December 11, 2025

Phillip Wade, Building Trades Supervisor
Sooke Schools District 62
2788 Spencer Road
Victoria, BC V9B 0S3

Dear Phillip,

RE: Savory Elementary Pedestrian Bridge **RJC No. VIC.143561.0001**

Structural Assessment Report

The Sooke School District 62 (SD62) has engaged RJC to assist with structural engineering and restoration support for the Pedestrian Bridge at the Savory Elementary School (2721 Grainger Road) on the north face of the elementary school, crossing the E&N Rail Trail and old E&N rail line to Atkins Avenue. The original construction date of the pedestrian bridge is unknown, but anecdotally, it has been around for several decades. It is not known what the history of the bridge is, but it appears that several renovations likely occurred, including revised access on the Savoury Elementary side, the addition of a roof over the walkway, and revisions to the guards on each side. Our assessment is intended to be a high-level review of the bridge structure as part of SD62's ongoing maintenance of its facilities, and to provide advice on next steps for remediation.

Our assessment of the bridge included a site visit where as much of the structure as possible was reviewed without destructive investigation. At the time of the site visit, all elements of the structure were visible, except for the buried elements of the concrete footings. Access to the underside of the main span was not possible during the visit but the elements could be observed from afar. Based on this information, a summary of the building's geometry, construction materials, history, and performance is provided here, along with recommendations for next steps.

1.0 Savory Elementary – Pedestrian Bridge

1.1 Structure Summary

The pedestrian bridge at the Savory Elementary is a predominantly wood frame bridge that spans over the E&N trail and rail line to Atkins Road. The footprint is approximately 1.5m by 32.6m, with a dogleg at the north end. The majority of the span has a roof over the walking surface which is metal roofing material over conventional 2x4 sawn lumber. The spans are supported by a mixture of concrete buttress walls or heavy timber frames supported on concrete bases.

Figure 1 – Pedestrian Bridge at Savory Elementary

Record drawings are unavailable, and the original construction date is unknown; however, from our staff's memory, the bridge has been in place for several decades. It appears like there have been some renovations, including the addition of the roof over the walkway, modification of the guards on either side, and possible revisions to the access on the Savoury Elementary property. Our understanding of the structure is entirely based on what we could observe and measure on site.

1.2 Existing Gravity Load Resistance

The bridge's primary span is a pair of 127x495 beams presumed to be glulam. Paint conceals the material underneath, but given the sizing, glulam is more likely than sawn lumber. 2x6 decking with approximately 6mm gaps is laid on the flat over these beams, forming the walking surface. Above that, there are 2x4 studs at 610mm O.C., which support a shed roof above consisting of metal roofing sheets on 2x4 ponywalls and sill plates. The guard/picket system for the bridge is a 2x4 oriented vertically that runs along the face of the 2x studs at approximately 1m above the walking surface, and chainlink nailed on the outside face. The smaller spans are framed in the same way but with 150x300 sawn lumber beams instead of the larger glulam members. The beams are either directly supported on concrete buttress elements (two on the north side) or heavy timber frames on concrete pads (three on the south side). These are predominantly 8x8 headers and columns with 2x diagonal braces for lateral stability. At the south end, there is no canopy, and the material switches to metal grating over pressure-treated lumber to form a ramp, and there is a short wood frame stair. This is founded on precast concrete pads sitting on asphalt.

Based on site observations, it is believed the foundations north of the rail line are founded on rock, the two largest frames on the south side are founded on granular fill, and the small access framing ramp and stair on the south side are founded on asphalt.

Checks of the decking and primary beam sizes indicate the structural design for day-to-day use matches our modern requirements. In general, there is no concern with the beams or decking being under capacity, though we were not able to test the largest span for deterioration. Some of the 2x6 decking boards were found to be moisture-damaged and should be replaced one-for-one with new 2x6 members.

Figure 2 – Typical Guard System

For the primary structure, the most significant concern is with the guard and picket system for the walkway. The continuous 2x4 is not a suitable top rail; the 2x4 at 610 studs has insufficient strength and is not sufficiently restrained at the top, and the chainlink does not meet code requirements for pickets. Even with the exterior bracing at 1220 o.c. in some spans, it is not believed the enclosure could resist the prescribed loading from the building code for a guard rail, indicating a falling hazard within the primary walking path.

As much of the structure is intentionally sloping, it is difficult to determine if there have been settlement issues with the foundations, but they have performed satisfactorily over the life of the bridge, so are assumed to be sufficient for non-seismic loading.

Though not a structural concern the slope of the ramp on the south side is much steeper than typically seen on pedestrian walkways and appears to limit accessibility. Review by an architect or code consultant is advised if improvements to the accessibility of the bridge is desired.

1.3 Seismic Capacity

The existing lateral capacity of the bridge to resist seismic and wind loading comes either from direct connection to concrete and rock on the north end through the buttress walls, or through the diagonal members of the heavy timber frames on the south side. Although concrete pinned to rock can have a very high capacity, the connection of the glulam members to the concrete appears to be a metal bracket with two small-diameter through bolts. This does not appear to be sufficient for modern seismic requirements. Similarly, on the south side heavy timber frames can have a high capacity, but the 2x diagonal member only have a few nails at each end or a splice plate with lag bolts.

Similarly, in the middle of the largest span, sway side to side appears to be easy to create, even with occupants alone. This is believed to be because 2x6 decking on the flat is not a proper diaphragm within structural engineering. Even if replaced with something like plywood or diagonal steel bracing at each supporting pier, there is no blocking between the glulam beams to transfer diaphragm forces into the bracing below.

Overall, it does not appear that seismic design requirements were a significant part of the design of the bridge. It has withstood significant wind events throughout its life, indicating a moderate existing lateral capacity. It is believed the existing bridge is capable of resisting roughly 15% of the current Building Code required seismic forces.

1.4 Proposed Next Steps

In RJC's opinion, two main issues should be addressed if the ongoing use of this bridge in its current configuration is desired. The first and most immediate is improving the walking surface and the surrounding area to reduce the risk of a fall hazard. Please refer to the sketches in Appendix B for both the existing conditions and proposed renovations to improve conditions. To improve the falling walking surface conditions we propose:

- Remove and replace deteriorated 2x6 boards
- Remove the superstructure and re-frame with 6x6 posts, a 4x4 top rail, and code complaint pickets
- Re-frame a new roof with a plywood diaphragm. This could be trusses or site-built framing

Seismically, to improve the capacity we would recommend the following:

- Install HSS diagonal bracing between the glulam beams below the decking to form a diaphragm
- Replace each pier with a purpose-built seismic frame of HSS steel sections. This would likely require new footings but could be done one frame at a time while shoring up the remaining bridge.

RJC believe the two projects above can be done either simultaneously or in separate phases if needed.

2.0 Closing

Please get in touch with the undersigned if you have any questions.

Yours truly,

READ JONES CHRISTOFFERSEN LTD.

Aaron Post, P.Eng.
Project Engineer

AP/sd

Encl. Appendix A – Sketches

Appendix A

Design Criteria

Design Criteria

As of March 2024, renovations and new construction in Victoria must conform to the 2024 British Columbia Building Code (BCBC2024) based on the 2020 National Building Code of Canada (NBCC2020). Relevant design criteria for this building based on BCBC2024 are:

- Ground Snow Load: Ss = 1.8 kPa

  Sr = 0.3 kPa

  Floor Design Loads: Pedestrian corridors = 4.8 kPa
- Importance Factor: Ie = 1.0 Normal Importance

- Seismic Parameters:

Force Level	**Probability of exceedance**	**Sa(0.2)**	**Sa(0.5)**	**Sa(1.0)**	**Sa(2.0)**	**Sa(5.0)**	**Sa(10.0)**
Fully Code Compliant	2% in 50 Years	1.890	2.000	1.440	0.937	0.251	0.081
Level 3	5% in 50 Years	1.360	1.400	0.980	0.573	0.130	0.038
Level 2	10% in 50 Years	1.020	1.030	0.683	0.356	0.075	0.022
Level 1	Half of 5% in 50 Years	0.680	0.700	0.490	0.286	0.065	0.019

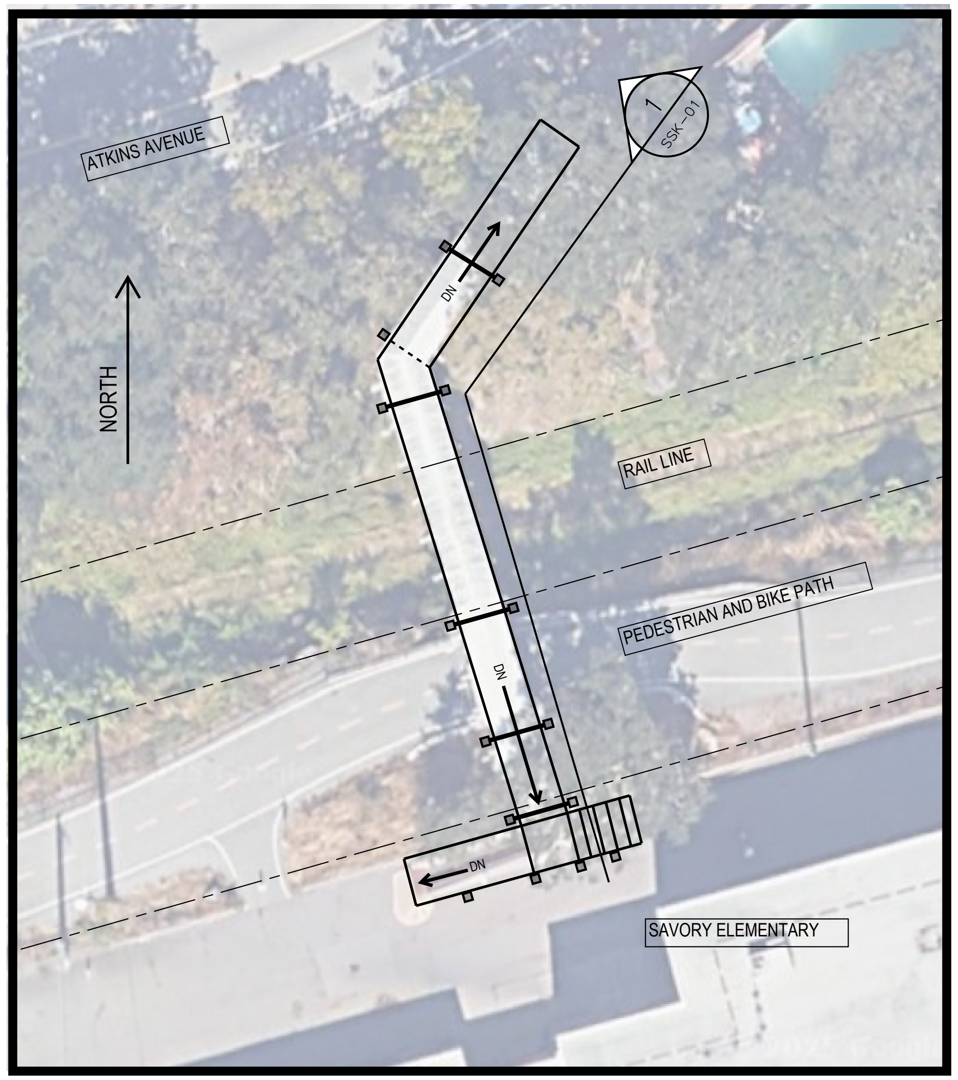
"Fully Code Complaint" force levels are defined in Part 4 of the British Columbia Building Code 2024 (BCBC2024). Level 3, Level 2, and Level 1 force levels are defined in Commentary L of the 2020 Structural Commentaries User's Guide – NBC 2015 Part 4 of Division B. Level 2 forces have been referred to as the collapse prevention threshold in previous Codes and documents.

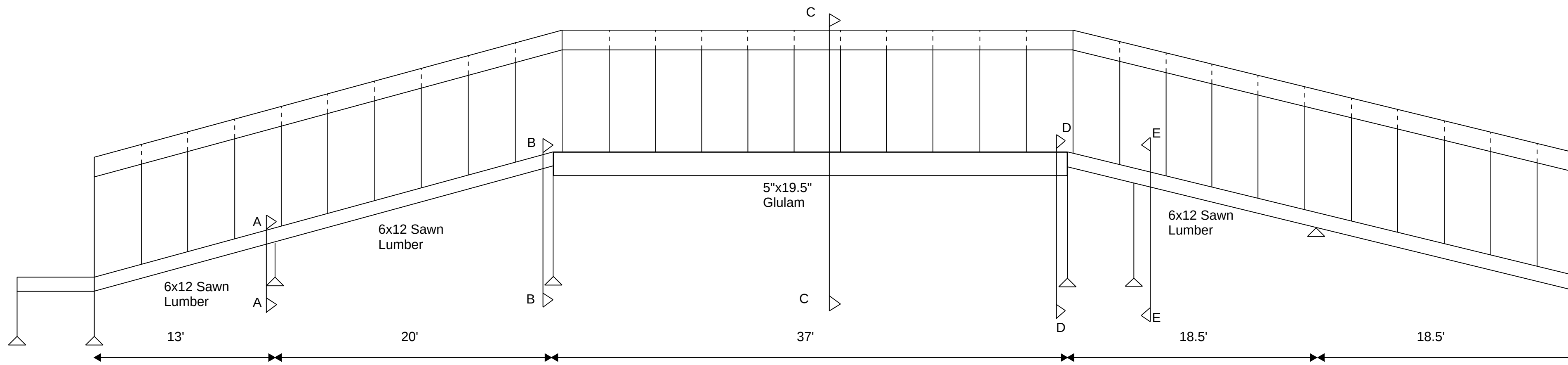
- Soil Site Class: Site Class "A" for bearing on rock

  (Assumed based on exposed rock on the north end of the span. It will need to be confirmed by a geotechnical engineer before any detailed design.)
- Wind Pressure: q50 = 0.63 kPa

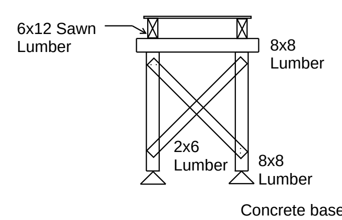
APPENDIX B

SKETCHES

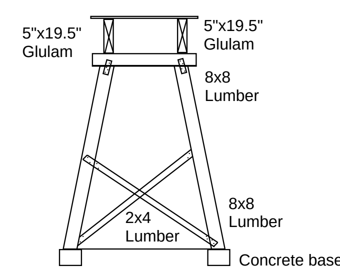




1 SSK-01 **MAIN BRIDGE SPAN**
NTS

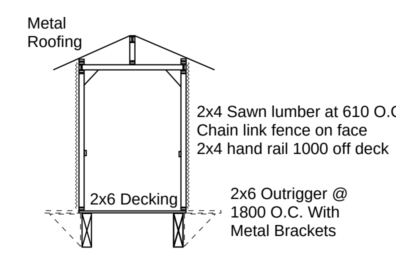


A SSK-01 **SUPPORT FRAME**
NTS

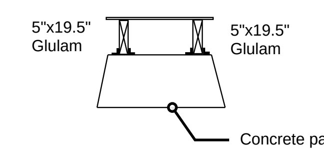


B SSK-01 **SUPPORT FRAME**
NTS

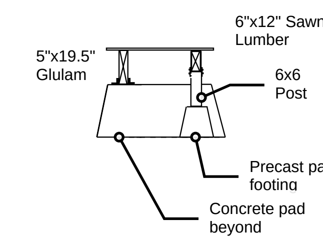
Super structure omitted for clarity on sections A,B,D,E



C SSK-01 **TYPICAL SPAN**
NTS



D SSK-01 **SUPPORT**
NTS



E SSK-01 **SUPPORT**
NTS

PRIMARY STRUCTURAL CONCERNS WITH THE EXISTING BRIDGE

1. UPGRADE THE SUPER STRUCTURE OF THE PRIMARY SPAN TO BE A FULLY CODE COMPLIANT GUARD RAIL SYSTEM.

2. REMEDIATE DETERIORATED ELEMENTS, PRIMARILY THE DECKING OF THE MAIN SPAN.

3. IMPROVE THE OVER SEISMIC SAFETY OF THE STRUCTURE.

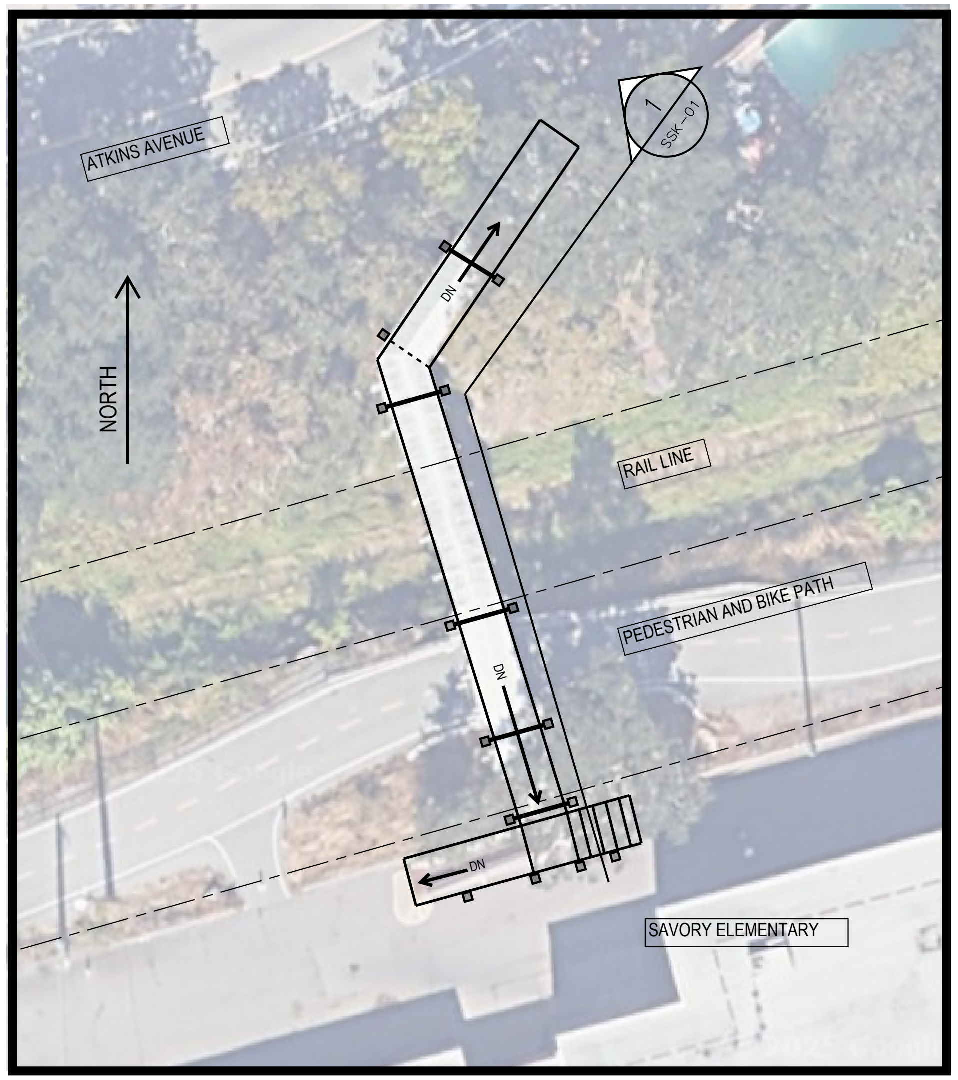
NOT A STRUCTURAL CONCERN THE BRIDGE APPEARS TO HAVE ISSUES WITH ACCESSIBILITY WITH THE STEEP ANGLE OF SOME OF THE RAMPS. CODE COMPLIANCE REVIEW BY AN ARCHITECT IS RECOMMENDED.

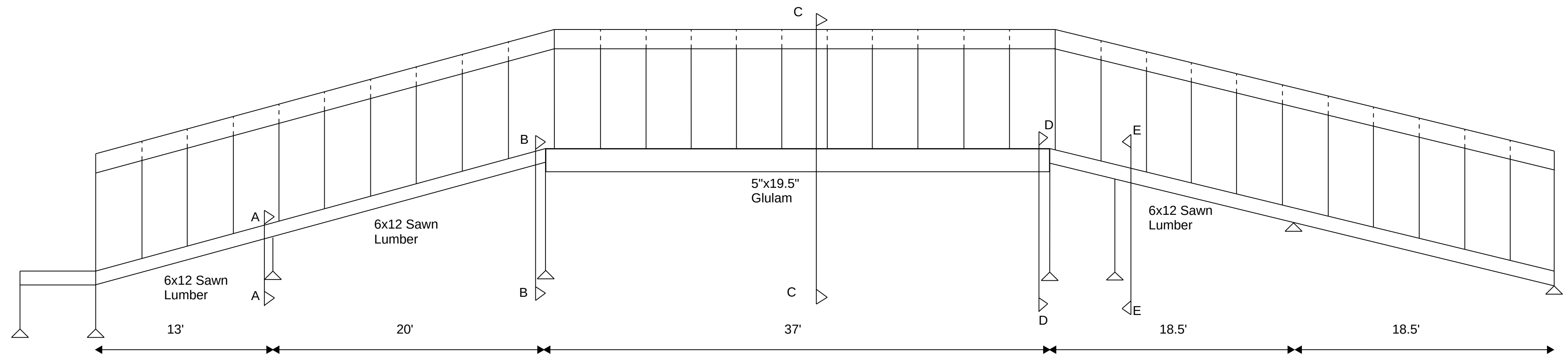
rjc
Engineers

Project Name
Savory Elementary School - Pedestrian Bridge

Sketch Title
Existing Conditions

Dwg. Ref.	**N/A**
Scale	**AS NOTED**
Date	**2025/12/09**
Project No.	**VIC.143561.0001**
Sketch Number	**SSK-01**
Rev.	**00**

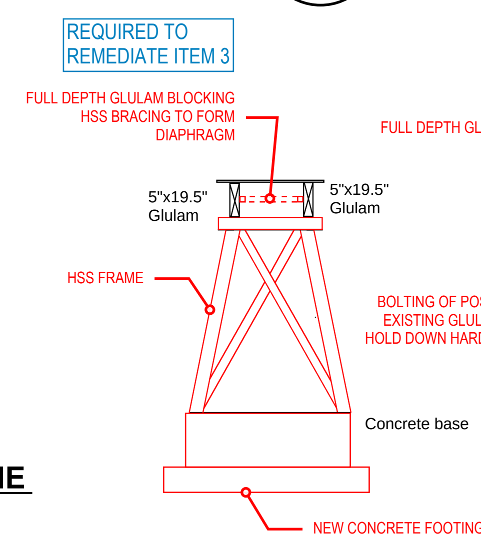




1 SSK−02 MAIN BRIDGE SPAN
NTS

SEE DETAIL B

A SSK−02 SUPPORT FRAME
NTS



B SSK−02 SUPPORT FRAME
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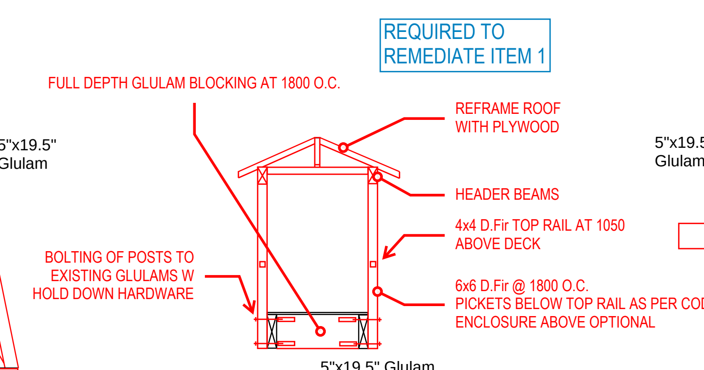

C SSK−02 TYPICAL SPAN
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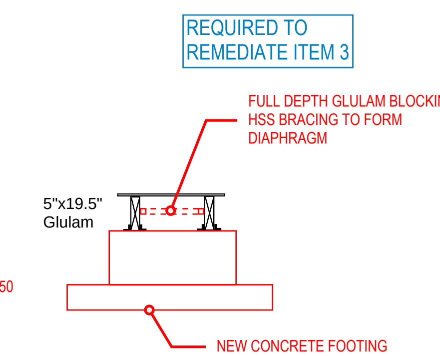

D SSK−02 SUPPORT
NTS

SEE DETAIL D

E SSK−02 SUPPORT
NTS

Super structure omitted for clarity on sections A,B,D,E

PRIMARY STRUCTURAL CONCERNS WITH THE EXISTING BRIDGE

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rjc Engineers

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Savory Elementary School - Pedestrian Bridge	Scale	**AS NOTED**	
	Date	**2025/12/09**	
Sketch Title	Project No.	**VIC.143561.0001**	
RECOMMENDED UPGRADES	Sketch Number		Rev.
	SSK-02		**00**