

August 31, 2023

Mr. John M. Hoefflerle, PE, CFM
Town Engineer
Town of Branford, Connecticut
Branford, Connecticut 06405

Subject: Structural Evaluation of Trolley Bridge
Branford, Connecticut
MHAI Project No. 23-126

Dear Mr. Hoefflerle:

As requested, the staff of Michael Horton Associates, Inc. (MHAI) visited the above referenced site to perform an evaluation of the structural condition of the existing bridge and survey the individual bridge components. No destructive testing or exploratory work was performed as part of this investigation. Based on our field survey, MHAI modeled the bridge and performed an analysis of the existing components to determine if the structure had adequate capacity, to support the loading to be imposed by the proposed skid steer. The analysis was based on all structural components being in sound condition.

In summary, the outcome of our analysis was that the bridge structure would have adequate capacity to support the skid steer loading, in a sound condition, however, as you are aware, the bridge structure has experienced significant corrosion of many of the steel components due to environmental conditions. The corrosion has resulted in loss of material section, with some components completely disconnected from the adjacent members. Attached to this letter are representative photographs and a key plan identifying the components that require remedial work. In accordance with our proposal dated 06/08/2023, MHAI has not prepared the required remedial details to restore the bridge to sound condition and will perform this work as an additional service.

It is our understanding that the timber framed pedestrian walkway, that is present over the steel structure, will need to be increased in size to accommodate the skid steer. MHAI has not analyzed these timber components. The timber load capacity will need to be addressed during the design and detailing of the platform size modifications.

This concludes this report regarding the structural condition of the bridge and the results of our analysis. Should you have any questions please contact our office.

Sincerely,



Paul J. Sheehan, P.E.
Michael Horton Associates, Inc.

Attachments: Photograph Exhibits 1 through 11.

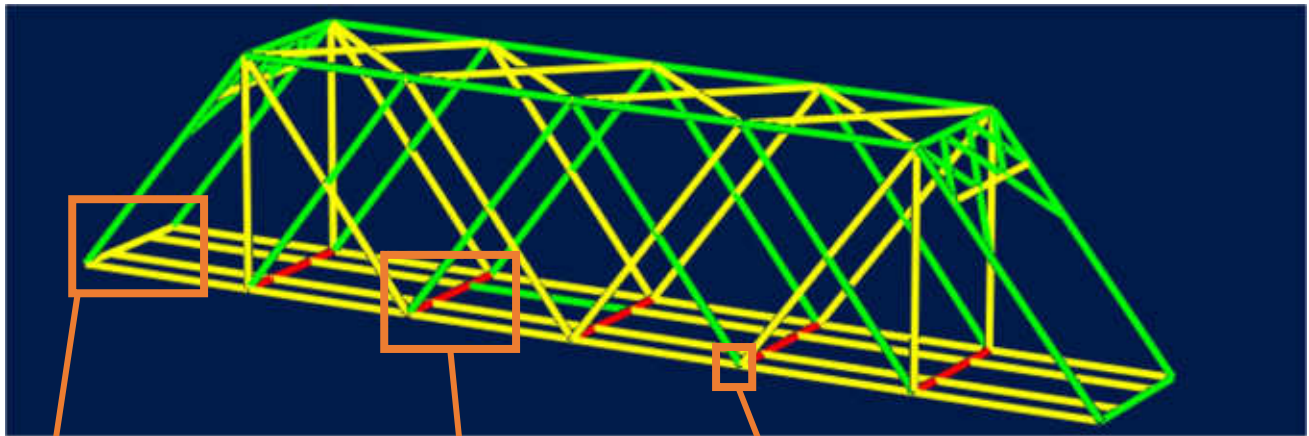
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Exhibits

Analysis Model of Bridge - Identifying Compromised Members

Green: Adequate
Yellow: Caution
Red: Failing (for deflection only)



Web Stiffener
Photos: 7

Beam Photos:
1, 2, 5, 6, 8, 9, 10

Plate Connection
Photos: 3, 4, 5

<p>Bridge Member Plan Base Platform</p>	<p>Repairs:</p> <ol style="list-style-type: none"> 1. Plate connection failure. 2. Beam-to-beam connection repair required. 3. Loss of section at web. 4. Loss of section at top flange. 5. Loss of section at bottom flange. 6. Web stiffener repair. 	
	<p>Repairs by member:</p> <p>B1: Repair 6. B2: Repair 5. B3: Repair 2 typical. B4: Repairs 4&5. B5: Repair 4. B6: Repair 2 typical. B7: Repair 2 typical. B8: No repairs required. B9: Repair 1 @ B10. Repair 2. B10: Repair 1 @ B9 & B11. B11: Repair 1 @ B10 & B12. B12: Repair 1 @ B11. B13: Repairs 1 & 5. B14: Repair 2 typical. B15: Repair 2 typical. B16: Repair 2 typical. B17: Repair 2 typical. Repair 4. B18: Repair 2 typical. Repair 4. B19: Repair 2 typical. B20: Repair 2 typical. Repairs 5&6. B21: Repair 2 typical. Repair 5. B22: Repair 2 typical. Repair 5. B23: Repair 2 typical. Repair 5. B24: Repair 2 typical. Repair 5. B25: Repair 2 typical. B26: No repairs required.</p>	<p>B27: Repair 1 @ B28. B28: Repair 1 @ B27 & B29. B29: Repair 1 @ B28. B30: Repair 1 @ B31. B31: Repair 1 @ both ends.</p> <p>Repair work at the truss web members and at the horizontal bracing between top chords of the truss, is limited to the replacement of approximately (50) - 2"x5/16"x25" plates. <i>Refer to Photograph Exhibit #11.</i></p>

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Photograph #1



Photograph #2

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Photograph #3



Photograph #4

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Photograph #5



Photograph #6

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Photograph #7



Photograph #8

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Photograph #9



Photograph #10

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Photograph #11

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