

2017 UNDERWATER BRIDGE INSPECTION REPORT



BRIDGE # 70532 QUAKER AVE over Minnesota River

DISTRICT: Metro

COUNTY: Scott

CITY/TOWNSHIP: SAND CREEK

STATE: Minnesota

Date of Inspection: 05/25/2017

Equipment Used:

Owner: County Highway Agency

Inspected By: Owens, Garrett

Report Written By: Garrett Owens

Report Reviewed By:

Final Report Date:



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UNDERWATER INSPECTION

REPORT SUMMARY

The substructure units inspected at Bridge 70532, Piers 1 and 2, were in good condition with no defects of structural significance observed. A heavy accumulation of timber debris was observed at Pier 2. Footing exposure with up to 5.1 feet vertical exposure was observed at Pier 1.

INSPECTION FINDINGS

- (A) The channel bottom consisted of firm silty clay with a maximum probe rod penetration of 3 inches.
- (B) A heavy accumulation of timber debris consisting of logs and branches 18 inches in diameter and smaller was observed around the entire perimeter of Pier 2 extending 20 feet off the upstream nose and faces and from the channel bottom to 7 feet above the waterline.
- (C) A moderate accumulation of timber debris, consisting of up to 12 inch diameter drift pieces, was observed at the upstream nose of Pier 1, extending up to 5 feet off the pier nose and from the channel bottom to 10 feet above the mudline.
- (D) The concrete was smooth and sound with no notable defects or deterioration.
- (E) Remnants of a old abandoned sheet pile cofferdam were encountered extending 1 to 2 feet up out of the channel bottom along the south face of Pier 2.
- (F) The footing was exposed at the upstream nose and along the entire north face of Pier 1 with a maximum vertical exposure of up to 5.1 feet.

RECOMMENDATIONS

- (A) Remove the timber debris during future maintenance operations.
- (B) Consider scour countermeasures at Pier 1 to inhibit any further exposure of the pier foundations.
- (C) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of sixty (60) months.

Contractor: Collins Engineers, Inc.

Contractor Job Number: 9687

UNDERWATER INSPECTION

1. BRIDGE DATA

Bridge #: 70532
Feature Intersected: Minnesota River
Facility Carried: QUAKER AVE
District: Metro
County: 070 - Scott

Bridge Description:

The superstructure consists of four spans of multiple concrete beams supporting a reinforced concrete deck. The superstructure is supported by two concrete abutments and three concrete piers. The piers are numbered 1 through 3 from south to north.

2. INSPECTION DATA

Professional Engineer/Team Leader: Cory Stuber, P.E.
Inspection Diver: Garrett Owens, P.E.
Date of Underwater Inspection: 05/25/2017
Weather Conditions: Sunny, 70°F
Underwater Visibility (feet): 1
Waterway Velocity (ft/sec): 3.5

3. SUBSTRUCTURE INSPECTION DATA

Substructure(s) Inspected: Piers 1 - 2

General Shape:

The piers each consist of an oblong rectangular concrete shaft supporting a hammerhead pier cap on top of a rectangular footing founded on piles.

Maximum Water Depth at Substructure(s) Inspected (feet): 30.6

4. WATERLINE DATUM

Water Level Reference: The bottom of the pier cap on the downstream end of Pier 1.
Waterline Elevation (feet): 712.0
Description: The waterline was approximately 3.6 feet below reference.

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: 6
Item 62: Culvert: Code:
Item 92B: Underwater Inspection: Code: Y 48 05/2017

Item 113: Scour Critical Bridge:

Code: N

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

Yes

No

(Mark your selection with an X)

6. STRUCTURAL ELEMENT CONDITION RATING

ELEM #	Element Description	Quantity	Unit	Conditions			
				CS1	CS2	CS3	CS4
210	Reinforced Concrete Pier Wall	40	LF	40			
220	Reinforced Concrete Footing	30	LF		30		
885	Scour	1	EA	1			

UNDERWATER INSPECTION

INSPECTION PROCEDURES

The routine underwater inspection of Bridge 70532 (CSAH 9 over the Minnesota River) was completed on May 25, 2017. The underwater inspection was conducted from a 21 ft boat. The inspection was conducted by a team consisting of a PE-Diver with a valid MnDOT Team Leader certification, a backup diver and a dive tender. The inspection utilized commercial dive equipment and techniques (SSA and/or SCUBA) in accordance with OSHA regulations. Profiles were taken along the upstream and downstream faces of the bridge and around the periphery of substructure units to determine the presence, location and area of scour.

The bridge elements inspected consisted of two reinforced concrete piers. According to the bridge inventory or design drawings, Piers 1 - 2 were founded on pile supported reinforced concrete footings. Inspection procedures followed FHWA guidance and the MnDOT Bridge and Structure Inspection Program Manual with channel bottom probing to search for foundations. The routine underwater inspection frequency is recommended to remain at a maximum of 60 months based on those findings and risk factors. Also, inspection procedures should continue to follow the above approach and standard guidance with 100% Level I and 10% Level II intensity efforts.

Minnesota Structure Inventory Report

Bridge ID: 70532

QUAKER AVE over Minnesota River

Date: 05/25/2017

+ GENERAL +	+ ROADWAY +	+ INSPECTION +																				
Agency Br. No. Crew District 05 Maint. Area County 070 - Scott City Township 70010 - SAND CREEK Desc. Loc. At N County Line Sect., Twp., Range 7 - 114N - 23W Latitude 44 ° 41 ' 34.35 " Longitude -93 ° 38 ' 32.27 " Custodian 02 - County Highway Agency Owner 02 - County Highway Agency BMU Agreement Year Built 2002 MN Year Reconstructed FHWA Year Reconstructed MN Temporary Status Bridge Plan Location 3 - COUNTY Date Opened to Traffic 7/25/2002 On - Off System 1 - ON Legislative District 35B Potential ABC 2 - N/A	Bridge Match ID (TIS) 0 Roadway O/U Key Route On Structure Route Sys 04 - CSAH Number 9 Roadway Name or Description QUAKER AVE Level of Service 1 - MAINLINE Roadway Type 2 - 2-way traffic Control Section (TH Only) Reference Point Detour Length 15.0 mi. Lanes ON 2 UNDER 0 ADT 2803 YEAR 2008 HCA DT ADTT % Functional Class 06 - Rural - Minor Arterial	Userkey 110 Structurally Deficient N Functionally Obsolete N Sufficiency Rating 94.8 Routine Inspection Date 08/29/2016 Routine Inspection Frequency 24 Inspector Name Owens, Garrett Status A - Open																				
		+ NBI CONDITION RATINGS +																				
		Deck 7 Unsound Deck % Superstructure 8 Substructure 7 Channel 6 Culvert N																				
		+ NBI APPRAISAL RATINGS +																				
		Structure Evaluation 7 Deck Geometry 6 Underclearances N Waterway Adequacy 4 Approach Alignment 8																				
		+ SAFETY FEATURES +																				
		Bridge Railing 1 - MEETS STANDARDS GR Transition 1 - MEETS STANDARDS Appr. Guardrail 1 - MEETS STANDARDS GR Termini 1 - MEETS STANDARDS																				
		+ IN DEPTH INSP. +																				
		<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 10%; text-align: center;">Y/N</th> <th style="width: 15%; text-align: center;">Freq</th> <th style="width: 15%; text-align: center;">Date</th> </tr> </thead> <tbody> <tr> <td>Frac. Critical</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Underwater</td> <td></td> <td style="text-align: center;">60</td> <td style="text-align: center;">05/25/2017</td> </tr> <tr> <td>Pinned Asbly.</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Spec. Feat.</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Y/N	Freq	Date	Frac. Critical				Underwater		60	05/25/2017	Pinned Asbly.				Spec. Feat.			
	Y/N	Freq	Date																			
Frac. Critical																						
Underwater		60	05/25/2017																			
Pinned Asbly.																						
Spec. Feat.																						
		+ WATERWAY +																				
		Drainage Area (sq. mi.) 581.1 Waterway Opening (sf.) 9000 Navigation Control 0 - No nav. control on Pier Protection 2 - In place and functioning Nav. Clr. (ft.) Vert. 0.0 Horiz. 0.0 Nav. Vert. Lift Bridge Clear. (ft.) MN Scour Code N - STBL - LIM Year 2002																				
		+ CAPACITY RATINGS +																				
		Design Load 9 - HS 25 (OR GREATER) Operating Rating 2 - HS TRUCK 39.0 Inventory Rating 2 - HS TRUCK 23.8 Posting VEH: SEMI: DBL: Rating Date 11/22/2005 Overweight Permit Codes A N - N/A B N - N/A C N - N/A																				
+ STRUCTURE +	+ RDWY DIMENSIONS +																					
Service On 1 - Highway Service Under 5 - Waterway Main Span Type 5 - Prestress or Precast Main Span Design 01 - Beam Span Main Span Detail Appr. Span Type Appr. Span Design Appr. Span Detail Skew 0 Culvert Type Barrel Length Cantilever ID Number of Spans MAIN: 4 APPR: 0 TOTAL: Main Span Length 140.1 ft. Structure Length 564.5 ft. Deck Width (Out-to-Out) 54.8 ft. Deck Material 1 - Concrete Cast-in-Place Wear Surf Type 1 - Monolithic Concrete Wear Surf Install Year Wear Course/Fill Depth 0.00 ft. Deck Membrane 0 - None Deck Rebars 1 - Epoxy Coated Reinforcing Deck Rebars Install Year 2002 Structure Area (Out-to-Out) 31042 sq. ft. Roadway Area (Curb-to-Curb) 24445 sq. ft. Sidewalk Width 50A. Lt 7.8 ft. 50B. Rt 0.00 ft. Curb Height Lt 0.00 ft. Rt 0.00 ft. Rail Type Lt 22 Rt 22	If Divided NB-EB SB-WB Roadway Width 43.30 ft. ft. Vertical Clearance ft. ft. Max. Vert. Clear. ft. ft. Horizontal Clear. 43.2 ft. ft. Lateral Clearance ft. ft. Appr. Surface Width 41.0 ft. Bridge Roadway Width 43.3 ft. Median Width On Bridge ft.																					
		+ MISC. BRIDGE DATA +																				
		Structure Flared 0 - No flare Parallel Structure N - No parallel structure Field Conn. ID Abutment Foundation (Material/Type) 1 - CONC 3 - FTG PILE Pier Foundation (Material/Type) 1 - CONC 3 - FTG PILE Historic Status 5 - Not eligible																				
		+ PAINT +																				
		Year Painted Unsound Paint % Painted Area sq. ft. Primer Type Finish Type																				
		+ BRIDGE SIGNS +																				
		Posted Load 0 - Not Required Traffic 0 - Not Required Horizontal 0 - Not Required Vertical N - Not Applicable																				

BRIDGE 70532 QUAKER AVE OVER Minnesota River

ELEM NBR	ELEMENT NAME	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
215	Reinforced Concrete Abutment	Underwater	05/25/2017	214 LF	214	0	0	0
		Routine	08/29/2016	214 LF	214	0	0	0
<p>Notes: [2016] Migrator added 40 LF to abutment quantity to account for wingwalls (CS1:40 CS2:0 CS3:0 CS4:0). Corrected to 96 LF.</p> <p>-</p> <p>2006 Hairline crack on east side of contraction joint, south abutment.</p> <p>2007 Hairline crack on east side of contraction joint, south abutment ,parapet wall</p> <p>2008 - 2016 No change.</p> <p>Wing wall notes: -</p> <p>2004 Southwest wing, cracked at edge.</p> <p>2005 Northwest wing, cracked at edge.</p> <p>2010 - 2016 No. change.</p>								
220	Reinforced Concrete Pile Cap/Footing	Underwater	05/25/2017	30 LF	0	30	0	0
<p>Notes: [2017] Underwater Inspection - The footing was exposed at the upstream nose and along the entire north face of Pier 1 with a maximum vertical exposure of up to 5.1 feet.</p>								
234	Reinforced Concrete Pier Cap	Underwater	05/25/2017	161 LF	161	0	0	0
		Routine	08/29/2016	161 LF	161	0	0	0
<p>Notes: -</p> <p>2006 Hairline crack on south face of pier 3, near center of pier.</p> <p>2007 pier painted in 2006</p> <p>2008 - 2016 No change.</p>								
300	Strip Seal Expansion Joint	Underwater	05/25/2017	108 LF	108	0	0	0
		Routine	08/29/2016	108 LF	108	0	0	0
<p>Notes:</p> <p>2003 Filled with sand both joints should be cleaned.</p> <p>2008 - 2013 No change.</p> <p>2015 South seal leaking and needs cleaning.</p> <p>2016 No change.</p>								
301	Pourable Joint Seal	Underwater	05/25/2017	394 LF	394	0	0	0
		Routine	08/29/2016	394 LF	394	0	0	0
<p>Notes: -</p> <p>Joint over each pier and at abutments.-60 feet on each approach panel(longitudinal). At each abutment paving block.</p> <p>2007 5 FEET RAVELING PIER 2 NORTHBOUND LANE</p> <p>2008 - 2013 Raveling at the north approach panel</p> <p>2015 Resealed the joint.</p> <p>2016 No change.</p>								
310	Elastomeric Bearing	Underwater	05/25/2017	24 EA	12	12	0	0
		Routine	08/29/2016	24 EA	12	12	0	0
<p>Notes:</p> <p>2003 Bearing assemblies are at maximum contraction at 23 degrees F. Pier 3 assembly out of spec.</p> <p>2008 - 2016 No change.</p>								
313	Fixed Bearing	Underwater	05/25/2017	24 EA	24	0	0	0
		Routine	08/29/2016	24 EA	24	0	0	0
<p>Notes: 2013 - 2016 No change. All in CS 1</p>								

BRIDGE 70532 QUAKER AVE OVER Minnesota River

ELEM NBR	ELEMENT NAME	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
321	Reinforced Concrete Approach Slab	Underwater	05/25/2017	1640 SF	1640	0	0	0
		Routine	08/29/2016	1640 SF	1640	0	0	0
Notes: [2016] Migrator assumed an approach slab length of 20FT and used the inventory quantity of 41FT for the width.								
2008 Slight settlement of bituminous roadway at end of both approach slabs.								
2010 No. change.								
2013 Bituminous settled and curb at N. bound approach(south end) settled, and sealed, similar at North end								
2015 No change.								
2016 A new overlay on the South approach.								
330	Metal Bridge Railing	Underwater	05/25/2017	604 LF	537	0	67	0
		Routine	08/29/2016	604 LF	537	0	67	0
Notes: Chain Link Fence Notes: -								
8 foot coated (epoxy) on west side of bridge.								
2008 South end post, epoxy coming loose. 3 lineal feet								
2010 No change.								
2013 Base plate bolts have popped the concrete on the outside of railing on 90% of posts 67 lineal feet placed in condition 3								
2015 - 2016 No change.								
515 -	Steel Protective Coating	Underwater	05/25/2017	4880 SF	4344	0	536	0
		Routine	08/29/2016	4880 SF	4344	0	536	0
Notes: Chain Link Fence Notes: [2016] Migrator assumed CS1 and a quantity of 999 SF.								
2016 The fence 8ft.x 610ft.								
331	Reinforced Concrete Bridge Railing	Underwater	05/25/2017	1214 LF	1198	16	0	0
		Routine	08/29/2016	1214 LF	1198	16	0	0
Notes: East Concrete Railing is Type F, West Concrete Railing is Type F-SW. 1118 Lin. Ft. of railing on the bridge and 24 Lin. Ft of railing on each wing wall = 1214 Lin. FT.								
2004 Southeast and northeast approach panels- 1/2 inch gap (cold joint). between bottom of jersey barrier and top of approach panel. Repaired in 2005.								
2006 Railing - West rail base span 2, west side, horizontal crack 6" to 9" down from top.								
2008 No change. 2010 No change.								
2013 Cracks in East J barrier sealed on North end by Carver Co.								
2015 joints sealed with Dow 880								
spall on sidewalk side - 12 lin. ft. 50 ft south of pier 2 approx. 10 lin. ft. of cracks,								
2015 new cracks and small spall on west side about 4" above base. Just north of 2nd const. joint, south of pier 2, keep watch.								
West rail base span 3, west side, longitudinal crack to rail base, top - down about 6" to 9"								
30 lin. ft. 30 foot south pier 2 ,12 liner feet of spall concrete at base of rails.								
West rail base span 4, west side, longitudinal crack to rail base, top down about 6" to 9"								
30 lin. ft.								
East rail base span 2, east side, just north of pier one, a utility box 12" x 12" x 6" down 9"								
from top of barrier.								
The pedestrian J barrier west side, (50 ft south on pier 2)approx. 50 liner feet of cracks.								
2016 No changes.								
800	Critical Deficiencies or Safety Hazards	Underwater	05/25/2017	1 EA	1	0	0	0
		Routine	08/29/2016	1 EA	1	0	0	0
Notes: NO CRITICAL FINDINGS OBSERVED DURING THE LAST INSPECTION.								
2010 - 2016 No critical findings during this inspection.								
883	Concrete Shear Cracking	Underwater	05/25/2017	1 EA	1	0	0	0
		Routine	08/29/2016	1 EA	1	0	0	0
Notes: 2013 - 2016 No shear cracks noted at time of inspection								
885	Scour	Underwater	05/25/2017	1 EA	1	0	0	0
		Routine	08/29/2016	1 EA	1	0	0	0
Notes: 2013 See 2012 under water report in Sims.								
2015 - 2016 No change.								

BRIDGE 70532 QUAKER AVE OVER Minnesota River

ELEM NBR	ELEMENT NAME	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
892	Slopes & Slope Protection	Underwater	05/25/2017	2 EA	2	0	0	0
		Routine	08/29/2016	2 EA	2	0	0	0
Notes: - 2003 Riprap in front of each abutment. 2010 Flood in autumn created two scour holes, one between pier 3 and the north abutment, and one around pier 3. The scour hole around pier 3 goes down about 4 feet and stops at the top of the cofferdam sheeting left in place. The second scour hole is between pier 3 and the north abutment. It starts 10 feet south of the in place riprap of the north abutment and ends about 20 feet north of pier 3. The hole is about 60 feet in length (transverse to the CL of the bridge) and 40 feet wide (along CL of bridge) and about 15 feet deep. This item should be in CS 3. 2011 mid span pier 3 to north abutment has been repaired back to condition state 1 2013 - 2016 No change.								
893	Guardrail	Underwater	05/25/2017	4 EA	3	1	0	0
		Routine	08/29/2016	4 EA	3	1	0	0
Notes: Notes: 2008 Northwest Guardrail Connection to J Barrier, Nuts and washers missing, loose connection. 2010 No change. 2011 north east attenuator damaged 2013 - 2016 No change.								
894	Deck & Approach Drainage	Underwater	05/25/2017	1 EA	1	0	0	0
		Routine	08/29/2016	1 EA	1	0	0	0
Notes: Drainage system is in good condition and functioning as intended. 2013 - 2016 No change.								
895	Sidewalk, Curb, & Median	Underwater	05/25/2017	1 EA	1	0	0	0
		Routine	08/29/2016	1 EA	1	0	0	0
Notes: - 2004 Bituminous settlement on southwest corner sidewalk- needs patching. 2005 Sidewalk - just south of pier #3, cracking in sidewalk (longitudinal and transverse) 1st panel south of construction joint and 3rd joint south of north abutment, keep watch! 2008 - 2013 No change. 2015 Bituminous repair on north west side 2016 No change.								
899	Miscellaneous Items	Underwater	05/25/2017	1 EA	1	0	0	0
		Routine	08/29/2016	1 EA	1	0	0	0
Notes: 2010 - 2016 NE Approach B4 Curb has settled 1.5 inches to approach panel. CS 1								
900	Protected Species	Underwater	05/25/2017	1 EA	0	1	0	0
		Routine	08/29/2016	1 EA	0	1	0	0
Notes: [2016] Migrator determined the presence of swallows on this structure based on data in the inventory or comments in the general/miscellaneous notes. 2016 Swallows present.								

General Notes: PONTIS inspection comments -
 2004: Utility conduit in west edge of sidewalk
 2007: poured deck joint repaired.
 seal spall crack west side ped. railing span 3 at rail base
 inspectors Grover, Fiebelkorn, Lynch
 2008: Used MN/DOT snooper to inspect bridge. Inspectors Grover, Fiebelkorn, Lynch
 2010: A 20 foot section of concrete barrier in the SW corner off the approach panel is tipped west about 1 to 2 inches on top.
 Inspectors Grover, Fiebelkorn, Lynch
 2011: solar panel north of pier 3 east side of j barrier
 2013: 2011 Rip rap placed under span 3 and 4 up to north abutment. swallow nest under south abutment.
 used MNDOT snooper A-62 to inspect, Inspectors: Felt, Fiebelkorn, Lynch, Grover, Gallagher
 in 2012 u.s.g.s. installed new monitor box east side span 2.
 2015: water at curb line on both sides of deck
 Inspectors Tom Lynch and Tom Gallagher
 2016: MN DOT snooper UB-62 was used to do the inspection. The trees need to be sprayed or removed on carver county's end of the bridge.
 Inspectors: Scott Fiebelkorn and Tom Gallagher

58. Deck NBI:

BRIDGE 70532 QUAKER AVE OVER Minnesota River

ELEM NBR	ELEMENT NAME	REPORT TYPE	INSP. DATE	QUANTITY	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
36A.	Brdg Railings NBI:							
36B.	Transitions NBI:							
36C.	Appr Guardrail NBI:							
36D.	Appr Guardrail Terminal NBI:							
59.	Superstructure NBI:							
60.	Substructure NBI:							
61.	Channel NBI:	2013 Mid span 3 to north abutment has been repaired with grading and riprap. 2016 No change [2017] Underwater Inspection - Channel downgraded from 7 to 6 due to timber debris accumulation at Pier 2 slightly restricting channel. Timber debris should be removed.						
62.	Culvert NBI:							
71.	Waterway Adeq NBI:	2010 - 2016: bridge had occasional overtopping of roadway approaches with significant traffic delays.						
72.	Appr Roadway Alignment NBI:							

Inspector's Signature

Reviewer's Signature

Pictures



Photo 1 - East Elevation Looking West



Photo 2 - West Elevation Looking East

Pictures



Photo 3 - South Abutment and Shoreline Looking South



Photo 4 - Pier 1 Looking North

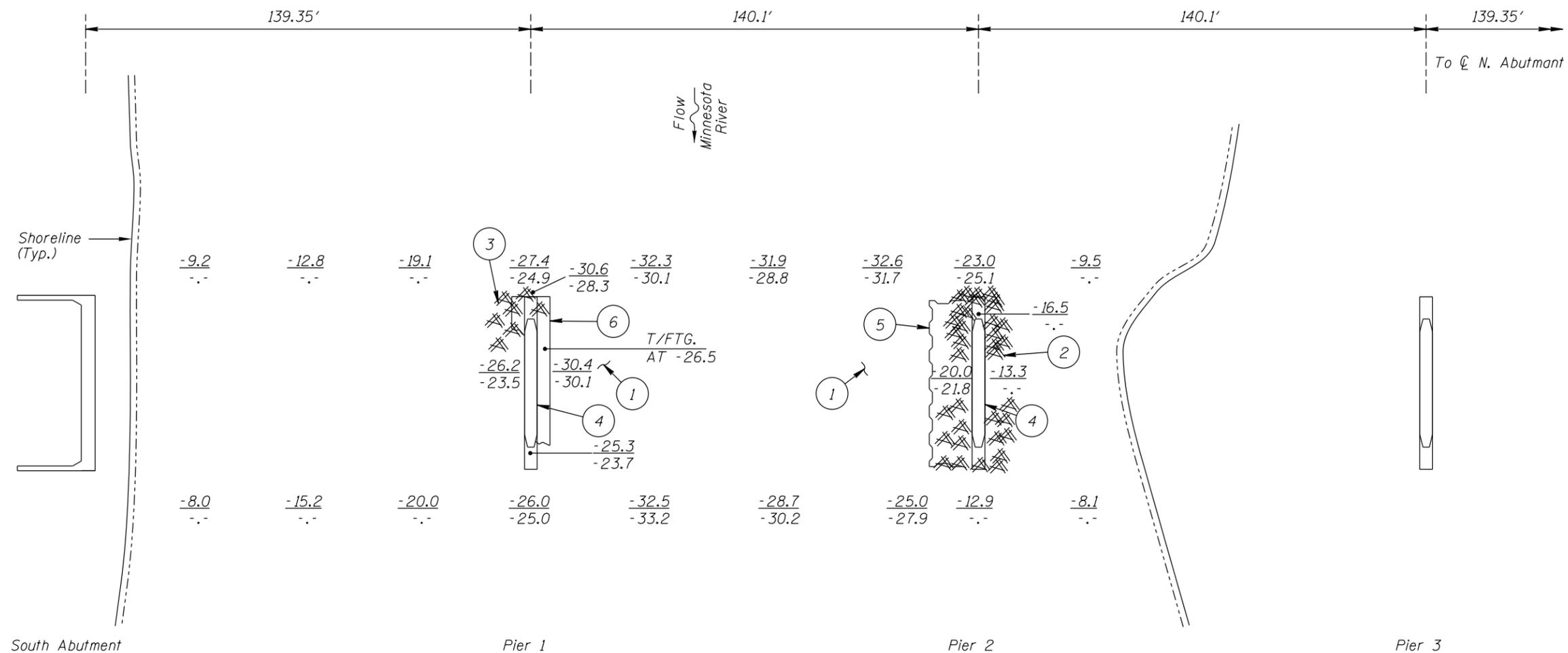
Pictures



Photo 5 - Pier 2 Looking Northeast



Photo 6 - North Shoreline and Pier 3 Looking North

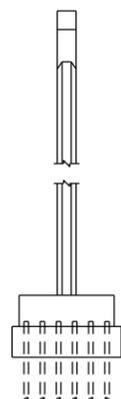


INSPECTION NOTES:

- 1 The channel bottom consisted of firm silty clay with a maximum probe rod penetration of 3 inches.
- 2 A heavy accumulation of timber debris consisting of logs and branches 18 inches in diameter and smaller was observed around the entire perimeter of Pier 2 extending 20 feet off the upstream nose and faces and from the channel bottom to 7 feet above the waterline.
- 3 A moderate accumulation of timber debris, consisting of up to 12 inch diameter drift pieces, was observed at the upstream nose of Pier 1, extending up to 5 feet off the pier nose and from the channel bottom to 10 feet above the mudline.
- 4 The concrete was smooth and sound with no notable defects or deterioration.
- 5 Remnants of a old abandoned sheet pile cofferdam were encountered extending 1 to 2 feet up out of the channel bottom along the south face of Pier 2.
- 6 The footing was exposed at the upstream nose and along the entire north face of Pier 1 with a maximum vertical exposure of up to 5.1 feet.

GENERAL NOTES:

- 1 Piers 1 and 2 were inspected underwater.
- 2 At the time of inspection on May 25, 2017, the waterline was located approximately 3.6 feet below bottom of hammerhead pier cap at the downstream end of Pier 1. This corresponds with a waterline elevation of 712.0 feet based on design drawings.
- 3 Soundings indicate the water depth at the time of the inspection and are measured in feet.
- 4 Soundings were taken parallel to the bridge at 1/4 point intervals between the substructure units.
- 5 Top of footing elevation encountered in field does not correspond with design drawings. Pier 1 elevations in Figure 2 are drawn as encountered in the field. Pier geometry is depicted as shown in design drawings dated 2000.

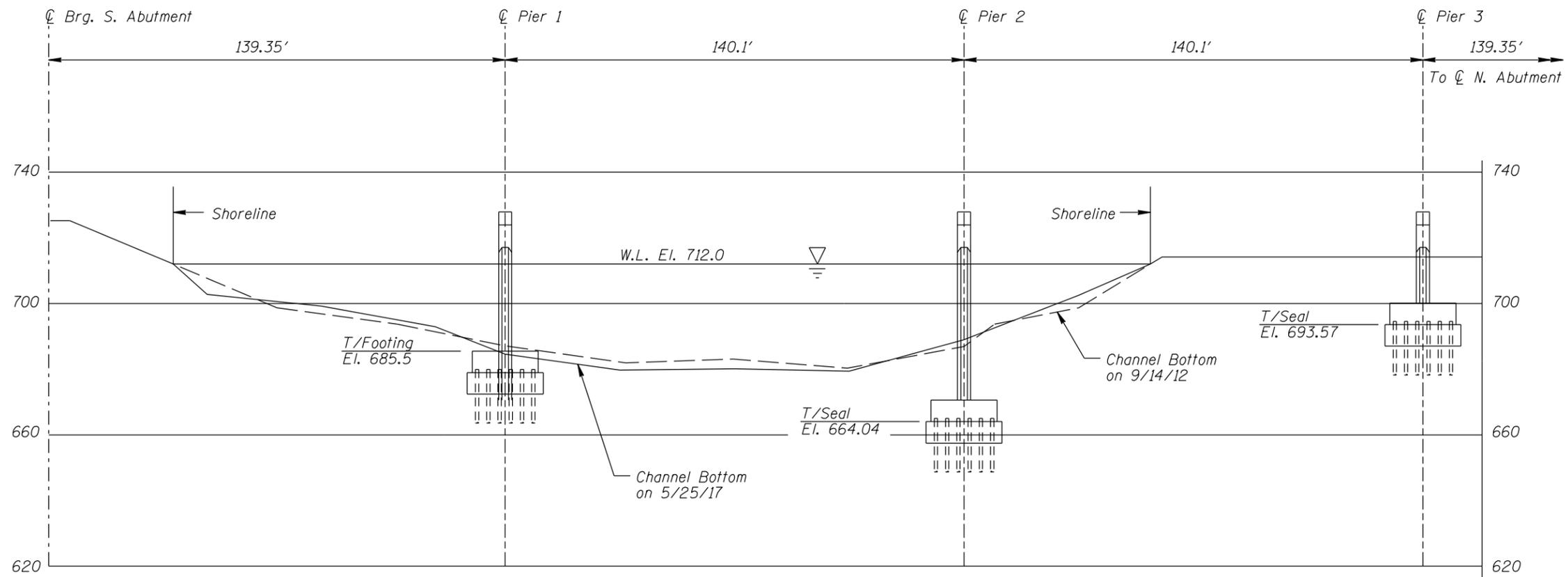


TYPICAL END VIEW OF PIERS 1 AND 2

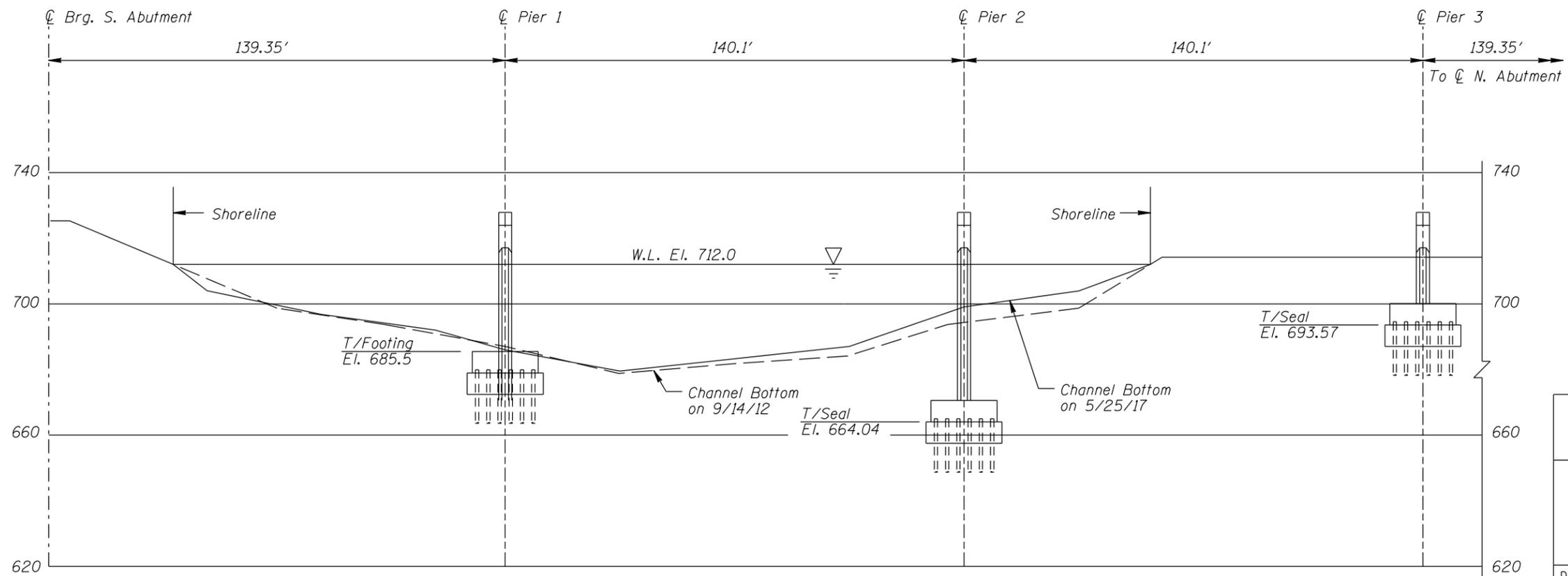
Legend

- 7.0 Sounding Depth (5/25/17)
- 5.0 Sounding Depth (9/14/12)
- .- Sounding Depth Not Previously Taken
- Timber Debris

MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION		
STRUCTURE NO. 70532 OVER THE MINNESOTA RIVER METRO DISTRICT, SCOTT COUNTY		
INSPECTION AND SOUNDING PLAN		
Drawn By: GRO	COLLINS ENGINEERS	Date: MAY 2017
Checked By: CRS	<small>1599 Selby Avenue Suite 206 St. Paul, MN 55104 (651) 646-8502 www.collinsengr.com</small>	Scale: NTS
Project: 63-9687		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. 70532 OVER THE MINNESOTA RIVER METRO DISTRICT, SCOTT COUNTY UPSTREAM AND DOWNSTREAM FASCIA PROFILES		
Drawn By: GRO	COLLINS ENGINEERS <small>1599 Selby Avenue Suite 206 St. Paul, MN 55104 (651) 646-8502 www.collinsengr.com</small>	Date: MAY 2017
Checked By: CRS		Scale: 1"=40'
Project: 63-9687		Figure No.: 2