GENERAL DESCRIPTION OF THE PROJECT
In accordance with the National Bridge Inspection Standards (NBIS), the Minnesota Department of Transportation Bridge and Structure Inspection Program Manual (BSIPM) and the Wisconsin Department of Transportation (WisDOT) Structure Inspection Manual, all new structures must receive an initial inspection. The initial inspection is intended to provide a verification of inventory information and to document the baseline condition.

Bridge 82045 is the new main river crossing that spans Minnesota Trunk Highway (TH) 95, the Union Pacific Railroad (UPRR), wetlands, and the St. Croix River between the communities of Oak Park Heights, MN and St. Joseph, WI. It consists of eight concrete box girder approach spans and six extradosed main spans. This bridge is considered a “complex bridge” by federal definition because of the extradosed spans.

Bridges 82047 and 82048 span the UPRR, local roadways, and wetlands. These bridges have post-tensioned concrete box girder superstructures that align with the gore area transitions of the approach spans of Bridge 82045. Bridge 82047 carries the westbound TH 36 exit ramp, and Bridge 82048 carries eastbound TH 36 entrance ramp over the UPRR and wetlands.

State has Contract # 130202 with Lunda/Ames Joint Venture (LAJV) to construct these bridges. Construction of the bridges over the river began in 2013 and is expected to be open to vehicle and pedestrian traffic by July 29, 2017. This initial bridge inspection work must meet the environmental concerns associated with this contract, including any permitting conditions.

Information on the St. Croix Crossing Project can be found on the Crossing Project layout/mitigation package graphic at http://www.dot.state.mn.us/stcroixcrossing/

SCOPE OF WORK AND DELIVERABLES
Contractor will perform the initial bridge inspection of the St. Croix Crossing Bridges 82045, 82047 and 82048 and report preparation as follows:

1. ITEMS SUPPLIED BY THE CONTRACTOR
   a. Personnel protective equipment (PPE) for all inspection personnel.
   b. Fall protection equipment for all inspection personnel.
   c. All equipment necessary to complete a thorough initial inspection.
   d. All necessary licenses, permits and insurance.
   e. Inspection Work Plan, as outlined in Section 4.
   f. Deliverables, as outlined in Section 8.

2. SAFETY AND INSPECTION STANDARDS
   a. Safety Standards. During the performance of the inspection, all applicable pertinent sections of State Occupational Safety and Health Administration (OSHA) and construction project safety standards must be strictly adhered to. Failure to comply with all State OSHA construction safety requirements will result in immediate cessation of inspection activities until safety requirements are met.
b. **Inspection Standards.** Inspections will be conducted in accordance with the following standards and governing documents:
   
i. National Bridge Inspection Standards (NBIS)
   iii. Minnesota Department of Transportation Bridge and Structure Inspection Program Manual
   iv. Wisconsin Department of Transportation (WisDOT) Structure Inspection Manual
   v. All Federal Highway Administration (FHWA) regulations, advisories and guidelines, including the December 2012 Bridge Inspector’s Reference Manual (BIRM)

3. **PERSONNEL**
   
a. Contractor’s personnel performing inspections must meet the requirements of the National Bridge Inspection Standards pertaining to qualifications of personnel prior to the execution of inspections. A Federally Certified Bridge Inspection Team Leader must be present at the bridge site at all times during a bridge inspection.
   
i. All field personnel assigned to the project must be physically capable of performing the tasks associated with their positions. Team Leaders and Assistant Bridge Inspectors must be able to work at heights, on ladders, scaffolding, aerial lift or under bridge inspection equipment. They must be able to climb, work in confined spaces, and work under adverse weather conditions as required.
   
ii. Contractor will submit resumes including a copy of the current professional registration or college diploma, as appropriate, of candidates for the following positions for approval by State:
   1. Team Leaders
   2. Inspection Team Members
   3. Project Manager/ Quality Control Engineer
   
   iii. Resumes must specify the Professional Engineer (PE) number and current registration expiration date, educational background, and detailed work experience including names of firms and dates of each pertinent assignment arranged in reverse chronological order. The work experience description will explain specific duties and responsibilities pertaining to each assignment with applicable months of qualifying experience listed.
   
   iv. Contractor will submit project personnel’s qualifications and certifications to the State for review and approval prior to working on this project. Continuance of such approval will be contingent upon satisfactory performance throughout the life of the contract. No addition of personnel may be made without the prior written approval of State.

b. **State Personnel**
   
i. During the performance of the inspection, State’s personnel will be allowed to accompany inspection teams for the purposes of review, oversight or quality assurance.

   c. **Railroad Coordination and Training**
   
i. Contractor must make their own arrangements to enter and/or work above the property of Union Pacific Railroad (Company).
   
   ii. Consultant must meet all Company requirements as may be directed by the Company prior to entering the property and/or working above the tracks.
iii. Proof of contractor meeting the Company requirements for work above the tracks of the Company and/or entry to the Company property, i.e. copy of permit, correspondence granting consultant approval to proceed, or similar, must be provided to State prior to any work commencing.

iv. Contact Company representative prior to commencing any inspection work on or above the Company’s property.
   1. Kyle Nodgaard, Manager - Industry and Public Projects
      Union Pacific Railroad
      Omaha, NE
      kdnodgaa@up.com
      (402) 544-2029

d. If utilizing rope and rigging techniques as a method of inspection access, all rope access and rigging personnel must have the following:
   i. A current Society of Professional Rope Access Technicians (SPRAT) Technician or Industrial Rope Access Trade Association (IRATA) Level I, II, or III certification. Any Level I or II technician must be under the direct supervision of a Level III technician onsite.
   ii. NBIS Team Leader certification if participating in the inspection of the bridge.

4. MOBILIZATION
   a. Prior to the field inspection, Contractor will:
      i. Review plans, shop/fabrication drawings (as needed and upon request).
      ii. Work with State Construction Project Staff for appropriate communication protocols and requirements with the Coast guard
      iii. Prepare and submit an Inspection Work Plan in accordance with the following guidelines:

      Contractor will prepare and obtain State and WisDOT approval of Work Plans for the initial inspection of the St. Croix Crossing Bridges. No field work will be performed until all submittals are approved by State. State will review Contractor’s submittal and respond with appropriate comments within 5 calendar days from receipt. Contractor will modify the proposed submittals and resubmit to State within 5 calendar days from receipt of comments. No work will be allowed until all work plans have been submitted to, review and approved by State. All approved work plans must be available on site when inspections are taking place.

      Although submissions required by the contract are technically reviewed by State, it is emphasized that the work of Contractor must be performed using proper internal controls and review procedures. The letter of transmittal for each submission must include certification that the submission has been subjected to review and coordination procedures to eliminate conflicts, errors and omissions, and that the overall technical and professional accuracy of the submission can be verified. This certification will be signed by Contractor’s project Quality Control and Assurance Engineer (Q/C Engineer).

      The Work Plan must consist, at a minimum, of the following:
1. **Access Work Plan.** Access to structure elements for the performance of the inspection will be by barge, aerial platforms, aerial lifts, Under Bridge Inspection Units, bucket trucks, rigging, rope access, staging, ladders, walking, drones or a combination thereof. Contractor will be responsible for determining the overall method of inspection and providing access equipment except as indicated below.

State will provide an Under Bridge Inspection Unit, driver and operator for access. Contractor must sign the waiver form to occupy the bucket of the Under Bridge Inspection Unit in accordance with Chapter F of the State’s BSIPM. An Under Bridge Inspection Unit cannot be used to inspect the box from the deck on the extradosed spans of the main river bridge because the bucket cannot fit through the cable stays. Access for the Under Bridge Inspection Unit for the remaining box girder spans is from the sidewalk in the westbound direction and from the shoulder and travel lane in the eastbound direction. State could also provide an 80-85’ snorkel lift and operator if identified by the access plan.

For access plan development purposes, it is approximately 120 feet from the water to the bottom of the box and 66 feet from the deck to the top of the cables.

Contractor’s work plan and cost estimate will include the securement of necessary access equipment.

The Access Work Plan must describe in detail the proposed methods, equipment, materials, tools and procedures that will be used to access the members requiring inspection, including, but not limited to:

a. A list of all access systems, tools, equipment and materials needed to gain access to the elements requiring inspection, including those elements that are inaccessible with an Under Bridge Inspection Unit.

b. Plan for installing and deploying all access systems, tools, equipment and materials at the site.

c. Plan for use of the installed access equipment and systems.

d. Calculations verifying that the access systems and equipment are capable of withstanding the imposed loads.

e. Field verification of the size and condition of the existing elements where the access systems will be installed.

f. Calculations verifying that the existing elements are capable of withstanding the imposed loads of the access systems.

g. Proposed areas where access equipment will be stored at the site.

h. Recommendations for rope access anchorage points.

2. **Construction Contractor Coordination Plan.** The initial inspection will be performed while the bridge is closed and still under a Construction Contract. Contractor will be required to attend the weekly Construction meeting one week prior to beginning onsite field inspection work to coordinate with the Construction
Contractor for access to the bridge throughout the duration of the initial inspection. State will provide Contractor with a two week notice prior to when inspection equipment will be allowed on the deck. Contractor will not be allowed to place inspection equipment on the deck until given prior approval from State. **All field work, including inspection performed by a drone, that will impact traffic must be performed prior to the Open to Traffic Date. Open to Traffic could be as early as July 29, 2017 and as late as October, 2017.**

The Construction Contractor Coordination Plan must describe in detail the methods that will be used to coordinate with Contractor including, but not limited to:

a. A communication plan.
b. A three week look ahead schedule of the inspection activities and access needs.
c. Emergency contact information.

3. **Schedule.** The schedule must show the time to complete the entire scope of services. The schedule must describe in detail the proposed timeline and description of each work task including:

   a. Initial coordination meetings.
   b. Work Plan preparation, submission and review.
   c. All preliminary work and mobilizations.
   d. Three week look ahead schedule detailing the location, inspection work tasks and access needed.
   e. Weekly construction meetings.
   f. Report submission and review.

4. **Inspection Work Plan.** The Inspection Work Plan must describe in detail the proposed methods and procedures for performing the initial inspection including, but not limited to:

   a. Identification of staff performing the inspection and their qualifications.
   b. Procedures for identifying the elements in accordance with the State’s BSIPM and the WisDOT Structure Inspection Manual.
   c. Inspection procedures.
   d. Procedures for identifying the complex bridge details and methods of inspection in accordance with Section A.5.5 of the BSIPM.
   e. Procedures and methods for identifying the need for and implementing non-destructive testing methods.
   f. Methods and format of recording the findings of the initial inspection for Bridges 82047 and 82048 in accordance with both the State’s BSIPM and the WisDOT Structure Inspection Manual.
   g. Methods and format of recording the findings of the initial inspection – complex for bridge 82045 in accordance with Section A.5.5 of the State’s BSIPM.
   h. Description of the communication plan that will be used during the inspection to keep the Project Manager informed of progress, problems encountered and deficiencies.
5. **Safety Work Plan.** Safety Work Plan must be site specific and describe in detail potential site hazards, preventive measures and a rescue plan.

6. **Quality Control and Assurance Work Plan.** The Quality Control and Assurance Work Plan must include Contractor’s procedures that will be used to ensure that the work plans are followed and that consistent and thorough inspections are performed. Contractor’s Q/C Engineer will be responsible to implement the Quality Control and Assurance Plan. Contractor’s Q/C Engineer will provide field and office review, report review and any other review needed to confirm technical accuracy and contract compliance. The Quality Control and Assurance Work Plan must include:
   a. How Contractor will coordinate and direct the activities of any staff and sub consultants.
   b. A description of field staff oversight policy for confirming the quality of inspection and reporting.
   c. Verification and maintenance of staff licenses and certifications.
   d. Procedures for reviewing and correcting deficient report documentation.

5. **INITIAL BRIDGE INSPECTION** (Source Type: 2824)
   a. Contractor will perform an initial inspection to the level that is consistent with the guidelines stated in the State’s BSIPM and the WisDOT Structures Inspection Manual. The initial inspection is a fully documented inspection to determine the basic data for the structure and will consist of an identification of inventory information and sufficient observations and/or measurements to determine the physical and functional condition of the bridge and identify any existing problems. When performing the initial inspection, Contractor will:
      i. Identify the required Structure Inventory and Assessment (SI&A) data per Federal regulations along with all other data required by State and WisDOT standards.
      ii. Identify the AASHTO National Bridge Elements, Bridge Maintenance Elements and Agency Defined Elements or Assessments and defects associated with the bridge for both State and WisDOT.
      iii. Identify the complex bridge details in accordance with Section A.5.5 of the BSIPM.
      iv. Calculate the element, protective system and defect quantities.
      v. Identify the elements that require non-destructive testing methods and document test results.
      vi. Document baseline structural conditions, including element condition ratings, defect condition ratings, NBI component ratings, appraisal ratings and justification
      vii. Document and quantify existing problems or locations that may have potential problems, construction errors, alignment problems or other deficiencies, including documentation of the location, deficiency description and quantity measurements. Coordinate with State’s Construction Project Staff to generate a punch list of deficiencies.
      viii. Document and submit other relevant information required to maintain an accurate bridge file for the structure.
1. Typically, documents including, but not limited to, plans, SI&A sheets, photographs, bridge load ratings and signing recommendations, scour analysis, foundation information, hydrologic and hydraulic data are to be inserted into the bridge file.

ix. Provide photographs of the inspection. The following minimum photographs are required:
   1. Roadway view
   2. Profile view
   3. Underside
   4. Major deficiencies
   5. Other important features
   6. General photos of each element

x. Document the access requirements and equipment needed to perform the inspection.

xi. Coordinate with State to determine the elements that require inspection by Contractor’s team.

xii. An underwater inspection is NOT required as part of the initial inspection.

Reminder: All field work, including inspection performed by a drone, that will impact traffic must be performed prior to the Open to Traffic Date. Open to Traffic could be as early as July 29, 2017 and as late as October, 2017.

6. DEFICIENCIES AND SAFETY HAZARDS
   a. Deficiencies will be noted and documented. Documentation will be made using digital photography.
   b. When serious safety hazards are encountered, the procedures for response, reporting, documentation and follow-up will be conducted in accordance with the State’s BSIPM, latest revision, Section A.6.3 “Serious Safety Hazard”. A serious safety hazard is defined as an element level condition that may be hazardous to public safety, but is not expected to lead to collapse or partial collapse of the bridge.

7. CRITICAL DEFICIENCIES
   a. A critical deficiency is defined as any condition discovered during a scheduled bridge inspection that if not promptly corrected could result in collapse or partial collapse of a bridge and threatens public safety. Critical deficiencies include structural conditions and scour or hydraulic conditions that are found to be critical during the inspection or that are likely to become critical to the stability of the bridge before the next regularly scheduled inspection.
   b. When critical deficiencies are encountered, the procedures for response, reporting, documentation, and follow-up will be conducted in accordance with the State’s BSIPM, latest revision, Section A.6.2 - “Critical Deficiency Reporting.”

8. DELIVERABLES
   a. Format for the following reports are available through Minnesota’s SIMS database and Wisconsin’s HSI database.
      i. Critical Deficiency Report
      ii. Initial Inspection Report (Bridges 82047 and 82048)
      iii. Initial Inspection Report – Complex (Bridge 82045)
b. All submissions that transmit inspection final reports will be accompanied by a letter of transmittal identifying the contents of the submission and the quality control and assurance certification required above.

c. Contractor Inspection Work Plan will be submitted to State prior to performing any field inspection work. No work will be allowed until all work plans have been submitted to, review and approved by State. Following field inspection, Contractor will revise and resubmit the Inspection Work Plan to State based on lessons learned while performing the initial inspection.

d. All reports will be signed and certified by the registered professional engineer who managed the inspection team.

e. The draft initial inspection report documentation in a Microsoft accessible format will be due within 60 days following the first day of the inspection. After submission of each item, Contractor will make all corrections as may be necessary. All costs involved in correcting the submission to conform to the contract requirements will be at no additional cost to State. State will review and provide comments within 10 days of receipt of the draft inspection report.

f. The final inspection report documentation in a Microsoft accessible format will be due within 80 days following the first day of the inspection.

g. The inspection reports will need to be entered into Minnesota’s SIMS database and Wisconsin’s HSI database by Contractor. The final inspection reports must be completed within SIMS and HSI and submitted to the Minnesota PA for review and approval no later than 80 days from the first day of the initial field inspection.

h. Microsoft accessible computer files of all other documents or supporting information used to develop the reports on a compact disk. Types of this information would include, but not be limited to, field notes, photographs, videos, correspondence or scanned images or files.

i. List of comments on the draft St. Croix Inspection and Maintenance Manual.

9. ITEMS PROVIDED BY THE STATE
   a. Bridge plans and shop drawings upon request
   c. Code books and applicable state technical memorandums
   d. Access to the SIMS bridge database and the HSI database
   e. State’s High Work Plan Template
   f. State’s Draft SIA and Element Inspection Template for bridges 82045, 82047 and 82048.
   g. List of construction condition information.

10. COORDINATION
   a. The point of contact for State for technical aspects of the project will be State’s Project Manager or his/her successor. All questions, submissions, and other correspondence must be directed to State’s Project Manager.
   b. Daily coordination will be between Contractor’s field project manager and State’s District project coordinator, as designated by State.
   c. Contractor and State will exchange contact information for local coordination.
11. PROJECT MANAGEMENT
   a. Contractor will provide sufficient management to achieve Contractor’s compliance with all requirements of this contract. This requires coordination of all specified work with subconsultants, subcontractors, and State and local agencies. Contractor will be responsible for mobilization, obtaining work permits, subcontractors and administration of subcontracts, scheduling of work, submission of deliverables, progress and cost control reporting, and ultimately the success of the project. Contractor will designate one team leader to act in the role of the field project manager. This will afford the State and the public one point of contact on site when the need arises to discuss and resolve issues in the field.

12. PROGRESS REPORTS
   a. Contractor will provide weekly progress reports to the State’s Project Manager describing work performed during the previous week. Contractor will provide an initial tabulated schedule showing anticipated monthly and weekly progress of the inspection of bridges/spans and submission of reports schedule. Progress reports will be forwarded to the State’s Project Manager at the end of each work week. In addition, the weekly progress report will contain the following:
   b. Cost Control Summary - the cost control summary will provide information on:
      i. List of access equipment used as well as duration, cost, etc. associated with this equipment
      ii. Description of any encountered circumstances that positively or negatively impacted each task
      iii. Hours tracked for Contractor’s Team Leader, Inspection Team Members and Program Manager/QC Engineer

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