Bridge 3130, constructed in 1920, carries Township Road 232 over the Blue Earth River about one-half mile south of Blue Earth in rural southwestern Faribault County. Blue Earth City Township owns the bridge. Bridge 3130 is a representative and early example of the Minnesota Highway Department's standardized plan for concrete deck girder bridges. Moreover, Bridge 3130 is significant for its construction at the outer limit for length of the reinforced-concrete deck girder span type at the time of its construction.

Bridge 3130 is a single span, concrete deck girder bridge approximately 60 feet in length. The bridge has a clear width of 20 feet 9 inches, providing for two lanes of traffic. The concrete railings are parapet type with a cap detail and regularly spaced recess panels.

Bridge 3130 is in fair condition and appears to adequately serve its purpose of carrying vehicle and pedestrian traffic. With proper maintenance, stabilization and preservation activities it is believed that Bridge 3130 could continue to serve in its present capacity for 20 years or longer.

Any work on Bridge 3130 should proceed according to the Secretary of the Interior's Standards for the Treatment of Historic Properties (Standards) [36 CFR part 67] and The Secretary’s Standards with Regard to Repair, Rehabilitation, and Replacement Situations, as adapted by the Virginia Transportation Research Council (Guidelines).
Bridge Location

Bridge Number: 3130

PROJECT LOCATION
FARIBAULT COUNTY
SEC. 29, TO 102NN, R 27W
UTM ZONE: 15  NAD: 27
USGS QUAD NAME: ELMORE
EASTING: 1349779 ft.
NORTHING: 15845745 ft.

Bridge 3130 – TWP 232 over COON CREEK
Executive Summary

Bridge Location

I. Project Introduction
II. Historic Data
III. Bridge Data
IV. Existing Conditions/Recommendations
V. Projected Costs

Appendices

A. Glossary
B. Guidelines for Bridge Maintenance and Rehabilitation based on the Secretary of the Interior's Standards
C. Documents
This Bridge Report is a product of a comprehensive study performed for approximately 140 historic bridges owned by county, city, township, private and other state agencies besides MnDOT. The study is the second phase of a multi-phased process developed and executed in partnership with representatives from the Federal Highway Administration (FHWA); State Historic Preservation Office (SHPO); MnDOT State Aid; MnDOT Cultural Resources Unit (CRU); the US Army Corps of Engineers (USACE); local public works and county highway departments; county and township boards and city councils; the preservation community and the general public. To perform the study, MnDOT retained the consultant team of LHB Inc., Mead & Hunt Inc., and The 106 Group.

The general goals of the study include:

- Gathering and compiling the existing historic and bridge condition data and other relevant information on the bridges in the study group into bridge reports.
- National Register nominations for a select number of bridges within the study group which the bridge owner may request a nomination to be prepared.
- Updating MnDOT’s Management Plan for Historic Bridges in Minnesota based on the study’s findings.
- Producing a narrative for the MnDOT Historic Bridge Website to disseminate information regarding locally owned historic bridges in Minnesota.
- Investigating and preparing a summary regarding how other states have funded historic bridge programs and structured Programmatic Agreements when multiple non-state entities are the owners of historic bridges.

The Bridge Reports compile and summarize the historic and engineering information concerning the structures. The reports also document the existing use and condition of the bridges along with assessments of the maintenance, stabilization and preservation needs of each structure, including cost estimates. The maintenance activities, along with regular structural inspections and anticipated bridge component replacement activities are routine practices directed toward continued structure serviceability. Stabilization activities address immediate needs identified as necessary to maintain a bridge’s structural and historic integrity and serviceability. Preservation activities are near term or long term steps that need to be taken to preserve and in some cases restore a bridge’s structural and historic integrity and serviceability. In assessing preservation activities, a design life of 20 years or longer is typically considered. In addition to general restoration activities and dependent on the severity of deterioration, preservation activities may include spot repair, disassembly and reassembly or replacement of specific bridge components.

Recommendations within the Bridge Reports are consistent with the Secretary of the Interior’s Standards for the Treatment of Historic Properties (Standards). The Standards are basic principles created to help preserve the distinct character of a historic property and its site, while allowing for reasonable change to meet new engineering standards and codes. The Standards recommend repairing, rather than replacing deteriorated features whenever possible. The Standards apply to historic properties of all periods, styles, types, materials and sizes and encompass the property’s location and surrounding environment.
I – Project Introduction

The Standards were developed with historic buildings in mind and cannot be easily applied to historic bridges. The Virginia Transportation Research Council (Council) adapted the Standards to address the special requirements of historic bridges. They were published in the Council’s 2001 Final Report: A Management Plan for Historic Bridges in Virginia, *The Secretary’s Standards with Regard to Repair, Rehabilitation, and Replacement Situations*, provide useful direction for undertaking maintenance, repair, rehabilitation, and replacement of historic bridges and are included in the Appendix to this plan.

Existing bridge data sources typically available for Minnesota bridges were gathered for the study. These sources include:

- PONTIS, a bridge management system formerly used by MnDOT to manage its inventory of bridges statewide, and its replacement system, SIMS (Structure Information Management System)
- The current MnDOT Structure Inventory Report and MnDOT Bridge Inspection Report. Reports are available for the majority of the bridges (not available for bridges in private ownership)
- Database and inventory forms resulting from the 2012 Minnesota Local Historic Bridge Study and other prior historic bridge studies as incorporated into the database
- Existing Minnesota historic contexts studies for bridges in Minnesota, including *Reinforced-Concrete Highway Bridges in Minnesota, 1900-1945*, *Minnesota Masonry-Arch Highway Bridges, 1870-1945*, *Iron and Steel Bridges in Minnesota, 1873-1945* and *Minnesota Bridges 1955-1970*
- Field investigations documenting the general structural condition and determining character-defining features

Additional data sources researched and gathered for some of the bridges as available also included:

- Files and records at MnDOT offices
- Original bridge construction plans, rehabilitation plans, and maintenance records of local owners
- Files and documents available at the SHPO office, including previous inventory forms, determinations of eligibility, studies, and compliance documents
- Existing historic and documentary material related to the National Register-eligible bridges

The Appendix contains the following: a Glossary explaining structural and historic preservation terms used in the report, the Guidelines for Bridge Maintenance and Rehabilitation based on the Secretary of the Interior’s Standards, a list of engineering and historic documents available for this bridge, and copies of the MnDOT Structure Inventory and Bridge Inspection Reports current at the time of the report preparation.

The Bridge Report will provide the bridge owner and other interested parties with a comprehensive summary of the bridge condition and detailed information related to the historic nature of the bridge. This information will enable historic bridge owners to make informed decisions when planning for their historic properties.
This narrative is drawn from previous documents, as available for the subject bridge, which may include determination of eligibility (also known as Phase II evaluation), Minnesota Architecture/History Inventory Form, National Register nomination, Multiple Property Documentation Form, and/or applicable historic contexts. See Sources for details on which documents were used in compiling this Historic Data section.

Contractor: Babcock Brothers

Designer/Engineer: Minnesota Highway Department

Description
Bridge 3130, constructed in 1920, carries Township Road 232 over the Blue Earth River about one-half-mile south of Blue Earth in rural southwestern Faribault County. The area around the bridge is largely agricultural.

The bridge is a 60-foot-long, reinforced-concrete, deck girder bridge. The deck is 21 feet wide between original reinforced-concrete Classical Revival style railings. Each railing consists of three solid-parapet sections with six recessed panels. A concrete coping extends along the interior and exterior of the parapet. A concrete curb projects several inches from each parapet along the roadway.

The substructure consists of a concrete deck girder supported by concrete abutments with flared wingwalls. Board form markings are visible along the wingwalls and the abutments. The deck is cantilevered several inches past the girder on either side. There have been no alterations to the bridge.

Significance
In 1919 the Minnesota Highway Department prepared plans for two concrete-girder bridges on a state road south of Blue Earth in Faribault County. Bridge 3130 would be located one-half-mile south of the city, and Bridge 3031 (no longer extant) would be located 3 miles further south. Bridge 3130 was designed to be a 60-foot, deck girder span and Bridge 3031 was designed to be two 30-foot, through-girder spans. In February 1920 the Faribault County Board of Commissioners received four bids for the construction of Bridges 3130 and 3031 as part of Federal Aid Project No. 36. Federal aid would partially subsidize the construction of both bridges and the improvement of the highway itself and the state and county would make up the balance of the expense.

The contract award went to Babcock Brothers, who submitted the lowest bid for construction of each bridge. The company bid on Bridge 3130 at $10,944, and Bridge 3031 at $9,811. Babcock also received "cost plus 20%" for removing the old bridges and for building temporary crossings. Both construction projects were completed before the end of 1920. Bridge 3031 was replaced in 1992.

Concrete girders became popular for short bridge spans designed by the Minnesota Department of Transportation in the 1910s. At this time, transportation departments often issued standard plans for the girders. Concrete girders remained popular for bridge construction until the 1930s. The span type was most commonly used for short spans of 15-40 feet. According to specifications issued by the State Highway Department in 1918 and 1921, the maximum suitable span length for concrete girder bridges was 60 feet.
With its 60-foot span, Bridge 3130 was constructed at the outer limits of length for the bridge type, which is defined as 50 feet for the concrete deck girder bridge type constructed prior to 1921. The concrete girder was largely replaced by increasingly popular pre-cast concrete and steel I-beam spans in the 1940s.

Research did not reveal any repair, modification, or alterations undertaken on the bridge. As such, the bridge retains integrity of workmanship, design, and materials. The bridge continues to carry the rural township road over the Blue Earth River and retains integrity of location, association, feeling and setting. The period of significance for Bridge 3130 is 1920 to correspond with its date of construction.

Bridge 3130 is eligible for the National Register under Criterion C in the area of Engineering as a representative and early example of the Minnesota Highway Department’s standardized plan for concrete deck girder bridges. Moreover, Bridge 3130 is significant for its construction at the outer limit of length for the reinforced-concrete deck girder span type at the time of its construction. A concrete girder bridge constructed before 1921 is considered at the outer limit for the bridge type if it is 50 feet and over.

**Historic Context**

Reinforced-Concrete Highway Bridges in Minnesota, 1900-1945

**National Register Status**

Eligible (Individually)

**Criterion A Significance**

N/A

**Criterion C Significance**

Engineering: Important type, Variation of type

**Historic District**

N/A

**SHPO inventory number**

FA-BET-003

**Sources Used to Compile Section II -- Historic Data**

Bridge 3130 File, Minnesota Department of Transportation, Roseville, Minnesota.

Bridge 3130 File, Faribault County Highway Department, Blue Earth, Minnesota.

Faribault County Board of Commissioners, *Proceedings*. 13, 14 February 1920. Available at the Faribault County Courthouse, Blue Earth.

Minnesota Highway Department. *General Provisions and Bridge and Culvert Specifications, 1918* sec.118.


Minnesota Department of Transportation. Entries for Bridges 3130 and 3131. *Bridge Log.*
### II – Historic Data

<table>
<thead>
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<th>Bridge Number: 3130</th>
</tr>
</thead>
</table>


Field inspection by Denis Gardner. 28 September 1996.

Field inspection by LHB, Inc. and Mead & Hunt, Inc. 30 April 2014.
Character-Defining Features

Character-defining features are prominent or distinctive aspects, qualities, or characteristics of a historic property that contribute significantly to its physical character. Features may include materials, engineering design, and structural and decorative details. Often, the character-defining features include important historic fabric. However, historic fabric can also be found on other elements of a bridge that have not been noted as character-defining. For this reason, it is important to consider both character-defining features and the bridge’s historic fabric when planning any work.

Feature 1: Design and construction of a single-span, reinforced-concrete, deck girder with exceptional span length.

Feature 2: Ornamental reinforced-concrete parapet railings featuring recessed panels designed in the Classical Revival style.
### Minnesota Department of Transportation (MnDOT)
#### Local Historic Bridge Report

**Bridge Number:** 3130

### III – Bridge Data

#### Date of Construction (remodel)
- **1920**

#### Common Name (if any)
- **TWP 232**

#### Location
- **Feature Carried:** TWP 232
- **Feature Crossed:** Coon Creek
- **County:** Faribault
- **Ownership:** Blue Earth City Township

#### MnDOT Structure Data
- **Date of Construction (remodel):** 1920
- **Common Name (if any):** TWP 232
- **Location:** Coon Creek, Faribault, Blue Earth City Township
- **Main Span Type:** 105 CONC DECK GIRD
- **Main Span detail:**
  - **Substructure Type - Foundation Type:** 1-Concrete - 1-Spread/Soil
  - **Piers:** N-Not Applicable - N-Not Applicable
- **Total Length:** 63.1 ft
- **Main Span Length:** 60 ft
- **Total Number of Span(s):** 1
- **Skew (degrees):** 0
- **Structure Flared:** No Flare
- **Roadway Function:** Rural, Local
- **Custodian/Maintenance Type:** Township

#### Reported Owner Inspection Date
- **9/5/2012**

#### Sufficiency Rating
- **47.8**

#### Operating Rating
- **HS 18**

#### Inventory Rating
- **HS 12**

#### Structure Status
- **P – Load Posted**

#### Design Load
- **HS20**

#### Current Condition Code
- **Deck:** 5
- **Superstructure:** 5
- **Substructure:** 5
- **Channel and Protection:** 6
- **Culvert:** N

#### Current Appraisal Rating
- **Structural Evaluation:** 5
- **Deck Geometry:** 3
- **Underclearances:** N
- **Waterway Adequacy:** 4
- **Approach Alignment:** 5

#### Fracture Critical
- **No**

#### Deficient Status
- **F.O.**

#### Roadway Clearances
- **Roadway Width:** 21 ft
- **Vert. Clearance Over Rdwy:** N/A
- **Vert. Clearance Under Rdwy:** N/A
- **Lat. Clearance Right:** 0 ft
- **Lat. Clearance Left:** 0 ft

#### Roadway Data
- **ADT Total:** 880 (2002)
- **Truck ADT Percentage:** 16
- **Bypass Detour length:** 2 miles
- **Number of Lanes:** 2

#### Waterway Data
- **Scour Code:** K-LIMITED RISK

#### Non-MnDOT Data

##### Approach Roadway Characteristics
- **Lane Widths:** 10 ft
- **Shoulder Width:** 3 ft
- **Shoulders Paved or Unpaved:** Unpaved
- **Roadway Surfacing:** Aggregate

##### Location of Plans
- **N/A**

##### Plans Available
- **No Plan Available**

---

*Non-MnDOT data collected during field survey. All other fields of data collected from MnDOT April of 2014. See Appendix C for MnDOT inventory and inspection report data.

**Unless a significant number of crashes are noted on or near a bridge, the accident data is not detailed in this report.*
Existing Conditions
Available information, as detailed in the Project Introduction section, concerning Bridge 3130 was reviewed prior to visiting the bridge site. The site visit was conducted to establish the following:

1. General condition of structure
2. Conformation to available extant plans
3. Current use of structure
4. Roadway/pedestrian trail geometry and alignment (as applicable)
5. Bridge geometry, clearances and notable site issues

General Bridge Description
Bridge 3130 is a single span, concrete deck girder bridge spanning approximately 60 feet over Coon Creek located south of the City of Blue Earth in Faribault County. The rectangular shaped deck girder, deck slab, abutments, wingwalls and bridge railing are comprised of cast-in-place concrete. The concrete deck girder is composed of an integral concrete deck on top of, and integral with, four concrete girders. The bridge is 22 feet 1 inch wide (out-to-out) and the clear width is 20 feet 9 inches wide, providing for two lanes of traffic. The railings are parapet type with a cap detail and regularly spaced recess panels. The railings are about 3 feet 7 inches tall measured from the top of the concrete bridge deck. The concrete deck is covered with five to ten inches of gravel.

Serviceability Observations
The bridge is currently open to vehicle traffic and is load-posted by signage to 26-40-40 tons. Based on a rating completed in 2006 bridge load-posting signage should be 18-29-29 tons.

Condition Observations

Superstructure

Reinforced-Concrete Deck Girders
The existing concrete deck girders are in fair condition. The west fascia girder has 2 square feet of spalled concrete at the north end of the girder. No deficiencies were noted on the western interior girder. The eastern interior girder has approximately 5 square feet of concrete spalled up to 3 inches deep at the north end of the girder. The east fascia girder has 3 square feet of spalling/delaminated concrete at the north end of the girder. Due to high water, assessment of the girders could only be done from the north end of the bridge.

Reinforced-Concrete Deck
The reinforced-concrete deck was observed to be in fair condition with localized areas on the underside in poor condition. The top surface was not able to be assessed due to 5 to 10 inches of gravel fill over its surface. The underside of the reinforced-concrete deck exhibited longitudinal cracking approximately centered between the deck girders running the length of the bridge. Around the longitudinal cracks there were minor amounts of spalling observed. The longitudinal cracks and minor spalling do not seem to be structurally adverse. Also observed on the underside of the concrete deck was approximately 30 square feet of spalling on the west concrete deck overhang and 40 square feet of spalling on the east concrete deck overhang. The depth of spalling appeared to be approximately 3 to 4 inches.
Bridge Railings
The reinforced-concrete railings are in fair condition with localized areas in poor condition. The east railing at its south end has an approximate 13-square-foot area below it which is cracked full depth, displaced and leaning. The west rail has approximately 3 square feet of spalled concrete on the outside face at the south end of the rail. On top of the railing at all four rail panel vertical construction joints (2 per side) there is approximately 1 square foot of spalled concrete. There are minor areas of pitting and spalling to a depth of less than 1 inch over the vertical face of the railing. The areas of minor pitting and spalling appear to have no adverse effect to the structural integrity of the railing. Regions of the concrete curb top are spalled to a depth of 1/2 inch to 1 inch.

Substructure

Abutments
The north abutment and wingwalls are in good condition overall. At the bottom west corner of the abutment there is an approximate 3-square-foot area of spalled concrete to a depth of 3 inches. Adjacent to the west fascia girder there is a 5-square-foot spall up to 4 inches deep on the integral end diaphragm. Additionally there is a diagonal crack and minor spalling along the east end of the north abutment.

Due to high water level, access to the south abutment was not possible; a visual inspection from the north bank was made of the south abutment. Observed deficiencies of the south abutment include approximately 5 square feet of spalled concrete, approximated at 6 inches to 8 inches deep on the integral end diaphragm between the west fascia and west interior girder. Below the west interior girder, an approximate 2-square-foot spall with rebar exposed was observed just above the waterline. At the lower west corner of the end diaphragm, an approximate 2-square-foot spall to an unknown depth was observed. Both south wingwalls were accessible and were found to be in good condition with no significant deficiencies noted.

Slopes
The southwest slope has eroded substantially. There is a 4 foot vertical drop/scour at the end of the southwest wingwall extending approximately 30 feet. If eroding continues it may creep into the roadway slope. The remaining slopes at the corners of the bridge are in good condition with no notable erosion.

Approach/Waterway Observations
The waterway appears to be functional other than the steep slope/scour as noted at the southwest corner of the bridge. The gravel approach roadway is in good condition.

Date of Engineering Site Visit by LHB
April 30, 2014
Condition 1 – North approach, looking south

Condition 2 – West elevation
Condition 3 – In place load posting sign
(note posted levels on sign are higher than the current MnDOT load posting report)

Condition 4 – East curb (note excessive gravel fill on bridge)
Condition 5 – Broken railing end at southeast corner of bridge

Condition 6 – Rail joints (note spalling on top of railing and scaling on railing face)
Condition 7 – Longitudinal crack in deck underside between girder bays

Condition 8 – Spalling of deck overhang underside
Condition 9 – Spalling of south abutment end diaphragm

Condition 10 – Eroded slope, southwest corner of bridge
MINNESOTA DEPARTMENT OF TRANSPORTATION (MNDOT)
LOCAL HISTORIC BRIDGE REPORT

IV – EXISTING CONDITIONS/RECOMMENDATIONS

BRIDGE NUMBER: 3130

OVERALL RECOMMENDATIONS
The bridge is currently open to vehicular traffic and is load-posted. The load-posting displayed at the bridge exceeds the recommended load rating in the bridge's structure inventory report completed in 2006. The recommendations that follow assume the structure's use will remain the same and the bridge will be properly load-posted based on the 2006 load rating.

RECOMMENDED STABILIZATION ACTIVITIES

1. Investigate load rating of the bridge based on the current gravel overburden of up to 10 inches. Post bridge to proper load rating based on investigation and load rating review results.

2. Repair railing at southeast corner of bridge. Railing in its current state poses a safety hazard. To maintain historic integrity the repair shall consist of selective removal of the fractured/deteriorated section of rail. Reinforcing bars which are intact and which extend into the fractured concrete should then be cleaned and epoxy coated. Supplemental reinforcing dowels will need to be drilled into the in place concrete and supplemental reinforcing will be needed for the rail section to be replaced. Following repair and supplementing of reinforcement, the concrete shall be replaced with concrete of color, composition and finish to match the original concrete. The original geometry, forming relief and architectural detail shall also be restored when performing the concrete repair.

3. The southwest slope at the end of the wingwall has eroded significantly. The southwest slope should be re-graded at this corner and stabilized with riprap to mitigate future erosion or scour of the slope.

RECOMMENDED PRESERVATION ACTIVITIES

REINFORCED-CONCRETE DECK GIR德RS
Spalls in the concrete deck girders will need to be repaired. The repair will consist of selective removal of deteriorated concrete to sound concrete. Following concrete removal, any exposed reinforcement bars should be cleaned and epoxy coated. Following repair of any reinforcement, and to maintain historic integrity the concrete should be replaced with concrete of color, composition, forming and finish to match the original concrete.

REINFORCED-CONCRETE DECK
The top of the reinforced-concrete deck could not be assessed for condition due to the large overburden, up to 10 inches, of gravel. Since the bridge deck and the concrete deck girders are integral it becomes increasingly important to maintain the bridge deck so as to minimize potential for deterioration to extend into the deck girders. If the bridge deck is allowed to deteriorate to such an extent that complete or nearly complete replacement is required, it will be far more costly because it will require full shoring of the deck girders during the process. An effective means for overall preservation of the slab and deck girders can be provided through milling of the bridge deck surface and installation of a concrete overlay. Based on the age of the bridge and its deck girder construction type, it is likely that the bridge deck does require a mill
and overlay. The preservation work scope and estimate assumes milling and concrete overlay of the bridge deck.

Prior to planning this work the gravel overburden should be removed and the deck surface further assessed. The ability of the deck girders to carry the increased dead loads from the overlay concrete will also need to be assessed. After milling the upper concrete surface the top of the concrete deck should be examined and any necessary repairs due to spalling or pitting should be repaired prior to placement of new overlay. Repairs to the underside spalls in the reinforced-concrete deck should also be performed. These repairs should be done in a manner similar to that described above in the Reinforced-Concrete Deck Girder section.

Bridge Railings
In addition to repairing the railing at the southeast corner of the bridge as recommended in the Stabilization Activities, the areas of spalls and pitting on the bridge railing and the concrete curb should be repaired. These repairs should be done in a manner similar to that described above in the Reinforced-Concrete Deck Girder section. To decrease porosity and further the life of the concrete railing its surfaces should be sealed with a clear penetrating silane-based sealer. To maintain historic integrity, test sealers in advance to assure they do not discolor/darken the existing concrete.

Abutments
Repairs to the abutments will include concrete repair to the spalled regions including spalls noted in the integral end diaphragm. Concrete repair to the spalled areas should be done in a manner similar to that described in the Reinforced-Concrete Deck Girder section.

Slopes
Besides the stabilization of the southwest slope at the end of the wingwall described above, no other repair activities are recommended for the slopes.

Recommended Annual Maintenance Activities

1. Until the slope in the southwest corner has been re-graded and stabilized, this corner should be monitored for further slope erosion that could affect the stability of the roadway.

2. Remove gravel overburden to a level which exposes the bridge curb a minimum of 4 inches. Once gravel has been removed to appropriate level, maintain level.

3. Repeat application of water repelling silane sealer to concrete bridge railings at interval appropriate to product used (assumed 5 year interval).
Summarized Stabilization and Preservation Construction Cost Estimates

It is important to recognize that the work scope and cost estimates presented herein are based on a limited level assessment of the existing structure. In moving forward with future project planning, it will be essential to undertake a detailed structure assessment addressing the proposed work for the structure. It is also important that any future preservation work follow applicable preservation standards with emphasis to rehabilitate and repair in-place structure elements in lieu of replacement. This includes elements which are preliminarily estimated for replacement within the work scope of this report. Only through a thorough review of rehabilitation and repair options and comprehensive structural and historic assessment can a definitive conclusion for replacement of historic fabric be formed.

The opinions of probable construction and administrative costs provided below are presented in 2013 dollars. These costs were developed without benefit of a detailed, thorough bridge inspection, bridge survey or completion of preliminary design for the estimated improvements. The estimated costs represent an opinion based on background knowledge of historic unit prices and comparable work performed on other structures. The opinions of cost are intended to provide a programming level of estimated cost. These costs will require refinement and may require significant adjustments as further analysis is completed in determining the course of action for future structure improvements. A 20% contingency and 7% mobilization allowance has been included in the construction cost estimates.

Administrative and engineering costs are also presented below. Engineering and administrative costs are also to be interpreted as programming level only. Costs can be highly variable and are dependent on structure condition, intended work scope, project size and level of investigative, testing and documentation work necessary. Additional studies, evaluation, and historic consultation costs not exclusively called out may also be incurred on a case-by-case basis.

Maintenance, Stabilization, and Preservation Costs (refer to the work item breakdown on the next page)

- Opinion of Annual Cost- Maintenance Activities: $2,300
- Opinion of Construction Cost- Stabilization Activities: $9,800
- Opinion of Construction Cost- Preservation Activities: $159,150

Estimated Preliminary Design, Final Design, Construction Administration Costs

- Preliminary Design and Assessment: $3,000
- Final Design and Plans: $15,000
- Construction Administration: $20,000
# Bridge Number: 3130

## Local Historic Bridge Report

### V – Projected Costs

#### MAINTENANCE, STABILIZATION & PRESERVATION COST ESTIMATE (2013 DOLLARS)

**Bridge No. 3130**  
*July 17, 2014*

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<th>ITEM</th>
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*annualized cost est. once every 5 years*

| 20% CONTINGENCY | LUMP SUM | 1 | $400.00 | $400.00 |

#### ESTIMATED MAINTENANCE COSTS

**$2,300.00**

#### STABILIZATION COSTS

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<td>INVESTIGATE LOAD RATING BASED ON 10&quot; GRAVEL OVERBURDEN</td>
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<td>REPAIR/ REPLACE RAILING SOUTHEAST CORNER</td>
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<td>REPAIR/ STABILIZE SOUTHWEST CORNER BRIDGE SLOPE</td>
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*granular fill, fabric and riprap*

| 20% CONTINGENCY | LUMP SUM | 1 | $1,700.00 | $1,700.00 |

#### ESTIMATED STABILIZATION COSTS

**$9,800.00**

#### PRESERVATION COSTS

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<td>CONCRETE REPAIR - ABUTMENT SPALLS</td>
<td>SQ FT</td>
<td>30</td>
<td>$150.00</td>
<td>$4,500.00</td>
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<tr>
<td>5</td>
<td>CONCRETE DECK MILL AND OVERLAY</td>
<td>SQ FT</td>
<td>1310</td>
<td>$40.00</td>
<td>$52,400.00</td>
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<tr>
<td>6</td>
<td>CONCRETE SLAB REPAIRS FOLLOWING MILLING (ASSUMED)</td>
<td>SQ FT</td>
<td>200</td>
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<td>$28,000.00</td>
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</table>

| 20% CONTINGENCY | LUMP SUM | 1 | $27,000.00 | $27,000.00 |

#### ESTIMATED PRESERVATION COSTS

**$159,150.00**

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**MnDOT**

**AUGUST 2014**

**Projected Costs V - 18**
Appendix A. Glossary
Glossary

**Abutment** – Component of bridge substructure at either end of bridge that transfers load from superstructure to foundation and provides lateral support for the approach roadway embankment.

**Appraisal ratings** – Five National Bridge Inventory (NBI) appraisal ratings (structural evaluation, deck geometry, under-clearances, waterway adequacy, and approach alignment, as defined below), collectively called appraisal ratings, are used to evaluate a bridge’s overall structural condition and load-carrying capacity. The evaluated bridge is compared with a new bridge built to current design standards. Ratings range from a low of 0 (closed bridge) to a high of 9 (superior). Any appraisal item not applicable to a specific bridge is coded N.

**Approach alignment** – One of five NBI inspection ratings. This rating appraises a bridge’s functionality based on the alignment of its approaches. It incorporates a typical motorist’s speed reduction because of the horizontal or vertical alignment of the approach.

**Character-defining features** – Prominent or distinctive aspects, qualities, or characteristics of a historic property that contribute significantly to its physical character. Features may include structural or decorative details and materials.

**Condition, fair** – A bridge or bridge component of which all primary structural elements are sound, but may have minor deterioration, section loss, cracking, spalling, or scour.

**Condition, good** – A bridge or bridge component which may have some minor deficiencies, but all primary structural elements are sound.

**Condition, poor** – A bridge or bridge component that displays advanced section loss, deterioration, cracking, spalling, or scour.

**Condition rating** – Level of deterioration of bridge components and elements expressed on a numerical scale according to the NBI system. Components include the substructure, superstructure, deck, channel, and culvert. Elements are subsets of components, e.g., piers and abutments are elements of the component substructure. The evaluated bridge is compared with a new bridge built to current design standards. Component ratings range from 0 (failure) to 9 (new) or N for (not applicable); elements are rated on a scale of 1-3, 1-4 or 1-5 (depending on the element type and material). In all cases condition state 1 is the best condition with condition state 3, 4 or 5 being the worst condition. In rating a bridge’s condition, MnDOT pairs the NBI system with the newer and more sophisticated Pontis element inspection information, which quantifies bridge elements in different condition states and is the basis for subsequent economic analysis.

**Corrosion** – The general disentegration of metal through oxidation.

**Cutwater** – The wedge-shaped end of a bridge pier, designed to divide the current and break up ice.
Decay – Deterioration of wood as a result of fungi feeding on its cell walls.

Delamination – Surface separation of concrete, steel, glue laminated timber plies etc. into layers.

Deck geometry – One of five NBI appraisal ratings. This rating appraises the functionality of a bridge’s roadway width and vertical clearance, taking into account the type of roadway, number of lanes, and ADT.

Deficiency – The inadequacy of a bridge in terms of structure, serviceability, and/or function. Structural deficiency is determined through periodic inspections and is reflected in the ratings that are assigned to a bridge. Service deficiency is determined by comparing the facilities a bridge provides for vehicular, bicycle, and pedestrian traffic with those that are desired. Functional deficiency is another term for functionally obsolete (see below). Remedial activities may be needed to address any or all of these deficiencies.

Deficiency rating – A nonnumeric code indicating a bridge’s status as structurally deficient (SD) or functionally obsolete (FO). See below for the definitions of SD and FO. The deficiency rating status may be used as a basis for establishing a bridge’s eligibility and priority for replacement or rehabilitation.

Design exception – A deviation from federal design and geometric standards that takes into account environmental, scenic, aesthetic, historic, and community factors that may have bearing upon a transportation project. A design exception is used for federally funded projects where federal standards are not met. Approval requires appropriate justification and documentation that concerns for safety, durability, and economy of maintenance have been met.

Design load – The usable live-load capacity that a bridge was designed to carry, expressed in tons according to the AASHTO allowable stress, load factor, or load resistance factor rating methods. An additional code was recently added to assess design load by a rating factor instead of tons. This code is used to determine if a bridge has sufficient strength to accommodate traffic load demands. A bridge that is posted for load restrictions is not adequate to accommodate present or expected legal truck traffic.

Deterioration – Decline in condition of surfaces or structure over a period of time due to chemical or physical degradation.

Efflorescence – A deposit on concrete or brick caused by crystallization of carbonates brought to the surface by moisture in the masonry or concrete.

Extant – Currently or actually existing.

Extrados – The upper or outer surfaces of the voussoirs which compose the arch ring. Often contrasted with intrados.
**Footing** – The enlarged, lower portion of a substructure which distributes the structure load either to the earth or to supporting piles.

**Fracture Critical Members** – Tension members or tension components of bending members (including those subject to reversal of stress) whose failure would be expected to result in collapse of the bridge.

**Functionally obsolete** – The Federal Highway Administration (FHWA) classification of a bridge that does not meet current or projected traffic needs because of inadequate horizontal or vertical clearance, inadequate load-carrying capacity, and/or insufficient opening to accommodate water flow under the bridge. An appraisal rating of 3 or less for deck geometry, underclearance, approach alignment, structural evaluation or waterway adequacy will designate a bridge as functionally obsolete.

**Gusset plate** – A plate that connects the horizontal and vertical members of a truss structure and holds them in correct position at a joint.

**Helicoidal** – Arranged in or having the approximate shape of a flattened coil or spiral.

**Historic fabric** – The material in a bridge that was part of original construction or a subsequent alteration within the historic period of the bridge (i.e., more than 50 years old). Historic fabric is an important part of the character of the historic bridge and the removal, concealment, or alteration of any historic material or distinctive engineering or architectural feature should be avoided if possible. Often, the character-defining features include important historic fabric. However, historic fabric can also be found on other elements of a bridge that have not been noted as character-defining.

**Historic bridge** – A bridge that is listed in, or eligible for listing in, the National Register of Historic Places.

**Historic integrity** – The authenticity of a bridge’s historic identity, evidenced by the survival and/or restoration of physical characteristics that existed during the bridge’s historic period. A bridge may have integrity of location, design, setting, materials, workmanship, feeling, and association.

**Inspections** – Periodic field assessments and subsequent consideration of the fitness of a structure and the associated approaches and amenities to continue to function safely.

**Intrados** – The inner or lower surface of an arch. Often contrasted with extrados.

**Inventory rating** – The load level a bridge can safely carry for an indefinite amount of time expressed in tons or by the rating factor described in design load (see above). Inventory rating values typically correspond to the original design load for a bridge without deterioration.

**Keystone** – Wedge-shaped stone, or voussoir, at the crown of an arch.
Load Rating – The determination of the live load carrying capacity of a bridge using bridge plans and supplemented by field inspection.

Maintenance – Work of a routine nature to prevent or control the process of deterioration of a bridge.

Minnesota Historical Property Record – A documentary record of an important architectural, engineering, or industrial site, maintained by the Minnesota Historical Society as part of the state’s commitment to historic preservation. MHPR typically includes large-format photographs and written history, and may also include historic photographs, drawings, and/or plans. This state-level documentation program is modeled after a federal program known as the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER).

National Bridge Inventory – Bridge inventory and appraisal data collected by the FHWA to fulfill the requirements of the National Bridge Inspection Standards (NBIS). Each state maintains an inventory of its bridges subject to NBIS and sends an annual update to the FHWA.

National Bridge Inspection Standards – Federal requirements for procedures and frequency of inspections, qualifications of personnel, inspection reports, and preparation and maintenance of state bridge inventories. NBIS applies to bridges located on public roads.

National Register of Historic Places – The official inventory of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, and culture, which is maintained by the Secretary of the Interior under the authority of the National Historic Preservation Act of 1966 (as amended).

Non-vehicular traffic – Pedestrians, non-motorized recreational vehicles, and small motorized recreational vehicles moving along a transportation route that does not serve automobiles and trucks. Includes bicycles and snowmobiles.

Operating rating – Maximum permissible load level to which a bridge may be subjected based on a specific truck type, expressed in tons or by the rating factor described in design load (see above).

Pack rust – Rust forming between adjacent steel surfaces in contact which tends to force the surfaces apart due to the increase in steel volume.

Pier – A substructure unit that supports the spans of a multi-span superstructure at an intermediate location between its abutments.

Pointing – The compaction of mortar into the outermost portion of a joint and the troweling of its exposed surface to secure water tightness and/or desired architectural effect (when replacing deteriorated mortar).
**Pony truss** – A through bridge with parallel chords and having no top lateral bracing over the deck between the top chords.

**Posted load** – Legal live-load capacity for a bridge which is associated with the operating rating. A bridge posted for load restrictions is inadequate for legal truck traffic.

**Pontis** – Computer-based bridge management system to store inventory and inspection data and assist in other bridge data management tasks.

**Preservation** – Preservation, as used in this report, refers to historic preservation that is consistent with the Secretary of the Interior’s *Standards for the Treatment of Historic Properties*. Historic preservation means saving from destruction or deterioration old and historic buildings, sites, structures, and objects, and providing for their continued use by means of restoration, rehabilitation, or adaptive reuse. It is the act or process of applying measures to sustain the existing form, integrity, and material of a historic building or structure, and its site and setting. MnDOT’s *Bridge Preservation, Improvement and Replacement Guidelines* describe preservation differently, focusing on repairing or delaying the deterioration of a bridge without significantly improving its function and without considerations for its historic integrity.

**Preventive maintenance** – The planned strategy of cost-effective treatments that preserve a bridge, slow future deterioration, and maintain or improve its functional condition without increasing structural capacity.

**Reconstruction** – The act or process of depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location. Activities should be consistent with the Secretary of the Interior’s *Standards for the Treatment of Historic Properties*.

**Rehabilitation** – The act or process of returning a historic property to a state of utility through repair or alteration which makes possible an efficient contemporary use, while preserving those portions or features of the property that are significant to its historical, architectural, and cultural values. Historic rehabilitation, as used in this report, refers to implementing activities that are consistent with the Secretary of the Interior’s *Standards for the Treatment of Historic Properties*. As such, rehabilitation retains historic fabric and is different from replacement. MnDOT’s *Bridge Preservation, Improvement and Replacement Guidelines* describe rehabilitation and replacement in similar terms.

**Restoration** – The act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time. Activities should be consistent with the Secretary of the Interior’s *Standards for the Treatment of Historic Properties*.

**Ring stone** – One of the separate stones of an arch that shows on the face of the headwall, or end of the arch. Also known as a voussoir.
**Scaling** – The gradual distentegration of a concrete surface due to the failure of the cement surface caused by chemical attack or freeze-thaw cycles or rebar too close to the surface and oxidizing from exposure to chlorides.

**Scour** – Removal of material from a river’s bed or bank by flowing water, compromising the strength, stability, and serviceability of a bridge.

**Scour critical rating** – A measure of a bridge’s vulnerability to scour (see above). MnDOT utilizes letter designations to represent specific descriptions of a bridges susceptibility and/ or present condition in regards to scour. Range in condition and scour susceptibility does not necessarily correlate alpha numerically to the MnDOT scour code letters so it is important to understand the specific scour description for each MnDOT scour code. The scour codes and descriptions can be found in the “MNDOT Bridge Inspection Field Manual”.

**Section loss** – Loss of a member’s cross sectional area and resulting strength usually by corrosion or decay.

**Serviceability** – Level of facilities a bridge provides for vehicular, bicycle, and pedestrian traffic, compared with current design standards.

**Smart flag** – Special Pontis inspection element used to report the condition assessment of a deficiency that cannot be modeled, such as cracks, section loss, and steel fatigue.

**Spall** – Depression in concrete caused by a separation of a portion of the surface concrete, revealing a fracture parallel with or slightly inclined to the surface.

**Spring line** – The imaginary horizontal line at which an arch or vault begins to curve. As example, the point of transition from the vertical face of an abutment to the start of arch curvature extending from abutment face.

**Stabilization** – The act or process of stopping or slowing further deterioration of a bridge by means of making minor repairs until a more permanent repair or rehabilitation can be completed.

**Stringcourse** – A horizontal band of masonry, generally narrower than other courses and sometimes projecting, that extends across the structure’s horizontal face as an architectural accent. Also known as belt course.

**Structural evaluation** – Condition rating of a bridge designed to carry vehicular loads, expressed as a numeric value and based on the condition of the superstructure and substructure, the inventory load rating, and the ADT.
**Structurally deficient** – Classification indicating NBI condition rating of 4 or less for any of the following: deck condition, superstructure condition, substructure condition, or culvert condition. A bridge is also classified as structurally deficient if it has an appraisal rating of 2 or less for its structural evaluation or waterway adequacy. A structurally deficient bridge is restricted to lightweight vehicles; requires immediate rehabilitation to remain open to traffic; or requires maintenance, rehabilitation, or replacement.

**Sufficiency rating** – Rating of a bridge’s structural adequacy and safety for public use, and its serviceability and function, expressed on a numeric scale ranging from a low of 0 to a high of 100. It is a relative measure of a bridge’s deterioration, load capacity deficiency, or functional obsolescence. MnDOT may use the rating as a basis for establishing eligibility and priority for replacement or rehabilitation. Typically, bridges which are structurally deficient and have sufficiency ratings between 50 and 80 are eligible for federal rehabilitation funds and those which are structurally deficient with sufficiency ratings of 50 and below are eligible for replacement.

**Through truss** – A bridge with parallel top and bottom chords and top lateral bracing with the deck generally near the bottom chord.

**Under-clearances** – One of five NBI appraisal ratings. This rating appraises the suitability of the horizontal and vertical clearances of a grade-separation structure, taking into account whether traffic beneath the structure is one- or two-way.

**Variance** – A deviation from State Aid Operations Statute Rules that takes into account environmental, scenic, aesthetic, historic, and community factors that may have bearing upon a transportation project. A design variance is used for projects using state aid funds. Approval requires appropriate justification and documentation that concerns for safety, durability and economy of maintenance have been met.

**Vehicular traffic** – The passage of automobiles and trucks along a transportation route.

**Voussoir** – One of the separate stones forming an arch ring; also known as a ring stone.

**Waterway adequacy** – One of five NBI appraisal ratings. This rating appraises a bridge’s waterway opening and passage of flow under or through the bridge, frequency of roadway overtopping, and typical duration of an overtopping event.
Appendix B. Guidelines for Bridge Maintenance and Rehabilitation based on the Secretary of the Interior’s Standards
The Secretary’s Standards with Regard to Repair, Rehabilitation, and Replacement Situations

Adapted from:

The Secretary of the Interior’s Standards for the Treatment of Historic Properties, first codified in 1979 and revised in 1992, have been interpreted and applied largely to buildings rather than engineering structures. In this document, the differences between buildings and structures are recognized and the language of the Standards has been adapted to the special requirements of historic bridges.

1. Every reasonable effort shall be made to continue an historic bridge in useful transportation service. Primary consideration shall be given to rehabilitation of the bridge on site. Only when this option has been fully exhausted shall other alternatives be explored.

2. The original character-defining qualities or elements of a bridge, its site, and its environment should be respected. The removal, concealment, or alteration of any historic material or distinctive engineering or architectural feature should be avoided.

3. All bridges shall be recognized as products of their own time. Alterations that have no historic basis and that seek to create a false historic appearance shall not be undertaken.

4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.

5. Distinctive engineering and stylistic features, finishes, and construction techniques or examples of craftsmanship that characterize an historic property shall be preserved.

6. Deteriorated structural members and architectural features shall be retained and repaired, rather than replaced. Where the severity of deterioration requires replacement of a distinctive element, the new element should match the old in design, texture, and other visual qualities and where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

7. Chemical and physical treatments that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the most environmentally sensitive means possible.
8. Significant archaeological and cultural resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.

9. New additions, exterior alterations, structural reinforcements, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.
Appendix C. Documents
Additional Electronic Data
Bridge 3130

Historic Data
• No data

Local Data
• 3130 Reports

MnDOT Reports
• Accident report
• 3130_Condition Sheet_2010
• 3130 Inspection 09-5-12
• 3130 Inventory 4-24-14
• 3130 Inventory 05-29-13
• 3130 Rating Report 2006

Photos
• 3130 LHB 04-30-14
• 3130_M&H Photos_4-30-14
• 3130 From Owner
• Report Photos

Plans
• No data
## Mn/DOT Bridge Inspection Report

**Bridge 3130**

- **Location:** 1.0 MI S OF JCT CSAH 52
- **Length:** 63.1 ft
- **Deck Width:** 24.2 ft
- **Control Section:** Maint. Area: R/w & R/p. Und: 1,324 sq ft
- **Local Agency Bridge Nbr:** Culvert

### Structure Unit 0

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<th>ELEMENT NAME</th>
<th>ENV INSPECT. DATE</th>
<th>QTY CS 1</th>
<th>QTY CS 2</th>
<th>QTY CS 3</th>
<th>QTY CS 4</th>
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<td>12</td>
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<td>1,528 SF</td>
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| 408      | GRAVEL APPROACH | 09-06-2012 | 2 EA | 0 | 0 | 0 | N/A |
| Notes:   | [2012] Added element. Gravel approaches are evenly graded. |

| 331      | CONCRETE RAILING | 09-06-2012 | 125 LF | 0 | 56 | 26 | 0 | N/A |
|          |              | 11-02-2010 | 125 LF | 0 | 56 | 26 | 0 | N/A |
| Notes:   | [2000] CONCRETE RAILING HAS CRACKS AND SOME CHIPPING AND ERODING. [2007-2012] SE corner has been hit and has exposed rebar. |

| 110      | CONCRETE GIRDER | 09-06-2012 | 253 LF | 0 | 253 | 0 | 0 | N/A |
|          |              | 11-02-2010 | 253 LF | 0 | 253 | 0 | 0 | N/A |
| Notes:   | [2012] Verify CS2 rating and document on next inspection. |

| 313      | FIXED BEARING | 09-06-2012 | 2 EA | 0 | 0 | 2 | N/A |
|          |              | 11-02-2010 | 2 EA | 0 | 0 | 2 | N/A |
| Notes:   | [2012] Verify CS3 rating, check quantity and document on next inspection. |

| 215      | CONCRETE ABUTMENT | 09-06-2012 | 49 LF | 0 | 49 | 0 | 0 | N/A |
|          |              | 11-02-2010 | 49 LF | 0 | 49 | 0 | 0 | N/A |
| Notes:   | [2000-2012] SPALLING AND MINOR CRACKING BEGINNING IN DIAPHRAGM ON SOUTH ABUTMENT. NEED RIPRAP ON SOUTH ABUTMENT. [2006-2012] SPALL ON SW DIAPHRAGM ON SOUTH ABUTMENT. |

| 357      | CONCRETE WINGWALL | 09-06-2012 | 4 EA | 0 | 0 | 4 | 0 | N/A |
|          |              | 11-02-2010 | 4 EA | 0 | 0 | 4 | 0 | N/A |
| Notes:   | [MOSS GROWING ON ABUTMENT AND IN CRACKS. [2012] Verify CS2 rating and document on next inspection. |

| 359      | CONC DECK UNDERSIDE | 09-06-2012 | 1 EA | 0 | 0 | 0 | 0 | 0 |
| Notes:   | [2007-2012] Cracks on the bottom of the deck. |

| 361      | SCOUR | 09-06-2012 | 1 EA | 1 | 0 | 0 | N/A |
|          |      | 11-02-2010 | 1 EA | 1 | 0 | 0 | N/A |
| Notes:   | K: Limited risk. Monitoring required. |

| 964      | CRITICAL FINDING | 09-06-2012 | 1 EA | 1 | 0 | N/A | N/A | N/A |
|          |      | 11-02-2010 | 1 EA | 1 | 0 | N/A | N/A | N/A |
| Notes:   | [DO NOT DELETE THIS CRITICAL FINDING SMART FLAG. ] |

| 981      | SIGNING | 09-06-2012 | 1 EA | 0 | 1 | 0 | 0 | 0 |
|          |      | 11-02-2010 | 1 EA | 0 | 1 | 0 | 0 | 0 |
# Mn/DOT Bridge Inspection Report

## Structure Unit: 0

### Element 984: Drainage

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<th>ELEMENT NAME</th>
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Notes: [2000-2012] GRAVEL BUILT UP ON SIDES OF RAILINGS, DRAINS PLUGGED.

### Element 985: Slopes

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Notes: [2002-2012] NEED RIPRAP ON SOUTH ABUTMENT

---

**General Notes:**

- [2000] WEEDS SHOULD BE SPRAYED OR CUT.
- [2001] INSP: JIM FRANZEN
- [2002] INSP: JIM FRANZEN
- [2003] INSP: J. MCDONALD
- [2005] INSP: JIM FRANZEN - WEEDS STILL ON SOUTH SIDE, EXPOSED REBAR-LARGE PIECE OF METAL CULVERT ON DOWNSTREAM SIDE.
- [2007] INSP: John McDonald - Scheduled for replacement within 5 years.
- [2009] INSP: JIM FRANZEN & DAVE HANSON - CUTOFF TREES AROUND BRIDGE.
- [2010] INSP: JIM FRANZEN & DAVE BABCOCK - BRIDGE WAS SURVEYED FOR REPLACEMENT THIS YEAR, STRUCTURE SAME CONDITION.
- [2012] Insp: Mark Darkee & Dave Babcock - Bridge same condition.
### Mn/DOT Structure Inventory Report

**Bridge ID:** 3130  
**TWP 232 over COON CREEK**  
**Date:** 04/24/2014

<table>
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<th><strong>INSPECTION</strong></th>
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<td>Deficient Status F.O.</td>
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<tr>
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<td>Roadway O/U Key 1-ON</td>
<td>Sufficiency Rating 47.8</td>
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<tr>
<td>Maint. Area</td>
<td>Route Sys/Nbr TWNS 232</td>
<td>Last Inspection Date 09-05-2012</td>
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<tr>
<td>County 22 - FARIBAULT</td>
<td>Roadway Name or Description TWNS 232</td>
<td>Inspection Frequency 24</td>
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<td>Structure P-LOAD POSTED</td>
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<td>Service On HIGHWAY</td>
<td>Lateral Clr.- Lf/R</td>
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<tr>
<td>Service Under STREAM</td>
<td>Appr. Surface Width 26.0 ft</td>
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<tr>
<td>Main Span Type CONC THRU GIRD</td>
<td>Roadway Width 21.0 ft</td>
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<tr>
<td>Main Span Detail</td>
<td>Median Width</td>
<td></td>
</tr>
<tr>
<td>Appr. Span Type</td>
<td><strong>MISC. BRIDGE DATA</strong></td>
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<tr>
<td>Appr. Span Detail</td>
<td>Structure Flared NO</td>
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<tr>
<td>Skew</td>
<td>Parallel Structure NONE</td>
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<tr>
<td>Culvert Type</td>
<td>Field Conn. ID</td>
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<tr>
<td>Barrel Length</td>
<td>Cantilever ID</td>
<td></td>
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<tr>
<td>Main Span Length 60.0 ft</td>
<td>Foundations</td>
<td></td>
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<tr>
<td>Structure Length 63.1 ft</td>
<td>Abut. CONC - SPRD SOIL</td>
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<tr>
<td>Deck Width 24.2 ft</td>
<td>Pier N/A</td>
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<tr>
<td>Deck Material C-I-P CONCRETE</td>
<td>Historic Status ELIGIBLE</td>
<td></td>
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<tr>
<td>Wear Surf Type GRAVEL</td>
<td>On-Off System OFF</td>
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<tr>
<td>Wear Surf Install Year</td>
<td><strong>PAINT</strong></td>
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<tr>
<td>Wear Course/Fill Depth 1.50 ft</td>
<td>Year Painted Ptl. Unsound</td>
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<tr>
<td>Deck Membrane NONE</td>
<td>Painted Area</td>
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<tr>
<td>Deck Protect. N/A</td>
<td>Primer Type</td>
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<tr>
<td>Deck Install Year</td>
<td>Finish Type</td>
<td></td>
</tr>
<tr>
<td>Structure Area 1.527 sq ft</td>
<td><strong>BRIDGE SIGNS</strong></td>
<td></td>
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<tr>
<td>Roadway Area 1.324 sq ft</td>
<td>Posted Load VEHICLE &amp; SEMI</td>
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<tr>
<td>Sidewalk Width - L/R</td>
<td>Traffic NOT REQUIRED</td>
<td></td>
</tr>
<tr>
<td>Curb Height - L/R 0.50 ft</td>
<td>Horizontal OBJECT MARKERS &amp; WIDTH</td>
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</tr>
<tr>
<td>Rail Codes - L/R 33 33</td>
<td>Vertical NOT APPLICABLE</td>
<td></td>
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</tbody>
</table>

### SAFETY FEATURES

- Bridge Railing 0-SUBSTANDARD
- GR Transition 0-SUBSTANDARD
- Appr. Guardrail 0-SUBSTANDARD
- GR Termini 0-SUBSTANDARD

### DEPTH INSPECTION

- Frac. Critical Underwater

### WATERWAY

- Drainage Area 191.0 sq mi
- Waterway Opening 660 sq ft
- Navigation Control NO PERMNT REQUIRED
- Pier Protection NOT APPL
- Nav. Var. Lft Bridge Clear.

### CAPACITY RATING

- MN Scour Code K-LIMITED RISK
- Scour Evaluation Year 1995
- Design Load HS20
- Operating Rating HS 18.00
- Inventory Rating HS 12.00
- Posting VEH: 18 SEMI: 29 DBL: 29
- Rating Date 05-25-2006

### Mn/DOT Permit Codes

- A
- N
- B: N
- C
- N