

UNDERWATER BRIDGE INSPECTION REPORT

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STRUCTURE NO. 19563

CANADA AVENUE

OVER THE

CANNON RIVER

METRO DISTRICT - DAKOTA COUNTY

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OCTOBER 30, 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 at Bridge No. 19563, Piers 1 and 2, were found to be in very good condition with no defects of structural significance. The concrete of all substructure units was smooth and sound. A scour pocket was observed at the upstream nose of Pier 2, otherwise, the channel bottom appeared to be stable and well established.

INSPECTION FINDINGS:

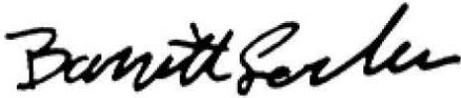
- (A) The concrete surfaces above and below water were typically smooth and sound.
- (B) The channel bottom material along the channel side of both piers consisted of sandy silt and scattered cobbles allowing up to 4 inches of probe rod penetration.
- (C) The channel bottom material along the south side of Pier 1 consisted of soft organic silt allowing up to 1 foot of probe rod penetration.
- (D) A 6 foot diameter and 3 foot deep scour pocket was observed at the upstream nose of Pier 2.

RECOMMENDATIONS:

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

Inspection Team Leader:

WSB and Associates



Barritt Lovelace  
Registered Professional Engineer  
Bridge Safety Inspection Team Leader

Respectfully submitted,

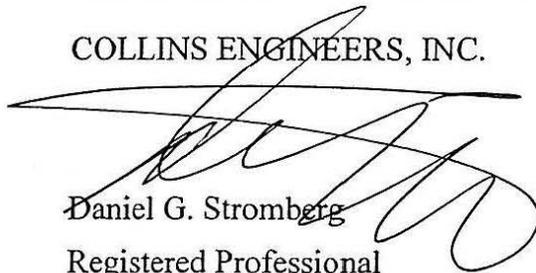
PROFESSIONAL ENGINEER

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: 19563

Feature Crossed: Cannon River

Feature Carried: TWP 166 (Canada Ave.)

Location: Dakota County

Bridge Description: The superstructure consists of a reinforced concrete deck over three concrete multi-girder spans supported by two reinforced concrete abutments and two reinforced concrete piers. The substructure units are designated as the South Abutment, Piers 1 and 2, and the North Abutment.

2. INSPECTION DATA

Professional Engineer/Team Leader: Barritt Lovelace, P.E.

Dive Team: Lukas Janulis P.E., Brad Robinson

Date: October 30, 2012

Weather Conditions: Sunny, 50° F

Underwater Visibility: 1 foot

Waterway Velocity: None/Negligible

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Piers 1 and 2

General Shape: Each pier consists of a rectangular reinforced concrete shaft with rounded noses encasing nine driven steel H-piles.

Maximum Water Depth at Substructure Inspected: Approximately 3.8 feet.

4. WATERLINE DATUM

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

Water Surface: The waterline was approximately 15.3 feet below reference.  
Waterline Elevation = 878.8

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

Item 60: Substructure: Code 8

Item 61: Channel and Channel Protection: Code 8

Item 92B: Underwater Inspection: Code B/10/12

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 Pier Wall	74	LF	74				
985	Slopes and Slope Protection	1	EA	1				



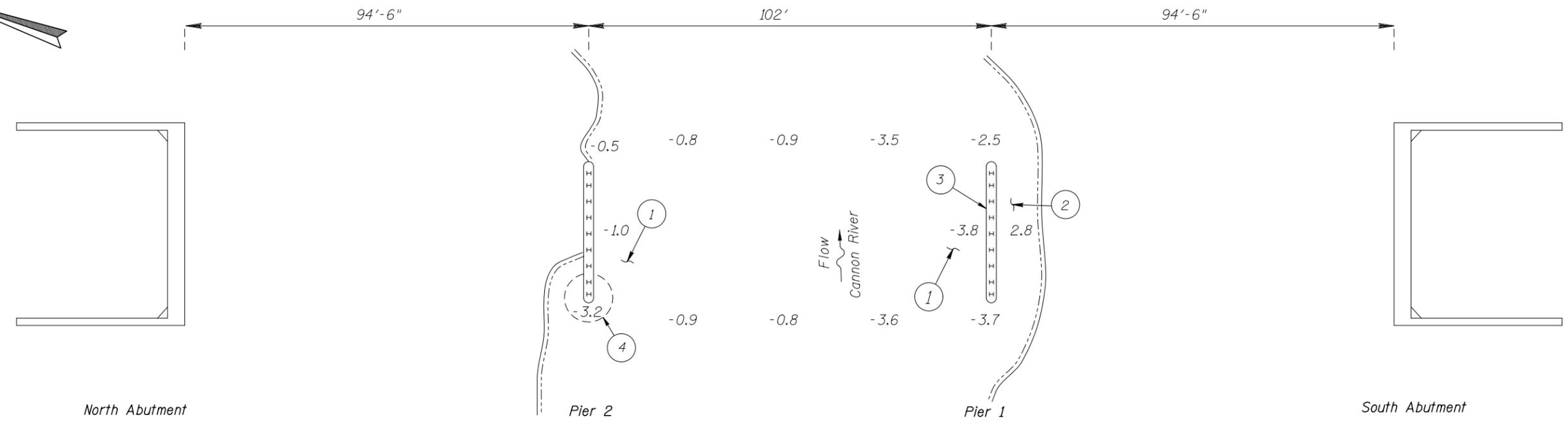
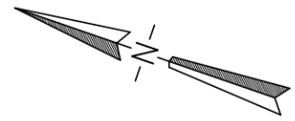
Photograph 1. Overall View of the Structure, Looking West.



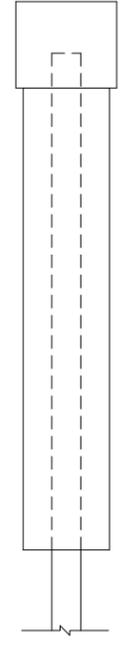
Photograph 2. View of Pier 1, Looking North.



Photograph 3. View of Pier 2, Looking South.



SOUNDING PLAN



TYPICAL END VIEW OF PIERS

GENERAL NOTES:

1. Piers 1 and 2 were inspected underwater.
2. At the time of inspection on October 30, 2012, the waterline was located approximately 15.3 feet below the top of the pier cap on the downstream end of Pier 1. This corresponds with a waterline elevation of 878.8 feet based on bridge plans dated 3/24/2009.
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.

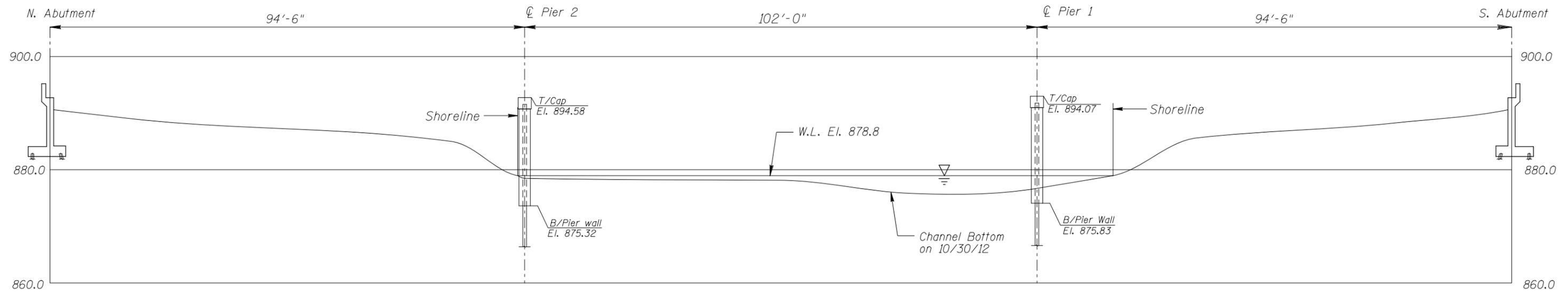
INSPECTION NOTES:

1. The channel bottom material on the channel side of each pier consisted of sandy silt with randomly scattered cobbles allowing up to 4 inches of probe rod penetration.
2. The channel bottom material along the south face of Pier 1 consisted of soft organic silt allowing up to 1 foot of probe rod penetration.
3. The concrete surfaces of both piers were smooth and sound.
4. A scour depression, measuring approximately 6 feet diameter and 3 feet deep, was observed at the upstream nose of Pier 2.

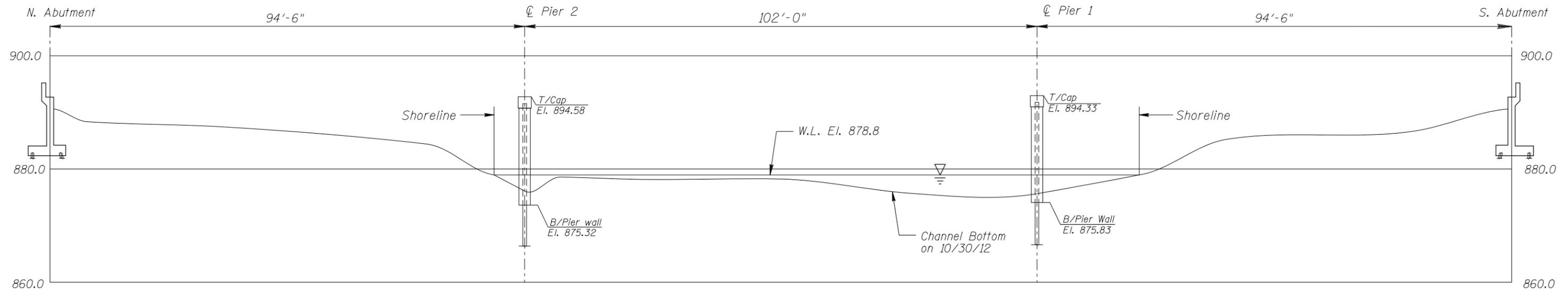
Legend

-6.5 Sounding Depth from Waterline (10/30/12)

<b>MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION</b>		
STRUCTURE NO. 19563 CANADA AVENUE OVER THE CANNON RIVER DAKOTA COUNTY		
<b>INSPECTION AND SOUNDING PLAN</b>		
Drawn By: MBP	<b>COLLINS ENGINEERS</b>	Date: FEB., 2013
Checked By: LJ	<small>123 North Wacker Drive Suite 900 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com</small>	Scale: NTS
Code: 742319563		Figure No.: 1



DOWNSTREAM FASCIA PROFILE



UPSTREAM FASCIA PROFILE

Note:  
Refer to Figure 1 for General Notes.

<b>MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION</b>		
STRUCTURE NO. 19563 CANADA AVENUE OVER THE CANNON RIVER DAKOTA COUNTY		
UPSTREAM AND DOWNSTREAM FASCIA PROFILES		
Drawn By: MBP	<b>COLLINS ENGINEERS</b>	Date: FEB., 2013
Checked By: LJ		Scale: 1"=20'
Code: 742319563		Figure No.: 2

123 North Wacker Drive  
Suite 900  
Chicago, IL 60606  
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www.collinsengr.com

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

INSPECTORS: Collins Engineers, Inc. DATE: October 30, 2012

ON-SITE TEAM LEADER: Barritt Lovelace, P.E.

BRIDGE NO: 19563 WEATHER: Sunny, 50° F

WATERWAY CROSSED: Cannon River

DIVING OPERATION: \_\_\_\_\_ SCUBA \_\_\_\_\_ SURFACE SUPPLIED AIR  
 OTHER Inspection by Wading

PERSONNEL: Lukas Janulis P.E., Brad Robinson

EQUIPMENT: Dry Suit, Camera, Sounding Rod, Hand Tools

TIME IN WATER: 12:40 P.M.

TIME OUT OF WATER: 1:15 P.M.

WATERWAY DATA: VELOCITY None/Negligible

VISIBILITY 1.0 foot

DEPTH 3.8 feet maximum at Pier 1

ELEMENTS INSPECTED: Piers 1 and 2

REMARKS: Overall, Piers 1 and 2 were found to be in very good condition with no defects of structural significance. The concrete of all substructure units was smooth and sound. A scour pocket was observed at the upstream nose of Pier 2, otherwise, the channel bottom appeared to be stable.

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. 19563  
 INSPECTORS Collins Engineers, Inc.  
 ON-SITE TEAM LEADER. Barritt Lovelace, P.E.  
 WATERWAY CROSSED Cannon River

INSPECTION DATE October 30, 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	3.8'	N	8	N	8	N	8	N	8	8	N	8	7	N	N	N	N	N
	Pier 2	3.2'	N	8	N	8	N	8	7	N	N	N	8	7	N	N	N	N	N

\*UNDERWATER PORTION ONLY

REMARKS: Overall, Piers 1 and 2 were found to be in very good condition with no defects of structural significance. The concrete of all substructure units was smooth and sound. A scour pocket was observed at the upstream nose of Pier 2, otherwise, the channel bottom appeared to be stable.

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.