

MASON COUNTY ROAD COMMISSION

Board of Commissioners

Bill Schwass, Chairman

Douglas Robidoux, Vice-Chairman

Nick Matiash, Member

Wayne A. Schoonover, P.E., Manager/Director

510 E. State St.

PO Box 247

Scottville MI 49454-0247

Office: (231) 757-2882 Fax: (231) 757-2662

e-mail: info@masoncountyroads.com

November 18, 2016

REQUEST FOR PROPOSAL FOR DESIGN ENGINEERING & CONSTRUCTION SERVICES

Replacement of:

SN 6681,

Darr Road over South Branch Lincoln River, Sherman Township, Mason County

The Mason County Road Commission (MCRC) is seeking proposals for the cost of design engineering and all or some construction engineering and services for removal of the existing bridge and construction of a new bridge/structure with related approach work. The design must be in accordance with Federal Highway Administration (FHWA) and Michigan Department of Transportation (MDOT) standards and specifications and AASHTO LRFD Bridge Design Specifications incorporating HL-93 modified live loading. The proposal must include all necessary work for plan and proposal acceptance by the MCRC and MDOT.

LOCATION:

Darr Road Bridge over South Branch Lincoln River is located in Sections 29 and 30, T19N, R16W, between Sugar Grove Road and Mavis Road, 1 mile east of US-31, 4 miles north of the City of Scottville, Sherman Township, Mason County.

The original single span structure was built in 1900 and reconstructed in 1976 as a single span steel I-beam thru-truss superstructure with steel decking and hot mix asphalt surface. The bridge railing is steel beam guardrail bolted to the thru-truss. The abutments are vertical concrete walls. The bridge has a structure length of 26.2 feet (span of 25.9 feet) and an outside width of 16.1 (rail-to-rail 15.4 feet). The Average Daily Traffic in 2015 was 150 vehicles per day with 5% commercial traffic. The bridge is currently posted at 9/14/25 tons.

This bridge is not on the eligible historic bridge listing.

This project has been approved for the 2018 fiscal year Local Bridge Program. It will be financed with a combination of Federal and Michigan Local Bridge Program Funds and Local Funds. Participation in engineering costs is not included and will be the responsibility of the MCRC. The MCRC and MDOT will be involved in final approval of plans, etc., and acceptance of completed construction.

At a minimum the following items must be considered and included in the proposal:

1. The plans and specifications shall be developed using the English system and the most current edition of the Michigan Standard Specifications for Construction.
2. Determine in cooperation with the MCRC and MDOT, appropriate design criteria that will govern all design elements for the approach and bridge replacement; including DHV, percentage of trucks, directional distribution of traffic and design speed.
3. Surveys and field investigation including, but not limited to, surveys for the design, road alignment, property lines of adjacent riparian owners, river and flood plain cross sections necessary to develop hydraulics for MDEQ permit, topography, establish section line alignments and any other needed information to apply for and obtain any information needed for environmental studies, permits, etc. Northing and Easting coordinates shall be in NAD83 Michigan StatePlane Central – International Feet. NAVD88 elevations shall be used. It shall also include the location and staking of all horizontal and vertical control points for construction staking, i.e., benchmarks, POT's, PC's, PT's, PI's, section and 1/4 section corners with witnesses, etc. Report all control points with Northing, Easting, Elevation, Station and Offset.
4. Soil borings and associated traffic control, will be the full responsibility of the consultant and shall be included in the proposal. Soil borings shall be included on the plans and include any gradation test results, shear tests, etc. Soil borings shall be made for each substructure location.
5. Perform necessary hydraulic analysis to determine the required waterway opening. Perform necessary scour analysis. Obtain any necessary permit from the MDEQ.
6. The Preliminary Design shall include cost comparisons, and recommendations for alternate designs using AASHTO LRFD Bridge Design Specifications incorporating the HL-93 modified live loading for the following types of structures and/or culverts:
 - Prestressed concrete I-Beams with cast in place deck
 - Prestressed concrete box beams with cast in place deck
 - Galvanized steel beam structure
 - Alternative recommended structures
7. The consultant shall prepare and submit any and all MDOT & FHWA program applications, design exceptions (if required), all other applications, permits, and reports for environmental, hydraulic analysis, archaeological studies if required, assessments, reviews, etc. as may be required by FHWA, MDOT, Michigan Department of Natural Resources, Michigan Department of Environmental Quality, Corps of Engineers, SHPO, County Drain Commissioner, or any other Federal, State, or Local Agency involved in the project.

8. Prepare and submit type, size and location (TS&L) plans using the most current MDOT TS&L requirements list, specifications and an estimate of probable construction costs to the MCRC and MDOT for review, comment and approval. Attend the TS&L meeting, if one is necessary.
9. Prepare Preliminary Plans including engineer's opinion of cost, special provisions and additional information required by MDOT. Submit to the MCRC and MDOT for approval. Determine additional right-of-way requirements for the MCRC and prepare property descriptions and documents for any needed grading permits, easements or property acquisition. Provide any necessary staking required for ROW permits, easements or acquisitions. The MCRC will be responsible for appraisals, grading permits, easements and acquisitions of additional ROW.
10. Attend the grade inspection meeting.
11. Prepare Final Design plans, estimate (including electronic MERL) and special provisions in accordance with the MCRC, MDOT and FHWA recommendations and requirements. Final plans shall be submitted electronically to the MCRC and MDOT for approval. Final plans shall be complete with all necessary information and quantities ready for bid letting by MDOT.
12. Shop drawing review and minor phone consultation during construction is included.
13. If any public hearing is held for the project, the Consultant is expected to prepare any required information; attend and participate in the hearing.
14. Contact, coordinate with, and inform all utilities. MCRC will provide consultant a list of utilities and contact information.
15. The proposal shall include: proposed bridge/structure type assumptions estimated construction cost; and a detailed breakdown of the estimated hours and hourly rates for the various design stages for each proposed bridge/structure type.

Construction Engineering and services provided under a separate estimate, to be used in full or partial by the MCRC, shall include at the minimum the following:

1. Construction staking – control and as needed staking
2. Inspection including storm water and soil erosion and sedimentation control, testing, and pay estimates using Field Manager or approved MDOT software
3. Construction Engineering – if applicable: pile driving calculations; shop drawing review; new inspection, load rating, scour analysis and updating of MiBRIDGE; and additional as-needed services.
4. Submit electronic As-Built Plans in PDF file format on thumb/jump drive to the MCRC with read-write capabilities for documentation and file history.

Any proposed cost increases for engineering shall be approved by the Road Commission before the costs are incurred.

Sealed proposals (2 copies) will be received until 2 p.m. on Wednesday, December 21, 2016 at 510 E. State Street, P.O. Box 247, Scottville, Michigan, 49454. Telephone: (231) 757-2882. Faxed proposals will not be accepted.

A decision as to whether to make award of the contract will not be made until the Board of County Road Commissioners meet and decide upon further action. This may require approximately one-to-two months before award.

Proposed Letting Date for the Bridge Construction Contract is January 2018.

Professional liability insurance is required.

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MASON COUNTY, MICHIGAN**

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PDF copies of this RFP, most recent Structure Inventory and Appraisal Form 1717A, and Bridge Safety Inspection Report Form P2502, are available on our website at www.masoncountyroads.com under the "BIDS" tab. Old plans of the superstructure are available at the MCRC office for viewing. For additional information, please contact Wayne A. Schoonover, P.E., Manager/Director, by phone at (231) 757-2882, or by email at wayneschoonover@masoncountyroads.com.

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 6681

STRUCTURE INVENTORY AND APPRAISAL

Facility	Latitude / Longitude	MDOT Structure ID	Structure Condition
DARR ROAD	44.0132 / -86.2607	53313H00016B010	Serious Condition(3)
Feature	Length / Width	Owner	
S BR LINCOLN RIVER	25.9 / 16.1	County: Mason(53)	
Location	Built / Recon. / Paint / Ovly.	TSC	Operational Status
4 MI N 1 MI E SCOTTVILLE	1900 / 1976 / /	Muskegon(21)	P Posted for load(P)
Region / County	Material / Design	Last NBI Inspection	Scour Evaluation
Grand(3) / Mason(53)	3 Steel / 10 Truss-Thru	06/02/2016 / SWXU	U Unknown Scour



Bridge History, Type, Materials

27 - Year Built	1900
106 - Year Reconstructed	1976
202 - Year Painted	
203 - Year Overlay	
43 - Main Span Bridge Type	3 10
44 - Appr Span Bridge Type	
77 - Steel Type	1
78 - Paint Type	9
79 - Rail Type	1
80 - Post Type	2
107 - Deck Type	6
108A - Wearing Surface	6
108B - Membrane	0
108C - Deck Protection	0

Structure Dimensions

34 - Skew	0
35 - Struct Flared	0
45 - Num Main Spans	1
46 - Num Apprs Spans	0
48 - Max Span Length	25.9
49 - Structure Length	25.9
50A - Width Left Curb/SW	0
50B - Width Right Curb/SW	0
33 - Median	0
51 - Width Curb to Curb	15.4
52 - Width Out to Out	16.1
112 - NBIS Length	Y

Inspection Data

90 - Inspection Date	06/02/2016
91 - Inspection Freq	12
92A - Frac Crit Req/Freq	Y 24
93A - Frac Crit Insp Date	11/06/2015
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	6
58A/B - Deck Surface/Bottom	3 6
59 - Superstructure Rating	4
59A - Paint Rating	3
60 - Substructure Rating	3
61 - Channel Rating	3
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	

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	0000002205 02
19 - Detour Length	5
20 - Toll Facility	3
26 - Functional Class	09
28A - Lanes On	2
29 - ADT	180
30 - Year of ADT	1997
32 - Appr Roadway Width	27.9
32A/B - Ap Pvt Type/Width	2 27.89
42A - Service Type On	1
47L - Left Horizontal Clear	0.0
47R - Right Horizontal Clear	15.4
53 - Min Vert Clr Ov Deck	99 99
100 - STRAHNET	0
102 - Traffic Direct	3
109 - Truck %	5
110 - Truck Network	0
114 - Future ADT	230
115 - Year Future ADT	2017
Freeway	0

Structure Appraisal

36A - Bridge Railing	0
36B - Rail Transition	0
36C - Approach Rail	0
36D - Rail Termination	0
67 - Structure Evaluation	2
68 - Deck Geometry	2
69 - Underclearance	N
71 - Waterway Adequacy	3
72 - Approach Alignment	5
103 - Temporary Structure	
113 - Scour Criticality	U

Miscellaneous

37 - Historical Significance	5
98A - Border Bridge State	
98B - Border Bridge %	
101 - Parallel Structure	N
EPA ID	
Stay in Place Forms	9
143 - Pin & Hanger Code	
148 - No. of Pin & Hangers	-1

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	-1
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	31 1
76 - Length of Improvement	800.2
94 - Bridge Cost	109
95 - Roadway Cost	11
96 - Total Cost	128
97 - Year of Cost Estimate	1991



Load Rating and Posting

31 - Design Load	6
41 - Open, Posted, Closed	P
63 - Fed Oper Rtg Method	6
64F - Fed Oper Rtg Load	.56
64MA - Mich Oper Rtg Method	6
64MB - Mich Oper Rtg	.4
64MC - Mich Oper Truck	21
65 - Inv Rtg Method	6
66 - Inventory Load	.33
70 - Posting	0
141 - Posted Loading	091425
193 - Overload Class	

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 6681

BRIDGE SAFETY INSPECTION REPORT

Facility DARR ROAD	Latitude / Longitude 44.0132 / -86.2607	MDOT Structure ID 53313H00016B010	Structure Condition Serious Condition(3)	
Feature S BR LINCOLN RIVER	Length / Width 25.9 / 16.1	Owner County: Mason(53)		
Location 4 MI N 1 MI E SCOTTVILLE	Built / Recon. / Paint / Ovly. 1900 / 1976 / /	TSC Muskegon(21)	Operational Status P Posted for load(P)	
Region / County Grand(3) / Mason(53)	Material / Design 3 Steel / 10 Truss-Thru	Last NBI Inspection 06/02/2016 / SWXU	Scour Evaluation U Unknown Scour	

NBI INSPECTION

SWXU

Inspector Name	Agency / Company Name	Insp. Freq.	Insp. Date
James Nordlund	Nordlund and Associates, Inc	12	06/02/2016

GENERAL NOTES

Posted 15 tons.

Clean and inspect truss connections.

Significant debris is present in the superstructure..

Remove dirt and debris from deck and repave. Water is getting onto the steel stringers from puddles on the ends of the bridge deck and corroding the steel on the bottom flange of the stringers.

CMP deck exposed at south abutment.

Posting Signs in Place YES



DECK

	12/13	12/14	06/16	
1. Surface (SIA-58A)	3	3	3	Bit surface heavily cracked and continues to deteriorate. The deck is exposed in various locations. The deck is covered with sand and hard to inspect. Steel backwall exposed on southeast quadrant. (06/16) Bit surface heavily cracked and continues to deteriorate. The deck is exposed in various locations. The deck is covered with sand and water and hard to inspect. Steel backwall exposed on southeast quadrant. (12/14) Bit surface havily cracked and continues to deteriorate. The deck is exposed in variuos locations. The deck is covered with snow and ice and hard to inspect. Steel backwall exposed on southeast quadrant. (12/13)
2. Expansion Joints	N	N	N	(06/16) (12/14) (12/13)
3. Other Joints	N	N	N	(06/16) (12/14) (12/13)
4. Railings	4	4	4	Guardrail is type "A" (No blocks) bolted to truss. (06/16) Guardrail is type "A" (No blocks) bolted to truss. (12/14) Guardrail is type "A" (No blocks) bolted to truss. (12/13)
5. Sidewalks or Curbs	N	N	N	(06/16) (12/14) (12/13)
6. Deck Bottom Surface (SIA-58B)	6	6	6	Deck is galvanized metal with some paint present. Some surface corrision, but sound underneath. (06/16) Deck is galvanized metal with some paint present. Some surface corrision, but sound underneath. (12/14) Deck is galvanized metal with some paint present. Some surface corrision, but sound underneath. (12/13)
7. Deck (SIA-58)	6	6	6	Surface of corr, steel deck obscured by bit pvt. Minimal corrosion observed. (06/16) Corr, steel deck obscured by bit pvt. Minimal corrosion observed. (12/14) Corr, steel deck obscured by bit pvt. Minimal corrosion observed. (12/13)

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8. Drainage (06/16)
(12/14)
(12/13)

SUPERSTRUCTURE

12/13 12/14 06/16

9. Stringer (SIA-59)	4	4	4	Some corrosion of floor beam at the panel points on pony truss, rivet corrosion, and stringers. Plate on bottom of floor beam rusting where it was not sealed welded with rust jacking present. Maximum corrosion through about 10%. All members continue to function as designed. Corrosion of E1 & E2 floor beam approx. 2% @ north end & 10% @ south end. Outside stringers have up to 30% loss where they rest on floor beam. (06/16) Some corrosion of floor beam at the panel points on pony truss, rivet corrosion, and stringers. Plate on bottom of floor beam rusting where it was not sealed welded. Maximum corrosion through about 10%. All members continue to function as designed. Corrosion of E1 & E2 floor beam approx. 2% @ north end & 10% @ south end. Outside stringers have up to 30% loss where they rest on floor beam. (12/14) Some corrosion of floor beam at the panel points on pony truss, rivet corrosion, and stringers. Maximum corrosion through about 1%. All members continue to function as designed. Corrosion of E1 & E2 floor beam approx. 2% @ north end & 10% @ south end. (12/13)
10. Paint (SIA-59A)	3	3	3	30% of the paint surface has failed (06/16) 30% of the paint surface has failed (12/14) 30% of the paint surface has failed (12/13)
11. Section Loss	N	1	1	Up to 30% loss where outside stringers rest on floor beam. (06/16) Up to 30% loss where outside stringers rest on floor beam. (12/14) (12/13)
12. Bearings	4	4	4	Bearings are buried in dirt. (06/16) Bearings are buried in dirt. (12/14) Bearings are buried in dirt. (12/13)

SUBSTRUCTURE



12/13 12/14 06/16

13. Abutments (SIA-60)	2	3	3	North abutment has been repaired at NW corner - in decent condition. 1/2" crack at northwest end of the abutment. Large spall at northeast end of the abutment. There is a large area where the bottom of the concrete in the wingwall is missing. The NW wingwall has a large 5" crack above this missing section of concrete with the wingwall moving out 1 1/2" from the west portion. There is loss of fill behind the abutment - starting to undermine the soil behind the wingwall. South abutment has large crack also, but it out of the river channel. Settlement south of bridge has allowed puddles to form near back of abutment with corresponding leakage over top of abutment (06/16) North abutment has been repaired at NW corner - in decent condition. 1/2" crack at northwest end of the abutment. Large spall at northeast end of the abutment. There is a large area where the bottom of the concrete in the wingwall is missing. The wingwall has a large 5" crack above this missing section of concrete with the wigwall moving out 1 1/2" from the west portion. There is loss of fill behind the abutment - starting to undermine the roadway. South abutment has large crack also, but it out of the river channel. Settlement south of bridge has allowed puddles to form near back of abutment with corresponding leakage over top of abutment (12/14) North abutment has been repaired at NW corner - in decent condition. 1/2" crack at northwest end of the abutment. Large spall at northeast end of the abutment. There is a large area where the bottom of the concrete in the wingwall is missing. The wingwall has a large 5" crack above this missing section of concrete with the wigwall moving out 1 1/2" from the west portion. There is loss of fill behind the abutment - starting to undermine the roadway. South abutment has large crack also, but it out of the river channel. Settlement south of bridge has allowed puddles to form near back of abutment with corresponding leakage over top of abutment (12/13)
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14. Piers (SIA-60)	N	N	N	(06/16) (12/14) (12/13)
15. Slope Protection	N	9	4	North abutment in water, south abutment has large amount of deposited sand. (06/16) North abutment in water, south abutment has large amount of deposited sand. (12/14) (12/13)
16. Channel (SIA-61)	3	3	3	Northeast corner of the bridge opening contains a considerable amount of brush. Stream is impacting the north abutment - while sediment has built up in front of the south abutment. There is considerable debris on the underside of the superstructure. (06/16) Northeast corner of the bridge opening contains a considerable amount of brush. Stream is impacting the north abutment - while sediment has built up in front of the south abutment. There is considerable debris on the underside of (12/14) Northeast corner of the bridge opening contains a considerable amount of brush. Stream is impacting the north abutment - while sediment has built up in front of the south abutment. There is considerable debris on the underside of (12/13)
17. Scour Inspection			5	Soil has filled in approximately the south 1/2 of the bridge opening. This has caused the flow to impact the north abutment. There are no significant scour holes or undermining at this time. (06/16) (12/14) (12/13)

APPROACH

	12/13	12/14	06/16	
18. Approach Pavement	3	3	3	The approach pavement is heavily alligator cracked. Beyond pavement - there is a gravel surface (06/16) The approach pavement is heavily alligator cracked. Beyond pavement - there is a gravel surface (12/14) The approach pavement is heavily alligator cracked. Beyond pavement - there is a gravel surface (12/13)
19. Approach Shoulders Sidewalks	5	5	5	Sediment washing down the road has resulted in a slightly sunken roadway - especially at the south approach (06/16) Sediment washing down the road has resulted in a slightly sunken roadway - especially at the south approach (12/14) Sediment washing down the road has resulted in a slightly sunken roadway - especially at the south approach (12/13)
20. Approach Slopes				(06/16) (12/14) (12/13)
21. Utilities				(06/16) (12/14) (12/13)
22. Drainage Culverts				(06/16) (12/14) (12/13)

MISCELLANEOUS

Guard Rail		Other Items	
Item	Rating	Item	Rating
36A. Bridge Railings	0	71. Water Adequacy	3
36B. Transitions	0	72. Approach Alignment	5
36C. Approach Guardrail	0	Temporary Support	0 No Temporary Supports
36D. Approach Guardrail Ends	0	High Load Hit (M)	No

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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)

	<u>Freq</u>	<u>Date</u>
92A. Fracture Critical	24	11/06/2015
92B. Underwater		
92C. Other Special		
92D. Fatigue Sensitive		