

1. Could we get a copy of the LAP Bridge Program application with the estimate?
 - a. **Yes, Bridge inspection reports were removed from them to save space. See attached.**

2. Could we get a copy of the latest bridge inspection report with photos for each structure?
 - a. **Yes, this is within the Bridge Program Application.**

3. MDOT LAP does not require TS&L phase submittal for PM project. Please confirm that the Road Commission is not requiring.
 - a. **The Road Commission will not require.**

4. Do you have existing drawings for both structures?
 - a. **Yes, See attached.**

5. Is the RCRC aware of any special considerations involved in the coordination and permitting of endangered Species?
 - a. **No, we are not.**

6. How will the RCRC handle proposals that fully address the T&E species coordination and permitting and some that may not?
 - a. **The proposals are reviewed for all the information requested in the RFP as applicable.**
Preliminary and Final Design Phases
3. Conduct and prepare any coordination and permitting for endanger Species.

The selection is a quality-based selection process. We review the proposals based upon the requirements set forth in the RFP. If RFP items are omitted from a proposal, that is noted, and that applicant would be rated accordingly. We have an expectation that the firms submitting proposals are experts in the field and the submittals will address all the work and subsequent associated costs required to get these two bridges to an MDOT letting.

APPLICATION FOR FUNDING

For

PREVENTIVE MAINTENANCE (MULTIPLE STRUCTURE) OF

9030 - KENO ROAD BRIDGE OVER THE SOUTH BRANCH OF THE AU SABLE RIVER

PRIORITY #1

AuSable Township, Roscommon County

Submitted by:
Roscommon County Road Commission
April 2022

Keno Road Bridge over the South Branch of the Au Sable River

The Roscommon County Road Commission is requesting local bridge funds for the **preventive maintenance** of Keno Road Bridge over the South Branch of the Au Sable River. The Roscommon County Road Commission is committed to having this structure funded for the 2025 fiscal year. This bridge is the Road Commission's #1 priority for funding.

CONTACT

Roger Saxton – Manager
820 E. West Branch Road
Prudenville, MI 48651
Phone: (989)366-0333

BACKGROUND

The Keno Road Bridge over the South Branch of the Au Sable River is a single span structure totaling 46 feet. This structure carries 2 lanes of traffic and has an inside width of 31 feet. The bridge superstructure is composed of side-by-side concrete box beams with an HMA wearing surface. The substructures consist of cast in place concrete abutments which have been widened. The structure was originally constructed in 1976. Inspection indicates that the deck is in good condition with chip sealed HMA surface. Beams are in fair condition with no visible leaking between beams, beam 1w has longitudinal cracks with efflorescence, and beam 11w has horizontal cracking in the fascia and one longitudinal crack at the south abutment. The concrete abutments have been widened, there are vertical cracks in the original abutments. The northwest abutment is deteriorating with map cracking and efflorescence. There is a hairline crack in the new section of the north abutment, the south abutment has a horizontal crack under beam 11w.

WEIGHT LIMIT

The structure is not currently posted for loading restrictions.

FUNCTIONAL CLASSIFICATION AND ECONOMIC IMPORTANCE

Keno Road is classified as a “minor collector” road. It is a 2-lane asphalt road which carries mostly local and agricultural traffic. The 2019 average daily traffic volume was 161 vehicles per day (vpd). The future traffic volumes (2042) are estimated to be 253 vpd. The economic importance of this structure is based on the extra travel time that will be needed due to the detour route if this structure is closed.

LOCAL IMPACTS AND DETOUR ROUTE

The detour route for traffic when the bridge will be closed is as follows: Keno Road to E Sunset Drive, to N Saint Helen Road, to Au Sable Road, back to Keno Road. If the structure is closed or weight restricted, the detour would affect the route of school buses for nearby schools, the response time of emergency vehicles for emergencies, and it would increase the amount of traffic on local roads. The approximate length of this detour is 9 miles utilizing major and minor collector roads.

PREVENTIVE MAINTENANCE WORK

Preventive maintenance of the Keno Road Bridge over the South Branch of the Au Sable River would include resealing the reference line joints, epoxy injection of abutment cracks, placing riprap for scour protection along each abutment, and placing silane treatment on the concrete fascia beams.

ESTIMATED PREVENTIVE MAINTENANCE COST


A. Approach Construction.....	\$20,000
B. Structure Construction.....	<u>\$77,000</u>
Total	\$97,000

*****Roscommon County Road Commission will provide a 25% match for this project*****

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 9030

STRUCTURE INVENTORY AND APPRAISAL

Facility KENO ROAD (CR 602)	Latitude / Longitude 44.4813 / -84.451	MDOT Structure ID 72200019000B010	Structure Condition Fair Condition(6)	
Feature S BR AU SABLE RIVER	Length / Width / Spans 45.9 / 33.5 / 1	Owner County: Roscommon(72)		
Location SECTION 8&9 T24N R1W	Built / Recon. / Paint / Ovly. 1976 / / /	TSC Gaylord(27)	Operational Status A Open, no restriction(A)	
Region / County North(2) / Roscommon(72)	Material / Design 1 Concrete / 05 Box Bm/Gird-Multiple	Last NBI Inspection 06/17/2020 / G9CS	Scour Evaluation 5 Stable w/in footing	

Bridge History, Type, Materials	
27 - Year Built	1976
106 - Year Reconstructed	
202 - Year Painted	
203 - Year Overlay	
43 - Main Span Bridge Type	1 05
44 - Appr Span Bridge Type	
77 - Steel Type	0
78 - Paint Type	0
79 - Rail Type	4
80 - Post Type	3
107 - Deck Type	1
108A - Wearing Surface	6
108B - Membrane	2
108C - Deck Protection	0

Structure Dimensions	
34 - Skew	0
35 - Struct Flared	N
45 - Num Main Spans	1
46 - Num Apprs Spans	0
48 - Max Span Length	43
49 - Structure Length	45.9
50A - Width Left Curb/SW	0
50B - Width Right Curb/SW	0
33 - Median	0
51 - Width Curb to Curb	30.8
52 - Width Out to Out	33.5
112 - NBIS Length	Y

Inspection Data	
90 - Inspection Date	06/17/2020
91 - Inspection Freq	24
92A - Frac Crit Req/Freq	N
93A - Frac Crit Insp Date	
92B - Und Water Req/Freq	N
93B - Und Water Insp Date	
92C - Oth Spec Insp Req/Freq	N
93C - Oth Spec Insp Date	
92D - Fatigue Req/Freq	N
93D - Fatigue Insp Date	
176A - Und Water Insp Method	1
58 - Deck Rating	7
58A/B - Deck Surface/Bottom	7 N
59 - Superstructure Rating	7
59A - Paint Rating	N
60 - Substructure Rating	6
61 - Channel Rating	6
62 - Culvert Rating	N

Navigation Data	
38 - Navigation Control	0
39 - Vertical Clearance	0
40 - Horizontal Clearance	0
111 - Pier Protection	
116 - Lift Brgd Vert Clear	0

Route Carried By Structure(ON Record)	
5A - Record Type	1
5B - Route Signing	4
5C - Level of Service	0
5D - Route Number	00000
5E - Direction Suffix	0
10L - Best 3m Unclr-Lt	0 0
10R - Best 3m Unclr-Rt	99 99
PR Number	
Control Section	
11 - Mile Point	
12 - Base Highway Network	0
13 - LRS Route-Subroute	0000010601 02
19 - Detour Length	7
20 - Toll Facility	3
26 - Functional Class	08
28A - Lanes On	2
29 - ADT	161
30 - Year of ADT	2019
32 - Appr Roadway Width	36.1
32A/B - Ap Pvt Type/Width	4 35.99
42A - Service Type On	1
47L - Left Horizontal Clear	0.0
47R - Right Horizontal Clear	31.5
53 - Min Vert Clr Ov Deck	99 99
100 - STRAHNET	0
102 - Traffic Direct	2
109 - Truck %	0
110 - Truck Network	0
114 - Future ADT	239
115 - Year Future ADT	2039
Freeway	0

Structure Appraisal	
36A - Bridge Railing	0
36B - Rail Transition	0
36C - Approach Rail	1
36D - Rail Termination	1
67 - Structure Evaluation	6
68 - Deck Geometry	6
69 - Underclearance	N
71 - Waterway Adequacy	9
72 - Approach Alignment	9
103 - Temporary Structure	
113 - Scour Criticality	5

Miscellaneous	
37 - Historical Significance	4
98A - Border Bridge State	
98B - Border Bridge %	0
101 - Parallel Structure	N
EPA ID	
Stay in Place Forms	
143 - Pin & Hanger Code	
148 - No. of Pin & Hangers	

Route Under Structure (UNDER Record)	
5A - Record Type	
5B - Route Signing	
5C - Level of Service	
5D - Route Number	
5E - Direction Suffix	
10L - Best 3m Unclr-Lt	
10R - Best 3m Unclr-Rt	
PR Number	
Control Section	
11 - Mile Point	
12 - Base Highway Network	
13 - LRS Route-Subroute	
19 - Detour Length	
20 - Toll Facility	
26 - Functional Class	
28B - Lanes Under	
29 - ADT	
30 - Year of ADT	
42B - Service Type Under	5
47L - Left Horizontal Clear	
47R - Right Horizontal Clear	
54A - Left Feature	
54B - Left Underclearance	99 99
54C - Right Feature	
54D - Right Clearance	99 99
Under Clearance Year	
55A - Reference Feature	N
55B - Right Horiz Clearance	99.9
56 - Left Horiz Clearance	0
100 - STRAHNET	
102 - Traffic Direct	
109 - Truck %	
110 - Truck Network	
114 - Future ADT	
115 - Year Future ADT	
Freeway	


Proposed Improvements	
75 - Type of Work	
76 - Length of Improvement	
94 - Bridge Cost	
95 - Roadway Cost	
96 - Total Cost	
97 - Year of Cost Estimate	

Load Rating and Posting	
31 - Design Load	5
41 - Open, Posted, Closed	A
63 - Fed Oper Rtg Method	6
64F - Fed Oper Rtg Load	1.9
64MA - Mich Oper Rtg Method	6
64MB - Mich Oper Rtg	1.23
64MC - Mich Oper Truck	18
65 - Inv Rtg Method	6
66 - Inventory Load	1.16
70 - Posting	5
141 - Posted Loading	
193 - Overload Class	

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 9030

WORK RECOMMENDATIONS

Facility KENO ROAD (CR 602)	Latitude / Longitude 44.4813 / -84.451	MDOT Structure ID 72200019000B010	Structure Condition Fair Condition(6)	
Feature S BR AU SABLE RIVER	Length / Width / Spans 45.9 / 33.5 / 1	Owner County: Roscommon(72)		
Location SECTION 8&9 T24N R1W	Built / Recon. / Paint / Ovly. 1976 / / /	TSC Gaylord(27)	Operational Status A Open, no restriction(A)	
Region / County North(2) / Roscommon(72)	Material / Design 1 Concrete / 05 Box Bm/Gird-Multiple	Last NBI Inspection 06/17/2020 / G9CS	Scour Evaluation 5 Stable w/in footing	

WORK RECOMMENDATIONS

G9CS

Inspector Name	Agency / Company Name	Insp. Freq.	Insp. Date
James Brock	ROWE Professional Services Company	24	06/17/2020

CREW RECOMMENDATIONS


CONTRACT RECOMMENDATIONS

Recommendation Type	Priority	Description	Recommendation Type	Priority	Description
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MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 9030

LOAD RATING ASSUMPTIONS

Facility KENO ROAD (CR 602)	Latitude / Longitude 44.4813 / -84.451	MDOT Structure ID 72200019000B010	Structure Condition Fair Condition(6)	
Feature S BR AU SABLE RIVER	Length / Width / Spans 45.9 / 33.5 / 1	Owner County: Roscommon(72)		
Location SECTION 8&9 T24N R1W	Built / Recon. / Paint / Ovly. 1976 / / /	TSC Gaylord(27)	Operational Status A Open, no restriction(A)	
Region / County North(2) / Roscommon(72)	Material / Design 1 Concrete / 05 Box Bm/Gird-Multiple	Last NBI Inspection 06/17/2020 / G9CS	Scour Evaluation 5 Stable w/in footing	

Rating Considers Field Condition of Members: Yes **Inspection Date:** 06/17/2020

Deterioration:

Minor cracking in edge of beam 11w. No spalling or exposed strands noted.

Most Recent Year Construct / Reconstruct / Overlay: 1976

History of Work Impacting Load Rating:

No work history available.

Superstructure Component: 5 Prestressed Concrete **Beam fy:** 270.0 ksi **Beam f'c / fb:** 5.0 ksi

Composite: No **Number of Beams:** 11 **Shop Drawings Verified:** No

Beam Size(s) & Names (each span): 21x36 PSBB / 11 beams / 1 span

Deck: **Thickness (in.):** 3.0 **Fy / f'c:** / ksi **Deck Design Load > H15:** Yes

Wearing Surface: **Mat'l:** HMA **Thickness (in.):** 3.0 **Unit Weight (pcf.):** 150.0

	LEFT		CENTER		RIGHT
Barrier: Type / Weight (plf.):	Double B Rail / 40.0	/	/	/	Double B Rail / 40.0

Sidewalk: Width / Thick (in.): / / /

Clear Roadway (ft.): 32.0

Additional Loads:

Unique Factors That Affect Capacity:

Analyzed By: Jonathan Lidgard

Date: 08/17/2020

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 9030

LOAD RATING SUMMARY

Facility	Latitude / Longitude	MDOT Structure ID	Structure Condition
KENO ROAD (CR 602)	44.4813 / -84.451	72200019000B010	Fair Condition(6)
Feature	Length / Width / Spans	Owner	
S BR AU SABLE RIVER	45.9 / 33.5 / 1	County: Roscommon(72)	
Location	Built / Recon. / Paint / Ovly.	TSC	Operational Status
SECTION 8&9 T24N R1W	1976 / / /	Gaylord(27)	A Open, no restriction(A)
Region / County	Material / Design	Last NBI Inspection	Scour Evaluation
North(2) / Roscommon(72)	1 Concrete / 05 Box Bm/Gird-Multiple	06/17/2020 / G9CS	5 Stable w/in footing



Compliance Issue:	None
Compliance Verified:	No
Analysis Program:	AASHTOWare Bridge Rating (BrR)
Analysis Program Version:	6.8.4.3001
Rating Considers Field Condition of Members:	Yes
Inspection Date:	06/17/2020
Controlling component and failure mode:	

Fascia Beam in Shear at 0.3L

NEW INVENTORY CODING

NBI Item 63 - Operating Rating Method	6 LFR in Rating Factor
NBI Item 64F - Federal Operating Ratings	1.9
MDOT Item 64MA - Michigan Operating Method	6 LFR in Rating Factor
MDOT Item 64MB - Michigan Operating Rating	1.23
MDOT Item 64MC - Michigan Operating Truck	18
NBI Item 65 - Inventory Rating Method	6 LFR in Rating Factor
NBI Item 66 - Federal Inventory Rating	1.16
NBI Item 41 - Structure Open Posted Closed	A A Open, no restriction
NBI Item 70 - Bridge Posting	5 5 - 100% or more
Posted By	No Posting
MDOT Item 141 - Posted Loading	
MDOT Item 193A - Michigan Overload Class	
MDOT Item 193C - Overload Status	
Analyzed By: Jonathan Lidgard	Date: 08/17/2020
Checked By: Mike Soteropoulos	Date: 08/19/2020



Looking across Keno Road Bridge



Fascia of Keno Road Bridge





Cracking in HMA surface



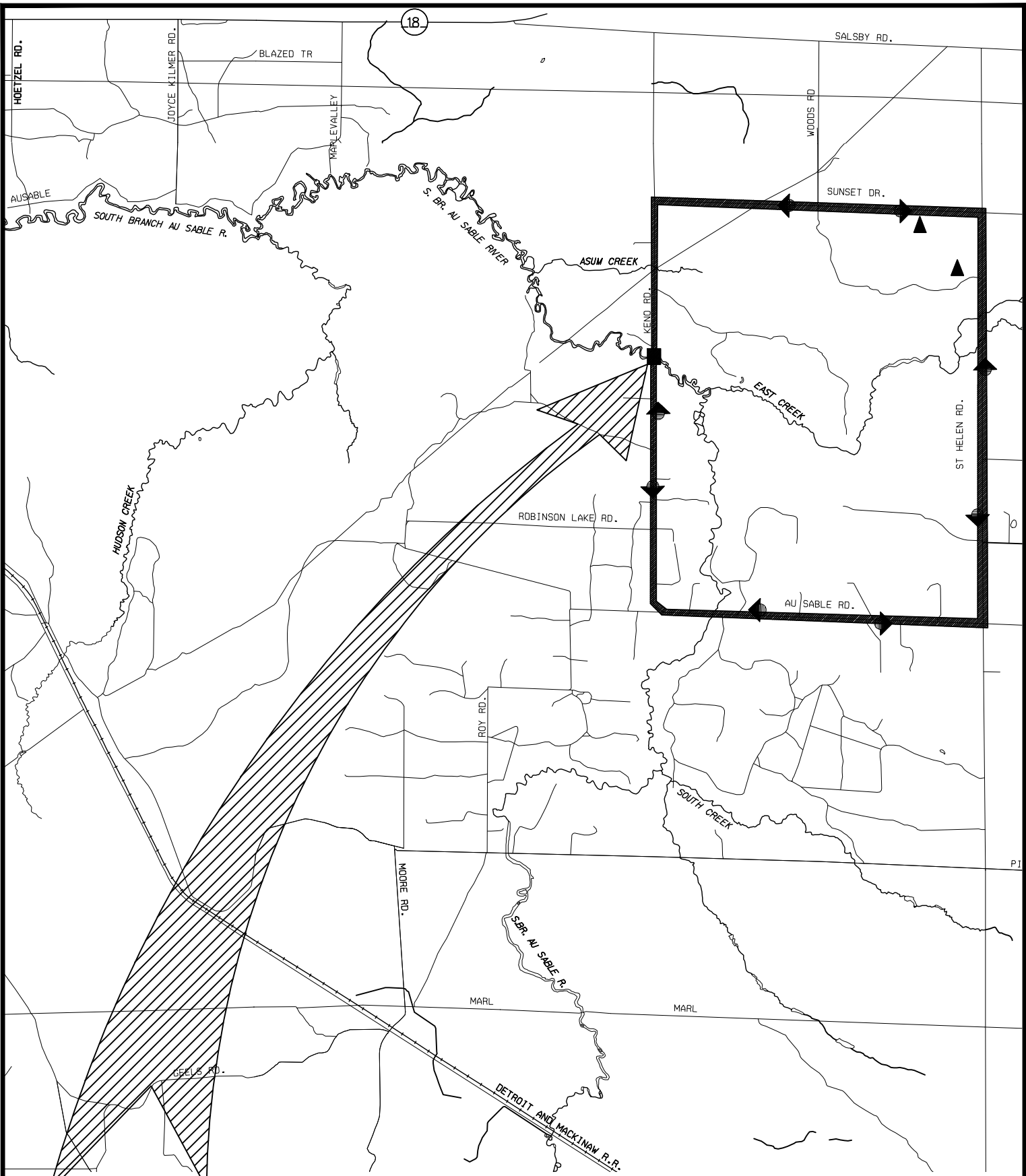
Adjacent box beams



Crack in abutment



Cracking with efflorescence in sloped wall



9030 - KENO ROAD OVER
THE SOUTH BRANCH
AUSABLE RIVER

◄◄ - DETOUR ROUTE

ROSCOMMON COUNTY

xx/xx/xx } (- POSTED STRUCTURE

KEY

- ☼ - POLICE STATION
- - FIRE STATIONS
- ★ - AMBULANCE SUB STATION
- ▲ - SCHOOL
- - MEDICAL CLINIC

2022

BRIDGE COST ESTIMATE WORKSHEET

REV. 02/09/2022

- CPM, REHAB, REPLACE -

DATE: 3/18/2022

OWNER: Roscommon County
 REGION: North
 TSC: Gaylord

FISCAL YEAR: 2025

PR: #N/A MP: #N/A

Out to Out Curb to Curb
 WIDTH WIDTH
 45.9 33.5 30.8

ENGINEER: ANH

STRUCTURE ID: 9030

BRIDGE ID: N/A

LOCATION: KENO ROAD (CR 602) over S BR AU SABLE RIVER

PRIMARY WORK ACTIVITY: Scour Protection

DECK AREA: 1,538 SFT

STR. TYPE: Concrete

OTHER WORK:

CLEAR ROADWAY: 1,414 SFT

Box Beam or Girders - Mu

WORK ACTIVITY	MDOT Bridge Design Guides	QUANTITY	UNIT	UNIT COST	TOTAL
NEW BRIDGE (increase deck area based on design standards and hydraulic requirements)					
Single or Multiple Spans, Grade Separation	(add demo, approach, MOT)		SFT	\$330.00 /SFT	
Single Span, Over Water	Length < 100ft (add demo, approach, MOT)		SFT	\$450.00 /SFT	
Multiple Spans, Over Water	Length > 100ft (add demo, approach, MOT)		SFT	\$330.00 /SFT	
Precast Culvert	Length < 40ft (add demo, approach, MOT)		SFT	\$490.00 /SFT	
NEW SUPERSTRUCTURE					
New Superstructure, Grade Separation	(incl. remove exist deck/super; add MOT & approach)		SFT	\$225.00 /SFT	
New Superstructure, Over Water	(incl. remove exist deck/super; add MOT & approach)		SFT	\$225.00 /SFT	
WIDENING					
Structure Widening, _____ ft	(incl. deck/super/sub widening, add approach transition)		SFT	\$550.00 /SFT	
NEW DECK					
New Bridge Deck & Barrier	(incl. remove exist deck/railing, add approach, MOT)		SFT	\$120.00 /SFT	
DEMOLITION					
Entire Structure, Grade Separation			SFT	\$65.00 /SFT	
Entire Structure, Over Water			SFT	\$65.00 /SFT	
DECK REPAIR / TREATMENTS					
Bridge Railing Replacement	(incl. removal and replacement)		FT	\$600.00 /FT	
Concrete Brush Block / Curb Patch	(incl. hand chipping and formwork)		FT	\$25.00 /FT	
Concrete Barrier Patch	(incl. hand chipping and formwork)		SFT	\$76.00 /SFT	
Concrete Deck Patch	(incl. hand chipping)		SFT	\$63.00 /SFT	
Deep Overlay	(incl. joint repl & hydro)		SFT	\$43.00 /SFT	
Epoxy Overlay	(incl. warranty)		SYD	\$39.00 /SYD	
Expansion Joint Gland Replacement	(remove and replace elastomeric gland)		FT	\$115.00 /FT	
Expansion Joint Replacement	(incl. removal)		FT	\$74.00 /FT	
Full Depth Patch			SFT	\$130.00 /SFT	
Healer / Sealer	(penetrates cracks in bridge deck)		SYD	\$16.00 /SYD	
HMA Overlay with WP membrane			SYD	\$60.00 /SYD	
Overlay Removal	(Epoxy: \$22/syd Latex: \$26/syd HMA: \$7/syd)		SYD	\$22.00 /SYD	
Reseal Bridge Joints		68.0	FT	\$25.00 /FT	\$1,700
Shallow Overlay	(incl. joint repl & hydro)		SFT	\$40.00 /SFT	
SUPERSTRUCTURE REPAIR					
Bearing Realignment / Replacement	(incl. temporary supports)		EA	\$5,700.00 EA	
Heat Straightening	(incl. clean and coat)		EA	\$45,000.00 EA	
Pack Rust Repair	(greater than 3/8" separation)		FT	\$850.00 /FT	
Paint - Complete	(incl. clean & coat)		SFT	\$30.00 /SFT	
Paint - Partial / Spot / Zone	(incl. clean & coat - \$20k minimum)		SFT	\$60.00 /SFT	
PCI Beam End Blockout	(incl. temporary supports)		EA	\$7,200.00 EA	
Pin & Hanger Replacement	(incl. temporary supports)		EA	\$13,000.00 EA	
Structural Steel Repair	(based on 6ft repair length)		EA	\$3,400.00 EA	
Structural Steel Repair - Stiffener	(includes each side of beam)		EA	\$1,350.00 EA	
SUBSTRUCTURE REPAIR					
Substructure Patching	(measured x 2) replace if repair area > 30%		CFT	\$330.00 /CFT	
Substructure Replacement	(incl. temporary supports, excavation)		CFT	\$375.00 /CFT	
Substructure Horizontal Surface Sealer			SYD	\$75.00 /SYD	
Temporary Supports	(add Structural Steel Repair - Stiffener for ea steel beam)		EA	\$3,000.00 EA	
MISCELLANEOUS					
Articulating Concrete Block System (ACB)			SYD	\$280.00 /SYD	
Concrete Surface Coating			SYD	\$32.00 /SYD	
Culvert Cleanout			FT	\$125.00 /FT	
Epoxy Crack Injection	(structural crack repair)	100.0	FT	\$70.00 /FT	\$7,000
Metal Mesh Panels	(48" width, max 6'-6" length)		SFT	\$26.00 /SFT	
Pressure Relief Joint	(use when approach concrete roadway exceeds 1,000ft)		FT	\$110.00 /FT	
Riprap	(assume 10ft distance around perimeter of substructure)	160.0	SYD	\$223.00 /SYD	\$35,680
Silane Treatment	(penetrating sealer for concrete surfaces)	165.0	SFT	\$7.00 /SFT	\$1,155
Slope Protection Repairs			SYD	\$145.00 /SYD	
Other					
STRUCTURE CONSTRUCTION BUDGET					\$45,535
ROAD WORK					
Approach Pavement, 12" RC	(incl. removal; add curb, gutter, guardrail) 40' ea. end		SYD	\$200.00 /SYD	
Approach Curb & Gutter	(incl. removal) 40' ea. quadrant		FT	\$57.00 /FT	
Guardrail Anchorage to Bridge	(each quadrant)		EA	\$2,320.00 /EA	
Guardrail	(incl. removal) < 200ft beyond reference line		FT	\$34.00 /FT	
Guardrail Terminal	(each quadrant)		EA	\$3,900.00 /EA	
Roadway Approach Work	(beyond approach pavement)		LSUM	LSUM	
Utilities			LSUM	LSUM	
TRAFFIC CONTROL <i>Unit Cost to be determined by Region or TSC Traffic & Safety</i>					
Part Width Construction		1.0	LSUM	\$20,000.00	LSUM \$20,000
Crossovers			EA	/EA	
Temporary Traffic Signals			set	/set	
RR Flagging			LSUM	LSUM	
Detour			LSUM	LSUM	
RELATED ROAD/TRAFFIC CONSTRUCTION BUDGET					\$20,000
CONTINGENCY	(10% - 20%) (use higher contingency for small projects)	20	%	\$66,000.00	\$13,000
MOBILIZATION	(estimate at 10%)	10	%	\$79,000.00	\$8,000
INFLATION	(assume 4% per year, beginning in 2023)	12	%	\$87,000.00	\$10,000

(Does not include PE or CE)

(Refer to programming guidelines in Bridge Cost Estimating Worksheet-Key for CE, PE & PE-S)

TOTAL CONSTRUCTION BUDGET	\$97,000
% CE	CON BUDGET \$97,000
% PE	PE BUDGET \$0
% PE	PE-S BUDGET \$0

RESOLUTION FOR THE KENO ROAD BRIDGE PREVENTIVE MAINTENANCE THROUGH THE LOCAL BRIDGE PROGRAM

On a motion duly made by Commissioner Vaughn seconded by Commissioner Earley and passed with 5 Ayes and 0 Nays, it was moved to adopt the following resolution:

WHERE AS, the condition of the bridge listed below have deteriorated to such an extent that preventive maintenance is necessary and

WHERE AS, the budget of the Roscommon County Road Commission will not allow preventive maintenance of this bridge without additional funds from other sources.

THEREFORE BE IT NOW RESOLVED that the Roscommon County Road Commission request local bridge program funds for preventive maintenance of the Keno Road over the South Branch AuSable River Bridge for the year 2025.

I hereby certify the above is a true and correct copy of a resolution unanimously adopted by the Roscommon County Road Commission at a meeting held on March 10, 2022.

ATTEST:


Stefanie Simmons
Board Clerk

Dated: 3-11-2022

Drafted by:

Stefanie Simmons
Roscommon County Road Commission
820 E. West Branch Road
Prudenville, MI 48651

Subscribed and sworn to before me on the above date:



Notary Public, Roscommon, Michigan
My Commission Expires: May 25, 2024

STEFANIE E. SIMMONS
NOTARY PUBLIC, STATE OF MICHIGAN
COUNTY OF ROSCOMMON
MY COMMISSION EXPIRES MAY 25, 2024
ACTING IN THE COUNTY OF ROSCOMMON

APPLICATION FOR FUNDING

For

PREVENTIVE MAINTENANCE (MULTIPLE STRUCTURE) OF

9031 - OLD US 27 BRIDGE OVER THE WOLF CREEK

PRIORITY #1

Roscommon Township, Roscommon County

Submitted by:
Roscommon County Road Commission
April 2022

Old US 27 Bridge over the Wolf Creek

The Roscommon County Road Commission is requesting local bridge funds for the **preventive maintenance** of Old US 27 Bridge over the Wolf Creek. The Roscommon County Road Commission is committed to having this structure funded for the 2025 fiscal year. This bridge is the Road Commission's #1 priority for funding.

CONTACT

Roger Saxton – Manager
820 E. West Branch Road
Prudenville, MI 48651
Phone: (989)366-0333

BACKGROUND

The Old US 27 Bridge over the Wolf Creek is a single span bridge with a total length of 40 Ft. This structure carries 2 lanes of traffic with an inside width of 35 feet. The structure was originally constructed in 1935. The bridge superstructure is composed of side-by-side concrete box beams with a concrete deck. The railings are concrete open parapet, with scrapes along both rails. Inspection indicates that the deck is in fair condition with 3 diagonal cracks along the north reference line and four perpendicular cracks at the centerline of the south reference line. The substructures consist of the original concrete abutments with new beam seats. The north beam seat has 4 vertical cracks and the south beam seat has 6 vertical cracks, there are vertical cracks up to 1/4" wide in the original abutments and map cracking with efflorescence in the original abutments outside of the beams. There is riprap in all 4 quadrants but not in front of the existing abutments, there is water wall to wall. There is debris upstream and downstream of the structure.

WEIGHT LIMIT

The structure is not currently posted for loading restrictions.

FUNCTIONAL CLASSIFICATION AND ECONOMIC IMPORTANCE

Old US 27 is classified as a "major collector" and is an all-season road. It is a 2-lane asphalt road which carries mostly local, commercial, and tourist traffic. The 2020 average daily traffic volume was 1,276 vehicles per day (vpd). The future traffic volumes (2042) are estimated to be 1,973 vpd.

This structure is a major north-south roadway running parallel to US-127 and serves as the detour route for US-127 between Exits 176 and 189. The economic importance of this structure is based on the extra travel time that will be needed due to the detour route if this structure is closed, including the impact on any detours required along US-127.

This structure is located in the Roscommon State Forest Area, and closure or weight restrictions on this structure would affect the tourism in this area. Including the nearby campgrounds, hiking trails, ORV trails, and nature trails that are popular for cross county skiing and birdwatching.

LOCAL IMPACTS AND DETOUR ROUTE

The detour route for traffic if the bridge needed to be closed due to deterioration is as follows: Old US 27 to Snow Bowl Road, to US 127, to N Clare Ave, which becomes Old US 27. If the structure is closed or

weight restricted, the detour would affect the route of school buses for nearby schools, the response time of emergency vehicles for emergencies, and it would increase the amount of traffic on local roads. The approximate length of this detour is 28 miles utilizing major and minor collector and arterial roads.

PREVENTIVE MAINTENANCE WORK

Preventive maintenance of Old US 27 Bridge over the Wolf Creek includes epoxy overlay extending 10 feet onto the approaches, epoxy injecting abutment cracks, riprap as scour protection, silane treatment on the concrete railings and concrete beam fascia, and resealing the reference joints.

ESTIMATED PREVENTIVE MAINTENANCE COST


A. Approach Construction.....	\$20,000
B. Structure Construction.....	<u>\$95,000</u>
Total	\$115,000

*****Roscommon County Road Commission will provide a 25% match for this project*****

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 9031

STRUCTURE INVENTORY AND APPRAISAL

Facility	Latitude / Longitude	MDOT Structure ID	Structure Condition	
OLD US-27	44.2095 / -84.7917	72200026000B010	Good Condition(7)	
Feature	Length / Width / Spans	Owner		
WOLF CREEK	40 / 37.5 / 1	County: Roscommon(72)		
Location	Built / Recon. / Paint / Ovly.	TSC	Operational Status	
SECTION 15/16 T21N R4W	1935 / 2008 / /	Gaylord(27)	A Open, no restriction(A)	
Region / County	Material / Design	Last NBI Inspection	Scour Evaluation	
North(2) / Roscommon(72)	5 Prestressed Concrete / 05 Box Bm/Gird- Multiple	06/17/2020 / 335G	3 SC - Unstable	

Bridge History, Type, Materials	
27 - Year Built	1935
106 - Year Reconstructed	2008
202 - Year Painted	
203 - Year Overlay	
43 - Main Span Bridge Type	5 05
44 - Appr Span Bridge Type	
77 - Steel Type	0
78 - Paint Type	0
79 - Rail Type	6
80 - Post Type	2
107 - Deck Type	1
108A - Wearing Surface	1
108B - Membrane	0
108C - Deck Protection	1

Structure Dimensions	
34 - Skew	30
35 - Struct Flared	N
45 - Num Main Spans	1
46 - Num Apprs Spans	0
48 - Max Span Length	38
49 - Structure Length	40
50A - Width Left Curb/SW	0
50B - Width Right Curb/SW	0
33 - Median	0
51 - Width Curb to Curb	35.1
52 - Width Out to Out	37.5
112 - NBIS Length	Y

Inspection Data	
90 - Inspection Date	06/17/2020
91 - Inspection Freq	24
92A - Frac Crit Req/Freq	N
93A - Frac Crit Insp Date	
92B - Und Water Req/Freq	N
93B - Und Water Insp Date	
92C - Oth Spec Insp Req/Freq	N
93C - Oth Spec Insp Date	
92D - Fatigue Req/Freq	N
93D - Fatigue Insp Date	
176A - Und Water Insp Method	2
58 - Deck Rating	7
58A/B - Deck Surface/Bottom	7 N
59 - Superstructure Rating	8
59A - Paint Rating	N
60 - Substructure Rating	7
61 - Channel Rating	7
62 - Culvert Rating	N

Navigation Data	
38 - Navigation Control	0
39 - Vertical Clearance	0
40 - Horizontal Clearance	0
111 - Pier Protection	
116 - Lift Brgd Vert Clear	0

Route Carried By Structure(ON Record)	
5A - Record Type	1
5B - Route Signing	4
5C - Level of Service	0
5D - Route Number	00000
5E - Direction Suffix	0
10L - Best 3m Unclr-Lt	0 0
10R - Best 3m Unclr-Rt	99 99
PR Number	
Control Section	
11 - Mile Point	
12 - Base Highway Network	0
13 - LRS Route-Subroute	0000031800 82
19 - Detour Length	17
20 - Toll Facility	3
26 - Functional Class	08
28A - Lanes On	2
29 - ADT	1276
30 - Year of ADT	2020
32 - Appr Roadway Width	29.9
32A/B - Ap Pvt Type/Width	4 22.01
42A - Service Type On	1
47L - Left Horizontal Clear	0.0
47R - Right Horizontal Clear	34.6
53 - Min Vert Clr Ov Deck	99 99
100 - STRAHNET	0
102 - Traffic Direct	2
109 - Truck %	5
110 - Truck Network	0
114 - Future ADT	1973
115 - Year Future ADT	2042
Freeway	0

Structure Appraisal	
36A - Bridge Railing	1
36B - Rail Transition	1
36C - Approach Rail	1
36D - Rail Termination	1
67 - Structure Evaluation	7
68 - Deck Geometry	6
69 - Underclearance	N
71 - Waterway Adequacy	8
72 - Approach Alignment	8
103 - Temporary Structure	
113 - Scour Criticality	3

Miscellaneous	
37 - Historical Significance	4
98A - Border Bridge State	
98B - Border Bridge %	
101 - Parallel Structure	N
EPA ID	
Stay in Place Forms	
143 - Pin & Hanger Code	1
148 - No. of Pin & Hangers	

Route Under Structure (UNDER Record)	
5A - Record Type	
5B - Route Signing	
5C - Level of Service	
5D - Route Number	
5E - Direction Suffix	
10L - Best 3m Unclr-Lt	
10R - Best 3m Unclr-Rt	
PR Number	
Control Section	
11 - Mile Point	
12 - Base Highway Network	
13 - LRS Route-Subroute	
19 - Detour Length	
20 - Toll Facility	
26 - Functional Class	
28B - Lanes Under	
29 - ADT	
30 - Year of ADT	
42B - Service Type Under	5
47L - Left Horizontal Clear	
47R - Right Horizontal Clear	
54A - Left Feature	
54B - Left Underclearance	99 99
54C - Right Feature	
54D - Right Clearance	99 99
Under Clearance Year	
55A - Reference Feature	N
55B - Right Horiz Clearance	99.9
56 - Left Horiz Clearance	0
100 - STRAHNET	
102 - Traffic Direct	
109 - Truck %	
110 - Truck Network	
114 - Future ADT	
115 - Year Future ADT	
Freeway	


Proposed Improvements	
75 - Type of Work	
76 - Length of Improvement	0
94 - Bridge Cost	0
95 - Roadway Cost	0
96 - Total Cost	0
97 - Year of Cost Estimate	2008

Load Rating and Posting	
31 - Design Load	6
41 - Open, Posted, Closed	A
63 - Fed Oper Rtg Method	6
64F - Fed Oper Rtg Load	3.16
64MA - Mich Oper Rtg Method	6
64MB - Mich Oper Rtg	2.05
64MC - Mich Oper Truck	17
65 - Inv Rtg Method	6
66 - Inventory Load	1.75
70 - Posting	5
141 - Posted Loading	
193 - Overload Class	

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 9031

WORK RECOMMENDATIONS

Facility OLD US-27	Latitude / Longitude 44.2095 / -84.7917	MDOT Structure ID 72200026000B010	Structure Condition Good Condition(7)	
Feature WOLF CREEK	Length / Width / Spans 40 / 37.5 / 1	Owner County: Roscommon(72)		
Location SECTION 15/16 T21N R4W	Built / Recon. / Paint / Ovly. 1935 / 2008 / /	TSC Gaylord(27)	Operational Status A Open, no restriction(A)	
Region / County North(2) / Roscommon(72)	Material / Design 5 Prestressed Concrete / 05 Box Bm/Gird- Multiple	Last NBI Inspection 06/17/2020 / 335G	Scour Evaluation 3 SC - Unstable	

WORK RECOMMENDATIONS

335G

Inspector Name James Brock	Agency / Company Name ROWE Professional Services Company	Insp. Freq. 24	Insp. Date 06/17/2020
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CREW RECOMMENDATIONS


CONTRACT RECOMMENDATIONS

Recommendation Type	Priority	Description	Recommendation Type	Priority	Description
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MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 9031

LOAD RATING ASSUMPTIONS

Facility OLD US-27	Latitude / Longitude 44.2095 / -84.7917	MDOT Structure ID 72200026000B010	Structure Condition Good Condition(7)	
Feature WOLF CREEK	Length / Width / Spans 40 / 37.5 / 1	Owner County: Roscommon(72)		
Location SECTION 15/16 T21N R4W	Built / Recon. / Paint / Ovly. 1935 / 2008 / /	TSC Gaylord(27)	Operational Status A Open, no restriction(A)	
Region / County North(2) / Roscommon(72)	Material / Design 5 Prestressed Concrete / 05 Box Bm/Gird- Multiple	Last NBI Inspection 06/17/2020 / 335G	Scour Evaluation 3 SC - Unstable	

Rating Considers Field Condition of Members: Yes **Inspection Date:** 06/17/2020

Deterioration:

No deficiencies noted that would reduce capacity

Most Recent Year Construct / Reconstruct / Overlay: 2008

History of Work Impacting Load Rating:

Reconstructed

Superstructure Component: 5 Prestressed Concrete **Beam fy:** 270.0 ksi **Beam f'c / fb:** 5.0 ksi

Composite: Yes **Number of Beams:** 12 **Shop Drawings Verified:** No

Beam Size(s) & Names (each span): 17x36 PSBB / 12 beams / 1 span

Deck: **Thickness (in.):** 6.0 **Fy / f'c:** 60.0 / 4.0 ksi **Deck Design Load > H15:** Yes

Wearing Surface: **Mat'l:** Concrete **Thickness (in.):** 6.0 **Unit Weight (pcf.):** 150.0

	LEFT	CENTER	RIGHT
Barrier: Type / Weight (plf.):	Concrete / 329.0 Parapet	/	Concrete / 329.0 Parapet

Sidewalk: Width / Thick (in.): / / /

Clear Roadway (ft.): 35.2

Additional Loads:

See Hand Calcs spreadsheet

Unique Factors That Affect Capacity:

Analyzed By: Jonathan Lidgard **Date:** 08/17/2020

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 9031

LOAD RATING SUMMARY

Facility	Latitude / Longitude	MDOT Structure ID	Structure Condition
OLD US-27	44.2095 / -84.7917	72200026000B010	Good Condition(7)
Feature	Length / Width / Spans	Owner	
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Location	Built / Recon. / Paint / Ovly.	TSC	Operational Status
SECTION 15/16 T21N R4W	1935 / 2008 / /	Gaylord(27)	A Open, no restriction(A)
Region / County	Material / Design	Last NBI Inspection	Scour Evaluation
North(2) / Roscommon(72)	5 Prestressed Concrete / 05 Box Bm/Gird- Multiple	06/17/2020 / 335G	3 SC - Unstable



Compliance Issue:	None
Compliance Verified:	No
Analysis Program:	AASHTOWare Bridge Rating (BrR)
Analysis Program Version:	6.8.4.3001
Rating Considers Field Condition of Members:	Yes
Inspection Date:	06/17/2020

Controlling component and failure mode:

Fascia Beam in moment near midspan

NEW INVENTORY CODING

NBI Item 63 - Operating Rating Method	6 LFR in Rating Factor
NBI Item 64F - Federal Operating Ratings	3.16
MDOT Item 64MA - Michigan Operating Method	6 LFR in Rating Factor
MDOT Item 64MB - Michigan Operating Rating	2.05
MDOT Item 64MC - Michigan Operating Truck	17
NBI Item 65 - Inventory Rating Method	6 LFR in Rating Factor
NBI Item 66 - Federal Inventory Rating	1.75
NBI Item 41 - Structure Open Posted Closed	A A Open, no restriction
NBI Item 70 - Bridge Posting	5 5 - 100% or more
Posted By	No Posting
MDOT Item 141 - Posted Loading	
MDOT Item 193A - Michigan Overload Class	
MDOT Item 193C - Overload Status	
Analyzed By: Jonathan Lidgard	Date: 08/17/2020
Checked By: Mike Soteropoulos	Date: 08/19/2020

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 9031

REQUEST FOR ACTION

Facility	Latitude / Longitude	MDOT Structure ID	Structure Condition
OLD US-27	44.2095 / -84.7917	72200026000B010	Good Condition(7)
Feature	Length / Width / Spans	Owner	
WOLF CREEK	40 / 37.5 / 1	County: Roscommon(72)	
Location	Built / Recon. / Paint / Ovly.	TSC	Operational Status
SECTION 15/16 T21N R4W	1935 / 2008 / /	Gaylord(27)	A Open, no restriction(A)
Region / County	Material / Design	Last NBI Inspection	Scour Evaluation
North(2) / Roscommon(72)	5 Prestressed Concrete / 05 Box Bm/Gird- Multiple	06/17/2020 / 335G	3 SC - Unstable



No inspections available for bridge key 72200026000B010



Looking across Old US-27 Bridge



Fascia of Old US-27 Bridge





Joint at bridge approach



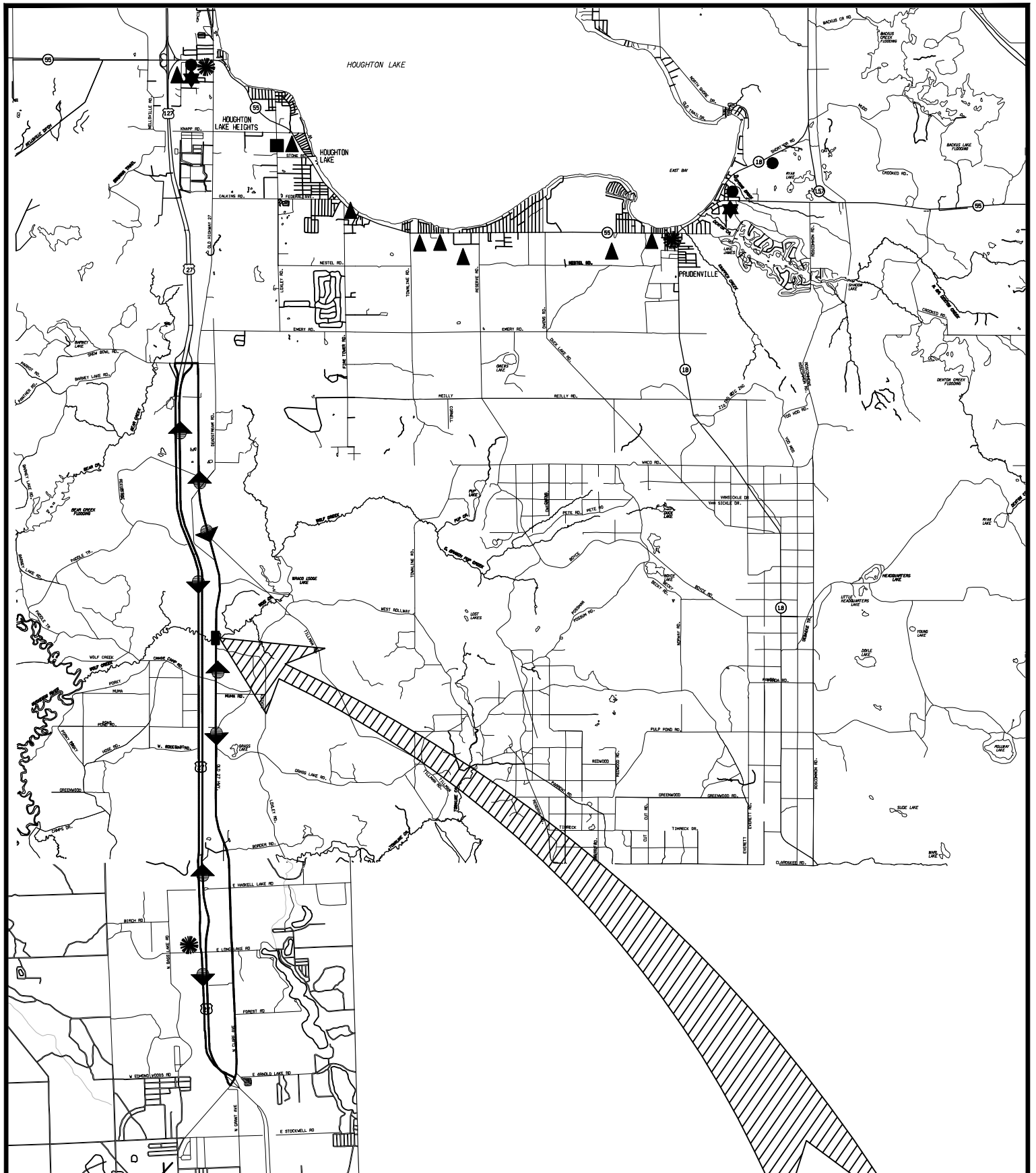
Adjacent box beams



Crack in abutment



Cracking in abutment and slopewall



ROSCOMMON COUNTY

9031 - OLD US 27 OVER THE WOLF CREEK

KEY

- ☼ - POLICE STATION
- - FIRE STATIONS
- ★ - AMBULANCE SUB STATION
- ▲ - SCHOOL
- - MEDICAL CLINIC

XX/XX/XX () - POSTED STRUCTURE

◀▶ - DETOUR ROUTE

2022

BRIDGE COST ESTIMATE WORKSHEET

REV. 02/09/2022

- CPM, REHAB, REPLACE -

DATE: 3/18/2022

OWNER: Roscommon County
 REGION: North
 TSC: Gaylord

FISCAL YEAR: 2025

PR: #N/A MP: #N/A

Out to Out Curb to Curb
 WIDTH WIDTH
 40.0 37.5 35.1

ENGINEER: ANH

STRUCTURE ID: 9031

BRIDGE ID: N/A

LOCATION: OLD US-27 over WOLF CREEK

PRIMARY WORK ACTIVITY: Overlay - Epoxy

OTHER WORK:

DECK AREA: 1,500 SFT
 CLEAR ROADWAY: 1,404 SFT

STR. TYPE: Prestressed Concrete
 Box Beam or Girders - Mu

WORK ACTIVITY	MDOT Bridge Design Guides	QUANTITY	UNIT	UNIT COST	TOTAL
NEW BRIDGE (increase deck area based on design standards and hydraulic requirements)					
Single or Multiple Spans, Grade Separation	(add demo, approach, MOT)		SFT	\$330.00 /SFT	
Single Span, Over Water	Length < 100ft (add demo, approach, MOT)		SFT	\$450.00 /SFT	
Multiple Spans, Over Water	Length > 100ft (add demo, approach, MOT)		SFT	\$330.00 /SFT	
Precast Culvert	Length < 40ft (add demo, approach, MOT)		SFT	\$490.00 /SFT	
NEW SUPERSTRUCTURE					
New Superstructure, Grade Separation	(incl. remove exist deck/super; add MOT & approach)		SFT	\$225.00 /SFT	
New Superstructure, Over Water	(incl. remove exist deck/super; add MOT & approach)		SFT	\$225.00 /SFT	
WIDENING					
Structure Widening, _____ ft	(incl. deck/super/sub widening, add approach transition)		SFT	\$550.00 /SFT	
NEW DECK					
New Bridge Deck & Barrier	(incl. remove exist deck/railing, add approach, MOT)		SFT	\$120.00 /SFT	
DEMOLITION					
Entire Structure, Grade Separation			SFT	\$65.00 /SFT	
Entire Structure, Over Water			SFT	\$65.00 /SFT	
DECK REPAIR / TREATMENTS					
Bridge Railing Replacement	(incl. removal and replacement)		FT	\$600.00 /FT	
Concrete Brush Block / Curb Patch	(incl. hand chipping and formwork)		FT	\$25.00 /FT	
Concrete Barrier Patch	(incl. hand chipping and formwork)		SFT	\$76.00 /SFT	
Concrete Deck Patch	(incl. hand chipping)		SFT	\$63.00 /SFT	
Deep Overlay	(incl. joint repl & hydro)		SFT	\$43.00 /SFT	
Epoxy Overlay	(incl. warranty)	240.0	SYD	\$39.00 /SYD	\$9,360
Expansion Joint Gland Replacement	(remove and replace elastomeric gland)		FT	\$115.00 /FT	
Expansion Joint Replacement	(incl. removal)		FT	\$740.00 /FT	
Full Depth Patch			SFT	\$130.00 /SFT	
Healer / Sealer	(penetrates cracks in bridge deck)		SYD	\$16.00 /SYD	
HMA Overlay with WP membrane			SYD	\$60.00 /SYD	
Overlay Removal	(Epoxy: \$22/syd Latex: \$26/syd HMA: \$7/syd)		SYD	\$22.00 /SYD	
Reseal Bridge Joints		75.0	FT	\$25.00 /FT	\$1,875
Shallow Overlay	(incl. joint repl & hydro)		SFT	\$40.00 /SFT	
SUPERSTRUCTURE REPAIR					
Bearing Realignment / Replacement	(incl. temporary supports)		EA	\$5,700.00 EA	
Heat Straightening	(incl. clean and coat)		EA	\$45,000.00 EA	
Pack Rust Repair	(greater than 3/8" separation)		FT	\$850.00 /FT	
Paint - Complete	(incl. clean & coat)		SFT	\$30.00 /SFT	
Paint - Partial / Spot / Zone	(incl. clean & coat - \$20k minimum)		SFT	\$60.00 /SFT	
PCI Beam End Blockout	(incl. temporary supports)		EA	\$7,200.00 EA	
Pin & Hanger Replacement	(incl. temporary supports)		EA	\$13,000.00 EA	
Structural Steel Repair	(based on 6ft repair length)		EA	\$3,400.00 EA	
Structural Steel Repair - Stiffener	(includes each side of beam)		EA	\$1,350.00 EA	
SUBSTRUCTURE REPAIR					
Substructure Patching	(measured x 2) replace if repair area > 30%		CFT	\$330.00 /CFT	
Substructure Replacement	(incl. temporary supports, excavation)		CFT	\$375.00 /CFT	
Substructure Horizontal Surface Sealer			SYD	\$75.00 /SYD	
Temporary Supports	(add Structural Steel Repair - Stiffener for ea steel beam)		EA	\$3,000.00 EA	
MISCELLANEOUS					
Articulating Concrete Block System (ACB)			SYD	\$280.00 /SYD	
Concrete Surface Coating			SYD	\$32.00 /SYD	
Culvert Cleanout			FT	\$125.00 /FT	
Epoxy Crack Injection	(structural crack repair)	100.0	FT	\$70.00 /FT	\$7,000
Metal Mesh Panels	(48" width, max 6'-6" length)		SFT	\$26.00 /SFT	
Pressure Relief Joint	(use when approach concrete roadway exceeds 1,000ft)		FT	\$110.00 /FT	
Riprap	(assume 10ft distance around perimeter of substructure)	160.0	SYD	\$223.00 /SYD	\$35,680
Silane Treatment	(penetrating sealer for concrete surfaces)	600.0	SFT	\$7.00 /SFT	\$4,200
Slope Protection Repairs			SYD	\$145.00 /SYD	
Other					
STRUCTURE CONSTRUCTION BUDGET					\$58,115
ROAD WORK					
Approach Pavement, 12" RC	(incl. removal; add curb, gutter, guardrail) 40' ea. end		SYD	\$200.00 /SYD	
Approach Curb & Gutter	(incl. removal) 40' ea. quadrant		FT	\$57.00 /FT	
Guardrail Anchorage to Bridge	(each quadrant)		EA	\$2,320.00 /EA	
Guardrail	(incl. removal) < 200ft beyond reference line		FT	\$34.00 /FT	
Guardrail Terminal	(each quadrant)		EA	\$3,900.00 /EA	
Roadway Approach Work	(beyond approach pavement)		LSUM		LSUM
Utilities			LSUM		LSUM
TRAFFIC CONTROL <i>Unit Cost to be determined by Region or TSC Traffic & Safety</i>					
Part Width Construction		1.0	LSUM	\$20,000.00	LSUM \$20,000
Crossovers			EA		/EA
Temporary Traffic Signals			set		/set
RR Flagging			LSUM		LSUM
Detour			LSUM		LSUM
RELATED ROAD/TRAFFIC CONSTRUCTION BUDGET					\$20,000
CONTINGENCY	(10% - 20%) (use higher contingency for small projects)	20	%	\$78,000.00	\$16,000
MOBILIZATION	(estimate at 10%)	10	%	\$94,000.00	\$9,000
INFLATION	(assume 4% per year, beginning in 2023)	12	%	\$103,000.00	\$12,000

(Does not include PE or CE)

(Refer to programming guidelines in Bridge Cost Estimating Worksheet-Key for CE, PE & PE-S)

TOTAL CONSTRUCTION BUDGET	\$115,000
% CE	CON BUDGET \$115,000
% PE	PE BUDGET \$0
% PE	PE-S BUDGET \$0

**RESOLUTION FOR THE OLD US 27 BRIDGE PREVENTIVE MAINTENANCE
THROUGH THE LOCAL BRIDGE PROGRAM**

On a motion duly made by Commissioner Vaughn seconded by Commissioner Wykoff and passed with 5Ayes and 0 Nays, it was moved to adopt the following resolution:

WHERE AS, the condition of the bridge listed below have deteriorated to such an extent that preventive maintenance is necessary and

WHERE AS, the budget of the Roscommon County Road Commission will not allow preventive maintenance of this bridge without additional funds from other sources.

THEREFORE BE IT NOW RESOLVED that the Roscommon County Road Commission request local bridge program funds for preventive maintenance of the Old US 27 over the Wolf Creek Bridge for the year 2025.

I hereby certify the above is a true and correct copy of a resolution unanimously adopted by the Roscommon County Road Commission at a meeting held on March 10, 2022.

ATTEST:


Stefanie Simmons
Board Clerk

Dated: 3-11-2022

Drafted by:

Stefanie Simmons
Roscommon County Road Commission
820 E. West Branch Road
Prudenville, MI 48651

Subscribed and sworn to before me on the above date:



Notary Public, Roscommon, Michigan
My Commission Expires: May 25, 2024


STEFANIE E. SIMMONS
NOTARY PUBLIC, STATE OF MICHIGAN
COUNTY OF ROSCOMMON
MY COMMISSION EXPIRES MAY 25, 2024
ACTING IN THE COUNTY OF ROSCOMMON



MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 9030

BRIDGE SAFETY INSPECTION REPORT

Facility KENO ROAD (CR 602)	Latitude / Longitude 44.4813 / -84.451	MDOT Structure ID 72200019000B010	Structure Condition Fair Condition(6)	
Feature S BR AU SABLE RIVER	Length / Width / Spans 45.9 / 33.5 / 1	Owner County: Roscommon(72)		
Location SECTION 8&9 T24N R1W	Built / Recon. / Paint / Ovly. 1976 / / /	TSC Gaylord(27)	Operational Status A Open, no restriction(A)	
Region / County North(2) / Roscommon(72)	Material / Design 1 Concrete / 05 Box Bm/Gird-Multiple	Last NBI Inspection 06/22/2022 / 7VC7	Scour Evaluation 5 Stable w/in footing	

NBI INSPECTION

7VC7

Inspector Name	Agency / Company Name	Insp. Freq.	Insp. Date
James Brock	ROWE Professional Services Company	24	06/22/2022

GENERAL NOTES

Assisted By: Abby Righter
Established directions: Keno Rd N/S, S Br Au Sable River E/W

DECK

06/18 06/20 06/22

	06/18	06/20	06/22	
1. Surface (SIA-58A)	7	7	7	Chip sealed HMA. No deficiencies. (06/22) Chip sealed HMA. No deficiencies. (06/20) Chip sealed HMA. No deficiencies. (06/18)
2. Expansion Joints	N	N	N	Reference line joints are paved over. Reflective cracking up to 1/4" wide above joints. (06/22) Ref line joints are paved over. Reflective cracking above joints. (06/20) Ref line joints are paved over. Reflective cracking above joints. (06/18)
3. Other Joints	N	N	N	(06/22) (06/20) (06/18)
4. Railings	6	6	6	Double B guardrail with wood blockouts on steel posts which are bolted to fascia beams. Impact in NW quadrant approach rail. (06/22) Double B guardrail with wood blockouts on steel posts which are bolted to fascia beams. Impact in NW quadrant approach rail. (06/20) Double B guardrail on steel posts which are bolted to fascia beams. Impact in NW quadrant approach rail. (06/18)
5. Sidewalks or Curbs	N	N	N	(06/22) (06/20) (06/18)
6. Deck Bottom Surface (SIA-58B)	N	N	N	Adjacent concrete box beams. (06/22) Adjacent box beams. (06/20) Adjacent box beams. (06/18)
7. Deck (SIA-58)	7	7	6	Non-structural surface. Beams act as deck. Rating based on stringer conditions. Cracks in beams 1w and 11w. Top surface is chip sealed with no deficiencies. (06/22) Non-structural surface. Beams act as deck. Rating based on stringer conditions. Cracks in beams 1w and 11w. Top surface is chip sealed with no deficiencies. (06/20) Non-structural surface. Beams act as deck. Rating based on stringer conditions. Cracks in beams 1w and 11w. Top surface is chip sealed with no deficiencies. (06/18)
8. Drainage				Off bridge (06/22) Off bridge (06/20) Off bridge (06/18)


SUPERSTRUCTURE

06/18 06/20 06/22

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 9030

BRIDGE SAFETY INSPECTION REPORT

Facility KENO ROAD (CR 602)	Latitude / Longitude 44.4813 / -84.451	MDOT Structure ID 72200019000B010	Structure Condition Fair Condition(6)	
Feature S BR AU SABLE RIVER	Length / Width / Spans 45.9 / 33.5 / 1	Owner County: Roscommon(72)		
Location SECTION 8&9 T24N R1W	Built / Recon. / Paint / Ovly. 1976 / / /	TSC Gaylord(27)	Operational Status A Open, no restriction(A)	
Region / County North(2) / Roscommon(72)	Material / Design 1 Concrete / 05 Box Bm/Gird-Multiple	Last NBI Inspection 06/22/2022 / 7VC7	Scour Evaluation 5 Stable w/in footing	

9. Stringer (SIA-59)	7	7	6	(11) Adjacent concrete prestressed box beams. No leaking visible between beams. Beam 1w exhibits (2) 5 ft long longitudinal cracks with efflorescence at guardrail post 4 north. Beam 11w has horizontal cracking in fascia and 1 longitudinal crack at south abutment with rust staining and efflorescence. (06/22) (11) Adjacent concrete prestressed box beams. No leaking visible between beams. Beam 1w has 2 5 ft long longitudinal cracks with efflorescence at guardrail post 4 north. Beam 11w has horizontal cracking in fascia and 1 longitudinal crack at south abutment with rust staining and efflorescence. (06/20) 11 adjacent box beams. No leaking visible between beams. Beam 1w has 2 5 ft long longitudinal cracks with efflorescence at guardrail post 4 north. Beam 11w has horizontal cracking in fascia and 1 longitudinal crack at south abutment with rust staining and efflorescence. (06/18)
10. Paint (SIA-59A)	N	N	N	(06/22) (06/20) (06/18)
11. Section Loss	N	3	3	HL cracking along beams 1W and 11W. (06/22) None noted. (06/20) (06/18)
12. Bearings	8	8	8	Elastomeric bearings. Not visible, but functioning. (06/22) Elastomeric bearings. Not visible, but functioning. (06/20) Elastomeric bearings. Not visible, but functioning. (06/18)

SUBSTRUCTURE

	06/18	06/20	06/22	
13. Abutments (SIA-60)	6	6	6	Concrete cantilever abutments. Abutments have been widened. Vertical cracks in original abutments on both sides. NW abutment is deteriorating with map cracking and efflorescence. Hairline crack in new section of north abutment under Beam 2W. South abutment has a 2 ft horizontal crack 3" below beam seat under beam 11w up to 1/16" wide. Some cracking in backwalls. (06/22) Concrete cantilever abutments. Abutments have been widened. Vertical cracks in original abutments on both sides. NW abutment is deteriorating with map cracking and efflorescence. Hairline crack in new section of north abutment under Beam 2. South abutment has a 2 ft horizontal crack 3" below beam seat under beam 11w. Some cracking in backwalls. (06/20) Concrete abutments. Abutments have been widened. Vertical cracks in original abutments on both sides. NW abutment is deteriorating with map cracking and efflorescence. Hairline crack in new section of north abutment under Beam 2. South abutment has a 2 ft horizontal crack 3" below beam seat under beam 11w. Some cracking in backwalls. (06/18)
14. Piers (SIA-60)	N	N	N	(06/22) (06/20) (06/18)
15. Slope Protection	6	N	N	N/A. Bridge over water. (06/22) N/A. Bridge over water. (06/20) Slope paving in upstream side with widened portion of abutment. Crack in the north slope paving. (06/18)
16. Channel (SIA-61)	6	6	6	Meandering away from structure. Channel is wider at structure than away from structure. Water against both abutments. Stable banks, floodplain. (06/22) Meandering away from structure. Channel is wider at structure than away from structure. Water against both abutments. Stable banks, floodplain. (06/20) Meandering away from structure. Channel is wider at structure than away from structure. Water against both abutments. Stable banks, floodplain. (06/18)
17. Scour Inspection	7	6	6	Probed, no scour. Water wall to wall. Slope paving along upstream side with widened portion of abutment. Wide crack in the north slope paving. (06/22) Probed, no scour. Water wall to wall. Slope paving in upstream side with widened portion of abutment. Crack in the north slope paving. (06/20) Probed, no scour. Water wall to wall. (06/18)

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 9030

BRIDGE SAFETY INSPECTION REPORT

Facility KENO ROAD (CR 602)	Latitude / Longitude 44.4813 / -84.451	MDOT Structure ID 72200019000B010	Structure Condition Fair Condition(6)
Feature S BR AU SABLE RIVER	Length / Width / Spans 45.9 / 33.5 / 1	Owner County: Roscommon(72)	
Location SECTION 8&9 T24N R1W	Built / Recon. / Paint / Ovly. 1976 / / /	TSC Gaylord(27)	Operational Status A Open, no restriction(A)
Region / County North(2) / Roscommon(72)	Material / Design 1 Concrete / 05 Box Bm/Gird- Multiple	Last NBI Inspection 06/22/2022 / 7VC7	Scour Evaluation 5 Stable w/in footing



APPROACH

06/18 06/20 06/22

18. Approach Pavement	6	6	6	Chip sealed HMA approach pavement. Settlement at south approach is 1/2". Bare asphalt in center of both lanes (06/22) Chip sealed HMA approach pavement. Settlement at south approach is 1/2". Bare asphalt in center of both lanes (06/20) Chip sealed HMA approach pavement. Settlement at south approach is 1/2". Bare asphalt in center of both lanes (06/18)
19. Approach Shoulders Sidewalks	6	6	6	Chip sealed HMA shoulders near bridge. Settlement at south ref line is 1/2". No further deficiencies. (06/22) Chip sealed HMA shoulders near bridge. Settlement at south ref line is 1/2". No further deficiencies. (06/20) Chip sealed HMA shoulders near bridge. Settlement at south ref line is 1/2". No further deficiencies. (06/18)
20. Approach Slopes				Well vegetated stable approach slopes. (06/22) Well vegetated. (06/20) Well vegetated. (06/18)
21. Utilities				OHE on west side of structure. (06/22) OHE on west side of structure. (06/20) OHE on west side of structure. (06/18)
22. Drainage Culverts				None noted. (06/22) (06/20) (06/18)

MISCELLANEOUS

Guard Rail

Item	Rating
36A. Bridge Railings	0
36B. Transitions	0
36C. Approach Guardrail	1
36D. Approach Guardrail Ends	1

Other Items

Item	Rating
71. Water Adequacy	9
72. Approach Alignment	9
Temporary Support	0 No Temporary Supports
High Load Hit (M)	No
Special Insp. Equipment	2
Underwater Insp. Method	1

False Decking (Timber) Removed to Complete Inspection

N/A - No False Decking

Critical Feature Inspections (SIA-92)

	Freq	Date
92A. Fracture Critical		
92B. Underwater		
92C. Other Special		
92D. Fatigue Sensitive		

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 9030

BRIDGE SAFETY INSPECTION REPORT

Facility KENO ROAD (CR 602)	Latitude / Longitude 44.4813 / -84.451	MDOT Structure ID 72200019000B010	Structure Condition Fair Condition(6)	
Feature S BR AU SABLE RIVER	Length / Width / Spans 45.9 / 33.5 / 1	Owner County: Roscommon(72)		
Location SECTION 8&9 T24N R1W	Built / Recon. / Paint / Ovly. 1976 / / /	TSC Gaylord(27)	Operational Status A Open, no restriction(A)	
Region / County North(2) / Roscommon(72)	Material / Design 1 Concrete / 05 Box Bm/Gird-Multiple	Last NBI Inspection 06/22/2022 / 7VC7	Scour Evaluation 5 Stable w/in footing	

SUPPORTING IMAGES

7VC7 06/22/2022



Document Name: IMG_2479.jpg
 Category: Elevation
 Span Number:
 Comments: East elevation



Document Name: IMG_2481.jpg
 Category: Elevation
 Span Number:
 Comments: West elevation



Document Name: IMG_2466.jpg
 Category: Deck
 Span Number:
 Comments: Looking north over structure




Document Name: IMG_2470.jpg
 Category: Deck
 Span Number:
 Comments: Looking south over structure

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 9030

BRIDGE SAFETY INSPECTION REPORT

Facility KENO ROAD (CR 602)	Latitude / Longitude 44.4813 / -84.451	MDOT Structure ID 72200019000B010	Structure Condition Fair Condition(6)	
Feature S BR AU SABLE RIVER	Length / Width / Spans 45.9 / 33.5 / 1	Owner County: Roscommon(72)		
Location SECTION 8&9 T24N R1W	Built / Recon. / Paint / Ovlly. 1976 / / /	TSC Gaylord(27)	Operational Status A Open, no restriction(A)	
Region / County North(2) / Roscommon(72)	Material / Design 1 Concrete / 05 Box Bm/Gird- Multiple	Last NBI Inspection 06/22/2022 / TVC7	Scour Evaluation 5 Stable w/in footing	



Document Name: IMG_2469.jpg
 Category: Joints
 Span Number:
 Comments: South reference line



Document Name: IMG_2471.jpg
 Category: Joints
 Span Number:
 Comments: North reference line



Document Name: IMG_2472.jpg
 Category: Superstructure
 Span Number:
 Comments: Precast beams



Document Name: IMG_2473.jpg
 Category: Superstructure
 Span Number:
 Comments: Longitudinal cracking with efflorescence along beam 1W

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 9030

BRIDGE SAFETY INSPECTION REPORT

Facility KENO ROAD (CR 602)	Latitude / Longitude 44.4813 / -84.451	MDOT Structure ID 72200019000B010	Structure Condition Fair Condition(6)	
Feature S BR AU SABLE RIVER	Length / Width / Spans 45.9 / 33.5 / 1	Owner County: Roscommon(72)		
Location SECTION 8&9 T24N R1W	Built / Recon. / Paint / Ovly. 1976 / / /	TSC Gaylord(27)	Operational Status A Open, no restriction(A)	
Region / County North(2) / Roscommon(72)	Material / Design 1 Concrete / 05 Box Bm/Gird- Multiple	Last NBI Inspection 06/22/2022 / 7VC7	Scour Evaluation 5 Stable w/in footing	



Document Name: IMG_2477.jpg
 Category: Superstructure
 Span Number:
 Comments: Prestressed concrete box beams



Document Name: IMG_2478.jpg
 Category: Superstructure
 Span Number:
 Comments: Prestressed concrete box beams



Document Name: IMG_2475.jpg
 Category: Substructure
 Span Number:
 Comments: South abutment



Document Name: IMG_2467.jpg
 Category: Channel
 Span Number:
 Comments: Looking east off structure

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 9030

BRIDGE SAFETY INSPECTION REPORT

Facility KENO ROAD (CR 602)	Latitude / Longitude 44.4813 / -84.451	MDOT Structure ID 72200019000B010	Structure Condition Fair Condition(6)
Feature S BR AU SABLE RIVER	Length / Width / Spans 45.9 / 33.5 / 1	Owner County: Roscommon(72)	
Location SECTION 8&9 T24N R1W	Built / Recon. / Paint / Ovly. 1976 / / /	TSC Gaylord(27)	Operational Status A Open, no restriction(A)
Region / County North(2) / Roscommon(72)	Material / Design 1 Concrete / 05 Box Bm/Gird- Multiple	Last NBI Inspection 06/22/2022 / 7VC7	Scour Evaluation 5 Stable w/in footing



Document Name: IMG_2468.jpg
 Category: Channel
 Span Number:
 Comments: Looking west off structure

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 9031

BRIDGE SAFETY INSPECTION REPORT

Facility OLD US-27	Latitude / Longitude 44.2095 / -84.7917	MDOT Structure ID 72200026000B010	Structure Condition Good Condition(7)
Feature WOLF CREEK	Length / Width / Spans 40 / 37.5 / 1	Owner County: Roscommon(72)	
Location SECTION 15/16 T21N R4W	Built / Recon. / Paint / Ovly. 1935 / 2008 / /	TSC Gaylord(27)	Operational Status A Open, no restriction(A)
Region / County North(2) / Roscommon(72)	Material / Design 5 Prestressed Concrete / 05 Box Bm/Gird- Multiple	Last NBI Inspection 06/21/2022 / OW6W	Scour Evaluation 3 SC - Unstable



NBI INSPECTION

OW6W

Inspector Name	Agency / Company Name	Insp. Freq.	Insp. Date
James Brock	ROWE Professional Services Company	24	06/21/2022

GENERAL NOTES

Assisted By: Abby Righter
Established directions: Old US-27 N/S, Wolf Creek E/W

DECK

06/18 06/20 06/22

1. Surface (SIA-58A)	7	7	7	Concrete deck. 3 diagonal crack along north ref line. Four 11' perpendicular cracks to south ref line at centerline. (06/22) Concrete deck. 3 diagonal crack along north ref line. Four 11' perpendicular cracks to south ref line at centerline. (06/20) Concrete deck. 3 diagonal crack along north ref line. Four 11' perpendicular cracks to south ref line at centerline. (06/18)
2. Expansion Joints	7	7	6	HPR sealed joints at reference lines. Debris filled in corners. 5' feet of backer rod exposed at N. ref line and 4' exposed along S. ref line. (06/22) HPR sealed joints at reference lines. Debris filled in corners. 2' feet of backer rod exposed at N. ref line. (06/20) Sealed joints at reference lines. Debris filled in corners (06/18)
3. Other Joints	N	N	N	(06/22) (06/20) (06/18)
4. Railings	8	8	8	Concrete open parapet railing. Scrapes along both rails. T3 mod transitions, type B rail and approach endings. Rating is based on open parapet railing only. (06/22) Concrete open parapet railing. Scrapes along both rails. T3 mod transitions, type B rail and approach endings. Rating is based on open parapet railing only. (06/20) Concrete open parapet railing. Scrapes along both rails. T3 mod transitions, type B rail and approach endings. Rating is based on open parapet railing only. (06/18)
5. Sidewalks or Curbs	N	N	N	(06/22) (06/20) (06/18)
6. Deck Bottom Surface (SIA-58B)	N	N	N	Adjacent concrete box beams. (06/22) Adjacent box beams. (06/20) Adjacent box beams. (06/18)
7. Deck (SIA-58)	8	7	7	Surface: Concrete deck. 3 diagonal crack along north ref line. Four 11' perpendicular cracks to south ref line at centerline. Bottom: Adjacent box beams. (06/22) Surface: Concrete deck. 3 diagonal crack along north ref line. Four 11' perpendicular cracks to south ref line at centerline. Bottom: Adjacent box beams. (06/20) Surface: Concrete deck. 3 diagonal crack along north ref line. Four 11' perpendicular cracks to south ref line at centerline. Bottom: Adjacent box beams. (06/18)
8. Drainage				Off bridge (06/22) Off bridge (06/20) Off bridge (06/18)

SUPERSTRUCTURE

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 9031

BRIDGE SAFETY INSPECTION REPORT

Facility OLD US-27	Latitude / Longitude 44.2095 / -84.7917	MDOT Structure ID 72200026000B010	Structure Condition Good Condition(7)
Feature WOLF CREEK	Length / Width / Spans 40 / 37.5 / 1	Owner County: Roscommon(72)	
Location SECTION 15/16 T21N R4W	Built / Recon. / Paint / Ovly. 1935 / 2008 / /	TSC Gaylord(27)	Operational Status A Open, no restriction(A)
Region / County North(2) / Roscommon(72)	Material / Design 5 Prestressed Concrete / 05 Box Bm/Gird- Multiple	Last NBI Inspection 06/21/2022 / OW6W	Scour Evaluation 3 SC - Unstable



06/18 06/20 06/22

9. Stringer (SIA-59)	8	8	8	(12) adjacent concrete prestressed box beams. Efflorescence at PT pockets. Grout between beams 2/3w has spalled 6" at north abutment. (06/22) (12) adjacent concrete prestressed box beams. Efflorescence at PT pockets. Grout between beams 2/3w has spalled 6" at north abutment. (06/20) 12 adjacent box beams. Efflorescence at PT pockets. Grout in joint b/n beams 2/3w has spalled 6" at north abutment. (06/18)
10. Paint (SIA-59A)	N	N	N	(06/22) (06/20) (06/18)
11. Section Loss	N	3	3	None noted. (06/22) None noted. (06/20) (06/18)
12. Bearings	8	8	8	Elastomeric bearing pads. No deficiencies. (06/22) Elastomeric bearing pads. No deficiencies. (06/20) Elastomeric bearing pads. No deficiencies. (06/18)

SUBSTRUCTURE

06/18 06/20 06/22

13. Abutments (SIA-60)	7	7	7	Original concrete cantilever abutments with newer concrete beam seats. North beam seat has 4 hairline vertical cracks. South beam seat has 6 hairline vertical cracks. Vertical cracks up to 1/4" wide in original abutments. 1/2 inch wide crack under beam 4w at north abutment. Map cracking with efflorescence in original abutments outside of beams. (06/22) Original concrete cantilever abutments have newer beam seats. North beam seat has 4 hairline vertical cracks. South beam seat has 6 hairline vertical cracks. Vertical cracks up to 1/4" wide in original abutments. 1/2 inch wide crack under beam 4w at north abutment. Map cracking with efflorescence in original abutments outside of beams. (06/20) Original concrete abutments have new beam seats. North beam seat has 4 hairline vertical cracks. South beam seat has 6 hairline vertical cracks. Vertical cracks up to 1/4" wide in original abutments. Map cracking with efflorescence in original abutments outside of beams. (06/18)
14. Piers (SIA-60)	N	N	N	(06/22) (06/20) (06/18)
15. Slope Protection	6	N	N	N/A. Bridge over water. (06/22) N/A. Bridge over water. (06/20) Riprap on all 4 quadrants, but not in front of existing abutments which are on spread footings. (06/18)
16. Channel (SIA-61)	7	7	7	Riprap at ends of structure. Soft bottom. Debris upstream and downstream. Stable banks. Water flows wall to wall. (06/22) Riprap at ends of structure. Soft bottom. Debris upstream and downstream. Stable banks. Water flows wall to wall. (06/20) Riprap at ends of structure. Soft bottom. Debris upstream and downstream. Stable banks. Water flows wall to wall. (06/18)
17. Scour Inspection	7	7	7	Probed, no scour. Water wall to wall. (06/22) Probed, no scour. Water wall to wall. (06/20) Probed, no scour. Water wall to wall. (06/18)

APPROACH

06/18 06/20 06/22

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 9031

BRIDGE SAFETY INSPECTION REPORT

Facility	Latitude / Longitude	MDOT Structure ID	Structure Condition
OLD US-27	44.2095 / -84.7917	72200026000B010	Good Condition(7)
Feature	Length / Width / Spans	Owner	
WOLF CREEK	40 / 37.5 / 1	County: Roscommon(72)	
Location	Built / Recon. / Paint / Ovly.	TSC	Operational Status
SECTION 15/16 T21N R4W	1935 / 2008 / /	Gaylord(27)	A Open, no restriction(A)
Region / County	Material / Design	Last NBI Inspection	Scour Evaluation
North(2) / Roscommon(72)	5 Prestressed Concrete / 05 Box Bm/Gird- Multiple	06/21/2022 / OW6W	3 SC - Unstable



18. Approach Pavement	8	8	8	Concrete approach slabs with HMA beyond. HPR sealed longitudinal joint at centerline. No deficiencies noted. (06/22) Concrete approach slabs with HMA beyond. Sealed longitudinal joint at centerline. No deficiencies noted. (06/20) Concrete approach slabs with HMA beyond. Sealed longitudinal joint at centerline. No deficiencies noted. (06/18)
19. Approach Shoulders Sidewalks	8	8	8	Concrete shoulders in approach slabs, HMA/gravel beyond. Well graded. (06/22) Concrete shoulders in approach slabs, HMA/gravel beyond. Well graded. (06/20) Concrete shoulders in approach slabs, HMA/gravel beyond. Well graded. (06/18)
20. Approach Slopes				Stable well vegetated slopes. (06/22) Well vegetated. (06/20) Well vegetated. (06/18)
21. Utilities				None noted. (06/22) None noted. (06/20) None noted. (06/18)
22. Drainage Culverts				None Noted (06/22) None Noted (06/20) None Noted (06/18)

MISCELLANEOUS

Guard Rail

Item	Rating
36A. Bridge Railings	1
36B. Transitions	1
36C. Approach Guardrail	1
36D. Approach Guardrail Ends	1

Other Items

Item	Rating
71. Water Adequacy	8
72. Approach Alignment	8
Temporary Support	0 No Temporary Supports
High Load Hit (M)	No
Special Insp. Equipment	1
Underwater Insp. Method	2

False Decking (Timber) Removed to Complete Inspection

N/A - No False Decking


Critical Feature Inspections (SIA-92)

	Freq	Date
92A. Fracture Critical		
92B. Underwater		
92C. Other Special		
92D. Fatigue Sensitive		

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 9031

BRIDGE SAFETY INSPECTION REPORT

Facility OLD US-27	Latitude / Longitude 44.2095 / -84.7917	MDOT Structure ID 72200026000B010	Structure Condition Good Condition(7)
Feature WOLF CREEK	Length / Width / Spans 40 / 37.5 / 1	Owner County: Roscommon(72)	
Location SECTION 15/16 T21N R4W	Built / Recon. / Paint / Ovly. 1935 / 2008 / /	TSC Gaylord(27)	
Region / County North(2) / Roscommon(72)	Material / Design 5 Prestressed Concrete / 05 Box Bm/Gird- Multiple	Last NBI Inspection 06/21/2022 / OW6W	Operational Status A Open, no restriction(A)
			Scour Evaluation 3 SC - Unstable

SUPPORTING IMAGES

OW6W 06/21/2022



Document Name: IMG_2570.jpg
 Category: Elevation
 Span Number:
 Comments: West elevation



Document Name: IMG_2574.jpg
 Category: Elevation
 Span Number:
 Comments: East elevation



Document Name: IMG_2562.jpg
 Category: Deck
 Span Number:
 Comments: Looking north over structure




Document Name: IMG_2568.jpg
 Category: Deck
 Span Number:
 Comments: Looking south over structure

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 9031

BRIDGE SAFETY INSPECTION REPORT

Facility OLD US-27	Latitude / Longitude 44.2095 / -84.7917	MDOT Structure ID 72200026000B010	Structure Condition Good Condition(7)	
Feature WOLF CREEK	Length / Width / Spans 40 / 37.5 / 1	Owner County: Roscommon(72)		
Location SECTION 15/16 T21N R4W	Built / Recon. / Paint / Ovly. 1935 / 2008 / /	TSC Gaylord(27)	Operational Status A Open, no restriction(A)	
Region / County North(2) / Roscommon(72)	Material / Design 5 Prestressed Concrete / 05 Box Bm/Gird- Multiple	Last NBI Inspection 06/21/2022 / OW6W	Scour Evaluation 3 SC - Unstable	



Document Name: IMG_2564.jpg
 Category: Joints
 Span Number:
 Comments: South reference line joint



Document Name: IMG_2566.jpg
 Category: Joints
 Span Number:
 Comments: North reference line joint



Document Name: IMG_2571.jpg
 Category: Superstructure
 Span Number:
 Comments: Prestressed concrete box beams




Document Name: IMG_2575.jpg
 Category: Superstructure
 Span Number:
 Comments: Prestressed concrete box beams

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 9031

BRIDGE SAFETY INSPECTION REPORT

Facility OLD US-27	Latitude / Longitude 44.2095 / -84.7917	MDOT Structure ID 72200026000B010	Structure Condition Good Condition(7)
Feature WOLF CREEK	Length / Width / Spans 40 / 37.5 / 1	Owner County: Roscommon(72)	
Location SECTION 15/16 T21N R4W	Built / Recon. / Paint / Ovly. 1935 / 2008 / /	TSC Gaylord(27)	
Region / County North(2) / Roscommon(72)	Material / Design 5 Prestressed Concrete / 05 Box Bm/Gird- Multiple	Last NBI Inspection 06/21/2022 / OW6W	Scour Evaluation 3 SC - Unstable



Document Name: IMG_2573.jpg
 Category: Substructure
 Span Number:
 Comments: South abutment



Document Name: IMG_2576.jpg
 Category: Substructure
 Span Number:
 Comments: North abutment



Document Name: IMG_2565.jpg
 Category: Channel
 Span Number:
 Comments: Looking west off structure



Document Name: IMG_2569.jpg
 Category: Channel
 Span Number:
 Comments: Looking east off structure

TRAFFIC DATA	
OLD US-27 OVER WOLF CREEK	
PRESENT AVERAGE DAILY TRAFFIC	475 (2007)
FUTURE AVERAGE DAILY TRAFFIC	860 (2027)
POSTED SPEED	55 MPH
DESIGN SPEED	55 MPH
% COMMERCIAL	5%
DESIGN LOADING	HL93

PLAN INDEX	
1.	TITLE SHEET
2.	PLAN OF SITE
3.	LOG OF BORINGS
4.	APPROACH SECTIONS
5.	PLAN OF STRUCTURE
6.	DETAILS OF STRUCTURE
7.	QUANTITIES AND REINFORCEMENT
8.	ABUTMENT DETAILS
9.	SUPERSTRUCTURE DETAILS
10.	BOX BEAM DETAILS

STANDARD PLANS	
R-39-H	TRANSVERSE PAVEMENT JOINTS
R-41-E	LONGITUDINAL PAVEMENT JOINTS
R-45-E	CONVENTIONAL PAVEMENT REINFORCEMENT
R-60-G	GUARDRAIL TYPES A, B, BD, T, AND TD
R-61-F	GUARDRAIL APPROACH TERMINAL TYPES 1B & 1T
R-62-F	GUARDRAIL APPROACH TERMINAL TYPES 2B & 2T (ET & SKT)
R-67-F	GUARDRAIL ANCHORAGE, BRIDGE, DETAILS
R-80-D	GRANULAR BLANKET, UNDERDRAINS, AND OUTLET ENDINGS FOR UNDERDRAINS
R-82-D	BEDDING AND FILLING AROUND PIPE CULVERTS
R-96-D	SOIL EROSION & SEDIMENTATION CONTROL MEASURES
R-100-D	SODDING, SEEDING, AND TREE PLANTING
B-103-D	MOLDING, BEVEL, LIGHT STANDARD ANCHOR BOLT ASSEMBLY AND NAME PLATE DETAILS
WZD-125-D	TEMPORARY TRAFFIC CONTROL DEVICES
* X-30D	BRIDGE RAILING, OPEN PARAPET TYPE

* DENOTES SPECIAL DETAILS (INCLUDED IN PROJECT PROPOSAL)

ROSCOMMON COUNTY ROAD COMMISSION

IN COOPERATION WITH
FEDERAL HIGHWAY ADMINISTRATION

- AND -

MICHIGAN DEPARTMENT OF TRANSPORTATION

PLAN AND PROFILE OF PROPOSED
BRIDGE SUPERSTRUCTURE REPLACEMENT AND APPROACHES

ON
OLD US-27 OVER WOLF CREEK
(ROSCOMMON TOWNSHIP, SECTIONS 15 & 16, T21N - R4W)
STATE BRIDGE NUMBER: B01 of 72-09-01
JOB NUMBER: 86365A
CONTROL SECTION: BRO 72009
FEDERAL PROJECT NUMBER:
FEDERAL ITEM NUMBER:

GENERAL NOTES

THE MICHIGAN DEPARTMENT OF TRANSPORTATION 2003 STANDARD SPECIFICATIONS FOR CONSTRUCTION, AS MODIFIED BY THE PROPOSAL, SUPPLEMENTAL SPECIFICATIONS AND THE PLANS HEREIN, IS INCORPORATED INTO THIS CONTRACT.

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED HEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, 2003 EDITION.

THE DESIGN ENGINEER, CONSTRUCTION ENGINEER OR THEIR REPRESENTATIVES ARE NOT RESPONSIBLE FOR THE CONTRACTOR'S MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES OR FOR SAFETY IN CONNECTION WITH THE WORK.

THE DESIGN OF THIS STRUCTURE IS BASED ON CURRENT AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS HL93 LOADING. LOAD AND RESISTANCE FACTOR DESIGN METHOD WAS USED FOR THIS STRUCTURE. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/1000 OF SPAN LENGTH.

THE PROPOSED IMPROVEMENTS COVERED BY THESE PLANS ARE IN ACCORDANCE WITH THE AASHTO: A POLICY ON GEOMETRIC DESIGN OF HIGHWAY AND STREETS, 2004.

ALL EXPOSED CONCRETE CORNERS THAT ARE SHOWN SQUARE ON THE PLANS SHALL BE BEVELED WITH 1/2" TRIANGULAR MOLDINGS, EXCEPT AS OTHERWISE NOTED.

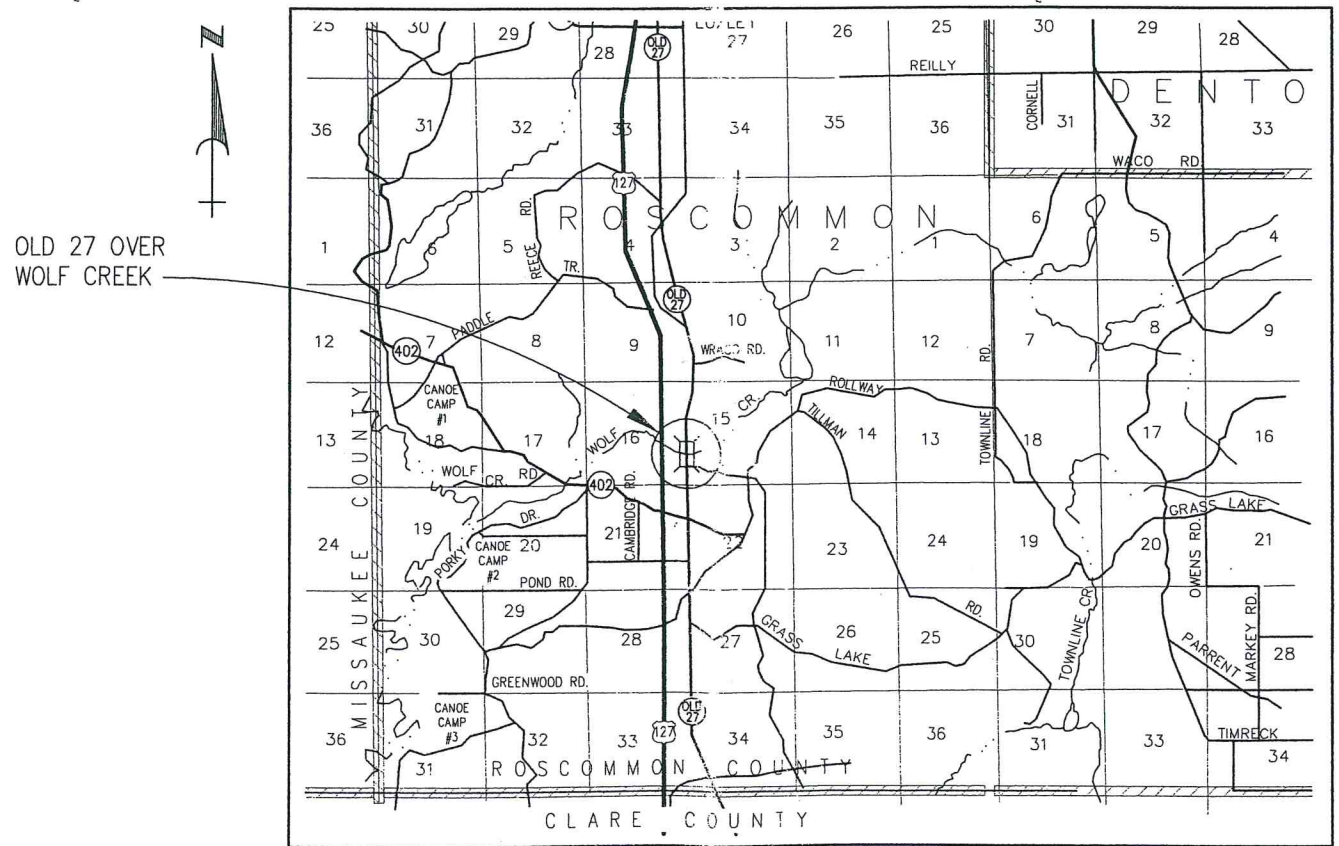
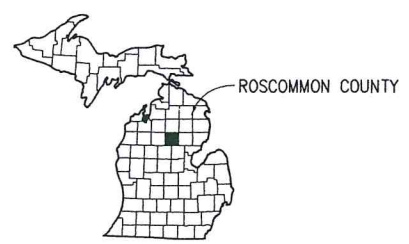
THE DESIGN OF THE STRUCTURAL MEMBERS IS BASED ON MATERIAL OF THE FOLLOWING GRADES AND STRESSES:

CONCRETE: GRADE D (BRIDGE RAILING).....	f'c = 4500 psi
CONCRETE: GRADE D.....	f'c = 4000 psi
CONCRETE: GRADE S2.....	f'c = 3000 psi
STEEL REINFORCEMENT:	fy = 60,000 psi
STEEL REINFORCEMENT: (STIRRUPS FOR PRESTRESSED BEAMS).....	fy = 60,000 psi
PRESTRESSED CONCRETE:	f'c = 5000 psi
PRESTRESSING STRANDS:	f's = 270,000 psi

THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK, AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO INSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

FOR PROTECTION OF UNDERGROUND UTILITIES, THE CONTRACTOR SHALL CALL MISS DIG AT 800-482-7171 A MINIMUM OF THREE WORKING DAYS PRIOR TO EACH EXCAVATION IN THE VICINITY OF UTILITY LINES. ALL "MISS DIG" PARTICIPATING MEMBERS WILL THEN BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE PART OF THE "MISS DIG" ALERT SYSTEM.

THE CONTRACTOR IS TO EXERCISE CARE TO AVOID EXCESSIVE SILTING OF THE STREAM DURING CONSTRUCTION; PROVISIONS WILL BE MADE FOR CONTROL OF EROSION ON SHOULDERS AND SLOPES BY MEANS OF SEEDING, SODDING OR OTHER ACCEPTABLE METHODS ALLOWED BY M.D.E.Q. PERMIT.



CONTRACT FOR: BRIDGE AND APPROACHES		
COUNTY ROAD COMMISSION APPROVAL		
CHAIRMAN	LARRY V. PAXTON, P.E.	DATE
VICE CHAIRMAN	CLINTON L. STAUFFER	DATE
MEMBER	JACKIE BERTSCH	DATE
MEMBER	KIM AKIN	DATE
MEMBER	GEORGE E. PAPPAS	DATE
MANAGER	TIM O'ROURKE	DATE
PREPARED UNDER THE SUPERVISION OF:		
SCOTT J. PAWLOSKI, P.E. REGISTERED PROFESSIONAL ENGINEER REGISTRATION NUMBER: MI 39181 R.S. SCOTT ASSOCIATES, INC. - AGENT		
DATE		



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(989) 354-3176

ROSCOMMON COUNTY ROAD COMMISSION
OLD US-27 OVER WOLF CREEK
ROSCOMMON TOWNSHIP
SECTIONS 15 & 16, T21N - R4W

TITLE SHEET

BY	DATE	SHEET NO.
TAS	11/07	
CHK	DATE	
SJP	11/07	

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DESCRIPTION OF EXISTING BRIDGE
 THIS IS A SINGLE SPAN, STEEL STRINGER BRIDGE 40 FEET LONG AND 41.4 FEET WIDE. THE BRIDGE HAS A CONCRETE DECK WITH A BITUMINOUS WEARING SURFACE. THE ABUTMENTS ARE FULL HEIGHT CONCRETE W/90° WINGWALLS. THE BRIDGE RAIL IS MICHIGAN R4.

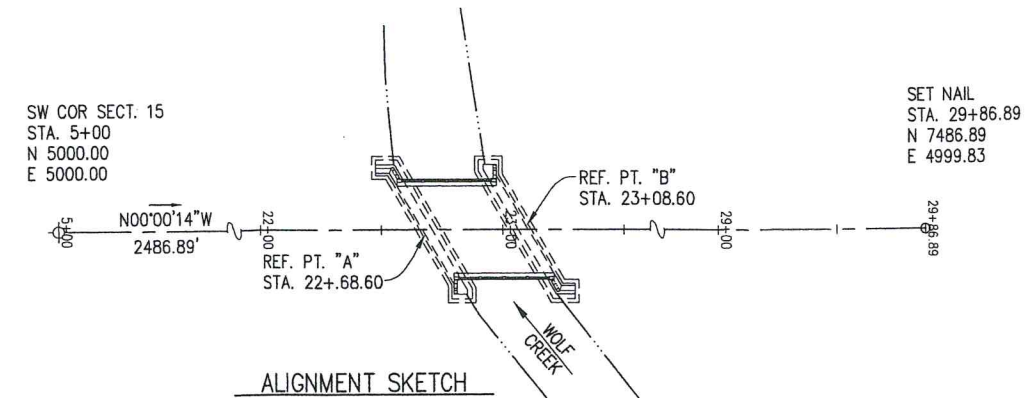
BENCH MARKS
 BM #1
 SPIKE IN 14" ASH EL. 96.86
 STA: 21+27 39.5' LT.
 BM #2
 SPIKE IN 18" OAK EL. 98.49
 STA: 23+8 43.1' LT.

SUMMARY OF HYDRAULIC ANALYSIS							
FLOOD DATA	DISCHARGE (CFS)	EXISTING		PROPOSED		WATERWAY AREA AT D/S FACE (SFT)	CHANGE IN W.S. EL. U/S OF PROPOSED STRUCTURE (FT)
		WATER SURFACE EL. AT U/S FACE OF STRUCTURE (FT)	VELOCITY IN D/S CHANNEL (FT/S)	WATER SURFACE EL. AT U/S FACE OF STRUCTURE (FT)	VELOCITY IN D/S CHANNEL (FT/S)		
50-YEAR	310	95.62	1.98	95.62	1.98	107.72	0.00
100-YEAR	340	95.72	2.02	95.71	2.02	110.95	0.00

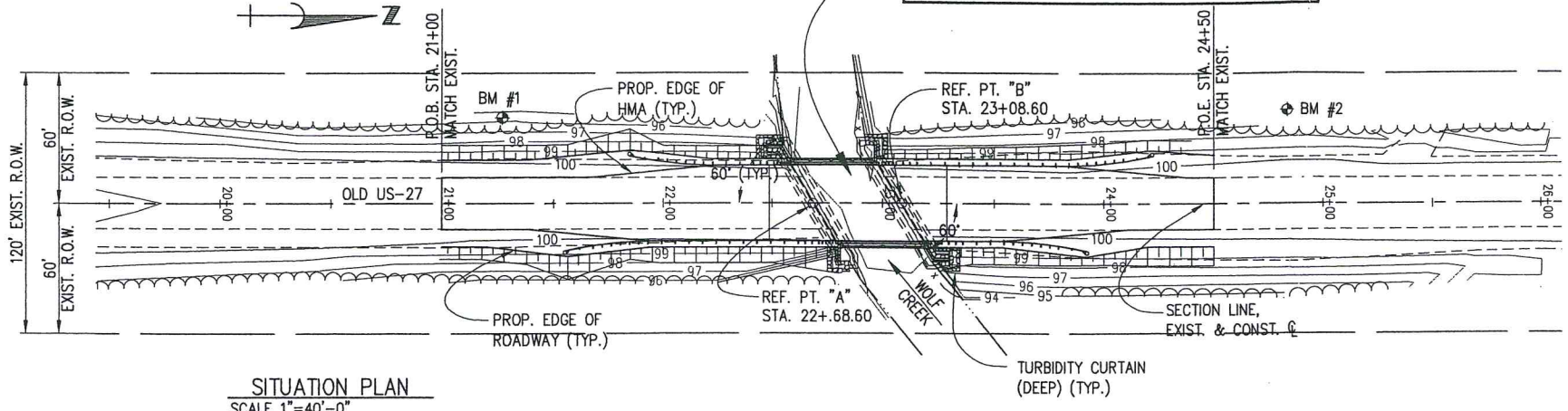
MAXIMUM BRIDGE AREA BELOW LOW CHORD IS 202.61 SQUARE FEET

THE DRAINAGE AREA CONTRIBUTORY TO THIS CROSSING IS 47.71 SQUARE MILES.

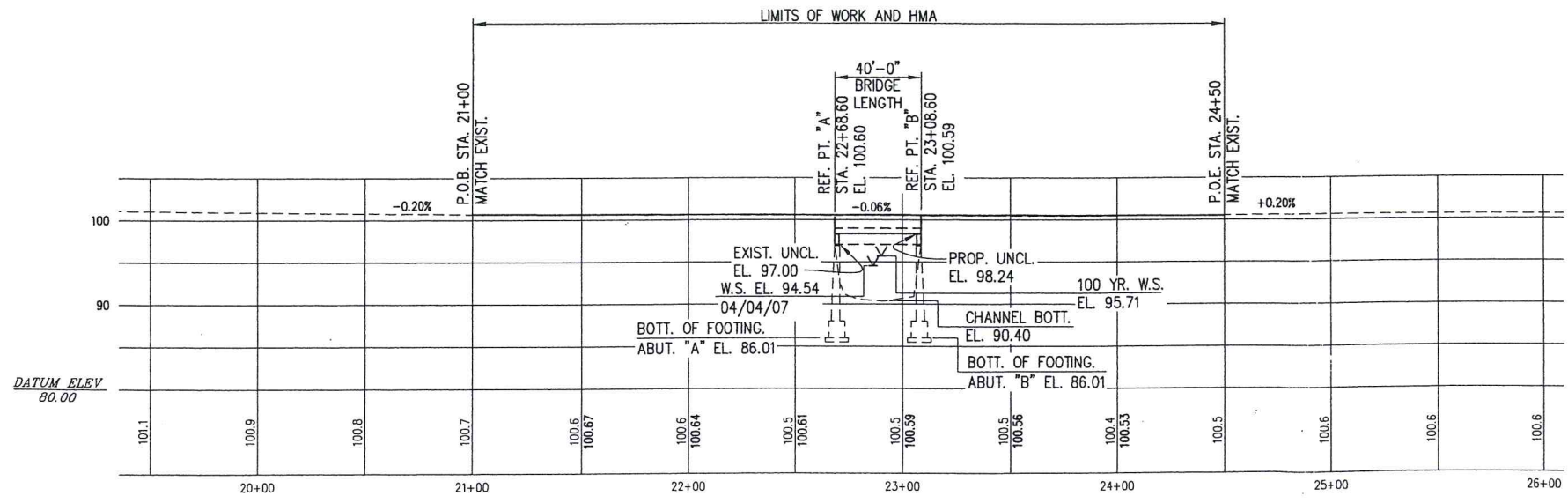
THE WATER SURFACE AND/OR ENERGY GRADE ELEVATIONS SHOWN ON THE ABOVE HYDRAULIC TABLE ARE TO BE USED FOR COMPARISON PURPOSES ONLY AND ARE NOT TO BE USED FOR ESTABLISHING A REGULATOR FLOODPLAIN. THE ELEVATIONS MAY BE USED PROVIDED THEY ARE VERIFIED WITH THE LAND AND WATER MANAGEMENT DIVISION, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY.



EXISTING SUPERSTRUCTURE (TO BE REMOVED) AND PROPOSED SUPERSTRUCTURE



SITUATION PLAN
 SCALE 1"=40'-0"



CENTERLINE PROFILE
 SCALE HORIZ. 1"= 40'
 VERT. 1"= 10'

NOTES:
 THE WORK COVERED BY THESE PLANS INCLUDE: REMOVAL OF PORTIONS OF EXISTING STRUCTURE, MAINTAINING TRAFFIC, CONSTRUCTION OF THE PROPOSED BRIDGE, CONSTRUCTION OF SIGNS & BARRICADES, AND CONSTRUCTING THE APPROACHES TO THE LIMITS SHOWN.

THE PROPOSED PROJECT WILL BE CLOSED TO THRU TRAFFIC AND TRAFFIC IS TO BE MAINTAINED OVER OTHER EXISTING ROADS. THE CONTRACTOR SHALL PROVIDE ALL SIGNING AND MAINTENANCE AS OUTLINED IN THE SPECIAL PROVISION "TRAFFIC MAINTENANCE AND CONTROL" THESE SIGNS SHALL REMAIN IN PLACE AND THE ROAD CLOSED TO THRU TRAFFIC UNTIL SUCH TIME AS THE ENGINEER APPROVES OPENING THE ROAD TO TRAFFIC.

EXISTING SIGNS TO BE SALVAGED AND STOCKPILED ON SITE FOR PICKUP BY THE ROSCOMMON COUNTY ROAD COMMISSION.

THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ANY AND ALL PERMITS REQUIRED UNDER THE SOIL EROSION AND SEDIMENT CONTROL ACT (PART 91 OF PUBLIC ACT 451) OR ANY OTHER LEGALLY MANDATED PERMITS FOR OFF-SITE DISPOSAL OF SPOILS GENERATED BY THIS WORK.

THE WATER LEVEL IS SUBJECT TO CHANGE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING A DETERMINATION OF THE WATER LEVELS THAT MAY EXIST DURING CONSTRUCTION.

MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE STRUCTURE. (IF DEBRIS FALLS INTO THE WATERWAY, IT SHALL BE REMOVED WITHIN 24 HOURS. SINCE DISTURBANCE OF THE WATERWAY BOTTOM MAY BE AS HARMFUL AS THE DEBRIS ITSELF, THE PREVENTIVE MEASURES MUST BE EFFECTIVE.)

TEMPORARILY STORED EXCAVATED MATERIAL SHALL NOT BE ALLOWED TO ERODE INTO THE WATERCOURSE.

STRUCTURE BACKFILL COMPACTED-IN-PLACE 45 CUBIC YARDS.

ALL OFFSET DIMENSIONS ARE TAKEN FROM THE CONSTRUCTION CENTERLINE.

PLAN ELEVATIONS REFER TO I.G.L.D. DATUM.

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 ROSCOMMON TOWNSHIP
 SECTIONS 15 & 16, T21N - R4W

PLAN OF SITE

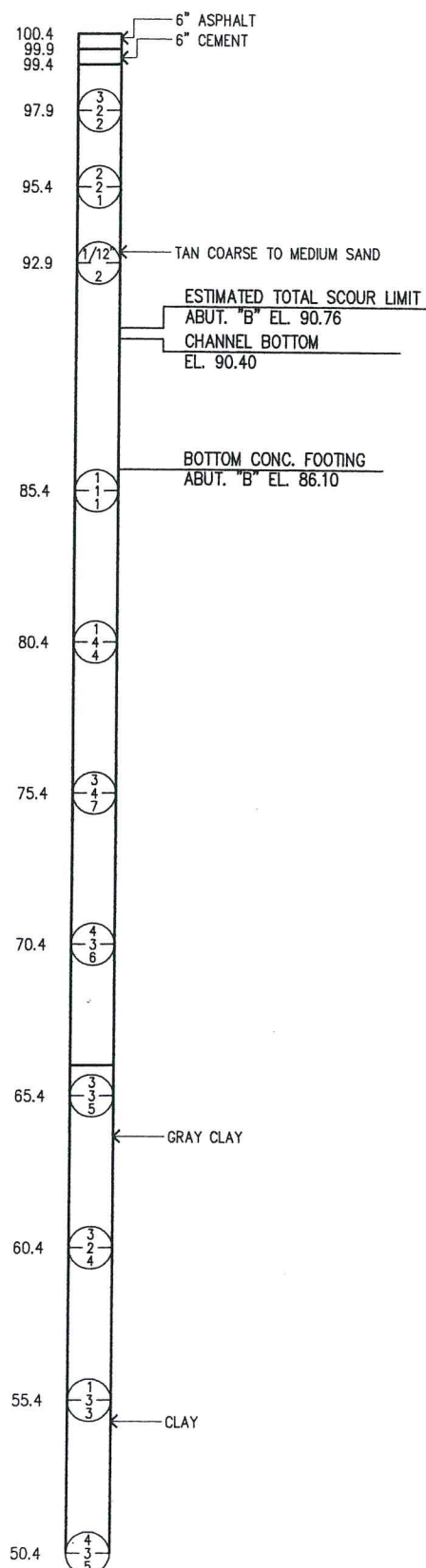
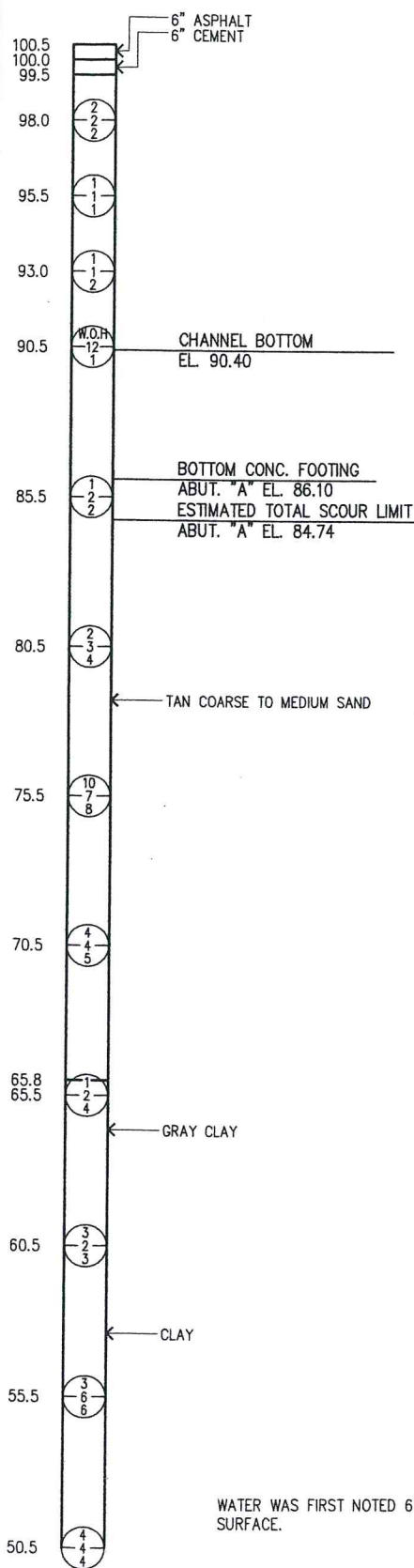
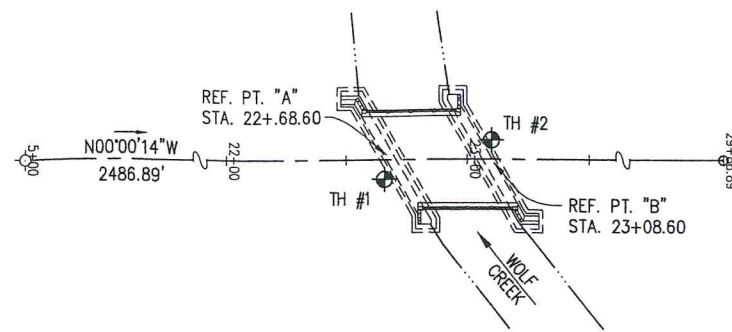
BY:	DATE:	BO1 of 72-09-01	SHEET NO 2
TAS	11/07		
CHK:	DATE:	JN 86365A	OF 1
SJP	11/07		

TEST HOLE NO. 1

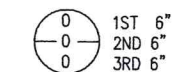
TEST HOLE NO. 2

EL. LOCATION STATION 22+66
LOCATION 8' RT. OF EXISTING CENTERLINE
GROUND SURFACE ELEVATION 100.5

EL. LOCATION STATION 23+11
LOCATION 8' LT. OF EXISTING CENTERLINE
GROUND SURFACE ELEVATION 100.4



BORING NOTES:



NUMBERS IN CIRCLES DENOTE NUMBER OF BLOWS REQUIRED TO DRIVE A 2.00\"/>

CONSISTENCY WAS DETERMINED BY INSPECTION OF SAMPLES AND SUBSTANTIATED BY SOILS RESISTANCE TO DRILLING TOOLS.

WATER LEVELS MAY BE INFLUENCED BY RESIDUAL BORING WATER.

THE SOIL BORING LOGS REPRESENT POINT INFORMATION. PRESENTATION OF THIS INFORMATION IN NO WAY IMPLIES THAT SUBSURFACE CONDITIONS ARE THE SAME AT LOCATIONS OTHER THAN THE EXACT LOCATION OF THE BORING.

BORINGS BY: PEARSON DRILLING COMPANY
6100 W. BLUE RD.
LAKE CITY, MI 49651
4/13/06

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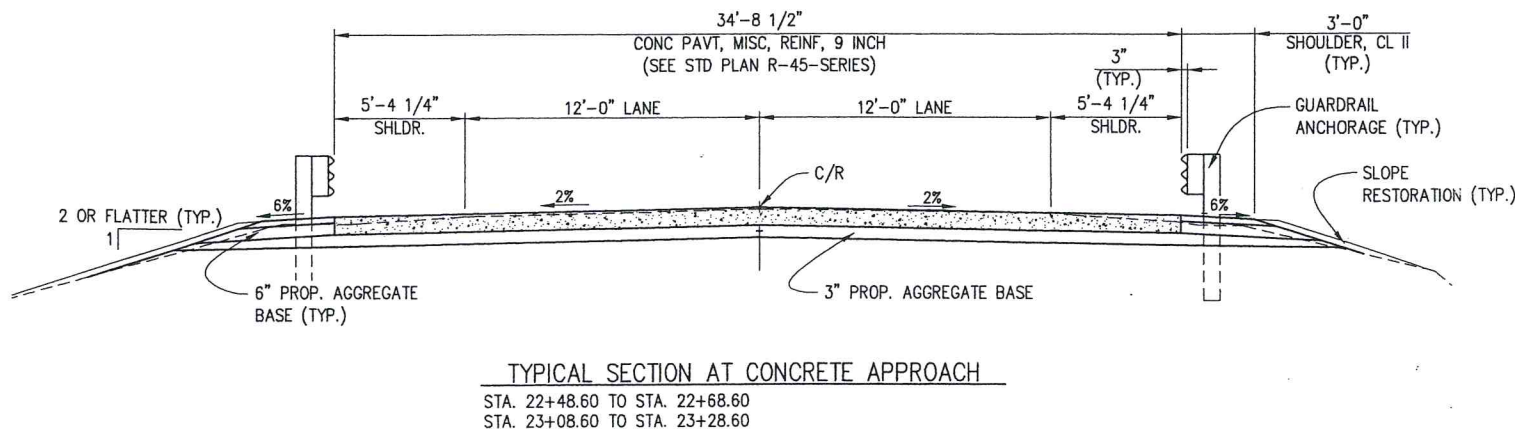
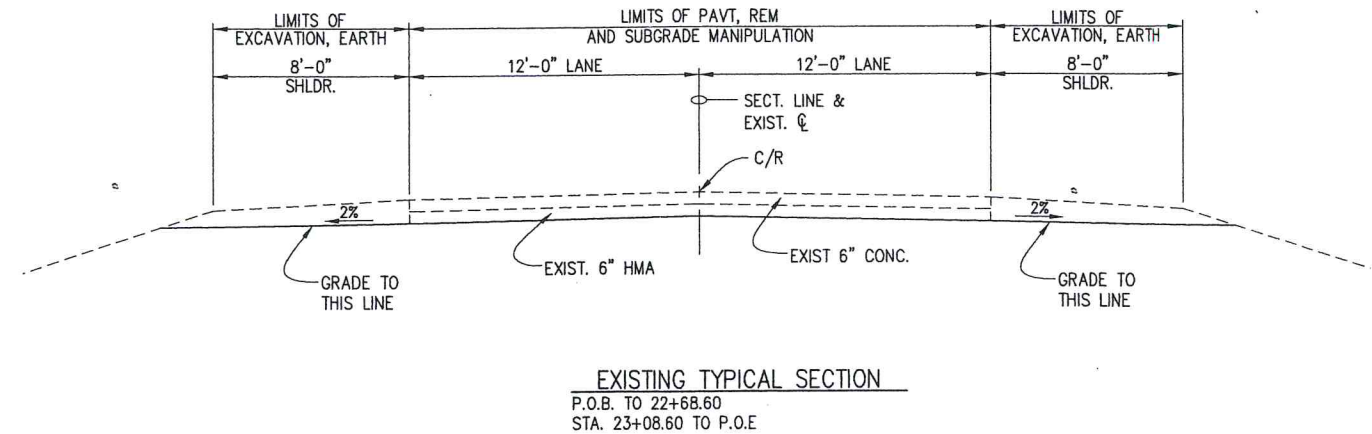
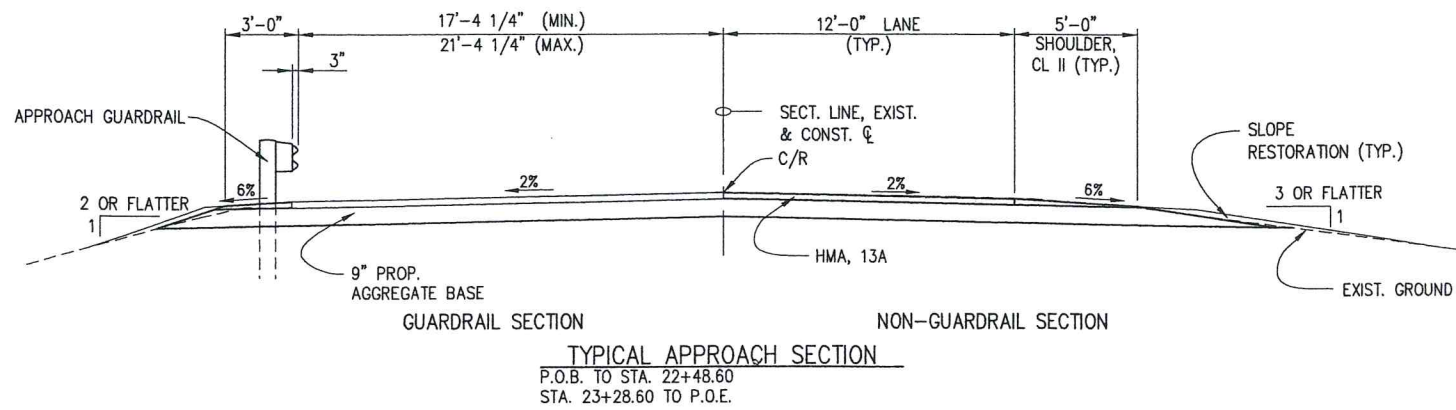
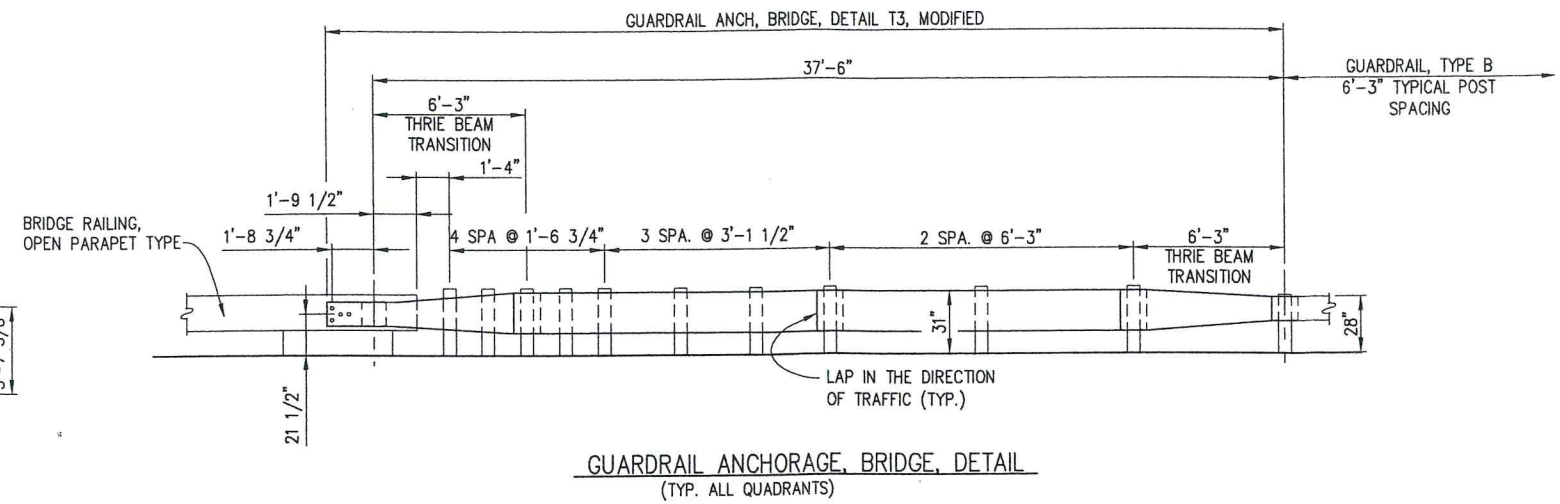
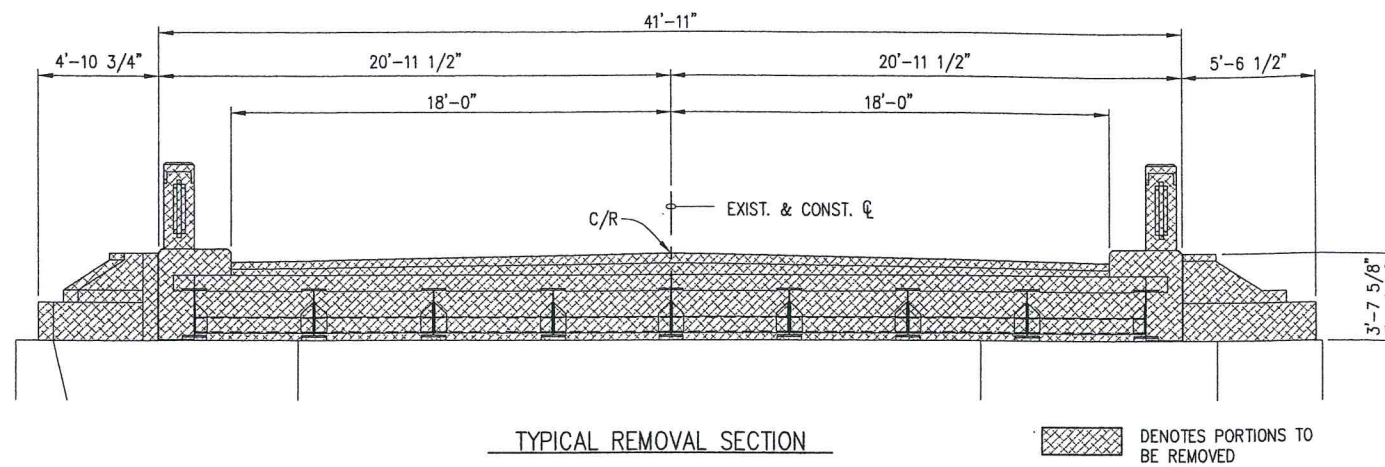
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ROSCOMMON TOWNSHIP
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LOG OF BORING

BY:	DATE:	B01 of 72-09-01	SHEET NO. 3
TAS	11/07		
CHK:	DATE:	JN 86365A	OF 10
SJP	11/07		



HMA APPLICATION TABLE			
	ITEM	AWI	P.G.
TOP	HMA 13A @ 165 #/SYD	260	58-28
LEVEL	HMA 13A @ 165 #/SYD		58-28
HMA BOND COAT 0.05 - 0.10 GAL/SYD (NOT A PAY ITEM)			

NOTES:

NEITHER SUBGRADE UNDERCUTTING NOR PEAT EXCAVATION ARE A PART OF THIS CONTRACT. IN THE EVENT, SOFT SOILS ARE EXPOSED DURING THE APPROACH WORK, THEY SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT ENGINEER IMMEDIATELY.



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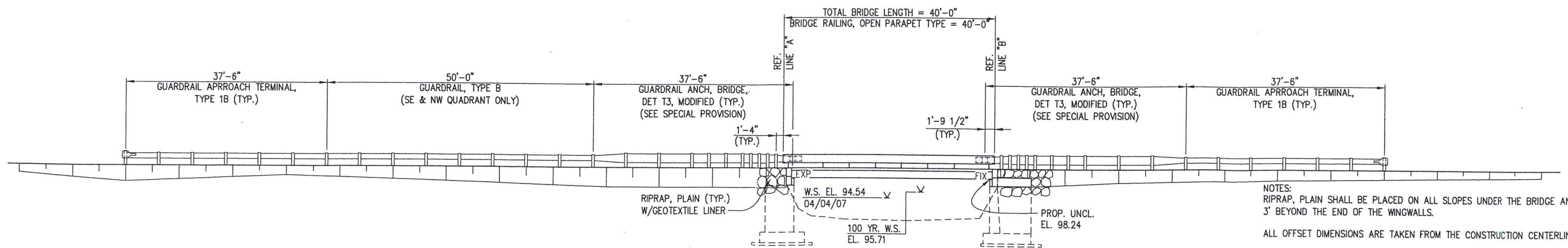
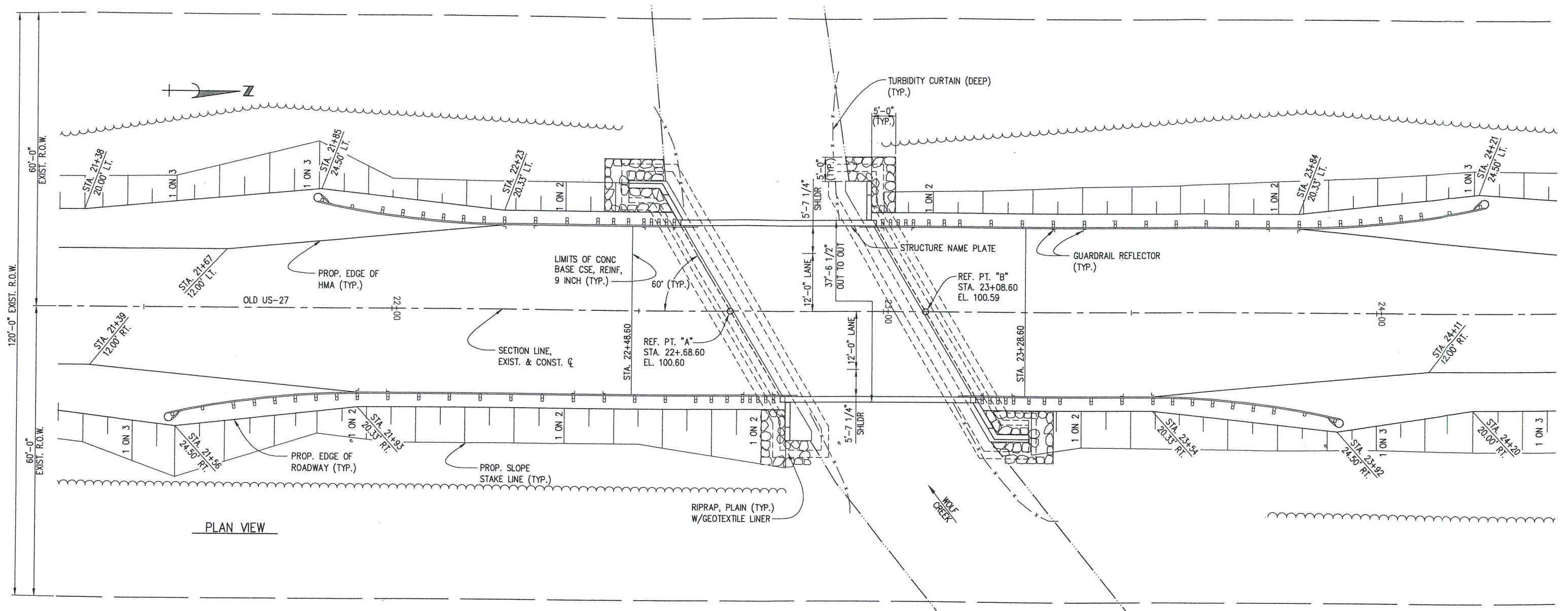
ROSCOMMON COUNTY ROAD COMMISSION
OLD US-27 OVER WOLF CREEK
ROSCOMMON TOWNSHIP
SECTIONS 15 & 16, T21N - R4W

APPROACH SECTIONS

BY:	DATE:	SHEET NO.
TAS	11/07	
CHK:	DATE:	
SJP	11/07	OF 10

B01 of 72-09-01

JN 86365A



NOTES:

RIPRAP, PLAIN SHALL BE PLACED ON ALL SLOPES UNDER THE BRIDGE AND TO A POINT 3' BEYOND THE END OF THE WINGWALLS.

ALL OFFSET DIMENSIONS ARE TAKEN FROM THE CONSTRUCTION CENTERLINE.

GEOTEXTILE LINER SHALL BE PLACED ON ALL SLOPES PRIOR TO PLACING RIPRAP. PAYMENT FOR GEOTEXTILE LINER SHALL BE INCLUDED IN PAYMENT FOR RIPRAP.



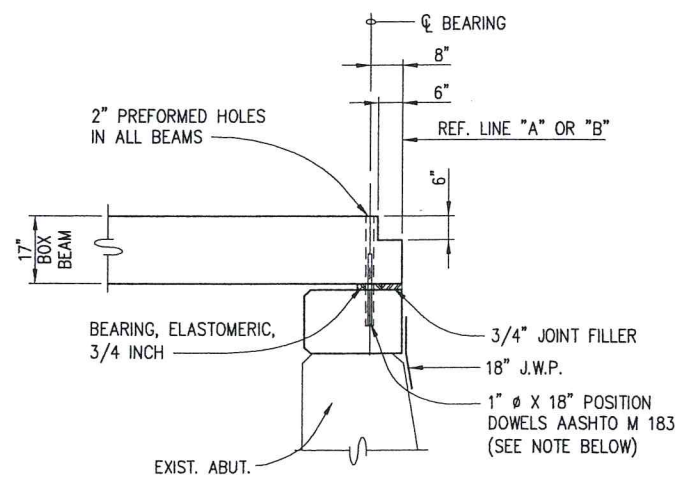
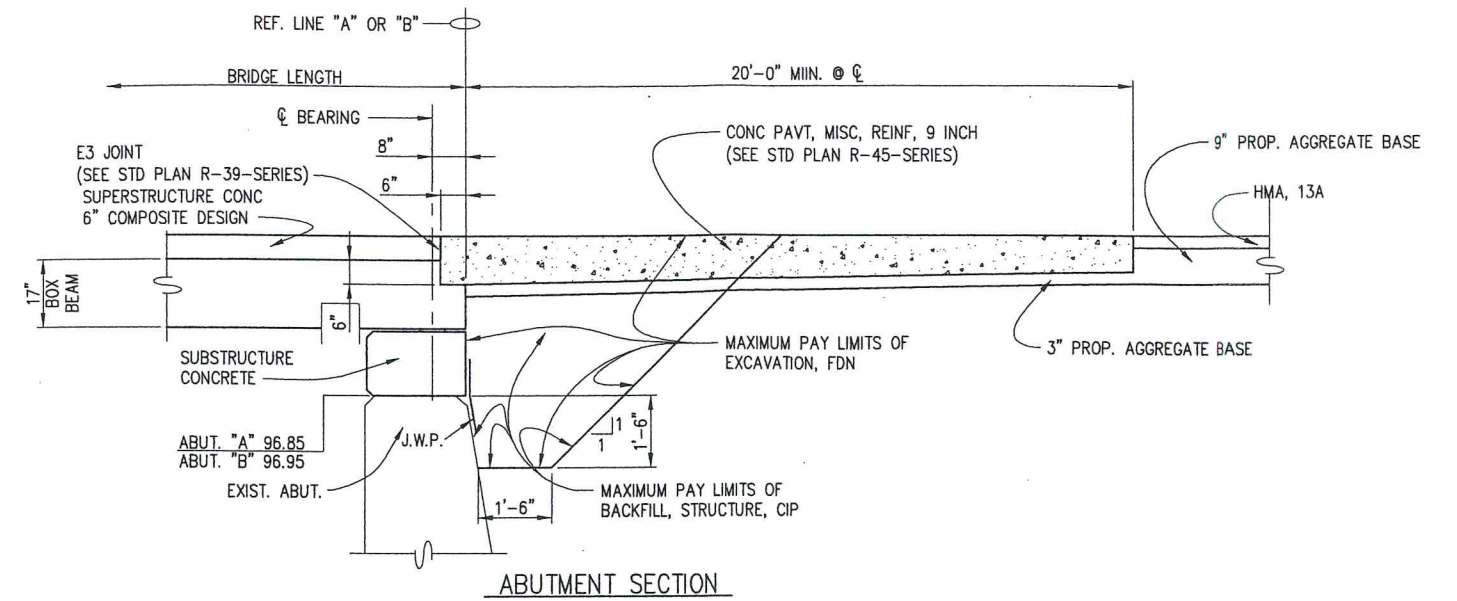
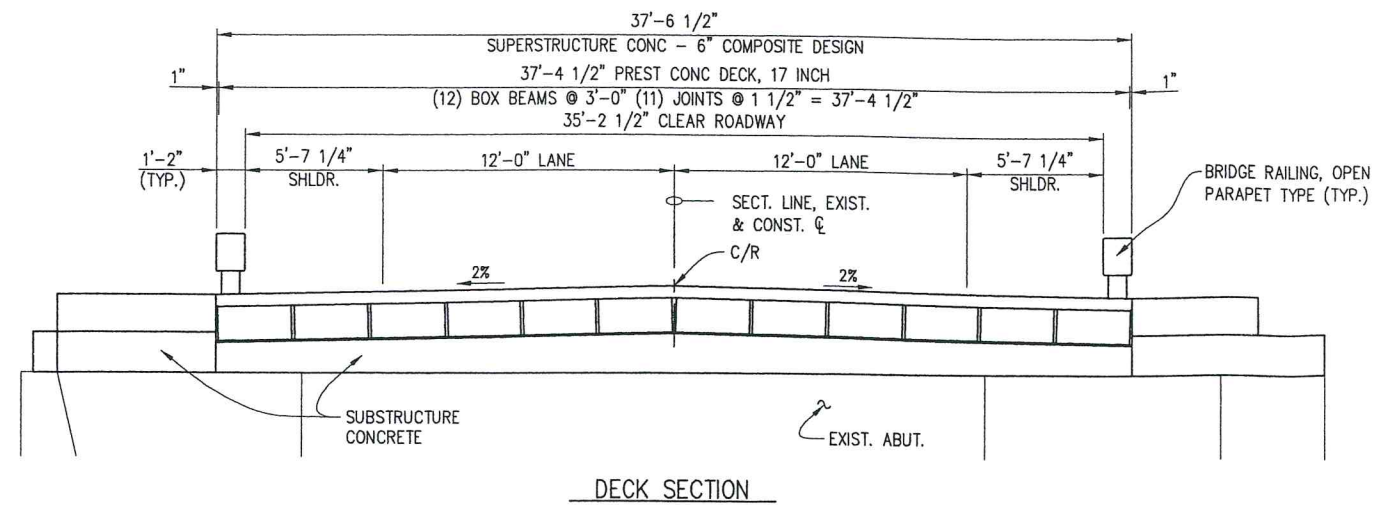
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PLAN OF STRUCTURE

BY:	DATE:	B01 of 72-09-01	SHEET NO. 5
TAS	11/07		
CHK:	DATE:	JN 86365A	OF 10
SJP	11/07		



NOTE:
 2" MIN. DIA. X 9" DEEP FIELD DRILLED HOLES. AFTER ERECTING DECK PLANKS, DOWEL HOLES SHALL BE FILLED TO TOP OF DECK PLANKS WITH TYPE H-1, GROUT AT THE FIXED BEARING. AT THE EXPANSION BEARING THE DOWEL HOLES SHALL BE FILLED WITH HOT POURED RUBBER ASPHALT TYPE FILLER TO @ LEAST 3" ABOVE THE ANCHOR DOWELS AND THE REMAINDER SHALL BE FILLED WITH TYPE H-1, GROUT. (INCLUDED IN PAY ITEM PREST CONC DECK, 17 INCH SEE STANDARD SPECIFICATION 708)



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 OLD US-27 OVER WOLF CREEK
 ROSCOMMON TOWNSHIP
 SECTIONS 15 & 16, T21N - R4W

DETAILS OF STRUCTURE

BY:	DATE:	BO1 of 72-09-01	SHEET NO. 6
TAS	11/07		
CHK:	DATE:	JN 86365A	OF 10
SJP	11/07		

STEEL REINFORCEMENT, EPOXY COATED - ABUTMENTS													
MARK	DIMENSIONS								SIZE	LENGTH	NO. REQ'D	TOTAL WT.	
	a	b	c	d	e	f	g	h					
EA040410	4'-10"								#4	4'-10"	8	26	
EA040506	5'-6"								#4	5'-6"	8	29	
EA040606	6'-6"								#4	6'-6"	8	35	
EA040709	7'-9"								#4	7'-9"	8	41	
EA040806	8'-6"								#4	8'-6"	8	45	
EA060106	1'-6"								#6	1'-6"	128	288	
EA062209	22'-9"								#6	22'-9"	8	273	
ED060302	0'-11"	1'-4"	0'-11"						#6	3'-2"	64	304	
ED060606	2'-11"	0'-8"	2'-11"						#6	6'-6"	8	78	
TOTAL ABUTMENTS											1119		

STEEL REINFORCEMENT, EPOXY COATED - DECK													
MARK	DIMENSIONS								SIZE	LENGTH	NO. REQ'D	TOTAL WT.	
	a	b	c	d	e	f	g	h					
EA033806	38'-6"								#3	38'-6"	40	579	
EA033908	39'-8"								#3	39'-8"	4	60	
EA040011	0'-11"								#4	0'-11"	2	1	
EA043610	36'-10"								#4	36'-10"	40	984	
EA043701	37'-1"								#4	37'-1"	37	917	
EA044300	43'-0"								#4	43'-0"	2	57	
TOTAL DECK											2598		

STEEL REINFORCEMENT, EPOXY COATED - RAILING													
MARK	DIMENSIONS								SIZE	LENGTH	NO. REQ'D	TOTAL WT.	
	a	b	c	d	e	f	g	h					
EA040408	4'-8"								#4	4'-8"	16	50	
EA040508	5'-8"								#4	5'-8"	16	61	
EA053908	39'-8"								#5	39'-8"	16	662	
W 3.5 SPIRAL	1.83 Lbs/Ft												
TOTAL RAILINGS											919		

Approach Quantities:	Quantity	Unit
Mobilization, Max \$25,000.00	1	LS
Pavt, Rem	1654	Syd
Excavation, Earth	150	Cyd
Subgrade Manipulation	827	Syd
Turbidity Curtain (Deep)	200	Ft
Aggregate Base	700	Ton
Shoulder, CI II	70	Ton
HMA, 13A	150	Ton
Conc Pavt, Misc, Reinf, 9 inch	160	Syd
Joint, Expansion, E3	81	Ft
Guardrail, Type B	100	Ft
Guardrail Approach Terminal, Type 1B	4	Ea
Guardrail Reflector	20	Ea
Guardrail Anch, Bridge, Det T3, Modified	4	Ea
Sign, Type III, Rem	2	Ea
Pavt Mrkg, Regular Dry, 4 inch, Yellow	100	Ft
Pavt Mrkg, Regular Dry, 4 inch, White	700	Ft
Barricade, Type III, High Intensity, Lighted, Furn	6	Ea
Barricade, Type III, High Intensity, Lighted, Oper	6	Ea
Pavt Mrkg, Type R, 4 inch, Yellow, Temp	24	Ft
Sign, Type B, Temp, Furn	565	Sft
Sign, Type B, Temp, Oper	565	Sft
Slope Restoration	550	Syd

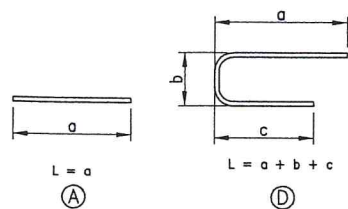
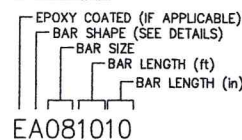
Bridge Quantities:	Quantity	Unit
Structures, Rem Portions	1	LS
Embankment, CIP	50	Cyd
Backfill, Structure, CIP	45	Cyd
Excavation, Fdn	90	Cyd
Substructure Conc	22	Cyd
Superstructure Conc	28	Cyd
Superstructure Conc, Form, Finish, and Cure	1	LS
Reinforcement, Steel, Epoxy Coated	4636	Lb
Water Repellent Treatment, Penetrating	15	Syd
Bearing, Elastomeric, 3/4 inch	42	Sft
Prest Conc Deck, 17 inch	1495	Sft
Post Tensioning	1	LS
Joint Waterproofing	390	Sft
Bridge Railing, Open Parapet Type	80	Ft
Adhesive Anchoring of Vertical Bar, 3/4 inch	64	Ea
Riprap, Plain	55	Syd

NOTES:

TOLERANCES IN CUTTING AND BENDING BARS ARE AS ESTIMATED IN THE MANUAL OF STANDARD PRACTICE OF THE CONCRETE REINFORCING STEEL INSTITUTE AND DETAILING MANUAL OF THE AMERICAN CONCRETE INSTITUTE.

ALL BENDS IN REINFORCING STEEL TO BE MADE ABOUT A PIN OF THE MINIMUM DIAMETER ALLOWED BY SPECIFICATIONS.

BAR NUMBERS:



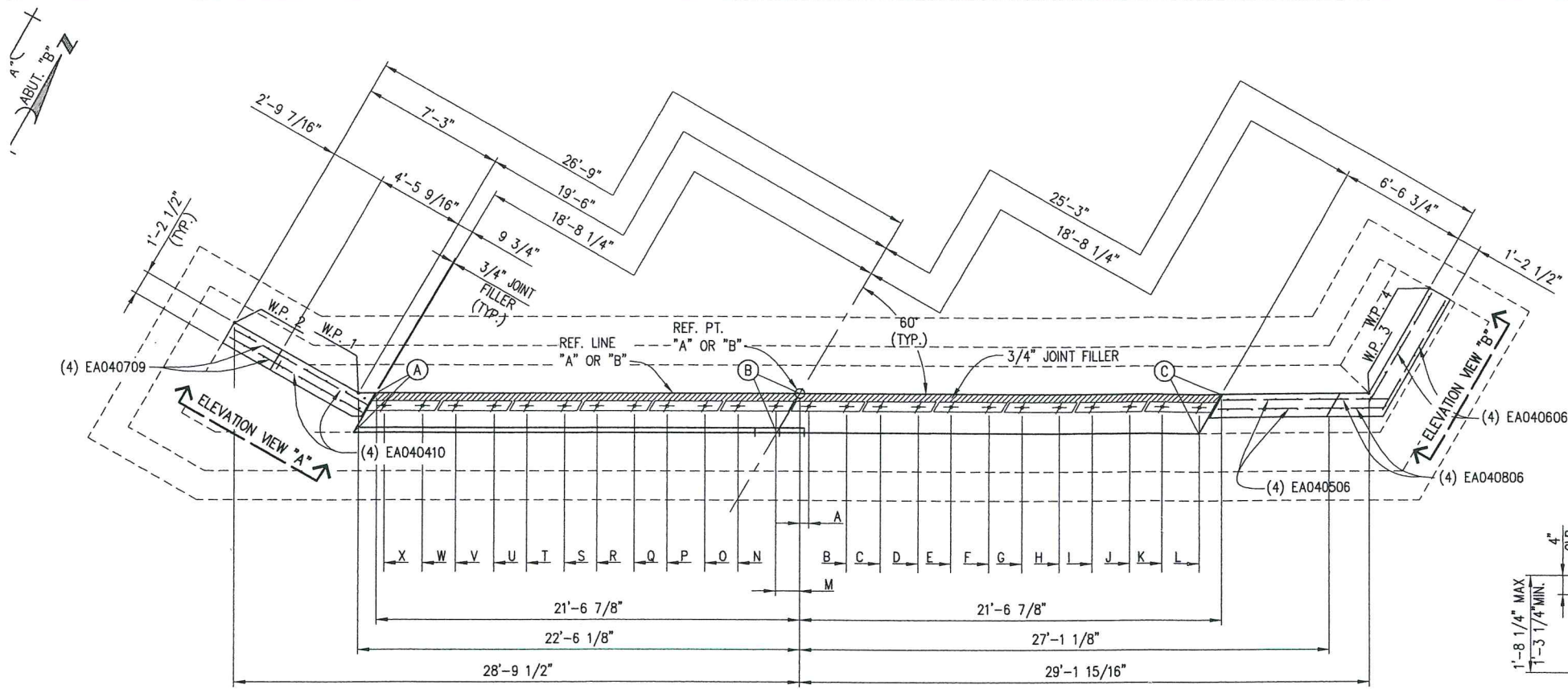
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SECTIONS 15 & 16, T21N - R4W

QUANTITIES AND REINFORCEMENT

BY: TAS	DATE: 11/07	B01 of 72-09-01	SHEET NO. 7
CHK: SJP	DATE: 11/07		



PLAN OF "A" OR "B"

DOWEL POSITIONS

A	5 1/2"	M	1'-2 3/4"
B	2'-4 5/8"	N	3'-1 7/8"
C	4'-0 3/4"	O	4'-10"
D	5'-11 7/8"	P	6'-9 1/8"
E	7'-8 1/8"	Q	8'-5 3/8"
F	9'-7 1/8"	R	10'-4 3/8"
G	11'-3 3/8"	S	12'-0 5/8"
H	13'-2 1/2"	T	13'-11 3/4"
I	14'-10 3/4"	U	15'-7 7/8"
J	16'-9 3/4"	V	17'-7"
K	18'-6"	W	19'-3 1/4"
L	20'-5 1/8"	X	21'-2 3/8"

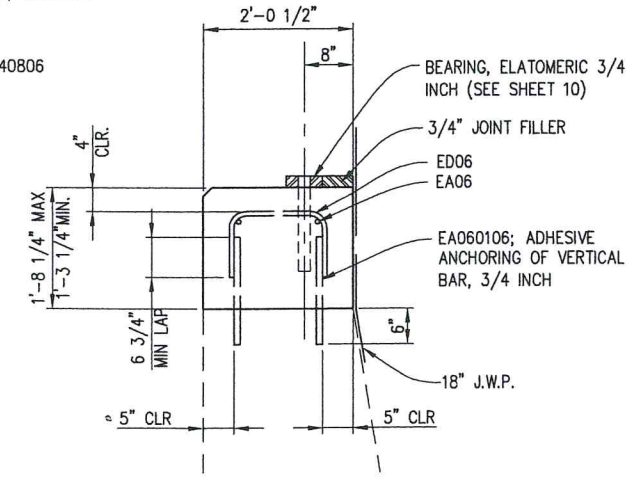
THE CONTRACTOR SHALL POSITION REINFORCING BARS TO CLEAR POSITION DOWELS
DIMENSIONS ARE FROM CONST. CENTERLINE

SUBSTRUCTURE CONCRETE (S2)

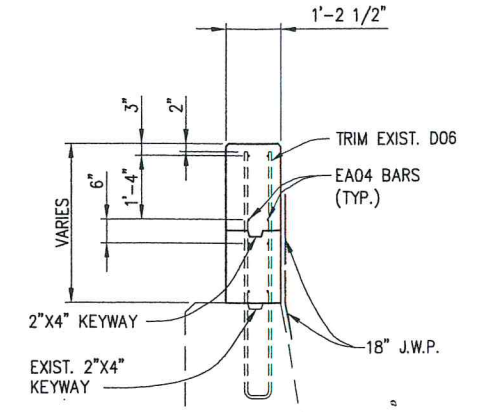
LOCATION	ABUT. "A"	ABUT. "B"
POUR "A"	4.9	4.9
POUR "B"	0.5	0.5
POUR "C"	0.5	0.5
POUR "D"	0.9	0.9
POUR "E"	0.6	0.6
SUBTOTAL	7.4	7.4
TOTAL		14.8 Cyd

TOP OF WALL ELEVATIONS

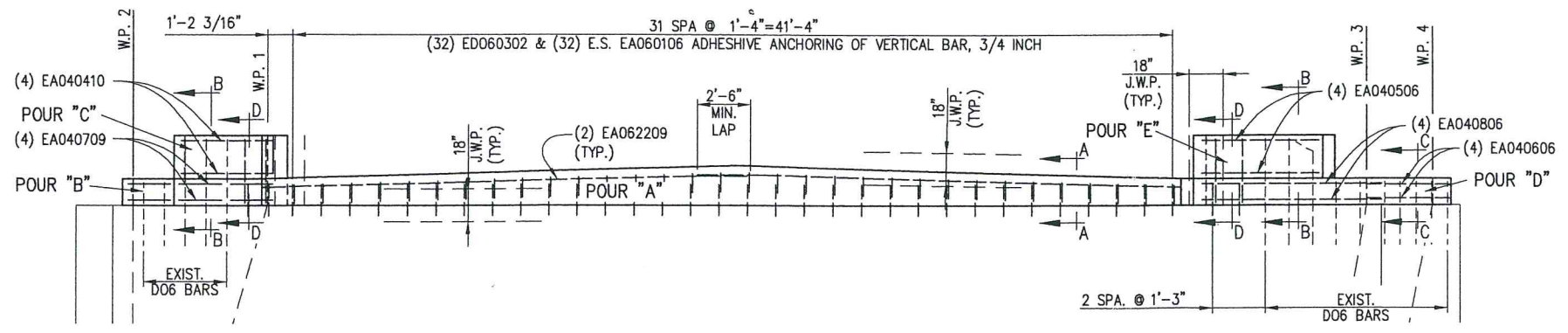
LOCATION	A	B	C
ABUT. "A"	98.20	98.58	98.21
ABUT. "B"	98.19	98.56	98.18



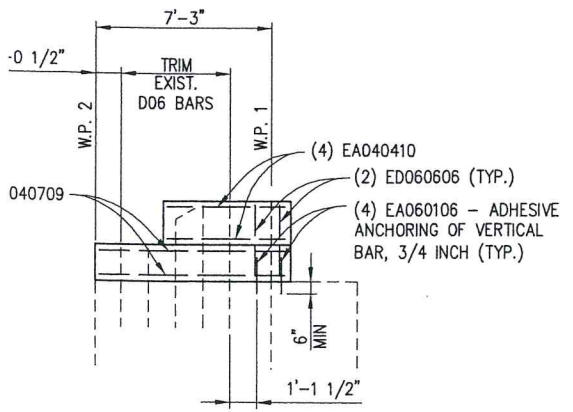
SECTION "A-A"



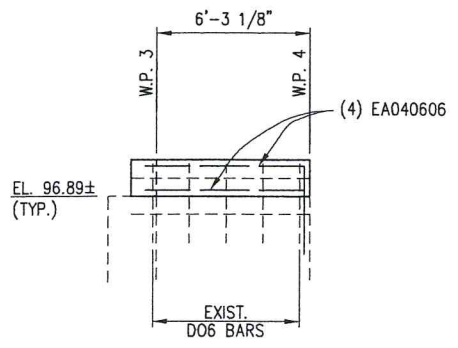
SECTION "B-B"



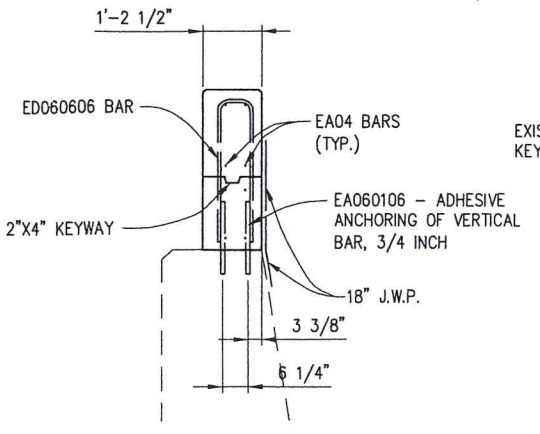
ELEVATION "A" OR "B"



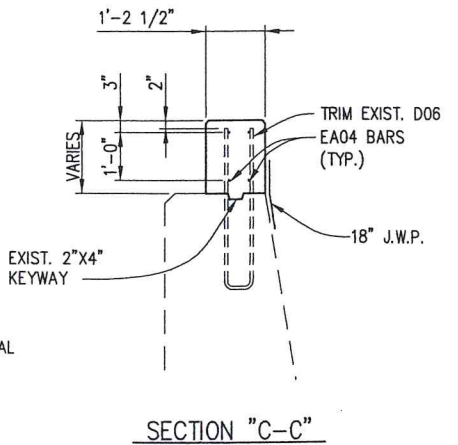
ELEVATION VIEW "A"



ELEVATION VIEW "B"



SECTION "D-D"



SECTION "C-C"

NOTES:
FOR BEVEL AND MOLDING DETAILS SEE STANDARD PLAN B-103-SERIES.
FIELD FIT REINFORCING STEEL TO ALLOW FOR DRILLING OF POSITION DOWEL HOLES AFTER BOX BEAMS HAVE BEEN SET IN PLACE.
THE EXPOSED TOPS OF SUBSTRUCTURE UNITS ARE TO BE GIVEN AN APPLICATION OF Water Repellent Treatment, Penetrating PRIOR TO PLACING JOINT FILLER AND/OR ELASTOMERIC PADS, BUT SHALL NOT INCLUDE THE AREA UNDER ABUTMENT PARAPET WALLS.
ABUTMENT JOINTS BETWEEN THE MAIN WALLS, THE DECK PLANKS AND PARAPET WALLS SHALL BE COVERED WITH 18 INCH WIDE Joint Waterproofing PER THE STANDARD SPECIFICATION 710.03.
JOINT FILLER IS PAID FOR AS A PART OF Substructure Conc, AND SHALL NOT BE PAID FOR SEPARATELY.
POUR C AND E ARE TO BE POURED TO THE TOP OF DECK AFTER DECK IS IN PLACE. THE CONTRACTOR MAY SELECT, AT HIS OWN EXTRA EXPENSE, TO CAST POUR B, C, D AND E USING GRADE D CONCRETE.
FOR BEARING AND POSITION DOWEL DETAILS AND NOTES SEE SHEETS 6 AND 10.
J.W.P. DENOTES JOINT WATERPROFFING
F.S. DENOTES FAR SIDE
N.S. DENOTES NEAR SIDE
E.S. DENOTES EACH SIDE



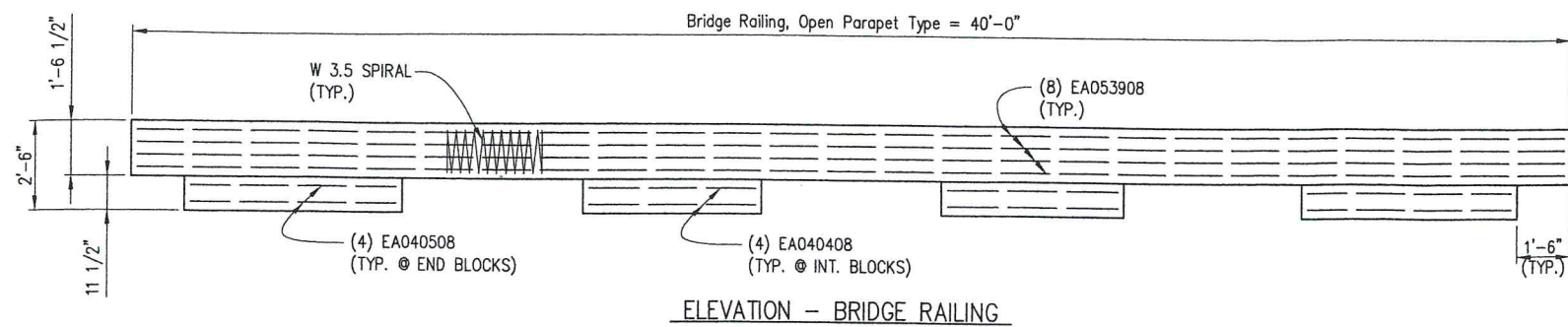
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ROSCOMMON COUNTY ROAD COMMISSION
OLD US-27 OVER WOLF CREEK
ROSCOMMON TOWNSHIP
SECTIONS 15 & 16, T21N - R4W

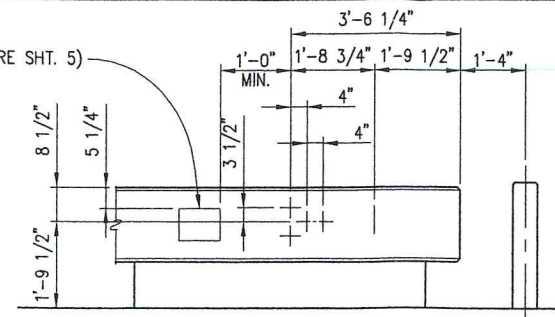
ABUTMENT DETAILS

BY:	DATE:	BO1 of 72-09-01	SHEET NO. 8
TAS	11/07		
CHK:	DATE:	JN 86365A	OF 10
SJP	11/07		



ELEVATION - BRIDGE RAILING

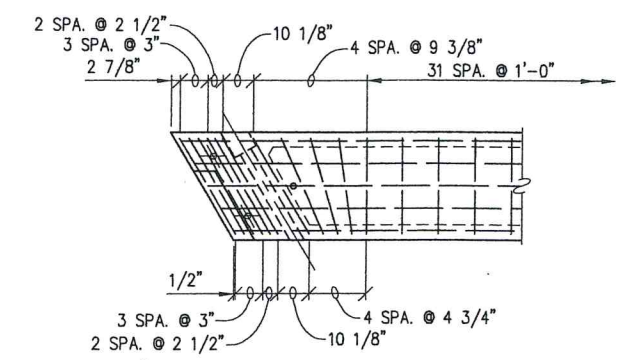
STRUCTURE NAMEPLATE
(SEE PLAN OF STRUCTURE SHT. 5)



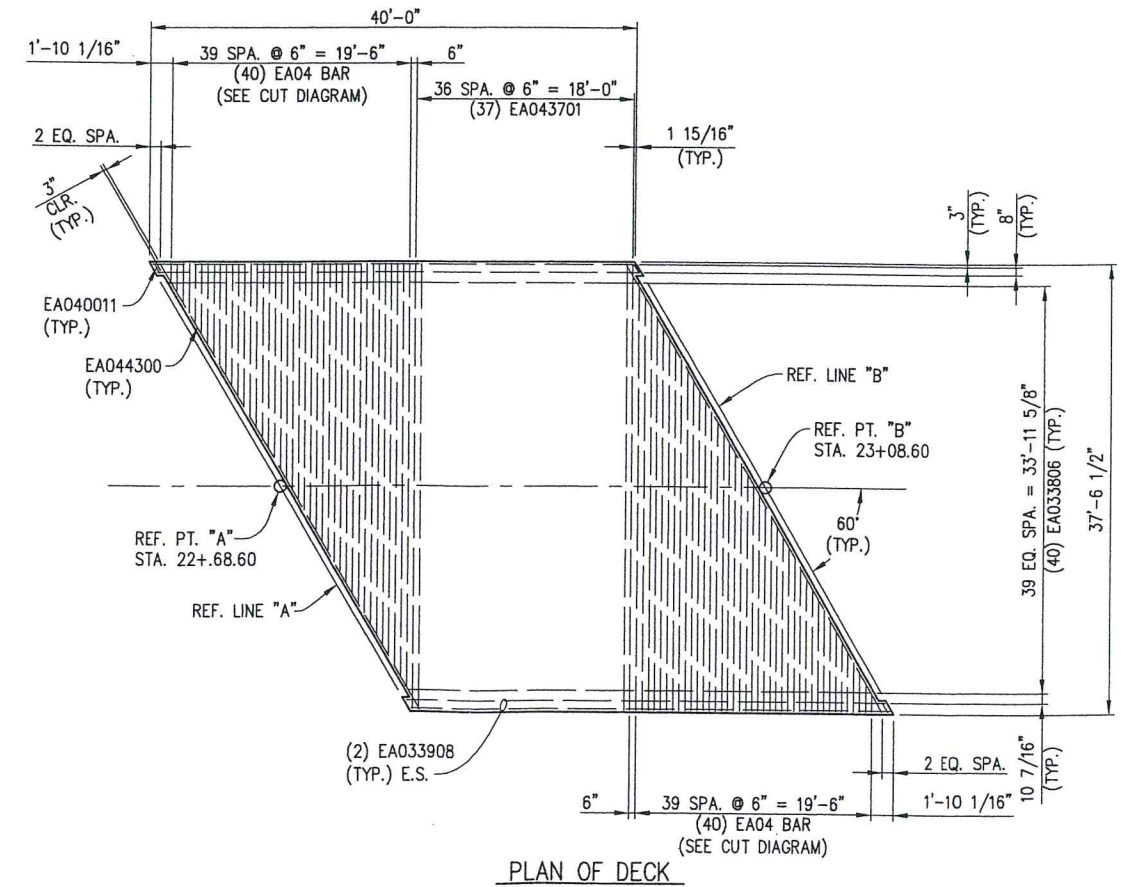
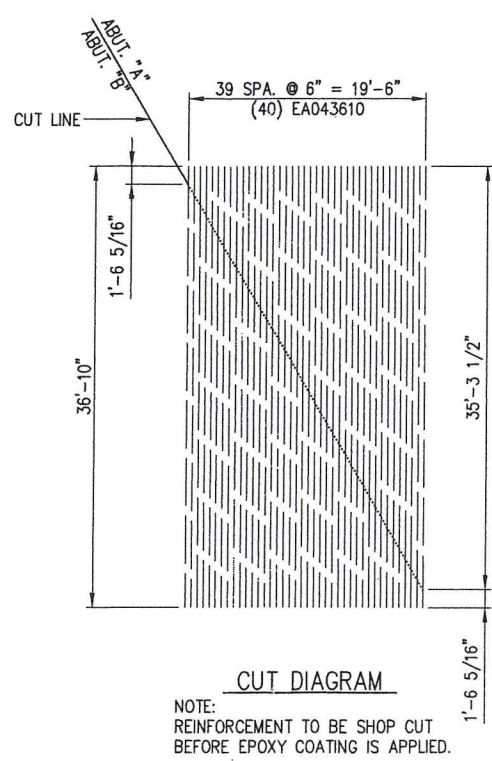
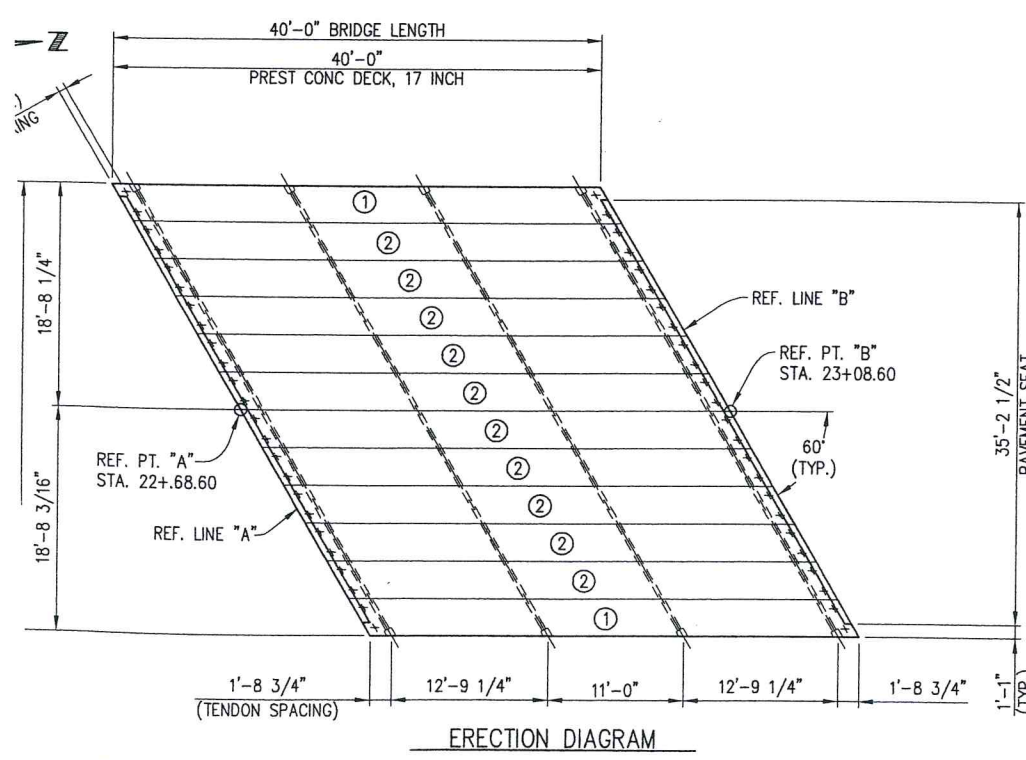
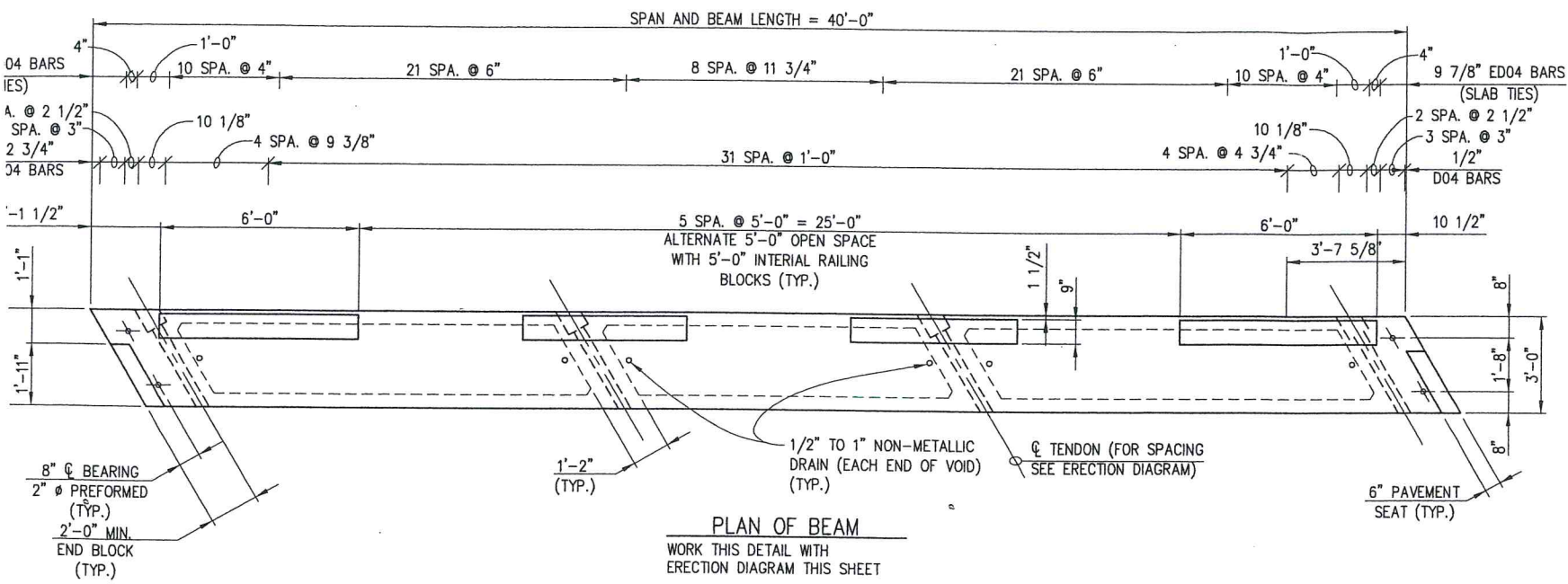
ANCHORAGE ATTACHMENT DETAIL

NOTES:
SPECIAL END SHOE AND BEAM GUARDRAIL NOT SHOWN.

CAST 4 - 1" Ø HOLES, AS SHOWN, THRU RAILING FOR 4 - 7/8" Ø X 1'-3" LONG ANCHOR BOLTS W/ ROUND WASHER ON FRONT AND 1/4" X 3" SQUARE WASHERS ON BACK. GALVANIZE ALL FASTENERS AS PER THE STANDARD SPECIFICATIONS.



PLAN OF BEAM @ END
(SHOWING REINFORCING STEEL)



MISCELLANEOUS QUANTITIES	
1495 Sft	Prest Conc Deck, 17 inch
1 LS	Post Tensioning
28 Cyd	Superstructure Conc
80 Ft	Bridge Railing, Open Parapet Type



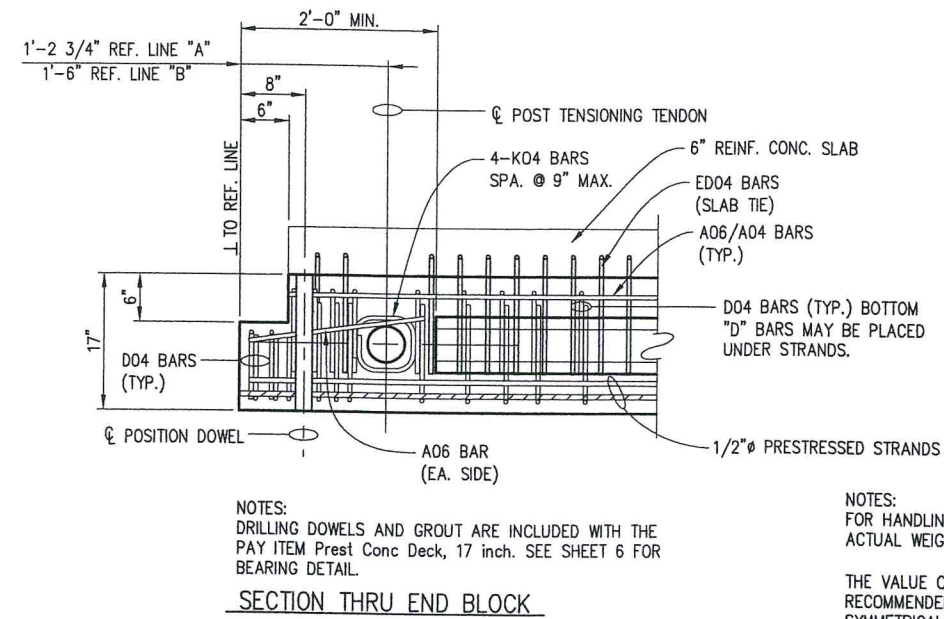
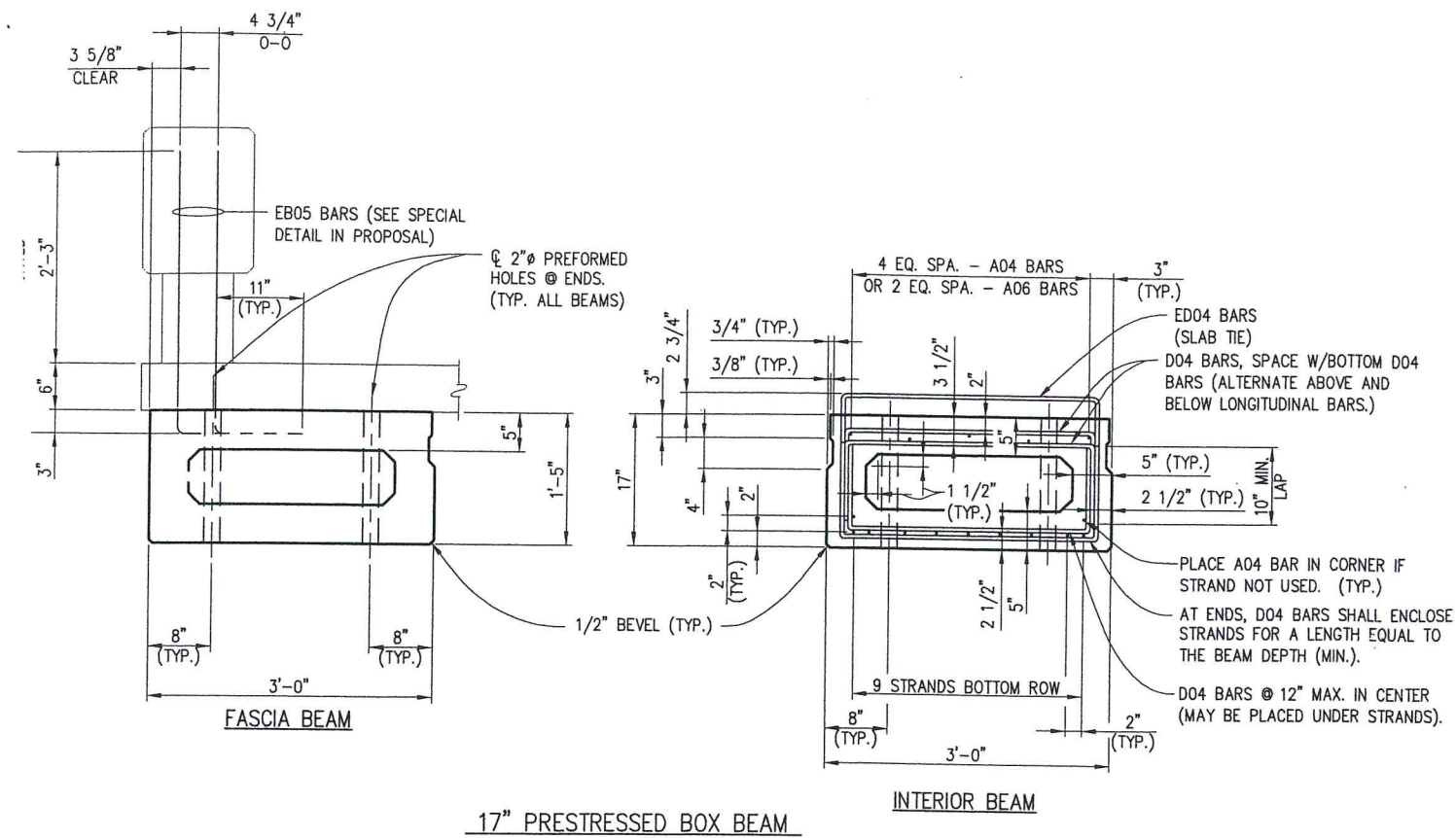
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SUPERSTRUCTURE DETAILS

BY:	DATE:	BO1 of 72-09-01	SHEET NO. 9
TAS	11/07		
CHK:	DATE:	JN 86365A	OF 10
SJP	11/07		



NOTES:
 DRILLING DOWELS AND GROUT ARE INCLUDED WITH THE PAY ITEM Prest Conc Deck, 17 inch. SEE SHEET 6 FOR BEARING DETAIL.

NOTES:
 FOR HANDLING PURPOSES, EACH BEAM CAN BE TAKEN TO WEIGH 9.8 TONS. ACTUAL WEIGHT TO BE DETERMINED BY BOX BEAM MANUFACTURER.

THE VALUE OF "E" USED IN CALCULATING STRAND ELONGATION SHALL BE AS RECOMMENDED BY THE STRAND MANUFACTURER. STRANDS WILL BE PLACED SYMMETRICALLY ABOUT THE CENTERLINE OF BEAM.

ELASTOMER FOR ELASTOMERIC BEARING SHALL BE NOMINAL (70) DUROMETER HARDNESS UNLESS OTHERWISE NOTED. THE DESIGN OF THESE PADS IS BASED ON A MAX. PRESSURE OF 64 PSI D.L. AND 100 PSI D.L. + LL.

POSITION DOWELS SHALL MEET AASHTO M 183 AND BE HOT-DIP GALVANIZED ACCORDING TO AASHTO M 232. POSITION DOWELS ARE INCLUDED IN THE PAY ITEM PREST CONC DECK, 17 INCH.

THE COMPRESSIVE STRENGTH OF THE CONCRETE SHALL NOT BE LESS THAN 5000 PSI @ 28 DAYS.

PRESTRESSING STRANDS SHALL BE 0.6" NOMINAL DIAMETER MEETING THE REQUIREMENTS OF AASHTO M 203 (ASTM A416), GRADE 270, LOW RELAXATION STRAND.

PRESTRESSING STRANDS SHALL BE GIVEN AN INITIAL PRESTRESS OF 31,000 LBS.

STEEL REINFORCEMENT IN BEAMS, STEEL BEARINGS AND CONCRETE INSERTS ARE INCLUDED IN THE PAY ITEM PREST CONC DECK, 17 INCH.

THE COMPRESSIVE STRENGTH OF THE CONCRETE AT THE TIME OF PRESTRESSING FORCE RELEASE SHALL NOT BE LESS THAN 4000 PSI.

LIFTING OF BEAMS SHALL BE EQUAL LOADS TO EACH PAIR OF LIFTING DEVICES.

THE INITIAL FORCE IN THE THE TRANSVERSE POST-TENSIONING TENDONS SHALL BE 82,500 LBS. EACH.

TACK WELDING OF STEEL REINFORCEMENT IS PROHIBITED.

THE STEEL REINFORCEMENT, STRAND PATTERN, BOND BREAKERS (IF REQUIRED) AND DIMENSIONS THE FASCIA BEAMS ARE IDENTICAL TO THAT IN INTERIOR BEAMS UNLESS OTHERWISE NOTED.

THE ESTIMATED BEAM CAMBER AT RELEASE IS 0.78". THIS CAMBER IS DUE TO PRESTRESS AND DEAD LOAD OF THE BEAM ONLY AND IS MEASURED IN THE ERECTED POSITION.

CONCRETE INSERTS SHALL BE 3/4" DIAMETER; RICHMOND, TYPE T2 OR TYPE TL2F; DAYTON SUPERIOR, TYPE B-1 HEAVY OR TYPE B-18; WILLIAMS, TYPE C 12 OR TYPE C-19; MEADOW STEEL, TYPE CT-2 OR TYPE CX-4; OR EQUAL. INSERTS SHALL BE CAST WITH THE BEAMS. FIELD INSTALLATION OF THE INSERTS WILL NOT BE ALLOWED.

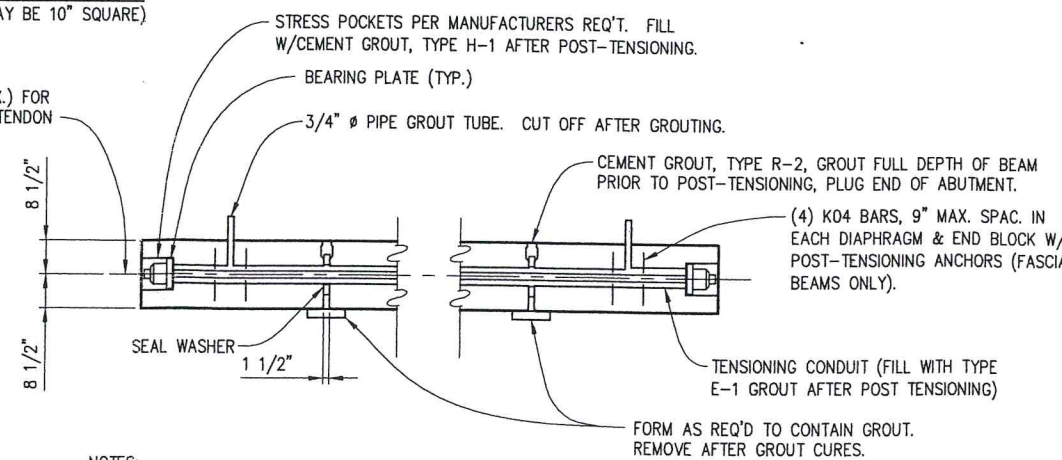
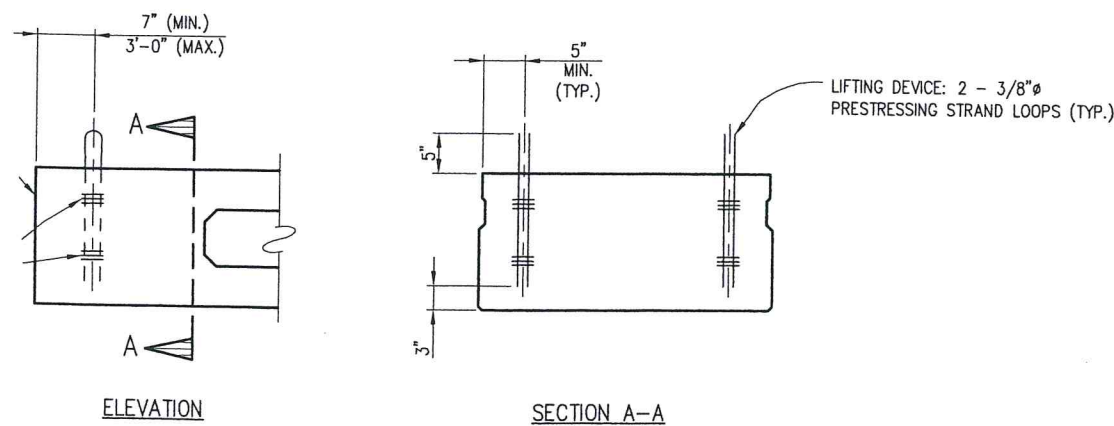
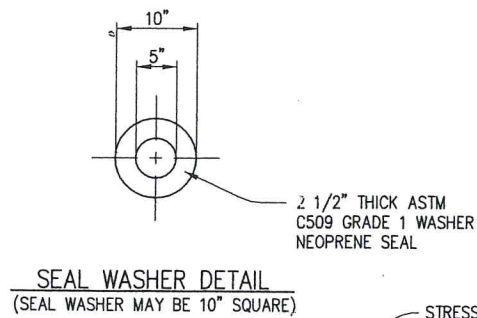
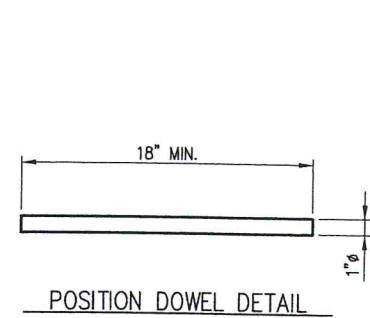
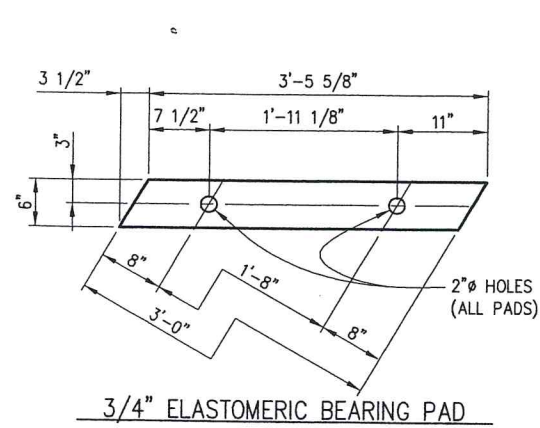
NO FIELD DRILLING IN PRESTRESSED CONCRETE DECK.

A MINIMUM OF SEVEN SETS OF SHOP DRAWINGS WILL BE REQUIRED FOR APPROVAL DOCUMENTATION, SECTION 104.02 OF THE MDOT 2003 STANDARD SPECIFICATIONS NOTWITHSTANDING.

THE CONTRACTOR SHALL SUPPLY THE BOX BEAM SUPPLIER WITH ONE COMPLETE SET OF PLANS AND ONE PROJECT PROPOSAL, AT THE TIME OF SIGNING THE MDOT CONTRACT.

LIFTING DEVICES SHALL BE REMOVED AFTER BEAMS ARE ERECTED. INSTALLATION AND REMOVAL IS INCLUDED IN THE BID ITEM PREST CONC DECK, 17 INCH.

O.-O. DENOTES OUT TO OUT.



NOTES:
 TENDONS, SEALS, GROUT AND ALL RELATED WORK & MATERIALS ARE INCLUDED WITH THE PAY ITEM PREST CONC DECK, 17 INCH. THE ENGINEER MAY APPROVE OTHER MEANS OF SEALING.

STRESS POCKETS, ANCHOR PLATES & TENDON COUPLERS SHALL BE AS REQUIRED FOR THE POST-TENSIONING SYSTEM PROVIDED.



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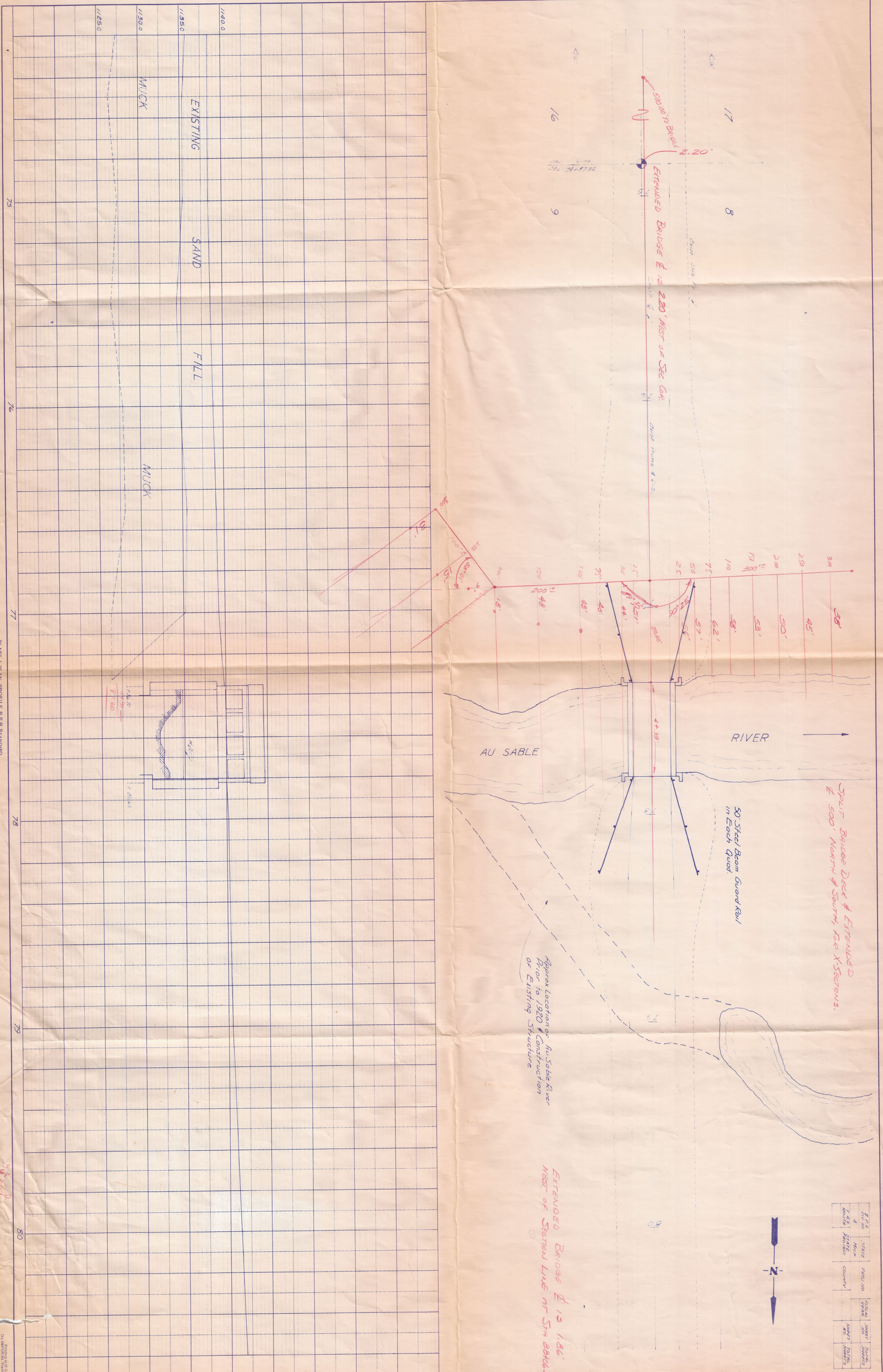
BOX BEAM DETAILS

BY:	DATE:	SHEET NO.
TAJAS	11/07	
CHK:	DATE:	
SJP	11/07	JN 86365A

10
OF 10

PLAN		BY	DATE
SURVEYED			
PLOTTED			
ALIGNMENT CHECKED			
BT. OF WAY CHECKED			
NOTE BOOK No.			

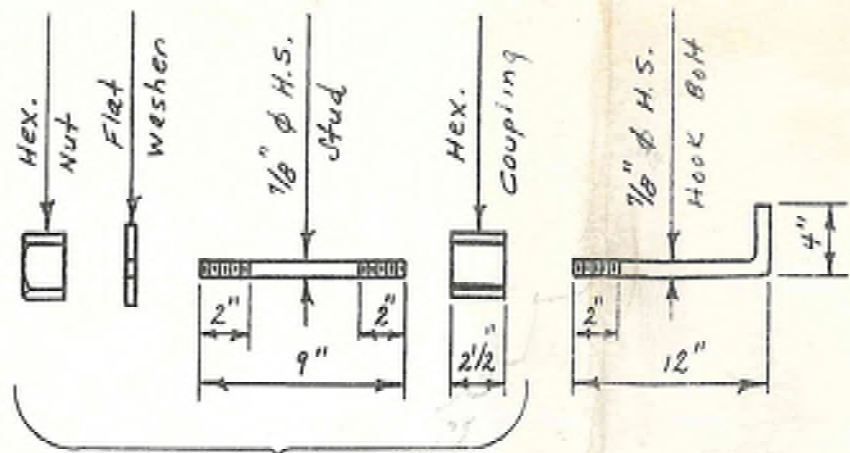
PROFILE		BY	DATE
SURVEYED			
PLOTTED			
GRADES CHECKED			
B. M.'S. NOTED			
STRUCTURE NOTATIONS CHECKED			
NOTE BOOK No.			



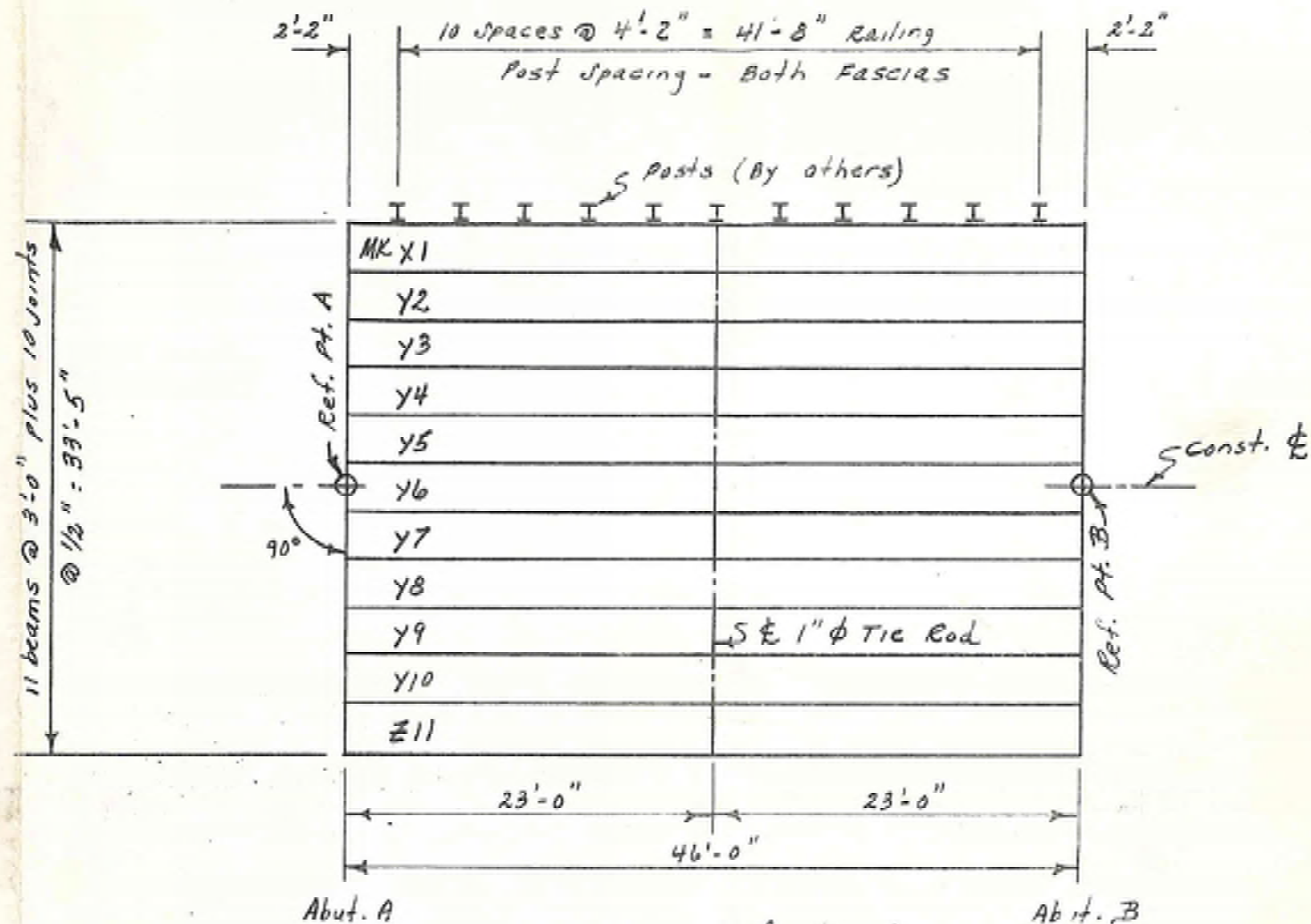
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PLATE 1 PLAN-PROFILE B P R STANBRO

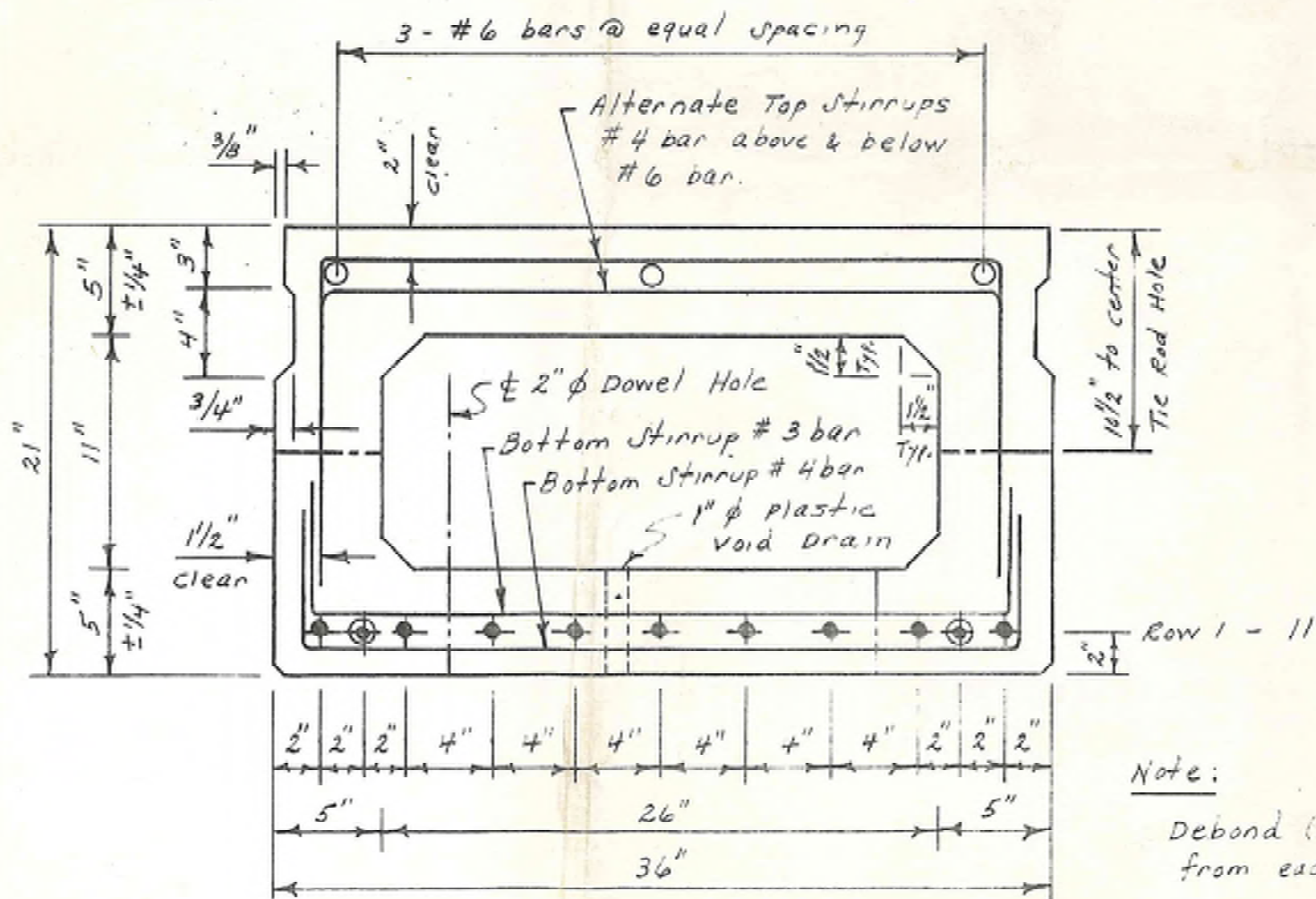
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Railing Post Anchor Bolt Assembly - 88 Req'd.



Plan view of structure

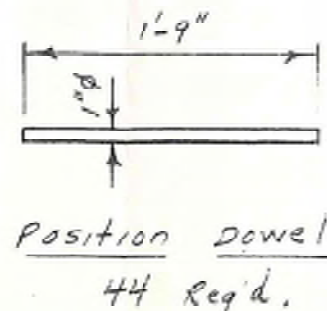
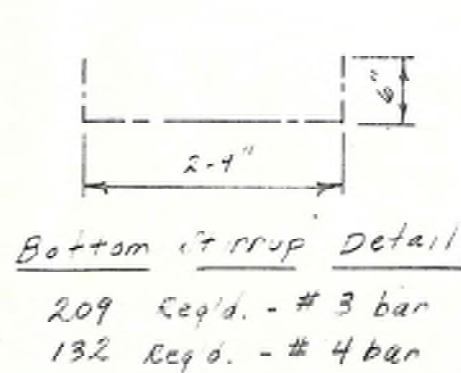
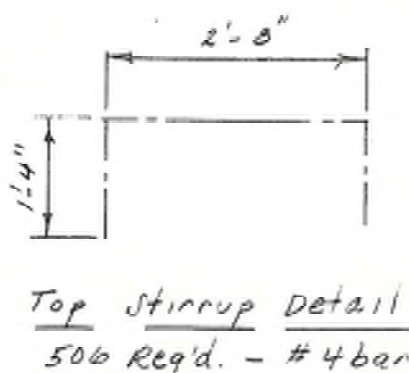
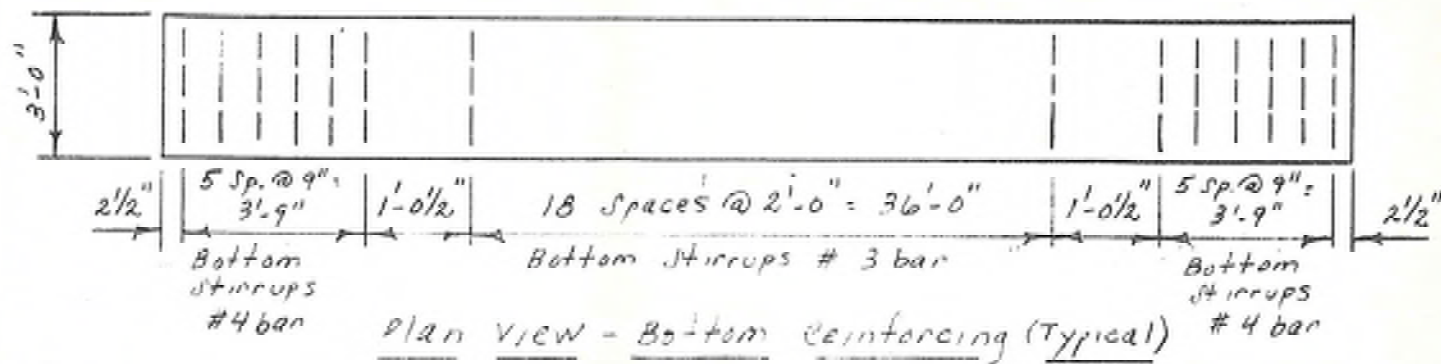
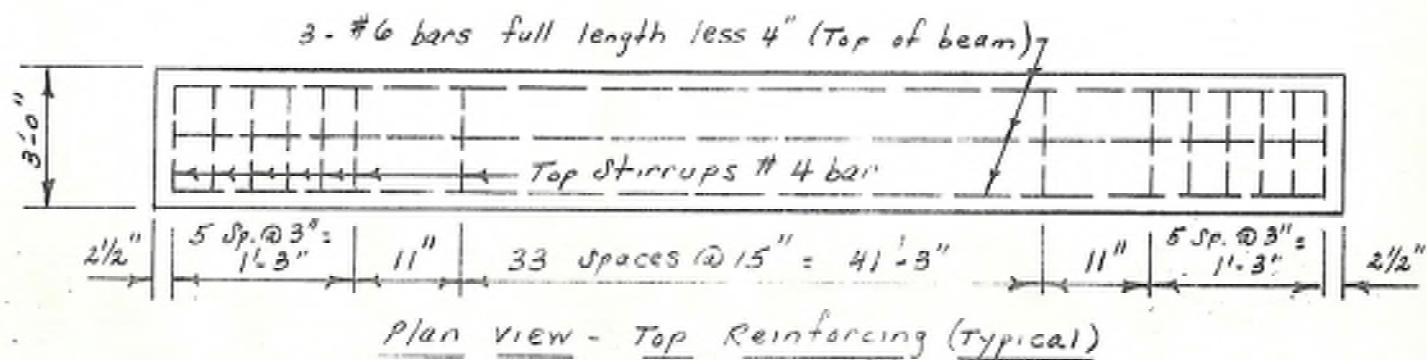
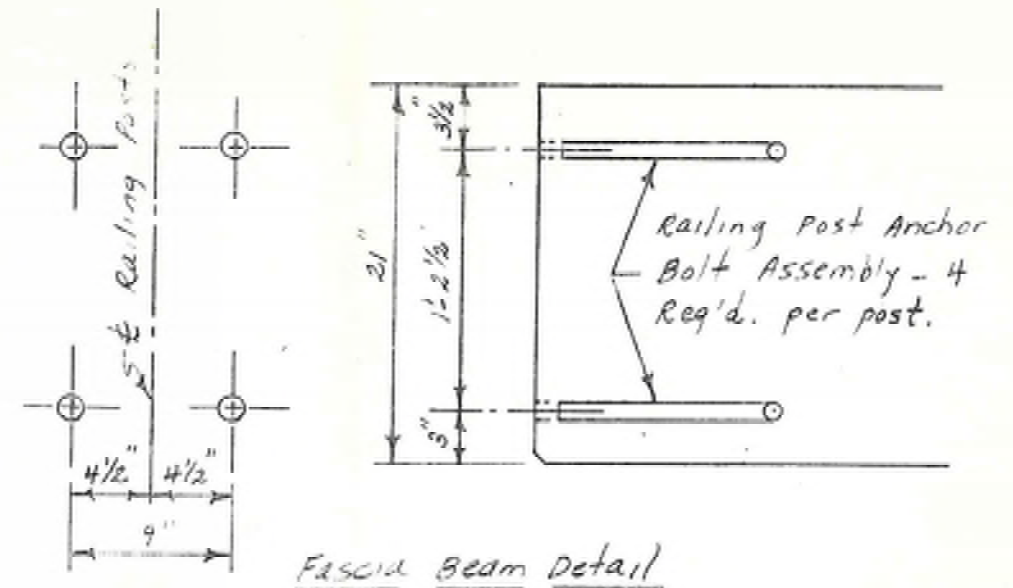
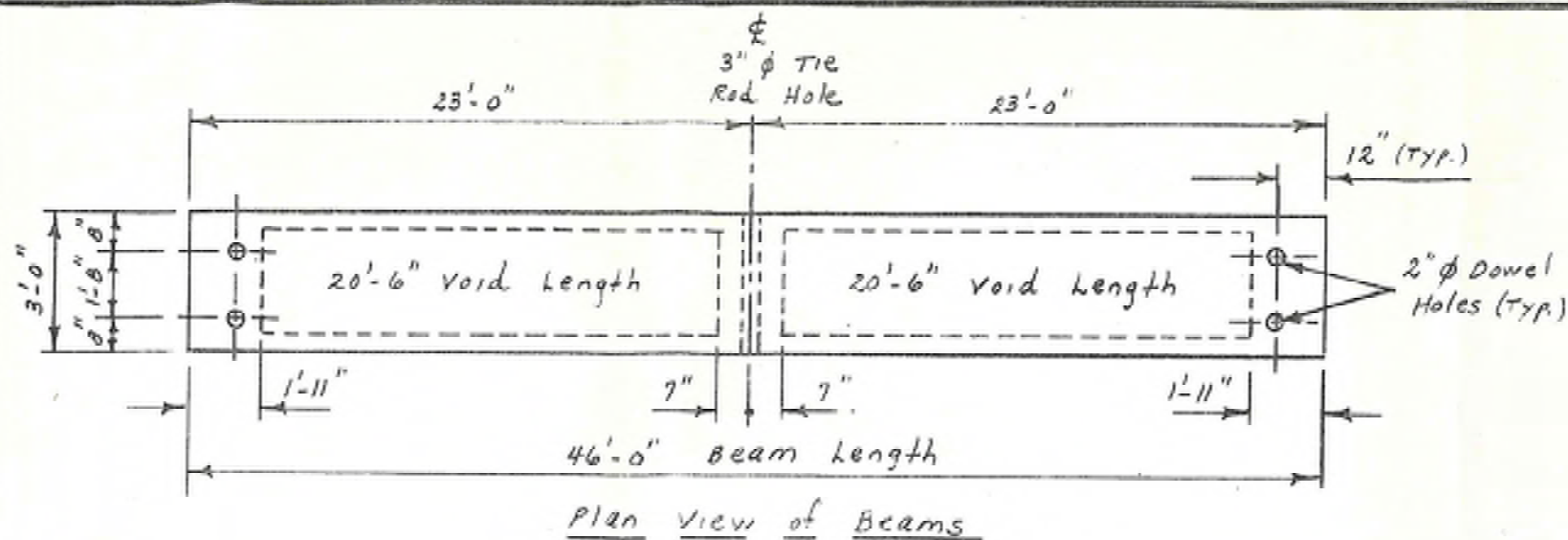


Typical section

Note:
 Debond (2) strand marked \odot 3'-0" from each end of each beam.
 Initial Prestress: 28.9k

L A M A R C O R P. Structural Products Division		
SCALE: None	APPROVED BY:	DRAWN BY ECL
DATE: 6-26-75		REVISED 7-19-75
Roscommon County Road Commission County Road 602 Bridge over the Ausable River		
CS B2 of 72-11-5		DRAWING NUMBER SPD 3375-1

Sherman Bridge # RS 1470 (101)



General Notes:

1. Design Loading HS-20.
2. Use 1 piece 0.197 Mesh 2" in from each end of each beam.
3. Place 1" ϕ Plastic VOA drain in each end of all voids.
4. Mark South end of all beams as shown.
5. Interior beams are interchangeable with numbers for production control and testing.
6. Remove Shear Key on outside of fascia beams.
7. Approx. weight of each beam: 12.0 Tons.

Ship with beams:

- 44 each 1" ϕ x 1'-9" position dowels.
- 38 each 7/8" ϕ studs, washers & nuts (galvanized).
- 1 each Tie Rod Assembly (complete).
- 1000 lbs. Anchor-Break Admixture.

LAMAC CORP. Structural Products Division		
SCALE: None	APPROVED BY:	DRAWN BY ECH
DATE: 6-26-75		REVISED 7-17-75
Coscoeman County Road Commission County Room 602 Bridge over the Au Sable River		
CS B2 of 72-11-5		DRAWING NUMBER SPD 3375-2

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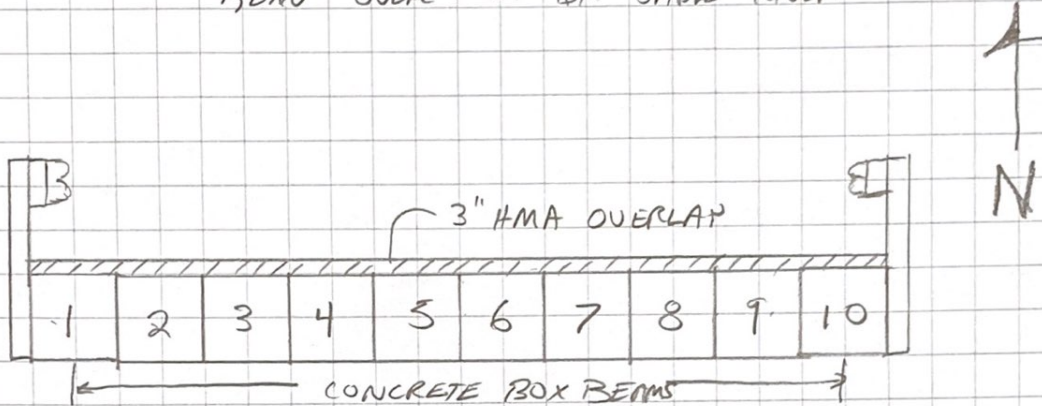
JOB NUMBER _____

DATE 2020

SHEET 1/1

WEATHER _____

KENO OVER S. BR SABLE RIVER



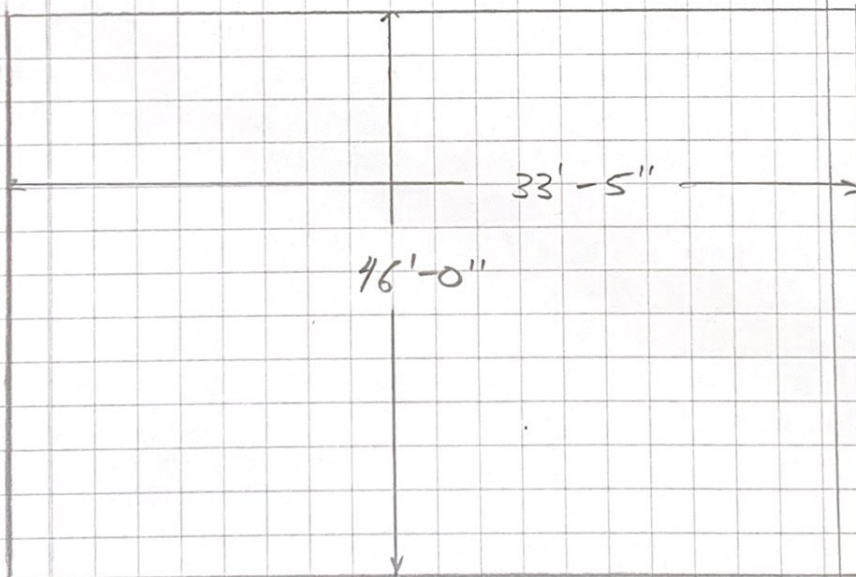
TYPICAL CROSS SECTION

NOTES:

CONCRETE CANTILEVER ABUTMENTS

HMA APPROACH

FACE OF GUARDRAIL



HMA APPROACH

GENERAL PLAN OF SITE