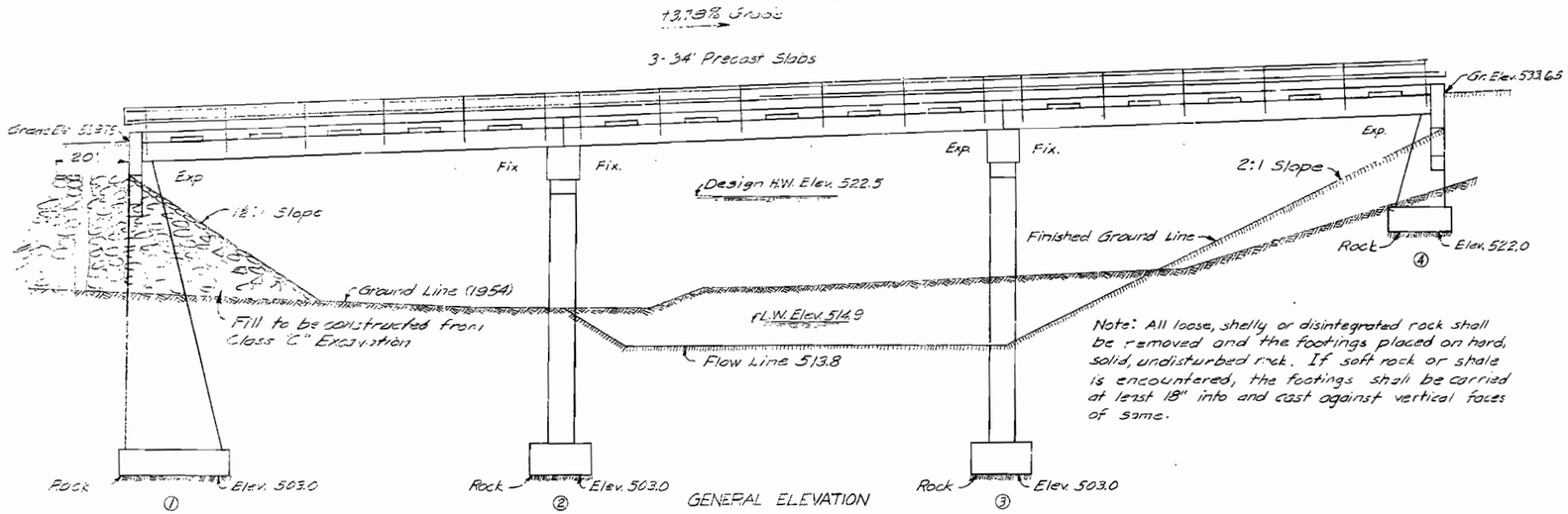
- The geo file should contain:
  - the streambed profile,
  - offset profiles
  - and Bathymetric Channel Section survey data
- In the GEO/HEC Converter spreadsheet the Bathymetric Channel Sections can be placed in either the Valley Section or Channel Section fields.
- If the stream bed profile is not 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:

No TMS Flood Report road closures were found; FEMA Zone A

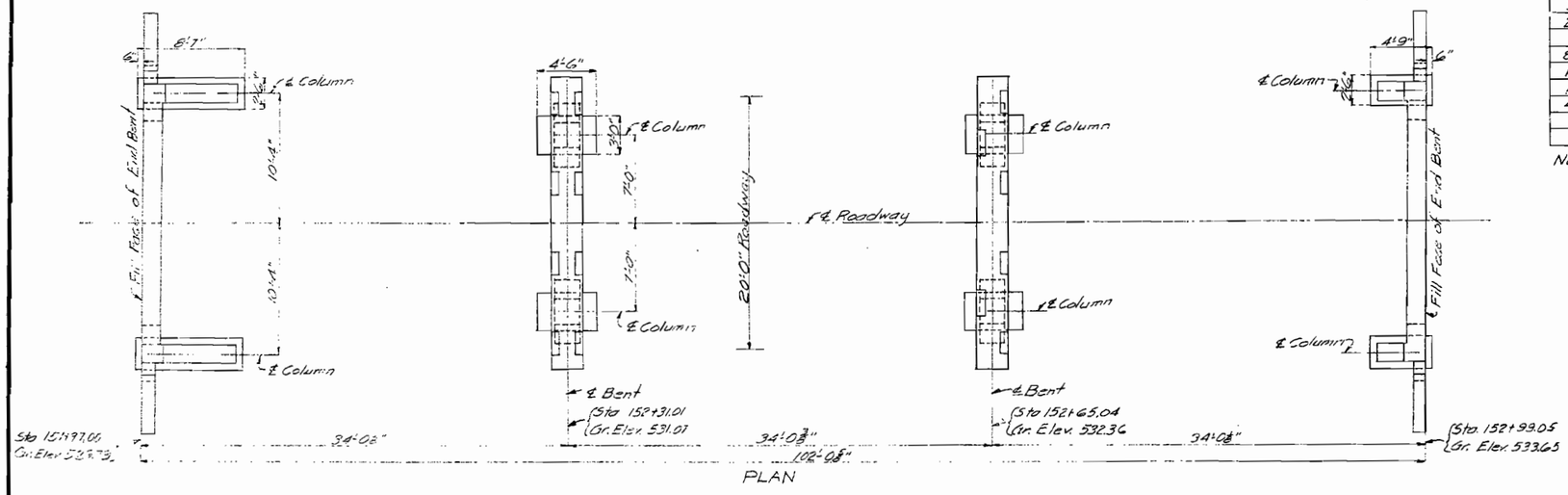
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	S-171(2)	19		

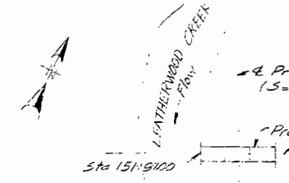


GENERAL ELEVATION

Note: All loose, shelly or disintegrated rock shall be removed and the footings placed on hard, solid, undisturbed rock. If soft rock or shale is encountered, the footings shall be carried at least 18" into and cast against vertical faces of same.



PLAN



LOCATION SKETCH

GENERAL NOTES:

Design Specifications A.A.S.H.O. 1953
Loading H10-44
Reinforcing Steel Stress 18,000 #/"
Class "B" Concrete Stress 1000 #/"
Class "A" Concrete Stress 1500 #/"
All substructure concrete and curbs to be Class "B".
All precast superstructure units shall be Class "A" or lightweight concrete. See Special Provisions.

Where joint filler is specified on the plans it shall conform with the requirements for Preinvolved Material for Fillers as given in Section 3.13 A(1)h of the Standard Specifications.

Fabricated Structural Steel superstructure inc. des guard rail posts, bolts fastening these posts to concrete and bolts and washers fastening precast sections together.

Cost of cement mortar used in assembling precast units to be included in unit price bid for precast units in place.

Paint: Shop mark; Field contact surfaces of bolted field connections (steel to steel) one coat of red lead and surface of rail posts in contact with concrete three coats of red lead. No paint to be applied by the contractor. Payment for cleaning and painting such surfaces will be included in unit price bid for Structural Steel

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

Sheet No. 1 of 4

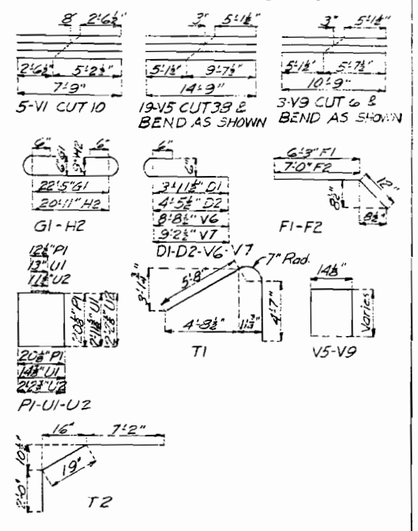
Drawn Dec. 1954 by J.E.L.
Checked Dec. 1954 by J.D.M.

401

BILL OF REINFORCING STEEL - SUBSTRUCTURE

No.	Size	Length	Mark	Location
End Bents No. 1 and 4				
14	#6	5'-3"	D1	Footing Bt #1
16	#6	7'-3"	F1	Haunch
10	#6	21'-9"	H1	Beam
8	#11	24'-3"	H2	"
4	#5	21'-9"	H3	"
4	#4	21'-9"	H4	"
16	#3	11'-6"	H5	Wing
4	#5	11'-0"	H6	"
8	#6	11'-6"	T1	"
12	#6	10'-9"	T2	"
44	#4	9'-6"	U1	Beam
10	#4	7'-9"	V1	Wing
8	#6	22'-6"	V2	Col. Bt #1
6	#6	23'-6"	V3	"
12	#4	19'-9"	V4	"
38	#3	14'-9"	V5	"
8	#6	10'-0"	V6	Col. Bt #4
6	#6	10'-6"	V7	"
4	#4	4'-6"	V8	"
6	#3	10'-9"	V9	"
Int. Bents No. 2 and 3				
32	#6	5'-9"	D2	Footing
32	#6	8'-0"	F2	Haunch
20	#7	25'-0"	G1	Beam
4	#6	22'-9"	G2	"
82	#3	7'-9"	P1	Col. #2-Bt #2 #3-Bt #3
16	#6	23'-3"	V10	Col Bt #2
16	#6	24'-6"	V11	Col. Bt. #3
46	#4	9'-9"	U2	Beam

Bending Sketches and Cutting Diagrams



Note: For Bill of Reinforcing Steel - Superstructure see Sheet No. 4 of 4.

ESTIMATED QUANTITIES

Item		Substr.	Superstr.	Total
Class 1 Excavation for Structures	Cu.Yds.	30		30
Class 2 Excavation for Structures	Cu.Yds.	149		149
*Class "A" or Lightweight Concrete	Cu. Yds.		689	689
Class "B" Concrete	Cu. Yds.	60.3	53	636
Fabricated Structural Steel	Lbs.		1800	1800
Reinforcing Steel	Lbs.	7300	23,250	30,550
Asphalt Wearing Surface	Sq.Yds.		227	227
Metal Guard Rail	Lin.Ft.		206	206

Note: Excavation for bridge made above Elev. 516.0 will be paid for as Class 1 Excavation for Structures
Excavation for bridge made below Elev. 516.0 will be paid for as Class 2 Excavation for Structures.
* See Special Provisions.

B.M Elev. 523.20 Nail in root of 18" Walnut 95' Lt. Sta. 147+27

BRIDGE OVER LEATHERWOOD CREEK

STATE RJAD WEST OF JEWETT

ABOUT 11.5 MILES E. OF ANNAPOLIS

PROJECT NO. S-171 (2) (SC)**STA.** 151+97

FINISHED

MADISON **COUNTY**

SUBMITTED BY J.A. Williams BRIDGE ENGINEER DATE 12/17/1954

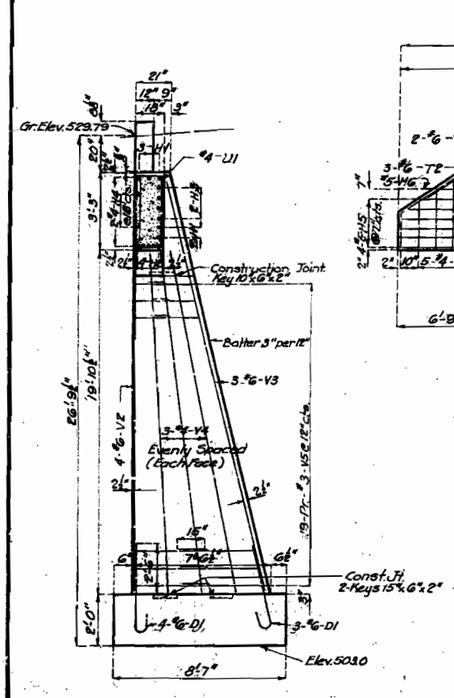
APPROVED BY Ben M. Whitton CHIEF ENGINEER DATE 12/17/1954 FINISHED

STD 27A-16
STD 3-HOR3
T-763
FINISHED

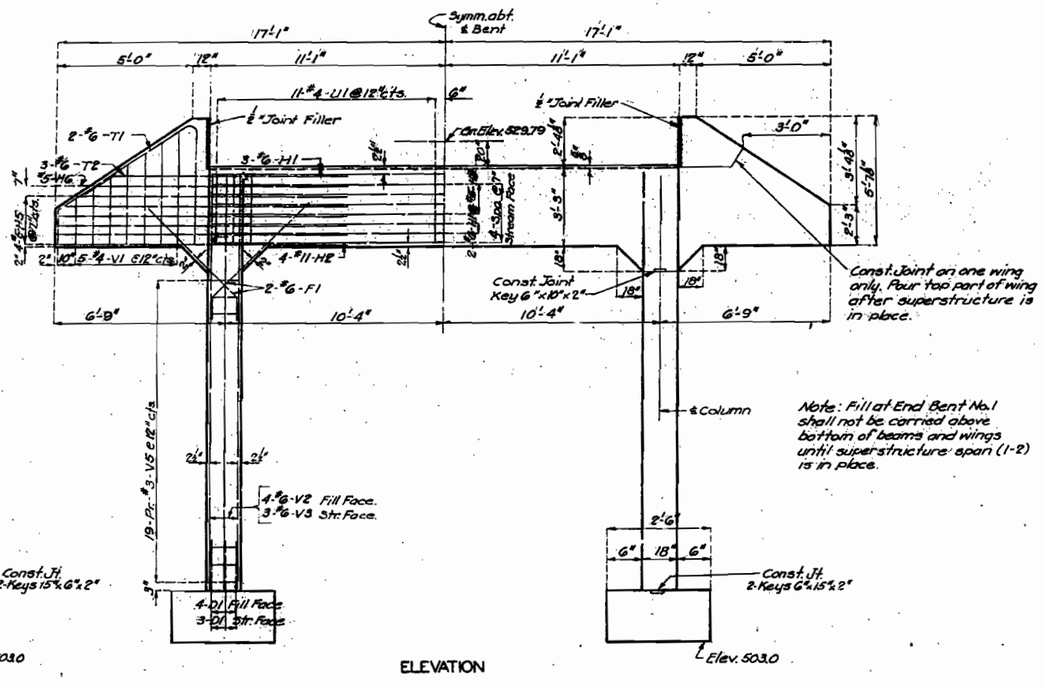
SEE FINAL PLANS BROWN-LINES

MISSOURI STATE HIGHWAY DEPARTMENT

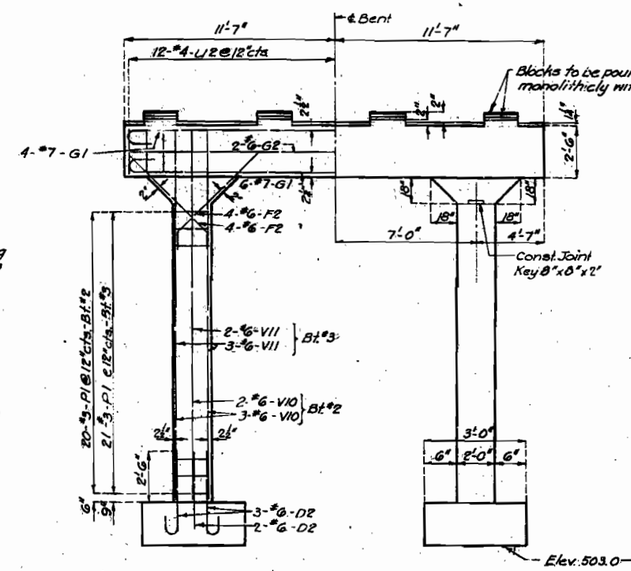
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	S-171(2) (SC)	19		



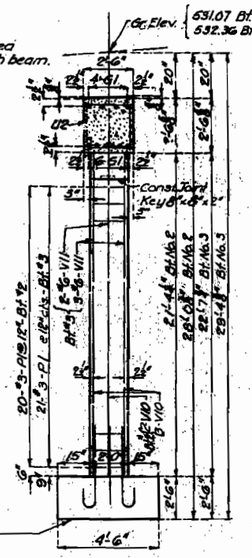
SECTION AT ℄



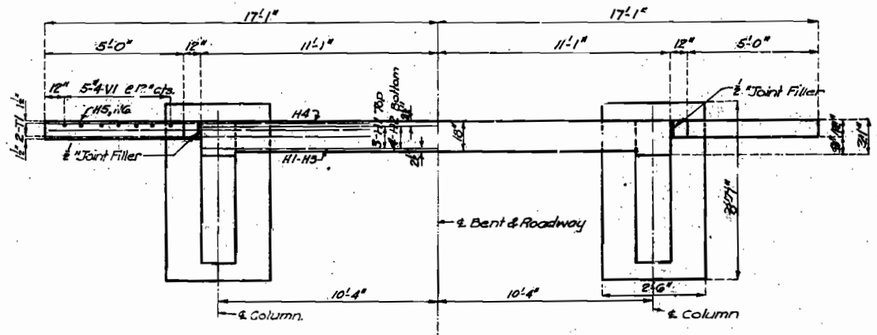
ELEVATION



ELEVATION BENT NO. 2
(Bent No. 3 Similar)

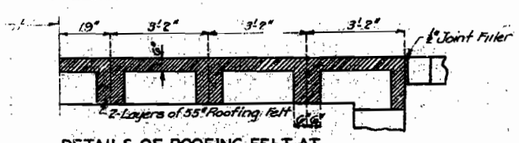


SECTION AT ℄

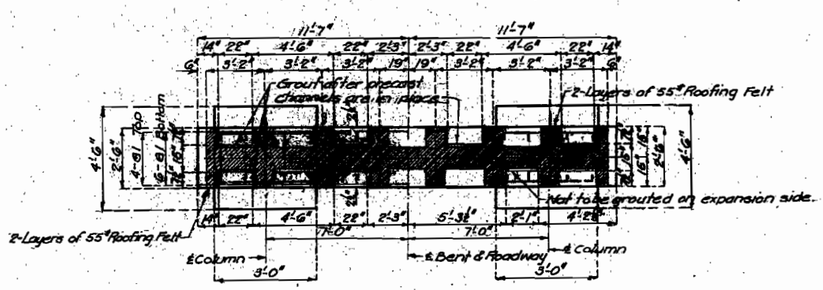


PLAN

DETAILS OF END BENT NO. 1



DETAILS OF ROOFING FELT AT END BENT NO. 1



HALF PLAN BENT NO. 2 HALF PLAN BENT NO. 3

DETAILS OF INTERMEDIATE BENTS NO. 2 & 3

BRIDGE OVER LEATHERWOOD CREEK

STATE ROAD WEST OF JEWETT
ABOUT 11.5 MILES E. OF ANNAPOLIS
PROJECT NO. S-171(2) (SC)STA. 151+97

MADISON COUNTY

T-763

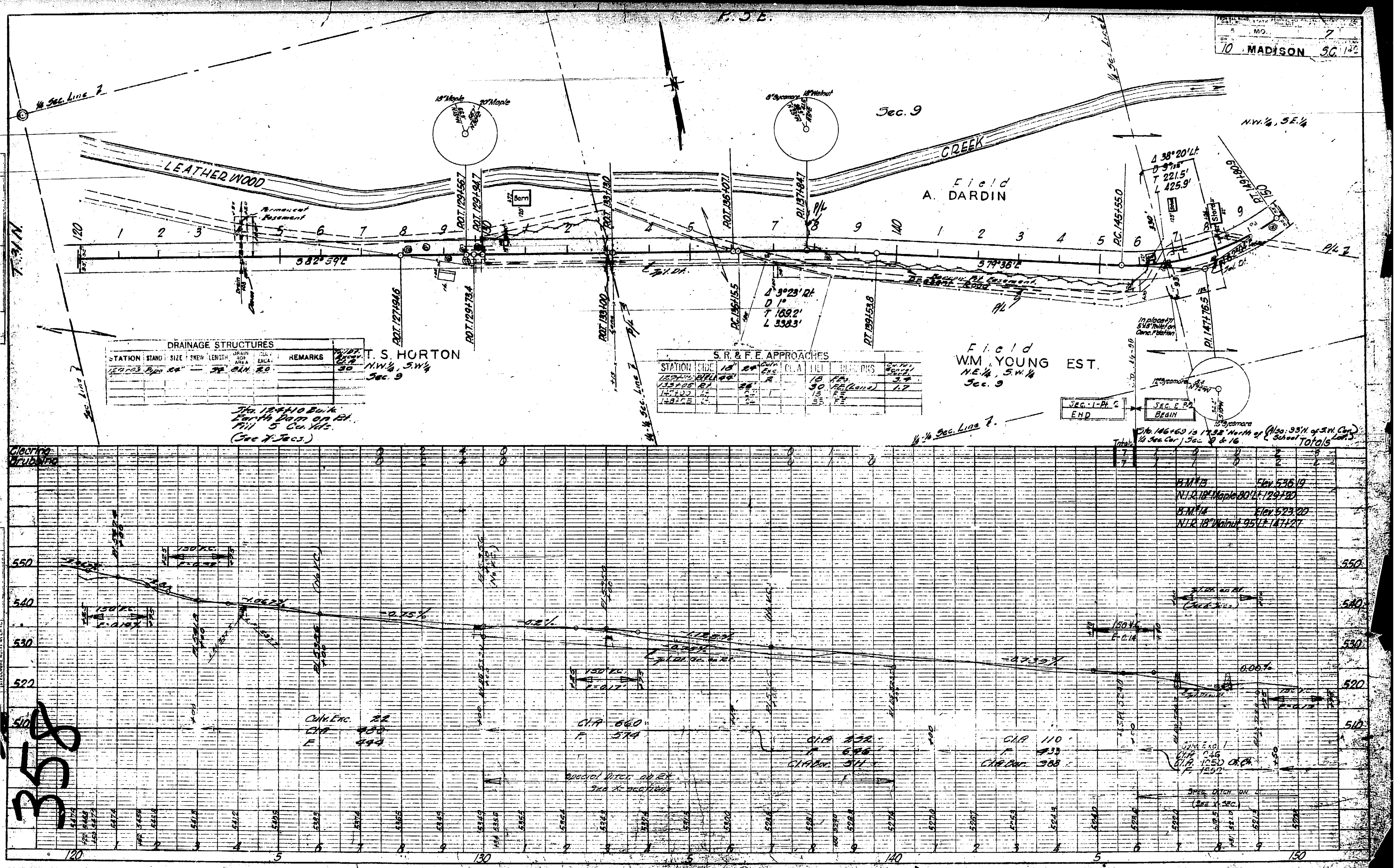
Assembled Dec. 1954 by J.E.L. & B.R.G. + J.H.K.
Checked Dec. 1954 by J.D.M.

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

Sheet No. 2 of 4

Deck Girder - 2 Column End Bent - 2 Column Int. Bent -

42

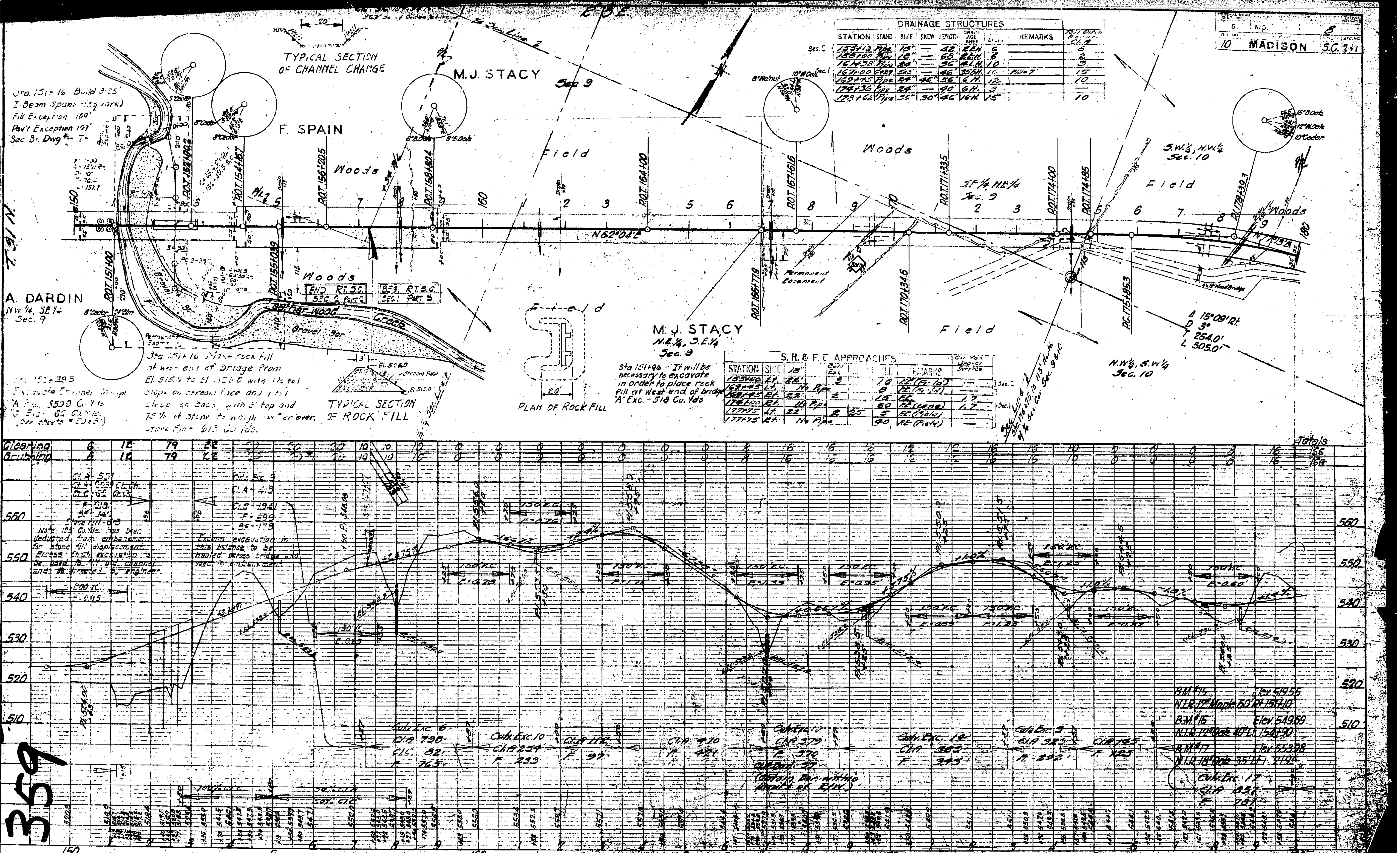


5 MO. 7
10 MADISON SC 140
LEATHERWOOD CREEK
Sec. 9
N.W.¼, S.E.¼
Field
A. DARDIN
T. S. HORTON
N.W.¼, S.W.¼
Sec. 9
Field
W.M. YOUNG EST.
N.E.¼, S.W.¼
Sec. 9
¼ Sec. Line
¼-¼ Sec. Line
T. 31 N.
S 82° 59' E
S 79° 36' E
P.O.T. 127+94.6
P.O.T. 129+73.4
P.O.T. 129+56.7
P.O.T. 129+94.7
P.O.T. 133+00
P.O.T. 133+13.0
P.O.T. 136+07.1
P.C. 136+15.5
P.I. 137+84.7
P.T. 139+53.8
P.C. 145+55.0
P.I. 147+76.5
P.T. 149+80.9
Δ 3° 23' Rt.
D 1°
T 169.2'
L 338.3'
Δ 38° 20' Lt.
D 9°
T 221.5'
L 425.9'
Barn
Permanent Easement
Sec. 1 - Pt. 2 END
Sec. 2 - Pt. 2 BEGIN
Sta. 146+69 is 17.32' North of ¼ Sec. Cor. Sec. 9 & 16
Sta. 124+10 Build Earth Dam on Rt. Fill 5 Cu. Yds. (See X-Secs.)
Clearing Grubbing
Totals
B.M. #13 Elev. 536.19
N.I.R. 18" Maple 80' Lt. 129+80
B.M. #14 Elev. 523.20
N.I.R. 18" Walnut 95' Lt. 147+27
-1.067%
-0.75%
-0.2%
-0.739%
0.00%
Culv. Exc. 22
Cl. A 388
F. 444
Cl. A 660
F. 574
Cl. A 232
F. 646
Cl. A Bor. 511
Cl. A 110
F. 433
Cl. A Bor. 388
Special Ditch on Rt.
See X-sections
550
540
530
520
510
120
130
140
150

DRAINAGE STRUCTURES								
STATION	STAND	SIZE	SKEW	LENGTH	DRAINAGE AREA	CULV. EXCA.	REMARKS	Cu. Yds. Excav. Cl. A
128+03	Pipe	24"	—	32'	CLH.	20		30

S. R. & F. E. APPROACHES								
STATION	SIDE	18"	24"	Culv. Exc.	CL. A	FILL	REMARKS	Cu. Yds. Gravel Surf.
129+75	Rt.&Lt.	44'		2		18	F.E.s.	3.4
133+05	Rt.		26'			30	F.E. (Lane)	1.7
147+00	Lt.		24'	1		15	F.E.	
148+05	Lt.		24'			55	F.E.	

358



5
NO. 8
10
MADISON
S.C. 241
TYPICAL SECTION OF CHANNEL CHANGE
M.J. STACY
Sec. 9
F. SPAIN
A. DARDIN
N.W.¼, SE¼
Sec. 9
Sta. 151+16 Build 3-35' I-Beam Spans (Square)
Fill Exception 109'
Pav't Exception 109'
Sec. Br. Dwg.
Woods
Field
N62°04'E
Leatherwood Creek
Gravel Bar
END RT. S.C. SEC. 2 Part 2
BEG. RT. S.C. SEC. 1 PART 3
Permanent Easement
S.W.¼, N.W.¼
Sec. 10
S.E.¼, N.E.¼
Sec. 9
N.W.¼, S.W.¼
Sec. 10
M.J. STACY
N.E.¼, S.E.¼
Sec. 9
Δ 15°09' Rt.
D 3°
T 254.0'
L 505.0'
Sta. 151+16 Place rock fill at west end of bridge from El. 515.5 to El. 526.0 with 1½ to 1 slope on stream face and 1 to 1 slope on back, with 3' top and 75% of stone to weigh 200# or over. Stone Fill - 613 Cu. Yds.
Sta. 151+39.5 Excavate Channel Change "A" Exc. 3509 Cu. Yds. "C" Exc. 62 Cu. Yds. (See sheets #50 & 51)
TYPICAL SECTION OF ROCK FILL
PLAN OF ROCK FILL
Sta. 151+96 - It will be necessary to excavate in order to place rock fill at West end of bridge. "A" Exc. - 518 Cu. Yds.
Clearing
Grubbing
Totals
166
166
Note: 193 Cu. Yds. has been deducted from embankment for stone fill displacement. Excess Ch. Ch. excavation to be used to fill old channel and as directed by engineer.
Excess excavation in this balance to be hauled across bridge and used in embankment.
B.M. #15 Elev. 519.56 N.I.R. 12" Maple 60' Rt. 151+10
B.M. #16 Elev. 549.69 N.I.R. 12" Oak 40' Lt. 154+90
B.M. #17 Elev. 553.98 N.I.R. 18" Oak 35' Lt. 172+98
(Contains Bar within limits of R/W.)
359

DRAINAGE STRUCTURES

STATION	STAND	SIZE	SKEW	LENGTH	DRAINAGE AREA	CU. EXCA.	REMARKS	Tot. Culv. Excav. Cl. A
155+13	Pipe	18"	—	42'	2 E.H.	6		5
158+00	Pipe	18"	—	68'	2 E.H.	6		2
161+38	Pipe	24"	—	36'	4 E.H.	10		3
167+00	6439	5x3'	—	46'	35 E.H.	10	Fill = 7'	15
169+75	Pipe	24"	45°	56'	6 H.	12		10
174+36	Pipe	24"	—	40'	6 H.	3		—
178+62	Pipe	35"	30°	46'	16 H.	15		10

S.R. & F.E. APPROACHES

STATION	SIDE	18"		Culv. Exc.	[illegible]	FILL	REMARKS	Cu. Yds. Gravel Surface
155+50	Lt.	22'		9		10	F.E. (Field)	—
169+45	Lt.	No Pipe				8	F.E. (Field)	—
169+45	Rt.	22		2		15	F.E.	1.7
174+00	Rt.	No Pipe				60	F.E. (Lane)	1.7
177+75	Lt.	22'		2	25	5	F.E. (Field)	—
177+75	Rt.	No Pipe				40	F.E. (Field)	—