

PID# 106383
Scope of Services Meeting Date & Time: TBA
Approved Final Scope of Services Date: TBA
Location ODOT DISTRICT 9

CONSULTANT UNDERWATER BRIDGE INSPECTION

Scope of Services

1. Bridge Identification

County: Varies / TBD Route: _____ Section: _____ District: 9
SFN: TBD Municipality: _____
Street Name or Other Designation: _____
Features Under the Bridge: _____

2. Attendance (See Attached Sheet)

Consultant: _____
Consultant Contracting Officer: _____
Consultant Project Manager: _____
ODOT Project Manager: W. Max Francis

3. Project Description

Number of Lanes: Varies Year Built: Varies ADT: Varies
Bridge Type: Varies Type of Service: Varies

Overall Length: Varies Maintenance Responsibility: Varies Inspection Resp: ODOT

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4. Available Plans and Inspection Reports:

	Yes	No
Original Construction Plans	X	
As-Built Plans		Varies
Shop Drawings		Varies
Repair or Rehabilitation Plans	X	
Previous Inspection Field Reports	X	
BR87 Inventory Appraisal		Varies
Underwater Inspection Reports	X	
Maintenance Manual		Varies
UW Inspection Procedure		Varies
Complex Bridge Inspection Procedure		Varies

Prior inspection reports and bridge inventory are on file in the district office or in Assetwise. Access to Assetwise is recommended and will require a username, password and communication with ODOT Office of Structural Engineering Bridge Management Staff:

- Access to Assetwise is required.
- New user account forms, bridge access forms, and Assetwise access are located here: [AssetWise | Ohio Department of Transportation](https://www.transportation.ohio.gov/working/data-tools/resources/assetwise-inspection-system)
<https://www.transportation.ohio.gov/working/data-tools/resources/assetwise-inspection-system>

Other For existing information questions, contact will be the district bridge engineer.

5. Inspection Intent:

Activity	2024		
Underwater Inspection	X		
Underwater Dive Inspection Procedure (checklist)	Complete		
Immediate Action Recommendations	X		
Maintenance Recommendations & Repairs	X		
Depth Soundings	X		
Underwater Dive Inspection Checklist	X		

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Inspection Intent Requirement Details for Underwater Inspection

- Underwater Inspection
 - o Perform Element Level Underwater Inspection on the bridge components submerged or within the splash zone.
 - o Underwater Inspection completion date based on historical date to meet the required inspection frequency.
 - o Follow current underwater inspection procedure for each bridge. If non-existent, an underwater inspection procedure must be created. Current underwater procedures should be edited, if applicable.
 - o Report immediate action recommendations
 - o Specify maintenance recommendations and repairs in report; *more in-depth repair/rehab plans may be necessary for SFN 7305796 based on previous scour findings under a pier.*
 - o Provide written technical report, including maps of the element level condition states on the inspected components.
 - o Submit draft report for review; submit final report; Update Assetwise fields and attach full report of each structure to Assetwise underwater file
 - o Discuss possible condition state changes with District Bridge Engineer or Project Manager before updating.
 - o Complete the Underwater Dive Inspection Procedure Checklist for each bridge. The checklist for each bridge will be provided at the Scope of Services Meeting. A sample Checklist can be found in Appendix F in the 2014 Manual of Bridge Inspection. A link is provided below:

[Manual of Bridge Inspection | Ohio Department of Transportation](https://www.transportation.ohio.gov/working/engineering/structural/mbi)
<https://www.transportation.ohio.gov/working/engineering/structural/mbi>

Inspection Requirement for underwater inspection of bridges:

The underwater inspection vendor (diver) shall be one who is currently on the prequalified dive inspection list maintained by the Office of Structural Engineering. All individuals performing dives shall be an NBIS-Certified Bridge Inspector, NBIS-Certified Underwater Inspector and accredited underwater diver. All consultants shall have on-site and available for review, a Safe Practices Manual.

The consultant shall furnish all labor, materials, and equipment (including traffic control) necessary to perform an in-depth inspection from the waterline to the mud line of all bridge piers, abutments, fenders, dolphins, etc. A maintenance of traffic plan, if needed, will be submitted to ODOT at least 30 days in advance of the inspections to allow for review and comment.

Underwater inspections shall comply with section 16 of 2022 Bridge Inspectors Reference Manual (BIRM) and shall be 100% Level I inspection and Level II (10% cleaning and measurement). See pages 16-49 – 16-52 of the 2022 BIRM. Additionally, these underwater inspections shall comply with the Underwater Inspections section of the ODOT's Manual of Bridge Inspection 2014.

A scour appraisal will be completed for any bridge that does not have one on file in Assetwise. This will include filling out the bridges Scour Appraisal Form in Assetwise. Directions for scour appraisals in Ohio can be found in the addendums of the 2014 ODOT Manual of Bridge Inspection.

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Specific items to be inspected should include, but not limited to, the following:

- < Steel, concrete, stone & timber abutments, piers, fenders, and dolphins.
- < Identify and describe any scour in the stream bed adjacent to the above-mentioned items.
- < Identify the typical streambed material (rocks, rip-rap, silt, sand, gravel, bedrock, etc.) around each substructure.
- < Identify and describe any damage to substructure items as may have been caused by ship collision, ice, debris, etc.
- < Identify and describe any footer which may be exposed (also if bottoms of footers are exposed).
- < If bottoms of footers are exposed, is piling evident (condition of piling)? Include measurements (size of void under footers).
- < Condition of piling of all pile supported structures (waterline to mud line).
- < Identify and describe condition of any pile protection.
- < Identify and describe any cracks or erosion of concrete or stone piers and abutments.
- < Identify the location and denote condition of underwater power cables and control cables for any movable bridge.

Additional soundings around piers and abutments, both up and downstream shall be taken as necessary to accurately depict any areas of scour or abnormal channel conditions. River current direction shall be shown on the sounding diagram.

The diver shall make as many dives as necessary to obtain the required information, reporting all conditions observed, whether they are satisfactory or unsatisfactory.

All details of unsatisfactory structural conditions shall be reported in full detail giving all dimensions of size, shape, and exact location. Effective methods of testing and measuring sound or unsound concrete; sound or unsound timber in piles, bents, cribs, or other timber type construction; sound or unsound stone masonry; presence of stream bed scour, alteration, or other conditions; and/ or any other conditions that may affect the substructure units of the structure involved, shall be employed to assure accurate data.

The consultant shall provide voice communication between the diver and assistant capable of interpreting and recording conditions as they are being observed and reported.

The consultant shall notify the ODOT project manager in the event they have any questions concerning conditions at the site of the projects.

The consultant shall notify the ODOT district engineer at least three days in advance of the proposed inspection date, and on the date that the diving inspection begins.

*If authorized, sonar shall be used for each bridge to obtain the necessary topography of the river bottom within 50 feet from upstream and downstream of the structure and accumulated debris collecting on the piers.

Underwater Inspection Bridge Descriptions

Bridges will be assigned on an as needed basis and will be communicated by the project manager to the consulting team.

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6. Inspection Services

Item	Description
Target Date(s) for Inspection:	Bridge inspections to be completed June 2024 or July 2024, based on 60 mo requirement from current UW inspection date
Traffic Control by	Consultant
Lane Closure Requirements	Temporary
Restrictions to Lane Closure	Note the Department's Permitted Lane Closure (PLC)
Property Owners Involved	State
Right of Entry by	State
Other (ex. Coast Guard)	Coast Guard possible
Special Equipment Anticipated for Access to remote areas <ul style="list-style-type: none"> • Snooper Rental • Rope Climbing • Bucket Truck • Man Lift 	Boat Diving Gear
Other:	

7. Consultant Bridge Inspection Requirements

1. The intent of this contract is for a Professional Engineer (Consultant) to make an underwater condition inspection of the noted bridge(s) and to report such findings in a formal report. The Consultant will complete the inspection in accordance with the latest Ohio Department of Transportation (ODOT) Manual of Bridge Inspection and the Bridge Inspector's Reference Manual (FHWA). Note when the previous inspection report contains Element Level data then an Element Level inspection shall be performed and values updated.
2. The Consultant shall be responsible to provide all necessary traffic control, including traffic control plans (unless otherwise specified), personnel, equipment, and tools.
3. All subconsultants used in the inspection shall be named in the proposal so that they can be approved as a sub-consultant at the time of the agreement.
4. The Consultant shall be responsible for identifying and noting all visible defects in the bridge whether as a result of deterioration, original construction or original design. The Consultant shall also be responsible for identifying and noting areas of potential failure as a result of anticipated deterioration, past construction or maintenance practice and/or inadequate original design.
5. The Consultant will not be responsible for conditions which are not obvious through usual and customary visual inspection or through standard state-of-the-art testing. The Consultant will not be responsible for identifying and evaluating portions of the bridge which comprise of poor quality materials and/or inadequate structural design unless obviously visible to a trained and experienced bridge inspector/engineer performing the inspection services in accordance with the customary

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standards of the profession.

6. The Consultant will not be responsible for structural conditions which occur after the date of the last site visit, providing the condition was not visibly evident at the time of the last visit and the Consultant used usual and customary procedures to inspect the bridge.
7. Any observed section loss on members which are normally analyzed to determine safe load capacity of the bridge, shall be measured and documented quantitatively (ultrasonic thickness gauge, calipers etc.) to allow for subsequent re-analysis of the structure. Analysis of the structure will not be required of the Consultant unless specifically stated in the S.O.S. minutes.
8. Notification:
 - a. In all cases, the consultant must notify the District Bridge Department when the Consultant intends to begin the inspection, **each day** the Consultant is on the job, and when the Consultant is finished.
 - b. The Consultant shall notify the District Bridge Engineer of any and all serious deficiencies immediately upon disclosure, in order that they may be observed by the Department from available scaffolding or access equipment. After completion of the inspection, the Consultant's Professional Engineer must review areas of special concern with field personnel and District Bridge personnel at the site (if applicable). Serious deficiencies include but are not limited reduction in safe load capacity, advanced scour or undermining and rapid changes in expected condition.
 - c. The consultant will inform the District Bridge Engineer of the work location, number of personnel, any lane closures, the type of equipment, start time and finish times, as well as the number of anticipated working hours the consultant will have at the site that day.
 - d. At the completion of physical inspection, the consultant shall provide a spread sheet with all the above information for each day out at the bridge. (The consultant will be given a number to call to leave a message with the information prior to the first day of inspection). This information will be used to keep local law enforcement apprised of who is out at the bridge, and to help us estimate inspection costs for future inspection contract. (It will not affect the cost of the agreed to lump sum payment for this contract)
9. The State of Ohio may delete or postpone the inspection of a bridge from the contract up until the time that the physical inspection begins.
10. The consultant shall submit inspection data, photographs, maintenance recommendations and condition narrative in a written for the District Bridge Engineer or project manager to review prior to final approval.
11. The consultant shall incorporate the photographs within the report (not at the Asset Level) assigned within the bridge sub-units. All photographs shall be dated and labeled to indicate the precise day, location and view in which they were taken.
12. Any additional destructive testing, other than that previously mentioned, shall not be done unless specifically stated in the S.O.S. meeting.
13. Where, in the judgment of the Consultant, it is necessary to remove some portion of the structure to achieve complete and adequate inspection, no action shall be taken without prior approval of the District Bridge Engineer.
14. All invoices for inspection services shall be submitted to the District Contract Manager for processing.
15. The State and Consultant agree that the Work to be performed for the bridge inspection, including the field work for each specific bridge included in the Agreement, shall commence, and be completed within the same calendar year (March 1 to December 1).

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It is not the intent of the State to require the Consultant to perform field work for the bridge inspection during the months of December, January, and February. However, if unusual circumstances arise, the Consultant agrees to perform the required field work during this period upon verbal authorization by the District Bridge Engineer, for a bridge inspection which has been previously authorized by the Director.

The State and the Consultant agree that inclement weather conditions will not be cause for an adjustment to the completion time established in the Agreement.

Inspection work will be complete within the required underwater inspection frequency.

16. Each bridge shall have its own stand-alone report. "Left" and "Right" bridges shall be considered separate bridges if they have their own structure file numbers.
17. Reports shall include any necessary scaled sketches describing any defects. All details of unsatisfactory structural conditions shall be reported in full detail giving all dimensions of size, shape, and exact location.
18. An Analysis of defects found is not necessary.
19. Reports shall be 8.5" x 11". If necessary, foldout pages for sketches will be permitted as part of the report.
20. Report shall include the diver's name, a statement that the diver that conducted the inspection meets the qualifications of a Team Leader as defined by the National Bridge Inspection Standards, and how they meet these standards.
21. Reports shall be signed and sealed by a Professional Engineer registered in the State of Ohio.
22. Inspection of the entire bridge is not expected, however, the report shall provide numerical ratings for the items inspected in accordance with the ODOT Manual of Bridge Inspection. This shall include both condition and element level ratings in accordance with the 2022 Specifications of the National Bridge Inventory (SNBI).
23. Minimum soil depth over footing as determined from plans.
24. Provide a pier elevation of each substructure unit in water, showing exposed footings, streambed sounding depths along footing, exposed piling, debris, direction of water flow, etc.
25. Show measurement in a pier elevation from a known elevation on at least one pier per structure to establish a water surface elevation and depth at the time of inspection.
26. Provide soundings at approximate 1/8 span points along the centerline of the bridge.
27. Provide soundings at approximate 1/8 span points 15 ft. upstream and 15 ft. downstream of the bridge, parallel to the centerline of the bridge.
28. Substructure labeling (rear abutment, forward abutment, Pier 1, Pier 2, etc.) shall be with respect to route stationing and/or original construction plans. Plan views shall show a north arrow, direction of stationing, and direction of flow.

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8. Final Report

A hard bound copy and a PDF copy of the underwater report should be submitted at the discretion of the District Bridge Engineer. The pdf shall be sealed and stamped. An underwater inspection report will be completed in Assetwise along with all applicable underwater fields.

Number of Reports 1, Delivered to W. Max Francis, D9 Bridge Engineer

9. Completion Time

The consultant shall complete each year's inspection in **June of 2024 or July of 2024**, based on each bridge's previous underwater date, if applicable. The following dates are targets for report submittals:

Draft due date for the entire report submitted within 60 days after inspection.

The Formal report is due by 90 days after inspection date (not to exceed 90 days from the field inspection or February 14th of the following year).

A report shall not be considered complete until approved by the District Bridge Engineer.

10. Price Proposal

The consultant's price proposal shall conform to the current Requirements for Consultant Proposals found on Consultant Services website : [Consultant Services | Ohio Department of Transportation](https://www.transportation.ohio.gov/working/engineering/consultant-services)
<https://www.transportation.ohio.gov/working/engineering/consultant-services>

11. Remarks / Special Instructions

The consultant will be required to immediately communicate any change in project management, cost, scope or schedule to the Project Manager. The consultant and ODOT will develop a working schedule for the project. The consultant will be required to produce a recovery schedule if the project falls behind the agreed working schedule. Payment of all invoices will stop until a satisfactory recovery schedule is agreed upon.

12. Information Handouts Required by Consultant and Available within ODOT

It is the consultant's responsibility to obtain the information handouts necessary to complete their file. This is not an inclusive listing.

- 1) Audit Requirements, Definitions and Guidelines.
- 2) Office of Accounting and Auditing Supplemental Information for Consulting Engineering Firms.
- 3) Ohio Manual of Uniform Traffic Control Devices.
- 4) Guidelines for Proposals for Consulting Services.
- 5) ODOT DBE/EDGE Requirements for Consultant Agreements.

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13. Reference Materials Required by Consultant

It is the consultant's responsibility to obtain the bridge inspection manuals necessary to complete their file. This is not an exhaustive listing.

- National Bridge Inspection Program Compliance Review Manual (23 Metrics)
- ODOT Manual for Bridge inspection, 2014 and addendums
- Bridge Inspector's Reference Manual, FHWA NHI, 2022
- Underwater Bridge Inspection, FHWA NHI 10-027, 2010
- The Manual for Bridge Evaluation, 2018, with 2020 Revisions, AASHTO Publication
- Hydraulic Engineering Circular No. 18 "Evaluating Scour At Bridges" Fifth Edition Publication No. FHWA NHI 01-001, Date April 2012
- Hydraulic Engineering Circular No. 20 "Stream Stability at Highway Structures"
- Specification for the National Bridge Inventory, FHWA, 2022
- ODOT Assetwise Coding Guide

	COUNTY	ROUTE	SLM	SFN	FEATURE INTERSECTED	STRUCTURE TYPE	DIVE DATE
1	ADA	032R	1182L	100226	OHIO BRUSH CREEK	322	6/14/2019
2	ADA	032R	1182R	100234	OHIO BRUSH CREEK	322	6/14/2019
3	ADA	041R	22050	101397	OHIO BRUSH CREEK	322	6/13/2019
4	ADA	052R	17070	102172	OHIO BRUSH CREEK	322	6/14/2019
5	ADA	125R	1472	103098	OHIO BRUSH CREEK	363	
6	ADA	247R	19850	104027	W. FORK OHIO BRUSH CREEK	322	6/14/2019
7	ADA	348R	2.81	104159	OHIO BRUSH CREEK	322	
8	ADA	348R	10790	104337	SCIOTO BRUSH CREEK	232	6/13/2019
9	BRO	052R	3050	800694	PATTISONS RUN	195	7/31/2019
10	BRO	052R	3440	800724	KINNEY HOLLOW STREAM	195	7/31/2019
11	BRO	052R	5540	800813	WHITE OAK CREEK	322	7/31/2019
12	BRO	052R	7840	800856	STRAIGHT CREEK	322	7/30/2019
13	BRO	052R	11510	800996	CORNICK RUN-SUBMERGED	195	8/1/2019
14	BRO	052R	12490	801119	RED OAK CREEK	363	7/30/2019
15	BRO	052R	14330	801178	EAGLE CREEK	322	7/30/2019
16	BRO	052R	17460	801232	BIG THREEMILE CREEK	322	7/29/2019
17	BRO	052R	20400	801267	FISHNG GUT CR-SUBMERGED #	195	7/29/2019
18	BRO	052R	20410	801291	FISHING GUT CREEK #	195	7/29/2019
19	HIG	753R	3930	3604179	ROCKY FORK	322	
20	JAC	032R	20210	4003756	LITTLE RACCOON CREEK	112	6/18/2019
21	JAC	032R	20210	4003780	LITTLE RACCOON CREEK	112	6/18/2019
22	LAW	093R	100	4401263	OHIO RIVER	3A4	7/24/2019
23	LAW	243R	11550	4403568	SYMMES CREEK	232	7/25/2019
24	LAW	007R	1840	4400046	SYMMES CRK & CR 31	322	7/25/2019
25	LAW	007R	1840	4400054	SYMMES CRK & CR 31	322	7/25/2019
26	LAW	522R	4190	4403878	PINE CREEK	112	6/17/2019
27	PIK	023R	8370	6600328	SCIOTO RIVER	232	7/26/2019
28	PIK	023R	8370	6600352	SCIOTO RIVER	232	7/26/2019
29	PIK	032R	13740	6601669	SCIOTO RIVER	322	7/27/2019
30	PIK	032R	13740	6601677	SCIOTO RIVER	322	7/27/2019
31	PIK	220R	9850	6602398	SCIOTO RIVER	322	7/26/2019
32	PIK	335R	20010	6602940	SCIOTO RIVER	322	7/23/2019
33	ROS	023R	12570	7100752	SCIOTO RIVER	322	7/22/2019
34	ROS	023R	12570	7100787	SCIOTO RIVER	322	7/22/2019
35	ROS	035R	19190	7101988	SCIOTO RIVER	322	6/15/2019
36	ROS	035R	19190	7102011	SCIOTO RIVER	322	6/15/2019
37	ROS	035R	24190	7102259	SCIOTO RIVER	322	7/23/2019
38	ROS	035R	24190	7102291	SCIOTO RIVER	322	7/23/2019
39	ROS	050R	6640	7103077	PAINT CREEK	232	6/15/2019
40	ROS	050R	1907	1849765	fully submerged culvert under US 50	195	
41	ROS	159R	420	7104189	SCIOTO RIVER & STEWART RD	222	6/15/2019
42	ROS	207R	168	7104901	SCIOTO RIVER	222	
43	SCI	023R	1000	7300026	OHIO RIVER CSX FRONT ST	3A4	6/17/2019
44	SCI	052R	18810	7301359	SCIOTO RIVER	322	7/28/2019
45	SCI	052R	18810	7301383	SCIOTO RIVER	322	7/28/2019
46	SCI	052R	25710	7301626	LITTLE SCIOTO RIVER	322	7/25/2019
47	SCI	052R	25710	7301650	LITTLE SCIOTO RIVER	322	7/25/2019
48	SCI	073R	10630	7302584	SCIOTO BRUSH CREEK	322	6/14/2019
49	SCI	073R	25740	7303017	SCIOTO RIVER	222	7/28/2019
50	SCI	348R	17510	7305796	SCIOTO RIVER	322	7/27/2019