

UNDERWATER BRIDGE INSPECTION REPORT

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STRUCTURE NO. 19551

180<sup>th</sup> STREET

OVER THE

VERMILLION RIVER

DAKOTA COUNTY

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MAY 22, 2012

PREPARED FOR THE  
MINNESOTA DEPARTMENT OF TRANSPORTATION

BY  
COLLINS ENGINEERS, INC.

JOB NO. 7423

MINNESOTA DEPARTMENT OF TRANSPORTATION  
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure unit inspected at Bridge No. 19551, Pier 2, was generally found to be in good condition with no defects of structural significance. The channel bottom around the substructure unit was well established and in stable condition with no notable scour.

INSPECTION FINDINGS:

- (A) The steel encased concrete piles were sound with protective coating intact above and below the waterline.
- (B) The channel bottom material consisted of sand with probe rod penetration of up to 4 inches.

RECOMMENDATIONS:

- (A) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of sixty (60) months.

Inspection Team Leader:



Ryan P. Breen, P.E.

Respectfully submitted,

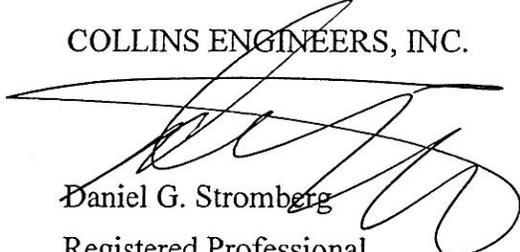
PROFESSIONAL ENGINEER

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 6/30/14 License # 21491

COLLINS ENGINEERS, INC.



Daniel G. Stromberg

Registered Professional

Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION  
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 19551

Feature Crossed: Vermillion River

Feature Carried: 180<sup>th</sup> Street

Location: Dakota County, Township of Vermillion

Bridge Description: The bridge superstructure consists of a reinforced concrete deck. The superstructure is supported by two reinforced concrete abutments and two piers, each comprised of six steel encased concrete piles with a reinforced concrete cap. Substructure units were designated as follows: West Abutment, Piers 1 and 2, East Abutment.

2. INSPECTION DATA

Professional Engineer Diver: Ryan P. Breen, P.E.

Dive Team: Marc B. Parker, Michael J. Banasiak

Date: May 22, 2012

Weather Conditions: Sunny, 75° F

Underwater Visibility: 1.0 feet

Waterway Velocity: 2 ft/s

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Pier 2

General Shape: Pier 2 consists of a reinforced concrete cap supported by six steel encased concrete piles.

Maximum Water Depth at Substructure Inspected: 9.5 feet.

4. WATERLINE DATUM

Water Level Reference: Top of parapet wall at upstream nose of Pier 2.

Water Surface: The waterline was approximately 12.0 feet below the reference.

Waterline Elevation: 817.2

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 8

Item 92B: Underwater Inspection: Code B/05/12

Item 113: Scour Critical Bridges: Code F/12

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

       Yes   X   No

6. STRUCTURAL ELEMENT CONDITION RATING:

Item #	Element Description	Quantity	Unit	Conditions				
				1	2	3	4	5
419	Painted Steel Piling	6	EA	6				



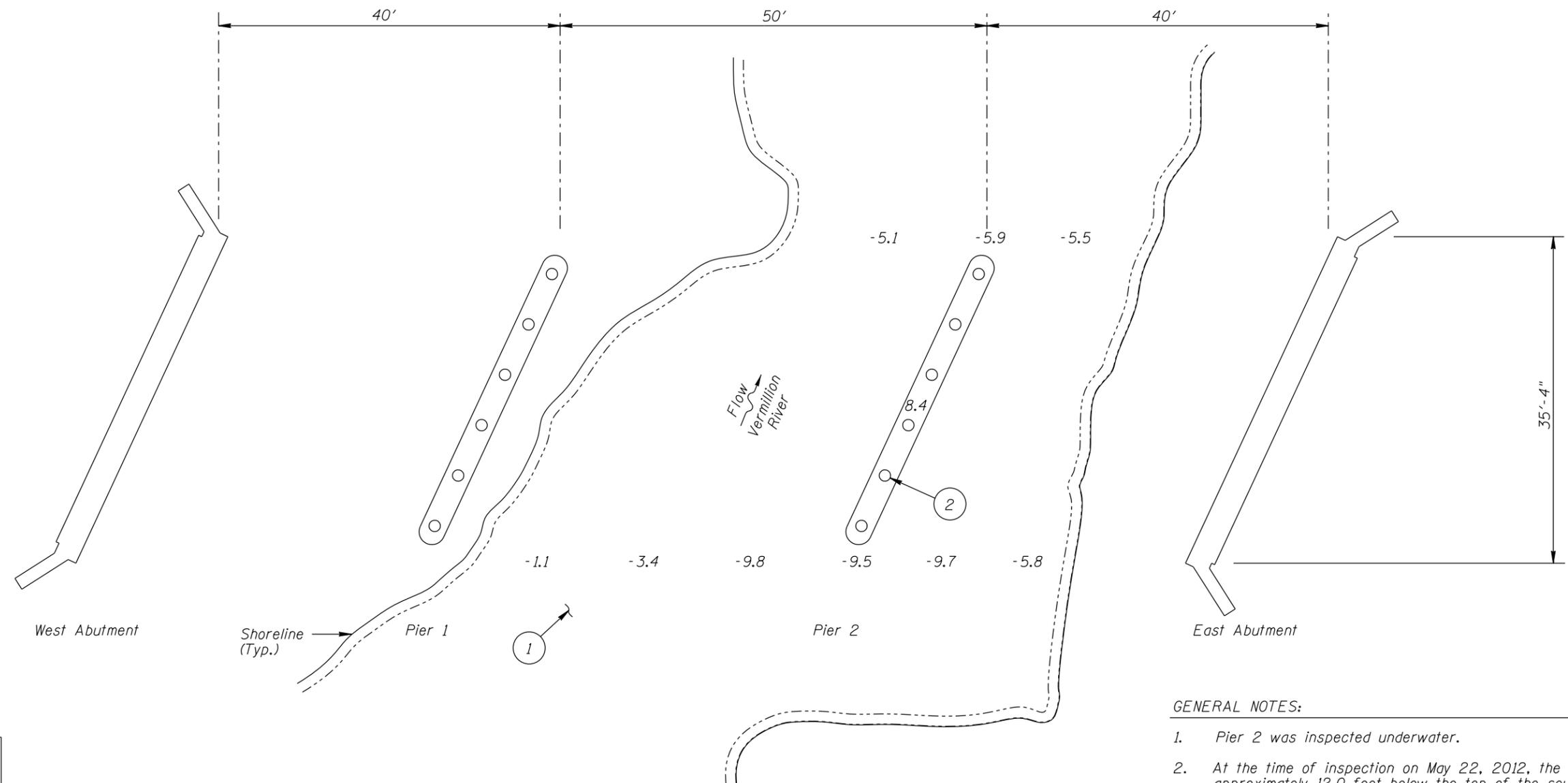
Photograph 1. Overall View of the Structure, Looking North.



Photograph 2. View of Pier 1, Looking Northwest.



Photograph 2. View of Pier 2, Looking Northwest.



SOUNDING PLAN

GENERAL NOTES:

1. Pier 2 was inspected underwater.
2. At the time of inspection on May 22, 2012, the waterline was located approximately 12.0 feet below the top of the south parapet located at Pier 2. This corresponds with a waterline elevation of 817.2 feet based on bridge design plans dated July 22, 2003.
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 1/4 point intervals between the substructure units.

INSPECTION NOTES:

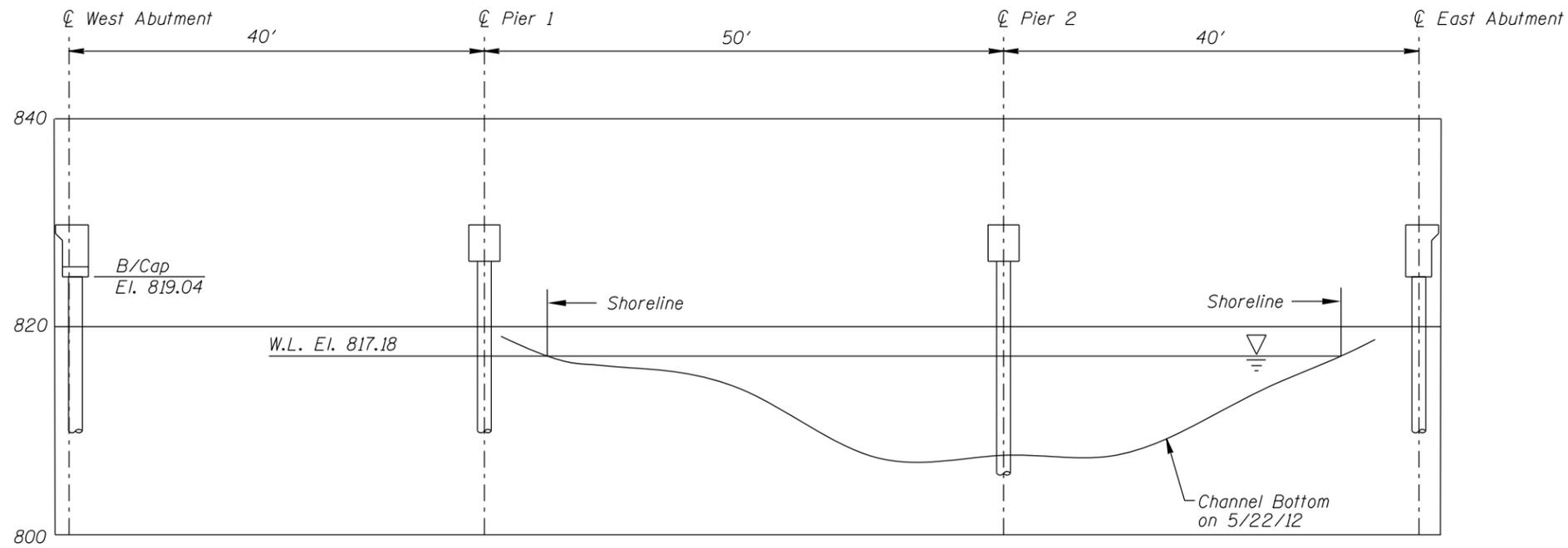
- 1 Channel bottom material consists of sand with up to 4 inches of probe rod penetration.
- 2 Steel encased concrete piles were in sound condition with protective coating still intact.

Legend

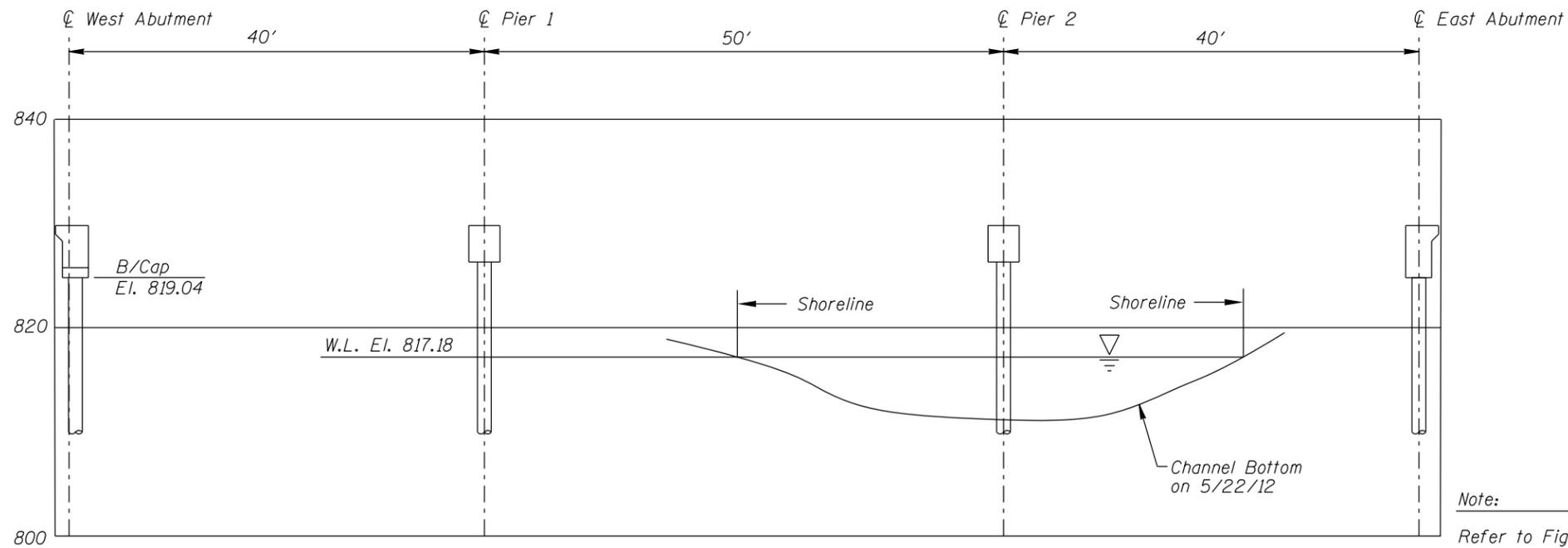
- 18.0 Sounding Depth from Waterline (5/22/12)
- 1 Inspection Note Number
- 16" diameter steel encased concrete pile

TYPICAL END VIEW OF PIERS

<b>MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION</b>		
STRUCTURE NO. 19551 180th SREET OVER THE VERMILLION RIVER DAKOTA COUNTY		
<b>INSPECTION AND SOUNDING PLAN</b>		
Drawn By: BMS	<b>COLLINS ENGINEERS</b> <small>123 North Wacker Drive Suite 900 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com</small>	Date: MAY 2012
Checked By: RPB		Scale: NTS
Code: 742319551		Figure No.: I



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:

Refer to Figure 1 for General Notes.

**MINNESOTA  
DEPARTMENT OF TRANSPORTATION  
UNDERWATER BRIDGE INSPECTION**

STRUCTURE NO. 19551  
180th SREET OVER THE VERMILLION RIVER  
DAKOTA COUNTY

**UPSTREAM AND DOWNSTREAM  
FASCIA PROFILES**

Drawn By: BMS	<b>COLLINS ENGINEERS</b> <small>123 North Wacker Drive Suite 900 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com</small>	Date: MAY 2012
Checked By: RPB		Scale: 1"=15'
Code: 742319551		Figure No.: 2

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

INSPECTORS: Collins Engineers, Inc. DATE: May 22, 2012

ON-SITE TEAM LEADER: Ryan P. Breen, P.E.

BRIDGE NO: 19551 WEATHER: Sunny, 75° F

WATERWAY CROSSED: Vermillion River

DIVING OPERATION:  SCUBA  SURFACE SUPPLIED AIR  
 OTHER

PERSONNEL: Marc B. Parker, Michael J. Banasiak

EQUIPMENT: Commercial Scuba, U/W Light, Scraper, Lead Line, Probe Rod, Camera, Fathometer

TIME IN WATER: 10:25 a.m.

TIME OUT OF WATER: 10:50 a.m.

WATERWAY DATA: VELOCITY 2.0 ft/s

VISIBILITY 1.0 foot

DEPTH 9.5 feet maximum at Pier 2

ELEMENTS INSPECTED: Pier 2

REMARKS: Overall, Pier 2 was found to be in generally good condition with no defects of structural significance. The channel bottom around the substructure units was well established and in stable condition with no notable scour.

FURTHER ACTION NEEDED:  YES  NO

Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five sixty (60) months.

MINNESOTA DEPARTMENT OF TRANSPORTATION  
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 19551  
 INSPECTORS Collins Engineers, Inc.  
 ON-SITE TEAM LEADER Ryan P. Breen, P.E.  
 WATERWAY CROSSED Vermillion River

INSPECTION DATE May 22, 2012

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

UNIT REFERENCE NO.	UNIT DESCRIPTION	MAXIMUM DEPTH OF WATER	SUBSTRUCTURE					CHANNEL					GENERAL						
			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
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Pier 2	9.5'	7	7	N	8	N	7	N	8	8	N	8	7	7	N	N	N	N

\*UNDERWATER PORTION ONLY

REMARKS: Overall, Pier 2 was found to be in generally good condition with no defects of structural significance. The channel bottom around the substructure units was well established and in stable condition with no notable scour.

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.