# UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 30506

CR NO. 63

OVER THE

STANCHFIELD CREEK

DISTRICT 3 - ISANTI COUNTY

PREPARED FOR THE

MINNESOTA DEPARTMENT OF TRANSPORTATION

BY

COLLINS ENGINEERS, INC.

JOB NO. 3512 (CEI 74)

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure units inspected at Bridge No. 30506, Piers 1 and 2, were found to be in good condition with no defects of structural significance observed. The timber piles were in good condition and exhibited only minor checking. The channel bottom appeared stable with no evidence of significant scour or appreciable changes since the previous inspection.

INSPECTION FINDINGS:

(A) The timber piles at both piers were in good condition with minor checking up to 1/4 inch in width.

(B) The timber bracing located between the easternmost piles of Pier 2 exhibited minor cracking and wood shims have been placed between the piles and the bracing, apparently in an effort to tighten the connections.

(C) A large amount of grassy vegetation was observed at the upstream nose of Pier 1.

RECOMMENDATIONS:

(A) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Daniel G. Stromberg

Date 6/30/2004 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.

Daniel G. Stromberg
Registered Professional
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 30506

Feature Crossed: The Stanchfield Creek

Feature Carried: CR No. 63

Location: District 3 - Isanti County

Bridge Description: The bridge superstructure consists of three spans of timber deck and stringers that are supported by two timber piers and two timber abutments. The piers are numbered 1 and 2 starting from the south end of the bridge. Each pier consists of a timber pier cap supported by eight timber piles.

2. INSPECTION DATA

Professional Engineer/Team Leader: Shirley M. Walker, P.E.

Dive Team: Michelle D. Koerbel, Clayton G. Brookins

Date: September 25, 2002

Weather Conditions: Rainy, "50E F

Underwater Visibility: "2 Feet

Waterway Velocity: Negligible

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Piers 1 and 2

General Shape: Each pier consists of a timber pier cap supported by a single row of eight timber piles. Timber cross bracing interconnects the piles.

Maximum Water Depth at Substructure Inspected: Approximately 5 feet.

4. WATERLINE DATUM

Water Level Reference: Top of the pile cap at the west end of Pier 1.

Water Surface: The waterline was approximately 6.5 Feet below reference. Waterline Elevation = 932.0.

5. NBIS CODING INFORMATION (Minnesota specific codes are used for 92B and 113)

Item 60: Substructure: Code 7

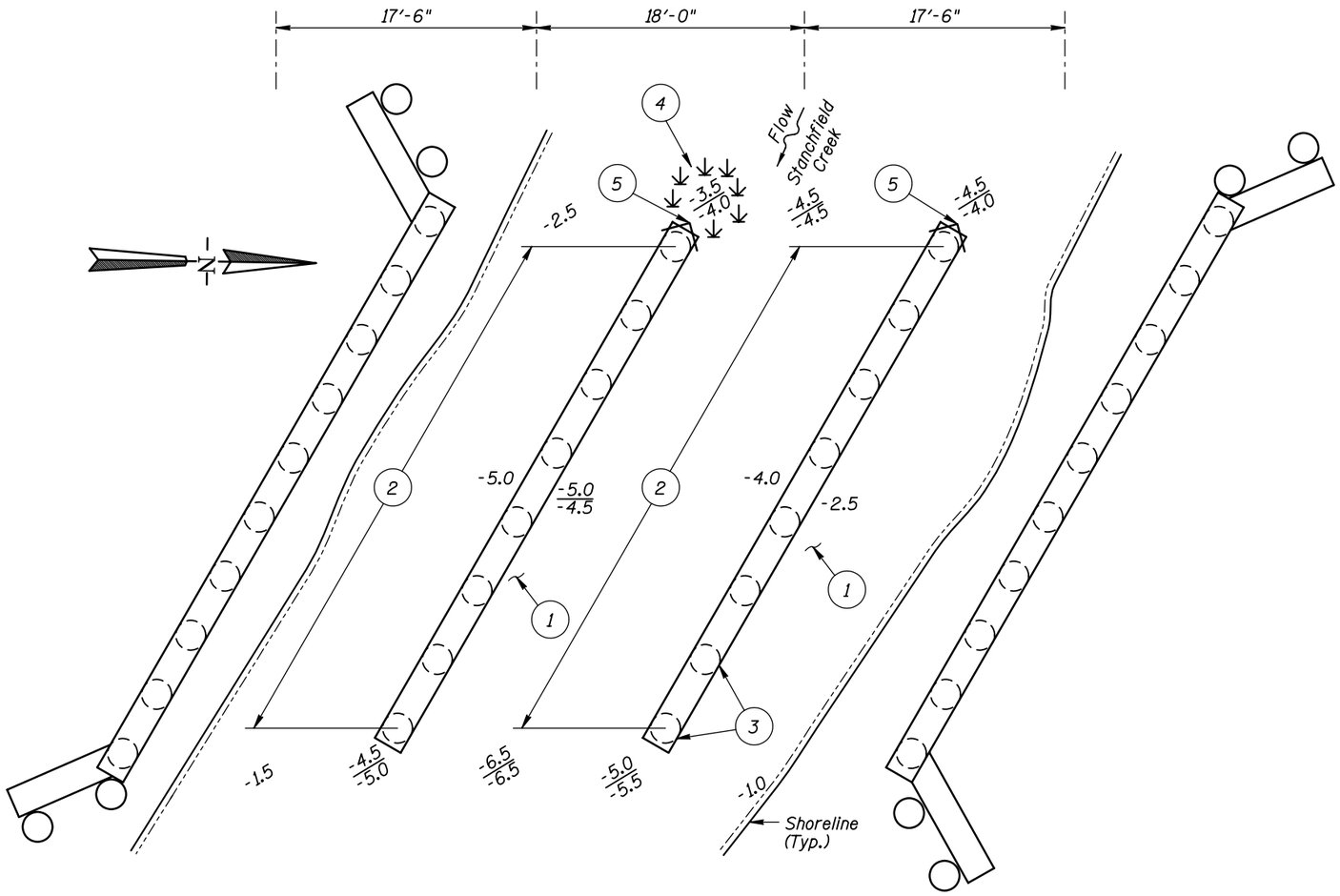
Item 61: Channel and Channel Protection: Code 7

Item 92B: Underwater Inspection: Code B/09/02

Item 113: Scour Critical Bridges: Code O/02

Bridge is scour critical because abutment or pier foundation is rated as unstable due to observed scour at bridge site.

_____Yes X No




SOUNDING PLAN

TYPICAL END VIEW OF PIERS

GENERAL NOTES:

1. Piers 1 and 2 were inspected underwater.
2. At the time of inspection on September 25, 2002, the waterline was located approximately 6.5 feet below the top of the pile cap at the upstream end of Pier 1. This corresponds with a waterline elevation of 932.0 based on the previous report dated October 6, 1992.
3. Soundings indicate the water depth at the time of inspection and are measured in feet.
4. Soundings were taken parallel to the bridge at the mid points between the substructure units.

INSPECTION NOTES:

(1) The channel bottom consisted of 6- to 8-inch-diameter cobbles with 1 inch of penetration.

(2) The timber piles exhibited minor checking up to 1/4 inch wide.

(3) The timber bracing located between the easternmost piles exhibited minor cracking and wood shims have been placed between the piles and the bracing.

(4) A large amount of grassy vegetation was observed at the upstream nose of Pier 1.

(5) The upstream pile was protected with a steel ice breaker.

Legend

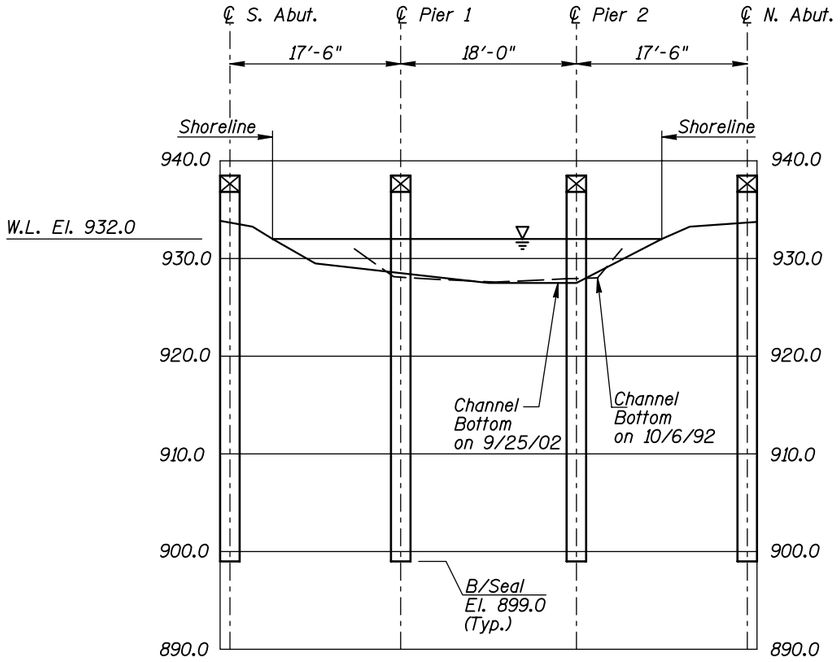
| | |
|---|---|
| -4.0 / -3.5 | Sounding Depth from Waterline (9/25/02) / Sounding Depth from Waterline (10/6/02) |
| | Timber Pile (under pile cap) |
| | Timber Pile |
| | Grassy Vegetation |

**MINNESOTA**
**DEPARTMENT OF TRANSPORTATION**
**UNDERWATER BRIDGE INSPECTION**

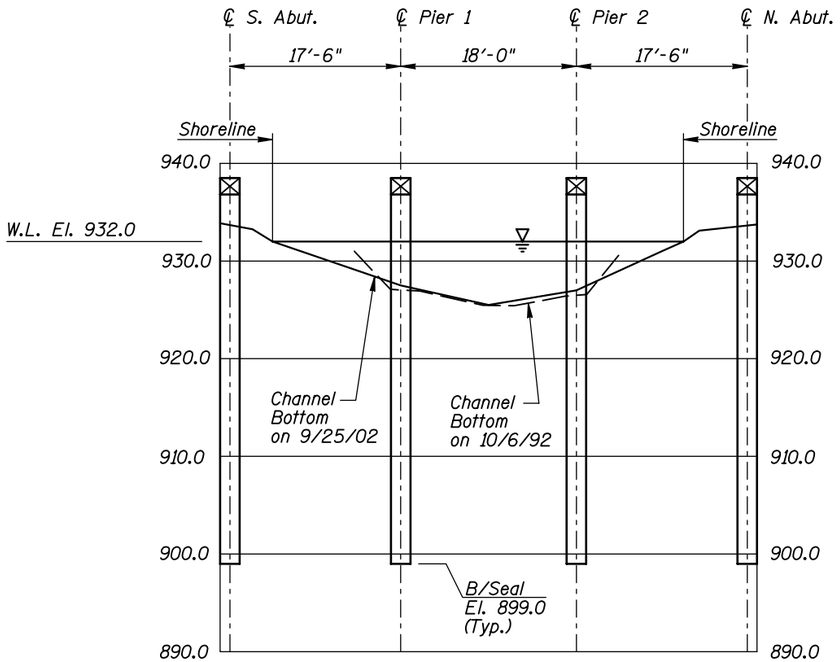
STRUCTURE NO. 30506
OVER STANCHFIELD CREEK
DISTRICT 3, ISANTI COUNTY

# INSPECTION AND SOUNDING PLAN

| | | |
|---|---|---|
| Drawn By: PRH | COLLINS ENGINEERS, INC. | Date: AUG. 2002 |
| Checked By: MDK | 300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300 | Scale: NTS |
| Code: 35120074 | | Figure No.: 1 |




UPSTREAM FASCIA PROFILE




DOWNSTREAM FASCIA PROFILE

Note:

Refer to Figure 1 for General Notes.

**MINNESOTA**
**DEPARTMENT OF TRANSPORTATION**
**UNDERWATER BRIDGE INSPECTION**

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OVER STANCHFIELD CREEK
DISTRICT 3, ISANTI COUNTY

# UPSTREAM AND DOWNSTREAM FASCIA PROFILES

| | | |
|---|---|---|
| Drawn By: PRH | **COLLINS ENGINEERS, INC.** | Date: AUG. 2002 |
| Checked By: MDK | 300 W. WASHINGTON, STE. 600<br>CHICAGO, ILLINOIS 60606<br>(312) 704-9300 | Scale: 1/16"=1' |
| Code: 35I20074 | | Figure No.: 2 |

Photograph 1.  Overall View of Structure, Looking Southwest.

Photograph 2.  View of Pier 1, Looking Northeast.

Photograph 3. View of Pier 2, Looking Southwest.

Photograph 4. View of the Vegetation at Pier 1, Looking South.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES
DAILY DIVING REPORT

INSPECTORS: Collins Engineers, Inc. DATE: September 25, 2002
ON-SITE TEAM LEADER: Shirley M. Walker, P.E.
BRIDGE NO: 30506 WEATHER: Rainy, "50E F
WATERWAY CROSSED: The Stanchfield Creek
DIVING OPERATION: X SCUBA SURFACE SUPPLIED AIR
OTHER
PERSONNEL: Michelle D. Koerbel, Clayton G. Brookings
EQUIPMENT: Scuba, U/W Light, Scraper, Lead Line, Sounding Pole, Probe Rod, Camera

TIME IN WATER: 1:40 P. M.
TIME OUT OF WATER: 2:20 P.M.
WATERWAY DATA: VELOCITY Negligible
VISIBILITY "2 feet
DEPTH 5 feet maximum at Piers 1 and 2
ELEMENTS INSPECTED: Piers and 2
REMARKS:Overall, the timber piles at both piers were in good condition with minor checking up to 1/4 inch in width. The timber bracing located between the easternmost piles of Pier 2 exhibited minor cracking and wood shims have been placed between the piles and the bracing for repair measures. A large amount of vegetation was observed at the upstream end of Pier 1.

FURTHER ACTION NEEDED: _____ YES ____X___ NO

Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

# UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 30506
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Shirley M. Walker, P.E.
WATERWAY CROSSED The Stanchfield Creek

INSPECTION DATE September 25, 2002

NOTE: USE ALL APPLICABLE CONDITION DEFINITIONS AS DEFINED IN THE MINNESOTA RECORDING AND CODING GUIDE INCLUDING GENERAL, SUBSTRUCTURE, CHANNEL AND PROTECTION, AND CULVERTS AND WALL DEFINITIONS TO COMPLETE THIS FORM.

## CONDITION RATING

| | | | SUBSTRUCTURE | | | | | | CHANNEL | | | | | GENERAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UNIT REFERENCE NO. | | MAXIMUM DEPTH OF WATER | PILING | COLUMNS, SHAFTS, OR FACES* | FOOTINGS | DISPLACEMENT | OTHER (BRACING) | OVERALL SUBSTRUCTURE CONDITION CODE* | SCOUR | EMBANKMENT EROSION | EMBANKMENT PROTECTION | OTHER (DRIFT/DEBRIS) | OVERALL CHANNEL & PROTECTION CONDITION | CONCRETE | STEEL | TIMBER | LOSS OF SECTION | PREVIOUS REPAIR OR MAINTENANCE | OTHER |
| | UNIT DESCRIPTION | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| | Pier 1 | 5.0’ | 7 | N | N | 9 | 7 | 7 | 8 | N | N | 7 | 7 | N | N | 7 | N | N | N |
| | Pier 2 | 5.0’ | 7 | N | N | 9 | 6 | 7 | 8 | N | N | 8 | 8 | N | N | 7 | N | 7 | N |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |

*UNDERWATER PORTION ONLY

REMARKS: Overall, the timber piles at both piers were in good condition with minor checking up to 1/4 inch in width. The timber bracing located between the easternmost piles of Pier 2 exhibited minor cracking and wood shims have been placed between the piles and the bracing for repair measures. A large amount of vegetation was observed at the upstream end of Pier 1.

NOTES: ATTACH SKETCHES AS NEEDED, IDENTIFY REMARK BY REFERRING TO UNIT REFERENCE NO. AND REMARK NO.
USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.