# REHABILITATION STRUCTURE SURVEY REPORT

Wisconsin Department of Transportation
DT1696 4/2017

RECEIVED
8/15/2019
BUREAU OF STRUCTURES

☒ **Grade Separation** ☐ **Stream Crossing** ☐ **Culvert**

☐ **Railroad** ☐ **Retaining Wall** ☐ **Noise Barrier**

☐ **Sign Structure** ☐ **Other:** _____

For guidance see: http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/strct/survey.aspx

| | | | | |
|---|---|---|---|---|
| Design Project ID<br>3839-03-03 | Construction Project ID<br>3839-03-73 | Highway (Project Name)<br>USH 12 | | |
| Final Plan Due Date<br>3/1/2020 | Preliminary Plan Due Date<br>8/30/2019 | ☒ Town ☐ Village ☐ City<br>Bloomfield | | |
| PS&E Date<br>5/1/2020 | Letting Date<br>9/8/2020 | County<br>Walworth | | |
| Structure Number<br>B-64-23 | | Section<br>14 | Town<br>01N | Range<br>18E |
| Station<br>295+41.40=<br>16+63.62 Pell Lake Dr | Latitude: 423244.42<br>Longitude: 882015.48 | ☒ YES ☐ NO Structure Located on National Highway System | | |
| For Survey and CADD Files<br>Horizontal Coordinate System:<br>Vertical Datum: | | **Traffic Forecast Data** | | |
| | | Design Year | Average Daily Traffic (ADT) | Roadway Design Speed | Functional Class |
| Feature On<br>USH 12 EB/SB | | Feature On<br>2040 | 11,800 | 70 mph | Other Prin Art-Rural |
| Feature Under<br>Pell Lake Dr. | | Feature Under<br>2040 | 5,200 | 40 mph | Major Collect.-Rural |
| Region Contact: Justin Suydam<br>(Area Code) Telephone Number(s): 262-548-8745<br>Email: Justin.Suydam@dot.wi.gov | | Consultant Contact: Pat Cashin<br>(Area Code) Telephone Number(s): 414-315-7040<br>Email: PCashin@hntb.com | | |

## Work To Be Performed

**Field Information Required**
Item Number *(see Pages 2–4)*

- ☐ A. Structural Repair ..... 1–3, 22
- ☒ B. Overlay ..... 1–3, 10–22, 26–28, 32, 34
  - ☒ Concrete Overlay ☐ Asphalt Overlay
  - ☐ Polymer Modified Asphalt Overlay ☐ Thin Bonded Polymer Overlay
  - ☐ Other: _____
- ☒ C. New Bearings ..... 3, 8, 9, 22
- ☐ D. New Railings ..... 15–17, 20–23
- ☐ E. Curb and Sidewalk Repair ..... 2, 3, 16, 22, 23
- ☐ F. Abutment Repair ..... 2, 3, 12, 16
- ☐ G. Pier Repair ..... 2, 3, 12, 16
- ☐ H. New Deck ..... 1–6, 9, 10, 13–28, 32–34
- ☐ I. Widening ..... 1–28, 30, 32–35
- ☒ J. Joint Repair ..... 2, 3, 8, 16, 19, 22
- ☒ K. Surface Repair ..... 2, 3, 22
- ☐ L. Raising Bridge ..... 3, 6, 9, 16, 20–24
- ☒ M. Slope Stabilization ..... 1–3, 30
- ☐ N. Scour Repair ..... 1, 2 or 3, 16, 19, 21, 27, 29, 31–35
- ☒ O. Painting ..... 16, 22, 24
- ☒ P. Other: Retrofit parapet to 42SS barrier shape

**Field Information Required**

If no structure number exists provide the following: Small County Map on which the location of proposed structure is shown in red and any highway relocation in green. In addition, provide Location Map of scale not less than 1" = 2000' showing the structure location and number.

☒ 1. Most recent inspection report, brief history of bridge construction date, and description of repairs with dates.

☒ 2. Outline deficient areas on existing structure plan or drawing.

☒ 3. Photographs of details requiring repairs or modifications, such as: bearings, x-frames, joints, etc. Photograph all deficient areas. Clearly label all photographs.

☐ 4. Provide proposed typical section for roadway and structure showing dimensions and cross slopes.

☐ 5. Survey beam seat or girder elevations at both sides of bridge at all substructure units.

☐ 6. Provide cross-section elevations at 10 foot intervals extending across the structure and a minimum of 100 feet beyond each end. Sections should be normal to centerline and show elevations at centerline roadway and gutter line. Take elevations along joints and at floor drains.

☐ 7. Show and identify starting stationing on bridge.

☒ 8. Record measurement, temperature of the structure, and date taken for each of the following:
(a) Joint opening measured normal to joint at centerline of roadway and both curb lines.
(b) Clearance between girder ends at piers.
(c) Distance from front face of abutment backwall to closest point of girder end measured parallel to girder.
(d) Temperature of structure determined by averaging top and under deck (if accessible) readings.

☒ 9. Fixed and expansion bearings - condition and orientation.

☒ 10. Number and width of proposed pours including construction staging sequence.

☒ 11. Location of existing construction joints in the deck.

☒ 12. Estimated Quantities:

| | | |
|---|---|---|
| Preparation, Decks, Type 1 | Sq. Yd. TBD | |
| Preparation, Decks, Type 2 | Sq. Yd. TBD | |
| Full Depth Deck Repair | Sq. Yd. TBD | Galvanic Anodes? _____ |
| Concrete Surface Repair Superstructure | Sq. Ft. TBD | Galvanic Anodes? _____ |
| Concrete Surface Repair Substructure | Sq. Ft. TBD | Galvanic Anodes? Yes |
| Curb Repair | LF. NA | Galvanic Anodes? _____ |

☒ 13. Sufficiency number: 80.0 (obtain from HSI Bridge Inventory System)

☒ 14. Appraisal and Condition Rating

| | Deck Condition | Superstructure Condition | Substructure Condition | Load Capacity Appraisal | Structural EVAL Appraisal |
|---|---|---|---|---|---|
| **Current** | 5 | 6 | 6 | 5 | 6 |

☒ 15. Load Ratings

| | Inventory | Operational |
|---|---|---|
| **Current**<br>Calculated Date: 7/29/2013 | HS 20 | HS 33 |
| **After**<br>Completed by Bridge Designer | | |

☒ 16. Utilities on/near Structure. (WisDOT policy is to avoid placing utilities on the structure.)
☐ Yes ☒ No

| Type | Owner and Contact Information | Size | Opening at Abutment | Weight | Pressure |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |

☒ 17. Is existing bridge railing deficient?
☒ Yes ☐ No If Yes – Replacement Rail Type: Retrofit to 42SS shape

☒ 18. Drains to be:
☐ Raised ☐ Closed ☒ Downspouted ☐ New

☒ 19. Traffic maintained on bridge during work?
☐ Yes ☒ No If Yes – Include sketches

☒ 20. Will guard rail be attached?
☒ Yes ☐ No If Yes – Which corners? All 4

☒ 21. Will work to be performed eliminate all deficiencies?
☒ Yes ☐ No If No – Explain:

☒ 22. Hazardous waste (asbestos) to be removed?
☒ Yes ☐ No If Yes – Explain: See p. 4

☒ 23. Wing location(s) for surface drain anchors: No new anchors for surface drains

☒ 24. Painting?
☒ Yes ☐ No If Yes – Explain on Page 4
*(all, part, railing, color system, containment, bid items)*

☐ 25. Desired roadway width: *(new deck / widening)* _____ Ft.
Desired sidewalk clear width: Left: _____ Ft. Right: _____ Ft.

☒ 26. Maximum increase in grade line elevation -2 In.

☒ 27. Benchmark description to be shown

☒ 28. Desired final cross slopes on bridge 0.01 Ft./Ft.

☐ 29. Underwater Inspection Report including:
- Streambed Cross Section With Pier, Footing and Seal Elevations
- Pier Elevation Drawings
- Pier Layout
- Hydrographic Survey

☒ 30. Slope stabilization, provide:
Type: Slope paving crushed aggregate Quantity: TBD CY.
Slope: _____ Ft./Ft. Fill: _____ CY.

☐ 31. Preliminary layout of grout bags or proposed scour repair.
C.I.P. Articulated Mats (for Scour) _____ CY.
Grout Bags (for Scour) _____ CY.
Heavy Riprap _____ CY.
Extra Heavy Riprap _____ CY.

☒ 32. Report submitted with Preliminary Plan requires **no** CADD file submittal *(See ESubmittal instructions)*.

☐ 33. Report submitted for development of Preliminary Plan to structure design engineer requires CADD file (if available) submittal and Report submittal to Soils Engineer if project involves foundation modifications.

☒ 34. Coordinate with structure design engineer **before** going into the field if existing structure has no available plans, if staged construction is planned, or if there are adjoining/adjacent structures that will remain in place.

☐ 35. If project involves substructure widening coordinate with structure and/or hydraulic design engineer to determine if information on the separation and/or stream crossing SSR will be required.

## Additional Information

Elaborate on other concerns such as: DNR, Local, Utility Conflicts, Aesthetics, Railing Type and Staged Construction.
*Please be as detailed and specific as possible.*

NOTE: B-64-23 rehabilitation plans and SSR were previously submitted to BOS on 10/1/2018 with deck replacement as the primary construction scope. Region and BOS later decided to change the primary construction scope to an overlay.

Work to be Performed:
Remove existing concrete and asphalt overlays, deck patching, and concrete masonry overlay
Replace strip seal expansion device
Retrofit parapet to 42SS shape
Remove moveable bearings and replace with laminated elastomeric bearings
Repairs to substructure units
Clean and paint superstructure, including fixed bearings at south abutment
Remove concrete slope paving, repair undermining, and replace with slope paving crushed aggregate
Clean floor drains and add downspouts to direct drainage to roadway ditches

Item # 1: See most recent inspection report, which also includes construction history.

Item #2: See preliminary plans for proposed work.

Item #3: See separate document for photographs.

Item #8: Refer to inspection report for expansion joint opening.

Item #9: Remove moveable bearing assemblies at the north abutment under the bid item “Removing Bearings B-64-23” and replace with preferred type laminated elastomeric bearings. Fixed bearings at the south abutment and expansion bearings at piers to be cleaned and painted (included with bid item Structure Repainting Recycled Abrasive B-64-23).

Item #10: Bridge will be closed during construction.

Item #11: No construction joints in existing deck. The existing concrete overlay has a construction joint at the bridge centerline.

Item #12: Deck repair areas to be based on thermographic deck scans to be performed Summer 2019. Concrete surface repair quantities to be determined for final design based on photos and most recent inspection report.

Items #13, 14, 15: These values were taken from the HSI system on 7/23/2019.

Item #16: No utilities on the bridge.

Item #18: Existing floor drains to be cleaned out. Drains do not appear to have been adjusted for previous overlays. Similarly, drains will not be adjusted for new overlay; overlay surface to be tapered at floor drains. Downspouts to be added from floor drains to direct drainage to roadway ditches below bridge.

Item #19: Bridge to be closed during deck rehabilitation with traffic on USH 12 shifted to the other side with crossovers. Superstructure painting and other underdeck work will require intermittent closures on Pell Lake Dr. below bridge.

Item #22: Asbestos Containing Materials will be disturbed with parapet/railing removal (gaskets under railing posts).

Item #24: Clean and paint exposed existing steel superstructure – steel girders, diaphragms, connections, etc.
Color: Blue, AMS Color Number 25240
Proposed bid items related to painting:
1) 517.1800.S Structure Repainting Recycled Abrasive B-64-23
2) 517.4500.S Negative Pressure Containment and Collection of Waste Materials B-64-23
3) 517.6001.S Portable Decontamination Facility

Item #26: Removal of 2" asphalt overlay and 1 1/2" concrete overlay and then placement of a new 1 1/2" concrete overlay results in a profile grade decrease of 2".

Item #27: Benchmarks to be added at final design if information provided by region.

Item #28: Existing 1.00% cross-slope to be maintained.

Item #30: Remove concrete slope paving. Repair undermined areas. Recommend complete replacement given extent of slope paving distress and SER desire to improve drainage at toe of slope. Replace with slope paving crushed aggregate.

Other:

- Related roadway work at structure: approach pavement improvements and beam guard improvements. Median shoulder drainage accomodations at the end of wingwalls.

- Current repair assumptions based upon most recent inspection report dated 5/13/2019.

-Substructure repairs to be investigated further in final design. Possible bid items may include:
509.9020.S Epoxy Crack Sealing
509.9025.S Epoxy Injection Crack Repair
509.9026.S Cored Holes 2-Inch Diameter
SPV.0060 Embedded Galvanic Anodes
SPV.0165 Removing Loose Concrete
Others to be determined in final design