

UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 66548
C.S.A.H. 29
OVER THE
CANNON RIVER
DISTRICT 6 - RICE COUNTY



SEPTEMBER 13, 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 units inspected below water at Bridge No. 66548, Piers 1 and 2, were found to be in good condition with no defects of structural significance observed. The channel bottom appeared to be stable with no significant deficiencies or changes since the previous inspection.

INSPECTION FINDINGS:

- (A) The channel bottom material consisted of rock and gravel with soft silt infilling with minimal probe rod penetration.

- (B) The concrete of the columns was in smooth and sound condition.

RECOMMENDATIONS:

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

Inspection Team Leader



Roy A. Forsyth, PE
Date 6/30/2014 License# 49270

Respectfully submitted,

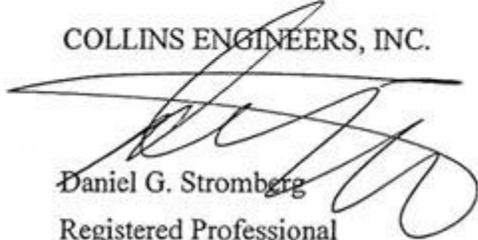
PROFESSIONAL ENGINEER

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: 66548

Feature Crossed: Cannon River

Feature Carried: C.S.A.H. 29

Location: District 6 – Rice County

Bridge Description: The superstructure consists of three spans of multiple prestressed concrete beams supporting a reinforced concrete deck. The bridge is supported by two reinforced concrete abutments and two reinforced concrete piers. The piers are numbered 1 and 2 from west to east.

2. INSPECTION DATA

Professional Engineer Diver: Roy A. Forsyth, P.E.

Dive Team: Charles R. Euwema, Brandon Corr

Date: September 13, 2012

Weather Conditions: Sunny, 85° F

Underwater Visibility: 1.0 foot

Waterway Velocity: 0.5 ft/s

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Piers 1 and 2.

General Shape: The piers each consist of an oblong pile cap supported by three concrete columns that are founded on individual 8-foot-high by 4.5-foot-diameter concrete caissons that are embedded into bedrock.

Maximum Water Depth at Substructure Inspected: Approximately 2.6 feet.

4. WATERLINE DATUM

Water Level Reference: The top of the pier cap at the north end of Pier 1.

Water Surface: The waterline was approximately 14.4 feet below reference.
Waterline Elevation = 935.8.

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 A/9/12

Item 113: Scour Critical Bridges: Code L

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
210	Reinforced Concrete Column	6	EA	6				
985	Slopes and Slope Protection	1	EA	1				



Photograph 1. Overall View of Bridge, Looking Southeast.



Photograph 2. View of Pier 1, Looking West.



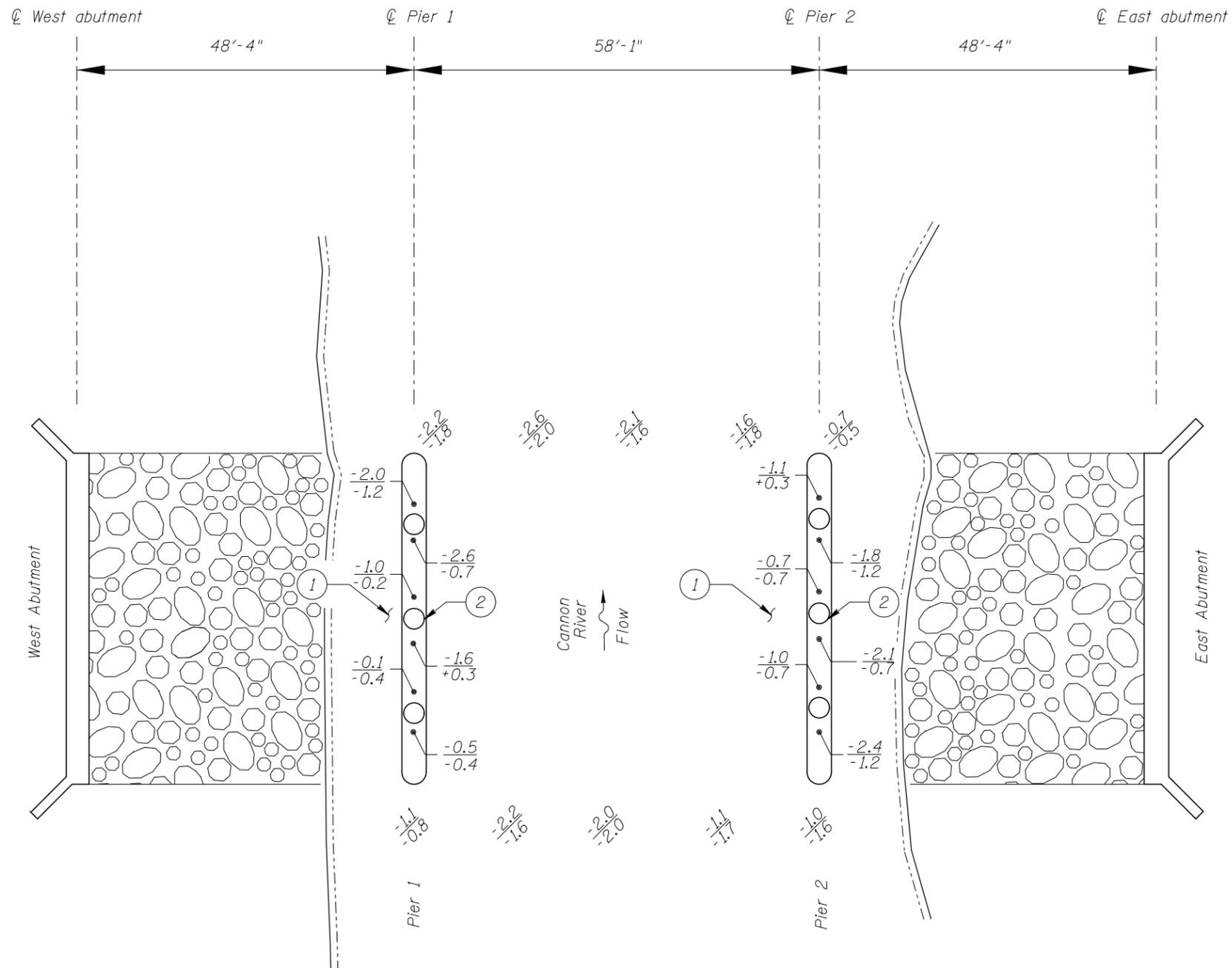
Photograph 3. View of Pier 2, Looking West.



Photograph 4. View of East Abutment, Looking East.



Photograph 5. View of West Abutment, Looking West.



INSPECTION NOTES:

- ① The channel bottom consisted of rock and gravel with soft silt infilling with minimal probe rod penetration.
- ② Concrete of the columns was in smooth and sound condition.

GENERAL NOTES:

1. Piers 1 and 2 were inspected underwater.
2. At the time of inspection, on September 13, 2012, the waterline was located approximately 14.4 feet below the top of Pier 1 on the downstream end. This corresponds to a waterline elevation of 935.8 based on design plans.
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 as well as around the pier structures.



TYPICAL END VIEW OF PIERS

SOUNDING PLAN

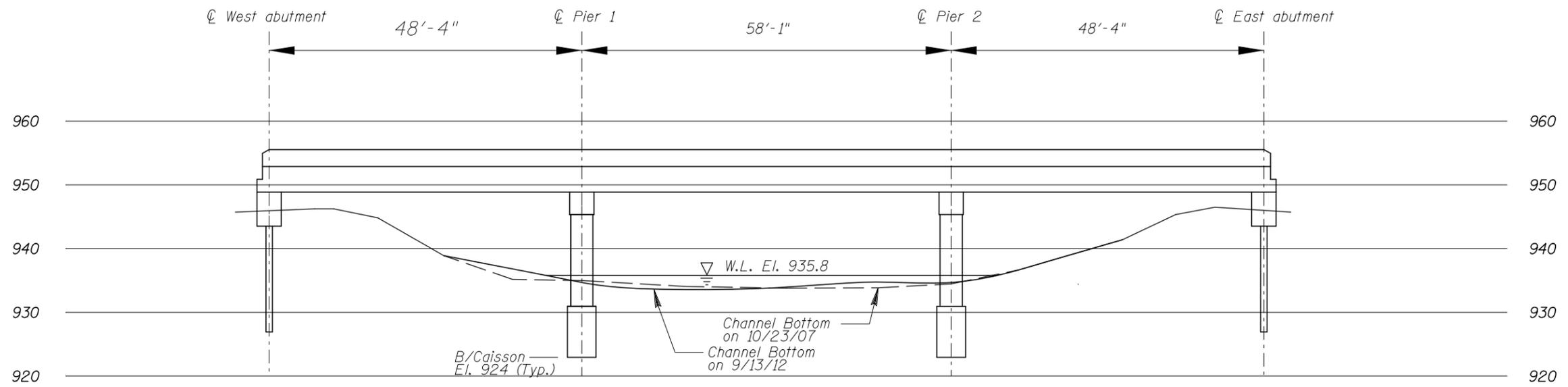
Legend

- 0.4 Sounding Depth (9/13/12)
- 0.4 Sounding Depth (10/23/07)
- Timber Debris
- Riprap

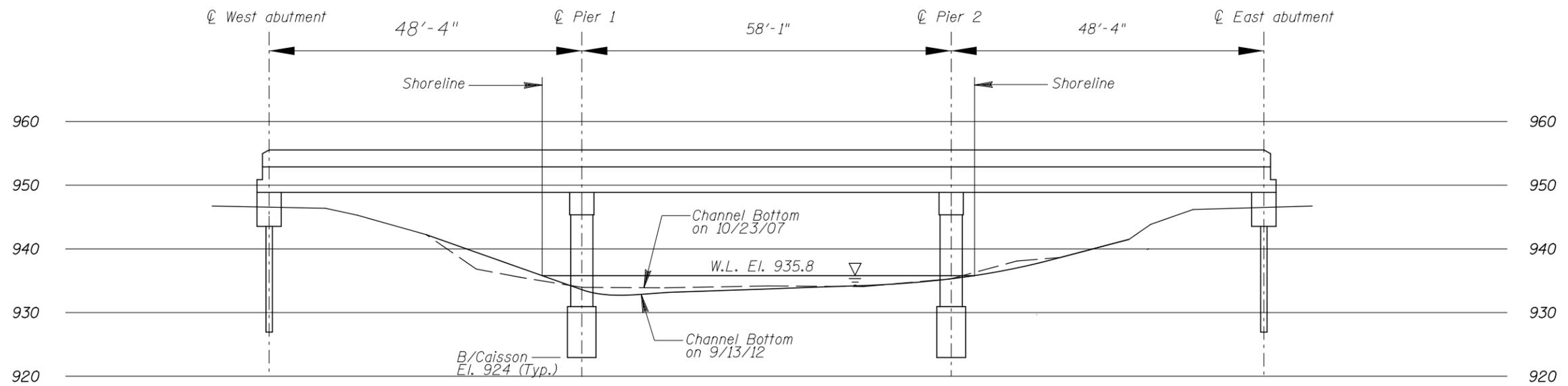
Note:

All soundings based on 2012 waterline location.

MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION		
STRUCTURE NO. 66548 OVER THE CANNON RIVER DISTRICT 6, RICE COUNTY		
INSPECTION AND SOUNDING PLAN		
Drawn By: CRE	COLLINS ENGINEERS	Date: SEPT. 2012
Checked By: LJ	<small>123 North Wacker Drive Suite 900 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com</small>	Scale: NTS
Code: 52216548		Figure No.: 1



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:
 Refer to Figure 1 for General Notes.

MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION		
STRUCTURE NO. 66548 OVER THE CANNON RIVER DISTRICT 6, RICE COUNTY UPSTREAM AND DOWNSTREAM FASCIA PROFILES		
Drawn By: CRE Checked By: LJ Code: 742366548	COLLINS ENGINEERS	123 North Wacker Drive Suite 900 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com
		Date: SEPT. 2012 Scale: 1"=20' Figure No.: 2

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

INSPECTORS: Collins Engineers, Inc. DATE: September 13, 2012

ON-SITE TEAM LEADER: Roy A. Forsyth, P.E.

BRIDGE NO: 66548 WEATHER: Sunny, 85° F

WATERWAY CROSSED: Cannon River

DIVING OPERATION: _____ SCUBA _____ SURFACE SUPPLIED AIR
 OTHER Inspection by Wading

PERSONNEL: Charles R. Euwema, Brandon Corr

EQUIPMENT: Dry Suit, Scraper, Lead Line, Sounding Pole, Probe Rod, Camera

TIME IN WATER: 3:50 P.M.

TIME OUT OF WATER: 4:10 P.M.

WATERWAY DATA: VELOCITY 0.5 ft/s

VISIBILITY 1.0 foot

DEPTH 2.6 feet maximum at Pier 1.

ELEMENTS INSPECTED: Piers 1 and 2

REMARKS: Overall, Piers 1 and 2 were found to be in good condition with no defects of structural significance observed. The channel bottom appeared to be stable with no significant deficiencies.

FURTHER ACTION NEEDED: _____ YES NO

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

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 66548
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Roy A. Forsyth P.E.
WATERWAY CROSSED Cannon River

INSPECTION DATE September 13, 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	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 1	2.6'	N	7	N	8	N	7	N	8	8	7	7	7	N	N	N	N	N
	Pier 2	2.4'	N	7	N	8	N	7	N	8	8	7	7	7	N	N	N	N	N

*UNDERWATER PORTION ONLY

REMARKS: Overall, Piers 1 and 2 were found to be in good condition with no defects of structural significance observed. The channel bottom appeared to be stable with no significant deficiencies.

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.