



Hawkesbury City Council

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Structural Engineer's Report Supplied  
by the Defenders of Thompson  
Square

date of meeting: 30 June 2020  
location: audio-visual link  
time: 6:30 p.m.



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**17 APRIL 2020**

**DEFENDERS OF THOMPSON SQUARE INC.**

**ATTENTION: PATRICIA SCHWARTZ**

**RE: EXISTING WINDSOR BRIDGE**

**RREPORT ON 11 MARCH 2020 INSPECTION**

Patricia,

This report presents a factual account of visual observations of the condition of the following bridge structural elements:

- Support columns
- Headstocks
- Bracing
- Deck beams and underside of slab.

These observations were made during an inspection of the underside of the bridge with Defenders of Thompson Square (DOTS) colleague, Michael Greentree and Community Action for Windsor Bridge (CAWB) representative, Harry Terry. This was on 11 March 2020. The inspection was undertaken in Mr Greentree's boat. Its purpose was to allow comparison of the bridge's current condition with that observed during the 24 and 27 April 2018 inspection undertaken with Mr Greentree. The latter was documented in my 14 August 2018 report to DOTS, and previously to CAWB on 10 June 2018.

In particular, the purpose of this report has been to ascertain whether any visible physical damage was caused to the above elements during the February 2020 flood event.

## **The Flood Event and Load Limitation**

I understand the bridge deck was inundated from about 09 to 13 February 2020. I observed the inundation on 10 February and noted the significant flow in the river and floating debris (i.e. vegetation, including tree branches and logs).

I also understand that:

- As a precautionary measure, the RMS then imposed a 15 - tonne load restriction on traffic crossing the bridge until the impact of the flood on the bridge structure had been confirmed. Note: This was on about 13 February, when the bridge deck was no longer inundated. The existing 40km/h speed limit for heavy vehicles was also maintained. I consider these measures to have been prudent, given that the impact of the flood on the bridge structure had not been established at that time
- The bridge was closed to traffic from 08 to 13 February
- The 15 - tonne restriction was lifted on 09 April, following an underwater inspection by specialist divers and an engineering assessment. However, the 40km/hr limit remains in place. (Ref: Windsor Bridge Project Team email to you dated 09 April 2020, 17:28)
- The maximum flood height was about RL 9.2m on 09 February, i.e. about 2.2m above the bridge deck level of RL 7.0m (Ref: Hawkesbury Gazette 10 February 2020). Observations by DOTS' Michael Greentree confirmed this resulted in water level reaching the underside of the new bridge's edge beam adjacent to the northern abutment (i.e. at the Wilberforce end).

## **Condition Assessment**

Representative photos taken during the inspection depicting the bridge's condition are presented in **Figs 1 - 8**, below. I have compared these with similar photos taken during the 24 and 27 April 2018 inspections and advise:

- There is no visible additional deterioration of the surfaces of the bridge structural elements referenced above
- The only visible impact of the flood I observed was the removal of several panels of the barrier fence along the bridge walkway on the downstream side and snagging of tree branches on pipework supported under the bridge deck.

There was no indication of any of the above structural elements having been adversely affected by the flood. This would have been evidenced by lateral and/or longitudinal displacement, resultant cracking of the concrete elements and deformation of the steel/cast iron elements, respectively. This is as expected, given the bridge's significant mass and structural configuration (which incorporates rigid lateral bracing) and low profile, as documented in my 2018 report.

- Accumulated debris under the bridge and along the river embankment was being removed at the time of the inspection.

As such, it is clear the flood had no visible detrimental impact on the bridge's structural elements referenced above. This is confirmed by RMS' 09 April removal of the limit restriction.

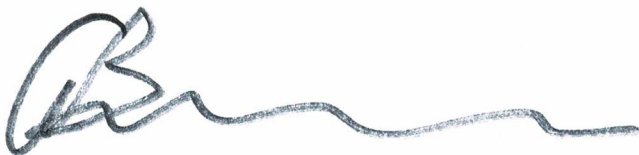
### **Conclusion**

Based on the above and given the bridge's resistance to over eighty past significant flood events without apparent damage (as documented in my 2018 report), it is clear the bridge has a very low propensity to sustain significant damage under similar future events. In this context, I define a significant event as one under which the bridge road deck is inundated. Reinstatement of corroded surfaces, as I previously recommended, will enhance the bridge's longevity and mitigate the potential for damage due to future flooding.

I will be happy to discuss the above with you and your Defenders of Thompson Square colleagues, following which I will also be happy to participate in any related discussions with State and Local Government officials, as required.

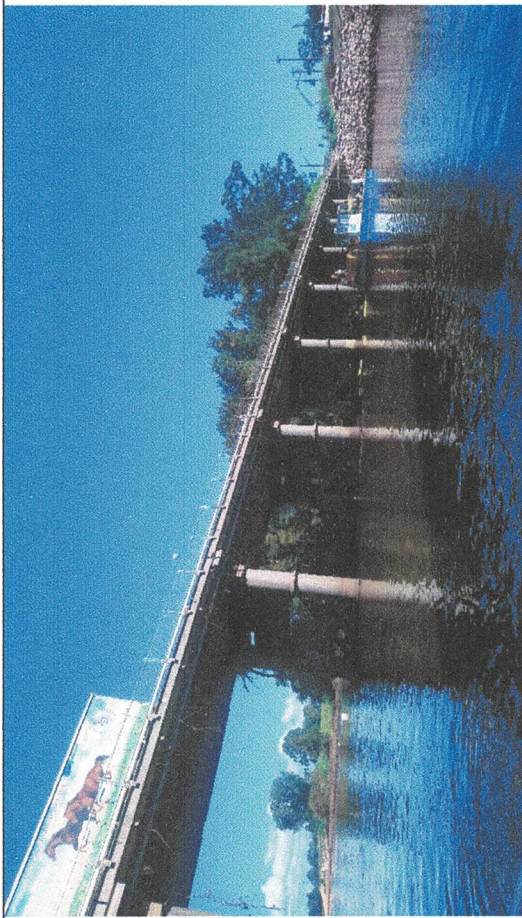
Please feel free to contact me should you require clarification of the above or further details.

Yours Sincerely,

A handwritten signature in blue ink, consisting of a stylized 'G' and 'B' followed by a long, wavy horizontal line.

GS BONCARDO

## **SITE PHOTOS**



**Fig.1 - General View Downstream of Bridge : Articulated Vehicle Crossing**



**Fig.2 - Fourth Span from Southern Abutment: Entangled Debris**



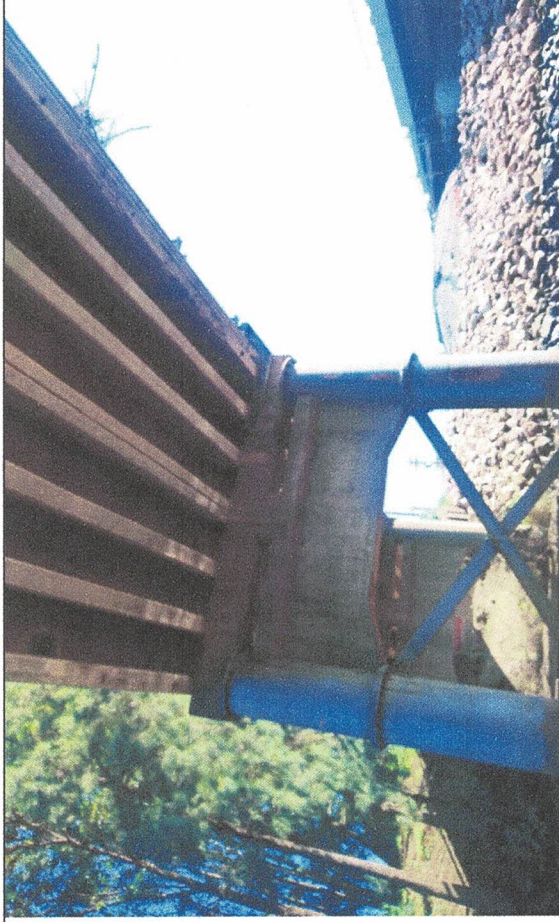
**Fig. 3 - Underside of Bridge Deck : Fourth Span from Southern Abutment**



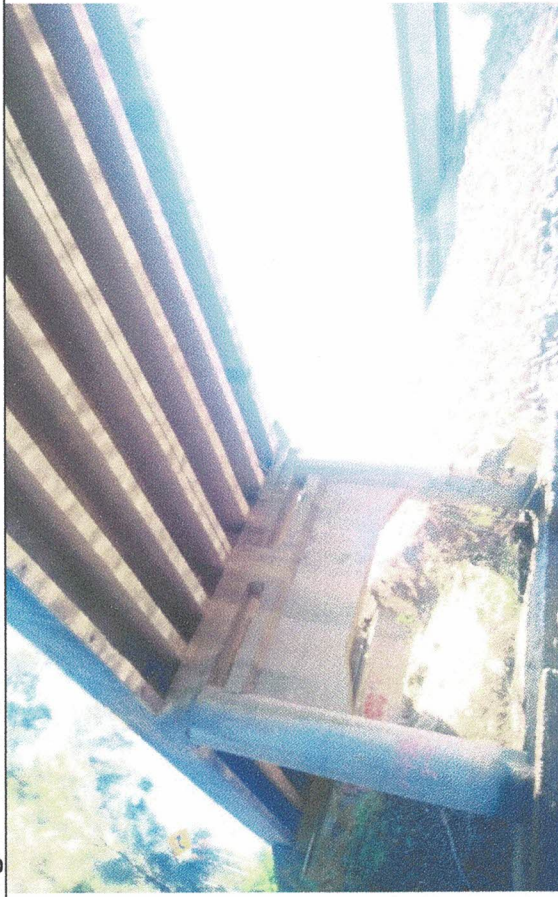
**Fig. 4 - Fourth and Fifth Spans from Southern Abutment**



**Fig. 5 – Removal of Accumulated Debris : Sothern Abutment**



**Fig. 6 - First and Second Spans from Southern Abutment**



**Fig. 7 – First and Second Spans from Northern Abutment**



**Fig. 8 - General view Downstream of Existing and New Bridge**