

JMT Special Dataw Island access bridge inspection summary. 9/25/23

Please see attached for the results of the special inspection JMT conducted last week.

In summary, 7 repair locations that Ngeineering installed are exhibiting transverse flexural cracking. Note that these are recent cracks and were not present at the punch list inspection conducted last winter.

Additionally, a cursory inspection of a previous patch (labeled S3B1 – that Ngeineering **did not** install) exhibited flexural cracking. Of these items, 5 (#5,18,20,31 and 45) exhibited cracking across the full width of the repair.

These cracks are generally occurring at midspan locations (areas of maximum stress) as can be expected for this type of defect. As was explained in JMT's memo to Dataw dated 3/09/2023 *SUBJ: Contract Closeout and Non-Conforming Work Acceptance*, transverse cracks are not necessarily an item of concern regarding the overall operational capacity or safety of the bridge for the travelling public. Cracking of concrete is a normal phenomenon and the steel prestressed strands are what is providing the load carrying capacity of the beam (which JMT has already evaluated and determined to be acceptable in its current state).

What we do worry about is chloride intrusion through the cracks over time that could further degrade the prestressing strands and/or spall the beam. At this point, the cracks in the repairs are very fine hairline cracks that we think would not see significant salt penetration over the remaining service life of the repair and/or bridge, especially given the corrosion mitigation measures installed (cathodic protection, and the anti-chloride properties of the grout itself.)

At this stage, JMT recommends just monitoring the cracks over the next year or so. You are scheduled for a regular biennial (2 year) inspection in January, and another special inspection before Ngeineering's 2 year warranty period is up. Now that we have a baseline, we recommend just keeping an eye on things to make sure the cracks are not opening to either greater thicknesses or quantities over time. If this turns out to be the case, JMT would recommend Ngeineering at the minimum seal the cracks with an appropriate compound to eliminate the pathway for salt penetration. Depending on the degree of advancement of the cracking (if any), repair item replacement could be necessary and that would be evaluated before the end of the warranty period.

Given the low-lying nature and salt exposure of this bridge, Dataw can expect spalls in other areas to open up over time. As a result, we think the design life of the bridge is coming up sooner rather than later without more repair projects or evaluations. JMT has designed several coastal low lying structures very similar to this for the City of Charleston with newer reinforcing technology designed to prevent corrosion. We can send you more info if you're interested. Has Dataw advanced the planning and or proposal of a bridge replacement project yet? Keep me posted and let us know if there is anything we can do to help!

Thanks and feel free to call with any questions,

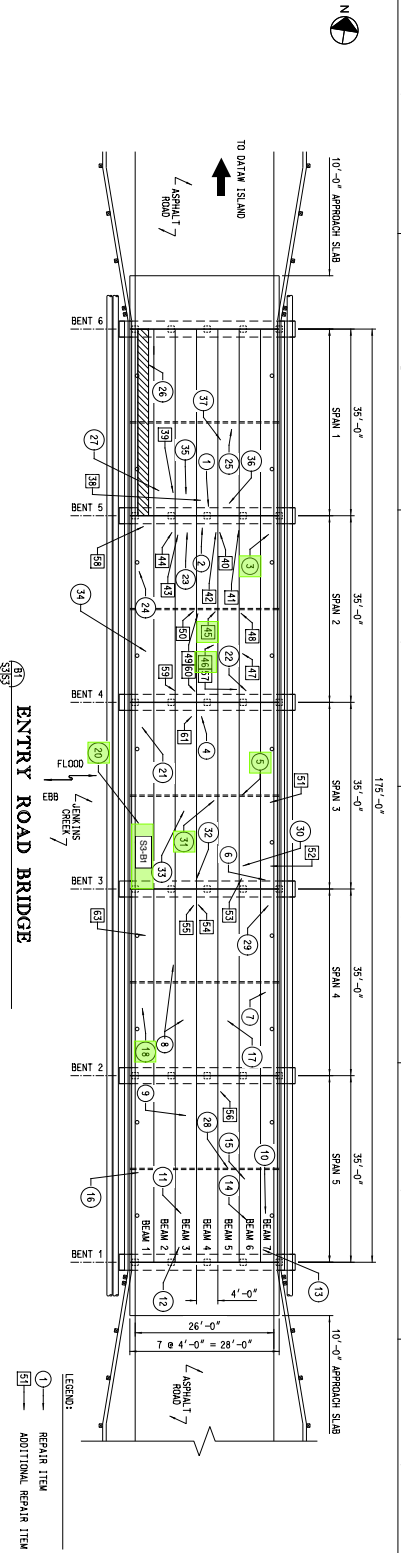
Johnson, Mirmiran & Thompson, Inc.

An Employee-Owned Company

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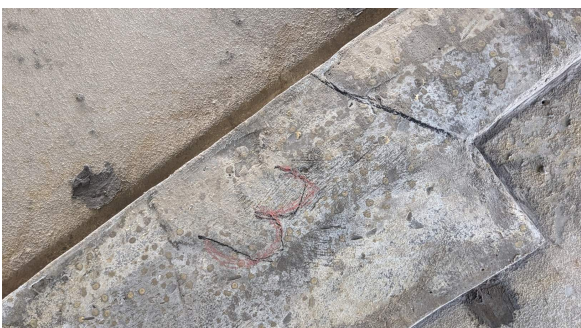


SPECIAL INSPECTION NOTES ON 2022 REPAIR ITEMS

ITEM NO.	TYPE OF DEFECT	LOCATION	DESCRIPTION OF VISIBLE DAMAGE
3	FLEXURAL CRACK	BEAM 7 - SPAN 2	1- Diagonal & Long Transverse Crack
5	FLEXURAL CRACK	BEAM 6 - SPAN 3	2- 8ft Long to Full Width Transverse Hairline Cracks w/Encroachment
18	FLEXURAL CRACK	BEAM 1 - SPAN 4	2- Full Width Transverse Hairline to 7/32" Cracks
20	FLEX CRACK/DEBRIS	BEAM 1 - SPAN 3	1- 9" Long, 1" Full Width Transverse Hairline Cracks w/Debris, 1/2"x3" Debris at East Face of Pier
31	FLEXURAL CRACK	BEAM 4 - SPAN 3	2- Full Width Transverse Hairline Cracks w/Debris
45	FLEXURAL CRACK	BEAM 4 - SPAN 2	2- Full Width Transverse Hairline Cracks w/Debris
48	FLEXURAL CRACK	BEAM 4 - SPAN 2	1- 8' Long Transverse Hairline Crack
SS-B1	FLEXURAL CRACK	BEAM 1 - SPAN 3	Previous patchwork - 6 Hairline to 1/32" Transverse Cracks - 4ft Long to Full width propagating from west face of pier. Voids, staining, & spalling.




DEFECT 5: 2-18" Long Transverse Hairline Cracks



DEFECT 3: 1-8" Long Hairline Crack

Notes
1- The location of the defect location plan is approximate.



DATAW ISLAND ENGINEERS
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PROJECT LOCATION:
100 DATAW CLUB ROAD
ST. HELENA ISLAND, SC

PROJECT NUMBER:
1340862-007

DATE: 9-19-2023

SCALE: N/A

PROJECT TITLE:
Special Inspection
9-19-2023

LOCATION AND DESCRIPTION OF DEFECTS w/PICTURES

1



DEFECT 18: 2-Full Width Transverse Hairline to 1/32" Cracks



DEFECT 20: 1-9" Long, 1 Full Width Transverse Hairline Crack w/Efflo, 12"x3" Delamination at East Face of Patch



DEFECT 31: 2-Full Width Transverse Hairline w/Efflo.



DEFECT 45: 2-Full Width Transverse Hairline w/Efflo.



DATE: _____

PREPARED FOR:
 DATAVW ISLAND OWNERS ASSOCIATION
 5441 PINEHURST BLVD., SUITE 200
 CHARLESTON, SC 29405

REVISIONS

NO.	DATE	DESCRIPTION

PROJECT:
 DATAVW DRIVE ENTRY ROAD BRIDGE

PROJECT LOCATION:
 100 DATAVW CLUB ROAD
 ST. HELENA ISLAND, SC

PROJECT NUMBER:
 1304062-007

DATE:	9-19-2023	SCALE:	N/A
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CONTRACT:
 Special Inspection 9-19-2023

CONTRACT TITLE:
 Location and Description of Defects w/Pictures

CONTRACT NUMBER:
 2

