STAFF REPORT

To:	Council
From:	Adam Dedrick, Director of Recreation & Parks
Approved by:	Warren MacLeod, Chief Administrative Officer
Date:	March 31, 2026
Subject:	Jordan River Bridge Design Build RFP Award

Origin

Advertising for the Jordan River Bridge Replacement Design Build Request for Proposals closed on March 12, 2026, and all submissions were evaluated as per the RFP requirements. As per the RFP, the Notice of Selection date is April 1, 2026.

Recommendation

THAT, Council of the Municipality of the District of Shelburne issue an intent to award letter for the Jordan River Bridge Replacement Design Build RFP to Timber Restoration Services for the submitted proposal bid price of $3,094,000 plus HST subject to the provision of contract security, proof of insurance, and the required budgetary adjustment to accommodate the bid price.

AND

THAT, Council of the Municipality of the District of Shelburne approve an additional contribution of $10,821 for the Jordan River Trail Bridge rehabilitation project to be taken from the Canada Community Building Fund (Gas Tax) Reserve.

Background

The Jordan River Trail bridge is over 100 years old and requires substantial repairs for long-term rehabilitation and to accommodate both pedestrians and off highway vehicles. The bridge is located on the Jordan River Trail (2.5 km) in the Jordan Falls area, which the Municipality has a Letter of Authority from the N.S. Department of Natural Resources & Renewal to construct, maintain and operate the trail as a multi-use and motorized recreational trail.

To support the Municipality in undertaking a design-build contract for the long-term rehabilitation of the Jordan River Trail bridge, Design Point Engineering & Surveying Limited was hired for owner's engineering services. They have prepared the RFP tender package and provided engineering consulting services throughout the procurement process and will continue to do so through all the remaining phases of the implementation of the project.

The Jordan River Bridge Replacement Design Build Request for Proposals tender was advertised from January 29, 2026, to March 12, 2026. Proposals were sought from a qualified team to carry out the demolition, design, and construction of a new bridge that could be achieved by one of

two potential approaches to achieve a 75-year design life, with a design and construction budget of $2,900,000 (including tax based on the Municipality's HST rebate).

Option 1 – Rehabilitation of the substructure with a new superstructure, which includes the complete rehabilitation of the piers and abutments and the construction of a new multi-spanned bridge supported by the piers.

Option 2 – Removal and replacement, which includes the complete removal of the existing bridge superstructure, piers, abutments and associated foundations, coupled with construction of two new concrete abutments supporting anew clear-span superstructure.

Balancing functional performance, durability, and cost efficiency will be the primary goals for the Design-Build team. The Municipality's primary focus is on delivering a safe, long-lasting, and cost-effective structure that serves the existing and future needs of trail users.

The following key design objectives are to be addressed through the design and construction process:

1. The new bridge is intended to be multi-functional, serving pedestrians, cyclists, and off highway vehicle traffic.
2. The structural design shall account for existing site conditions, including the river's hydraulic and geotechnical characteristics.

The successful proponent will be responsible for all work associated with the selected option including the following: project design and engineering, permitting and regulatory compliance, removal, rehabilitation and site preparation, construction, schedule and coordination, environmental protection, quality assurance, monitoring and reporting, and substantial completion and takeover.

The design and construction of the new bridge have a schedule of work starting in April 2026 with a final completion date of December 31, 2026. This includes completion of all work, including correction of deficiencies, submission of record drawings, warranties, test results, and final documentation, to the satisfaction of the Municipality.

Discussion

Proposals were evaluated and scored by an evaluation committee that consisted of representatives from the Municipality, Design Point Engineering (Owner's Engineer), Department of Natural Resources & Renewals (DNRR), and the Province of Nova Scotia (Infrastructure Trail Funding Program).

As per the RFP, proposals were scored according to a weighted evaluation criteria that included General Proposal Requirements (5%), Design-Build Team Experience and Qualifications (25%), Project Approach and Methodology (15%), and Bid Price (55%).

The following three proponents submitted proposals:

1. Timber Restoration Services
2. EllisDon Corporation
3. JULMAC Contracting Limited

All three met the requirements for project timeline, 75-year design life and warranties. Interviews were held with Timber Restoration Services and JULMAC Contracting Limited. The following outlines each proposal and summaries of their evaluations.

Proponent: Timber Restoration Services

Proposal for Option 1 (Rehabilitation of Substructure, New Superstructure).
Working with subconsultants Wood Research and Development Limited and CDSM Atlantic (Commercial Diving and Marine Services).
Bid price: $3,094,000 plus HST

This proposal includes the structural design of a new three span superstructure, and restoration design of the existing substructure. It includes raising the abutments and piers using timber bearing seats and removing the masonry blocks, so no pointing would be required. It also includes restoring the east abutment concrete jacket using concrete with an embossed finish rather than masonry blocks.

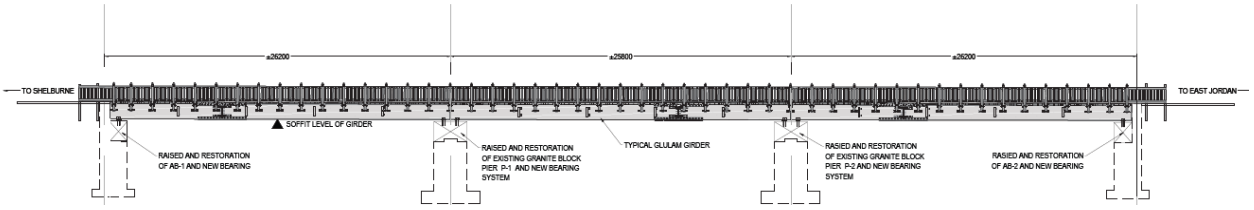
The bridge will be treated for a 75-year design lifetime, which provides for very little concern about degradation of these treated elements. The coatings proposed for the timber elements are low-solids stains, which are breathable and do not flake or peel. This allows for straightforward maintenance, with reapplication anticipated at approximately 10-year intervals where required. Most of the maintenance requirements would be for debris removal and re-staining of the rail system. Typically, regular maintenance costs are less than those of other bridges, such as steel bridges, which are prone to rust and require sand blasting and repainting in regular intervals along coastlines in locations similar to the Jordan River location. No such requirement exists for pre-machined, pre-assembled, post-pressure-treated bridges.

Three reference projects were provided, including two trail bridge projects. The references highlight the advantages of wood construction, including shop-fabricated elements and associated quality control, the project team appears to be exceptional in the design and construction of superstructure elements. However, demonstrated experience in substructure rehabilitation is limited.

Overall
The proposal presents an aesthetically pleasing solution. With appropriate detailing and finishing, the timber structure has the potential to serve as a signature feature within the surrounding area. A key strength of the proposal is the inclusion of substructure rehabilitation, supported by a specialized diving subcontractor. The incorporation of underwater inspection places value on critical existing components, including abutments, piers, and foundations.

However, the proposed project approach carries a relatively high level of risk. The full structural re-use of the existing piers is contingent on subsurface and underwater conditions that remain largely unknown until the underwater inspections are completed. This creates the potential for significant unforeseen deficiencies requiring additional rehabilitation measures beyond those currently contemplated. In addition, reliance on in-water work introduces scheduling risks associated with environmental restrictions, weather limitations, and permitting requirements, all of which may adversely impact construction timelines and overall project delivery.

Timber Restoration proposed bridge drawing:



Reference photos of a similar bridge design:

Proponent: EllisDon Corporation

Proposal for Option 1 (Rehabilitation of Substructure, New Superstructure).
Working with subconsultants CGCL Limited and Entuitive (Engineering Firm).
Bid price: $4,437,395 plus HST

Proposal included the rehabilitation, repair, and extension of the existing granite block masonry abutments and piers, complete removal of existing superstructure, and construction of a new three-span superstructure.

The existing substructure, with rehabilitation, has the capacity to carry the proposed new superstructure with an extended service life of 75 years. Based on preliminary coastal analysis, the low point of the existing bridge will need to be raised to meet future climate change conditions. The proposed superstructure attempts to minimize the depth of the flooring system, thereby reducing the probability of changing the deck/approach grade elevations.

The new bridge will be constructed on the same horizontal alignment, with the existing plate girder superstructure being replaced with a three-span, steel panel bridge. As the existing piers and abutments will remain in place, each new span will have the same length as the existing spans. The masonry substructure elements will be encapsulated in concrete, and have concrete cast overtop of the current bearing seats to raise the bridge soffit to maintain the trail grade.

The design methodology is intended to allow for a durable, cost-effective and easily constructable solution, while minimizing water works and disturbance to environmentally sensitive features. By aligning investigation findings, structural details, and erection strategy early in the design phase, the proposed methodology supports staged construction, efficient delivery, and controls risk under a design-build framework.

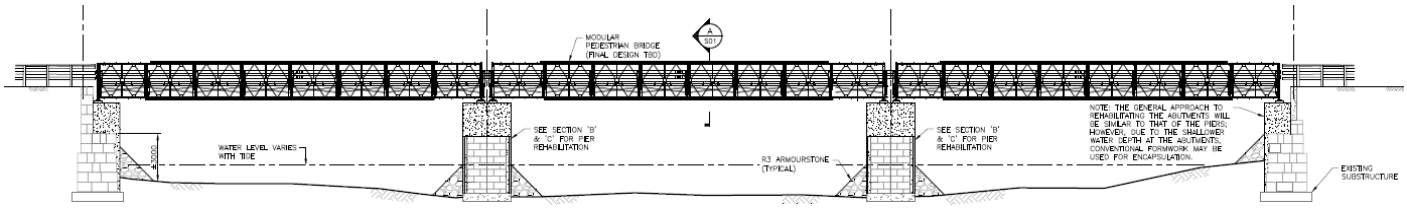
In their proposal EllisDon demonstrated extensive experience in trail bridge construction and rehabilitation, including rehabilitation of decommissioned railway bridges in Nova Scotia. Relevance of each reference project to the current project is clearly defined, including in-water work, rehabilitation of masonry piers, and coastal considerations.

Overall
EllisDon provided a proposal document that was thorough and very well organized. The project team is clearly defined, and all relevant sub-contractors are identified. Proposed project schedule is defined with key milestone dates. This is a very strong technical proposal with a complete understanding of the project objectives and constraints being demonstrated. Risk management is clearly prioritized.

The proposal demonstrated a strong understanding of the project's objectives and constraints. Detailed rationale is provided to support the proponent's method in relation to the site constraints and schedule requirements. Consideration is given to minimize in-water works and regulatory risk in selection of proposed methodology. Detailed description of investigations and risk mitigation methods are provided, especially relating to the condition and capacity of the existing masonry substructure. A very detailed schedule is provided, supported by a thorough quality control program.

The proposal presents a lower regulatory risk and reduces the potential for extended agency review or additional approval requirements that could affect the construction start date. Replacing only the superstructure while repairing the existing abutments and piers also represents the most cost-effective solution, leveraging sound existing infrastructure while delivering the same level of functionality as a fully new bridge. This approach also allows for the preservation of select original and historically significant elements of the bridge, extending its service life while minimizing unnecessary environmental, construction, and cost impacts.

EllisDon proposed bridge drawing:



Proponent: Julmac Contracting Limited

Proposal for Option 1 (Rehabilitation of Substructure, New Superstructure).
Working with subconsultant KMG Engineering Corporation.
Bid price: $4,036,450 plus HST

Julmac's construction strategy entails minimizing the footprint of new construction activities by building a new caisson and cap-beam support immediately behind each of the existing abutments. This will permit concurrent demolition, and new substructure works to occur thereby reducing the potential risks to schedule. The existing piers will be built up to provide deflection control for the proposed new single span structure. Given that there will be no new in-water construction and all new construction will be accessed from the existing right-of-way, the requirement for environmental controls will be limited to standard silt fence where required.

Julmac's approach to the Jordan River replacement is one that minimizes risk to the overall project delivery schedule while respecting the available budget to execute the work. Julmac will not require any in-water works permitting as there will be no intervention to the existing bridge substructure beyond some above-water heritage stone repointing. The existing bridge will be demolished utilizing Julmac's owned barge/marine fleet.

When it comes to bridge maintenance, a reasonable inspection frequency for a single span pedestrian/OHV bridge would be every three to five years. In general terms pressure treated wood generally lasts 30 to 40 years in outdoor applications. The expectation would be one replacement of the wood deck within the bridge's 75 year design life. JULMAC is proposing a weathering steel structure which will require no surface treatment for the duration of the stucture's design life.

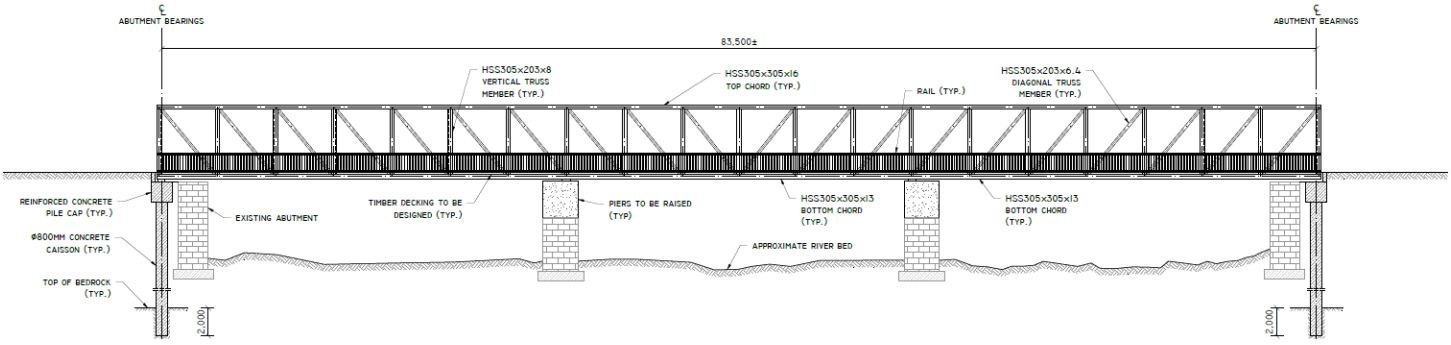
Proponent is proposing a creative approach that minimizes risk to the overall schedule by maintaining the existing piers for deflection control. An understanding of the project objectives and constraints is clear. Ultimately, the proponent is providing a new clear-span steel superstructure on new caisson and cap beam foundations. No in-water work is required. Masonry re-pointing is limited to areas above water level (no in-water work permit). Concerns remain regarding the long-term durability of the existing piers and abutments if only minimal rehabilitation measures are undertaken.

Julmac provided four reference projects; all related to the structural rehabilitation of existing bridges. The proponent demonstrates extensive experience in bridge rehabilitation across Canada, with a broad range of expertise encompassing both structural and environmental components on complex rehabilitation projects. Reference projects do not demonstrate experience in rehabilitation of masonry piers or rehabilitation of piers/abutments at or below water level.

Overall

Julmac's proposal presents a robust and straightforward solution that satisfies the municipality's requirements and carries a relatively low level of implementation risk. However, the proposal does not adequately address structural rehabilitation of the existing substructure. With little value placed on the existing substructure, this approach may result in increased future capital costs for the municipality.

Julmac proposed bridge drawing:



Evaluation Scoring Results

Category	Maximum Score	Timber Restoration Services VE Option	EllisDon Corporation	Julmac Contracting Limited
		$3,094,000 plus HST	$4,437,395 plus HST	$4,036,450 plus HST
General Proposal Requirements	5	4	4.5	4.75
Experience and Qualifications	25	20.25	24.75	22.25
Project Approach and Methodology	15	9.25	15	12
Price	55	55	38	42
Total	100	88.5	82.25	81.5

Each proposal was evaluated and scored for five categories with all scores being averaged to determine the total scores. The lowest bid price received the maximum points allocated for price evaluation while all other proposals received a proportionate score based on their cost relationship to the lowest compliant proposal.

All three proposals provided acceptable solutions for the long-term rehabilitation of the Jordan River Trail Bridge, each with advantages and various levels of risk.

The proposal from EllisDon offers a three span steel bridge with substructure rehabilitation. They provided a thorough and strong technical proposal, and of all the proponents have the most experience with substructure rehabilitation, trail bridge design and construction. Low risk, highest bid.

The proposal from Julmac offers a single-span steel bridge by building a new beam support behind each of the existing abutments with the existing piers being built up with no underwater substructure rehabilitation. It's a creative solution with no inwater work so no water permitting required and it ensures a more achievable schedule. However, it does not adequately address structural rehabilitation of the existing substructure. Low risk, second highest bid.

The proposal from Timber Restoration Services offers a timber bridge with substructure rehabilitation of both piers and abutments. It presents an aesthetically pleasing solution and with appropriate detailing and finishing, the timber structure has the potential to serve as a signature feature within the surrounding area. The incorporation of an underwater inspection of the substructures places value on critical existing components, including abutments, piers, and foundations, however, there could be significant unforeseen deficiencies requiring additional rehabilitation measures beyond those currently contemplated based on the inspection. Their proposal demonstrates the advantages with wood construction and maintenance, and they have lots of experience with timber bridges but limited experience with substructure rehabilitation. Relatively high risk, lowest bid.

As a result of the evaluations and scoring, it is recommended that the Jordan River Bridge Replacement Design Build RFP be awarded to Timber Restoration Services. Their proposal does carry a relatively high level of risk, mainly associated with the unknown status of the substructures, but it is achievable. Also, they have the lowest bid price which can be covered by the total secured funding while the other two proponents' bids were well over the construction budget, each by more than over $1,000,000 and higher. However, this comes with a level of risk as well, being that the secured funding covers 100% of the project costs with no contingency.

Budget Implications
The Municipality gets an HST rebate so all costing numbers below that include HST reflect the rebate.

The original budget for the Jordan River Trail Bridge rehabilitation project was based on secured funding at the time, which totaled $3,000,000. This represented funding secured from the Municipality at $525,000, ACOA at $642,610, and the Province of NS (Trail Expansion Program) at $1,832,390. After deducting the owner's engineering costs of $97,470 (including HST), it leaves $2,902,530 for design and construction.

The cost for the recommended proposal is a total of $3,213,348 ($3,094,000 plus HST). This plus the owner's engineering costs are a total of $3,310,818 which exceeds the project budget by $310,818. To cover the additional costs, an additional $10,818 from the CCBF Reserve (Gas Tax) is being requested from the Municipality and $300,000 has been requested from the Off Highway Vehicle Fund Program.

$3,310,818	**Total Project Costs**
$97,470	Owner's Engineer – Design Point Engineering
$3,213,348	Bridge Design & Construction – Timber Restoration Proposal

$3,000,000	**Secured Funding**
$525,000	Municipality of Shelburne (Gas Tax)
$1,832,390	Province of Nova Scotia (Trails Expansion Program)
$642,610	ACOA

$310,818	**Pending Funding**
$10,818	Municipality of Shelburne (Gas Tax) – requested, pending approval
$300,000	Off Highway Vehicle Fund – requested, pending approval

Alternatives
-Not award the RFP. Not recommended as the highest scored proposal is achievable if additional funding is secured and it is highly unlikely to obtain more than that amount. Also, to move forward with the project would delay the rehabilitation of the bridge for an unknown time period, if not indefinitely.

Attachments
-Jordan River Bridge Replacement Design Build RFP

MUNICIPALITY OF THE DISTRICT OF SHELBURNE

REQUEST FOR PROPOSALS
Engineering Design-Build Services
Jordan River Bridge Replacement Design-Build

Proposals will be received no later than:
3:00pm LOCAL TIME (AST)
MARCH 12, 2026

Proposals shall be submitted exclusively via email to:
Adam Dedrick, adam.dedrick@municipalityofshelburne.ca

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1.0 INTRODUCTION

The Municipality of the District of Shelburne (the "Municipality") is seeking the services of a qualified team to carry out the demolition, design, and construction of a new bridge spanning the Jordan River, located along the Shelburne County Rail Trail in Shelburne, Nova Scotia.

1.1 Project Context

The Jordan River Trail Bridge is a former rail bridge located along the approximately 2.5 km Jordan River Trail in the Jordan Falls area of Shelburne, Nova Scotia. The bridge is approximately 76.9 meters in length and is over 100 years old. The Municipality holds a Letter of Authority from the Nova Scotia Department of Natural Resources and Renewables to construct, maintain, and operate the trail as a multi-use and motorized recreational route, including the bridge.

The existing bridge is a three-span riveted plate girder structure supported by two granite block masonry piers within the Jordan River and granite block masonry abutments at each end. The structure has reached the end of its service life and requires significant intervention to address structural and functional deficiencies.

The Municipality intends to proceed with a design-build procurement to address the future of the Jordan River Trail Bridge and is seeking proposals for one of two potential approaches:

- **Option 1 – Rehabilitation of Substructure, New Superstructure:**
  - Rehabilitation, repair, and extension of the existing granite block masonry abutments, piers and associated foundations for each, coupled with the removal of the existing superstructure and construction of a new three-span bridge superstructure supported by the existing piers.
- **Option 2 – Removal and Replacement:**
  - Complete removal of the existing bridge superstructure, abutments and associated foundations, coupled with construction of two new concrete abutments supporting a new clear-span superstructure. Extent of removal is to include the two existing in-water piers and their foundations. Pricing for the removal of the piers is to be separated such that the Municipality can evaluate the possibility of retaining the existing piers below a new clear-span structure.

Under either option, the replacement bridge must accommodate pedestrians, cyclists, and off-highway vehicles and meet all applicable design, safety, and durability requirements. The Design-Build Proponent will be responsible for developing a technically sound, code-compliant, and cost-effective solution consistent with the Municipality's objectives and the constraints of the site.

Proponents may submit a proposal for either Option 1 or Option 2, or both, as clearly identified in their submission. Each option shall be priced separately by the Proponent; evaluation of Option 1 and/or Option 2 will be completed independently by the Municipality.

2.0 WORK DESCRIPTION

2.1 Owners Statement of Requirements & Scope of Work

The Design-Build Proponent (the "Proponent") shall be responsible for the complete design and construction of the Jordan River Trail Bridge works, including the safe modification, rehabilitation, and/or removal of existing structures in accordance with the selected option. All work shall be carried out in compliance with applicable codes, standards, and regulatory requirements and be in alignment with the Municipality's project intent and objectives.

This RFP considers two potential design-build approaches, to be developed and priced by Proponents:

- Option 1 – Rehabilitation of Substructure, New Superstructure:
    - Rehabilitation, repair, and extension of the existing granite block masonry abutments and piers, complete removal of existing superstructure, and construction of a new three-span superstructure
- Option 2 – Removal and Replacement:
    - Complete removal of the existing superstructure, abutments, and piers. Construction of two new concrete abutments supporting a new clear-span superstructure. Costing for the removal of the piers (including foundations) is to be separated by the Proponent, such that the Municipality can evaluate the feasibility of keeping the decommissioned piers in place.

The Proponent shall be responsible for all work associated with the selected option, including (but not limited to) the following:

1. Project Design and Engineering
    a. Detailed design of the proposed bridge solution in compliance with applicable CSA bridge standards and relevant provincial design codes including but not limited to CSA S6-25 Canadian Highway Bridge Design Code and Standards and Guidelines for the Construction of OHV Trail Bridges on Crown Land by the Nova Scotia Department of Natural Resources.
    b. Development of a design that accommodates pedestrians, cyclists, and off-highway vehicles.

c. Preparation and submission of all required engineering drawings and, design calculations, for review by the Municipality and its representatives. Design submissions shall be made at the following stages:
    i. Preliminary Design Submission (33%) – Including proposed bridge concept drawings.
    ii. Issued for Review (66%) – Incorporating design development and allowing for Municipal review and comment.
    iii. Issued for Review (99%) – Pre-construction submission.
    iv. Issued for Construction (IFC) – Following final approval by the Municipality.
d. Engagement of qualified professional engineers licensed in Nova Scotia for all structural, civil, and geotechnical design components.
e. Confirmation through inspection, analysis, and design that all rehabilitated or new substructure elements meet code-required strength and serviceability criteria.

Each review stage shall allow up to two (2) weeks for internal review and comment. Review durations are estimates only and shall not form the basis for claims unless delays exceed reasonable review periods and clearly impact the critical path of the project.

2. Permitting and Regulatory Compliance
    a. Preparation and submission of all required permits, including environmental approvals and watercourse alteration permits (if required), as applicable to the selected option.
    b. Compliance with provincial and federal environmental protection requirements, including erosion and sediment control, spill prevention, and in-water work restrictions.
    c. Coordination with regulatory authorities and submission of approved permits to the Municipality prior to construction.
3. Removal, Rehabilitation, and Site Preparation
    a. Development and implementation of a detailed demolition and/or rehabilitation plan appropriate to the selected option, including:
        i. Removal of the existing bridge superstructure; rehabilitation of existing substructure elements, including repointing and repair of granite block masonry; extension of the existing abutments and piers; and completion of all required substructure foundation repairs (Option 1) **OR**
        ii. Removal of the existing bridge superstructure, abutments, piers and pier foundations. Proponents shall be aware all elements of existing pier foundations must be fully removed from the waterway. (Option 2)

b. Management and disposal of all demolition materials in accordance with environmental and safety regulations.
c. Provision of all temporary works, access systems, and staging areas required to complete the Work while minimizing impacts to the river and surrounding natural areas.
d. Where cofferdams or other temporary water exclusion systems are required, the Proponent shall be responsible for the design, installation, maintenance, and removal of such systems.

4. Construction
   a. Supply all labour, materials, equipment, supervision, and ancillary services required for the full execution and completion of the Work, including all testing, inspection, and verification activities.
   b. Construction of substructure elements (rehabilitated or new, as applicable within Option 1 or Option 2) in accordance with approved designs and geotechnical recommendations.
   c. Construction and erection of the new bridge superstructure in accordance with the approved design.
   d. Coordination of all associated site works, including earthworks, grading, drainage, and trail connections.
   e. Implementation of quality assurance and quality control programs to verify compliance with the Contract Documents.
   f. Provision of record (as-built) drawings and documentation upon completion of the Work.
   g. Maintenance of site safety in accordance with the Nova Scotia Occupational Health and Safety Act and applicable regulations.
5. Schedule and Coordination
   a. Anticipated commencement of construction activities in May 2026, with substantial completion targeted by December 23, 2026, subject to final design approach and permitting.
   b. Submission of a detailed baseline project schedule identifying key milestones, sequencing, and critical path activities for Municipal approval.
   c. Regular coordination and progress meetings with the Municipality's Project Manager.
6. Environmental Protection
   a. Installation and maintenance of erosion and sediment control measures for the duration of the Work.

b. Preparation and implementation of an Environmental Management Plan addressing water quality, vegetation protection, and wildlife considerations.
c. Restoration of all disturbed areas to original or improved condition upon completion.
d. Preparation and implementation of a plan for the removal of structural steel with lead-based coatings in accordance with all applicable Provincial regulations, including containment, handling, transportation, and off-site control measures once the material leaves the site. All handling, transportation, and disposal fees associated with lead-affected materials shall be included.

7. Quality Assurance, Monitoring, and Reporting
    a. Maintenance of weekly construction records and submission of weekly progress reports.
    b. Prompt notification to the Municipality of any proposed design changes, site conditions, or deviations from approved documents.
    c. Participation in site inspections and technical review meetings as required.
8. Substantial Completion and Takeover
    a. Completion of all Work and site cleanup to the satisfaction of the Municipality.
    b. Submission of final as-built drawings, inspection records, test results, and warranties.
    c. Participation in a final inspection and handover meeting, and correction of all deficiencies identified in the final deficiency list.

2.2 Bridge Design Objectives

The importance of the Jordan River Trail Bridge to the overall function and experience of the Jordan River Trail is significant. Situated within a scenic section of the Shelburne County Rail Trail, the bridge serves as a key connection point for trail users. Balancing functional performance, durability, and cost efficiency will be the primary goals for the Design-Build team. Aesthetic considerations are secondary, as the Municipality's primary focus is on delivering a safe, long-lasting, and cost-effective structure that serves the existing and future needs of trail users.

The Municipality has identified the following key design objectives to be addressed through the design and construction process:

- The new bridge is intended to be multi-functional, serving pedestrians, cyclists, and off-highway vehicle traffic.
- The structural design shall account for existing site conditions, including the river's hydraulic and geotechnical characteristics.

2.3 Design & Construction Timeline

The Municipality anticipates that the Work will be carried out in accordance with the general design and construction timeline outlined below. The following dates are provided for planning purposes only and remain subject to change. Proponents shall incorporate this timeline into their Proposal and identify any assumptions or constraints affecting the schedule.

Milestone	Date	Details
Project Kick-Off Meeting	April 2026	• Formal start-up meeting between the Municipality, the Accepted Proponent, and the Project Manager to discuss project objectives, communication protocols, schedule expectations, and reporting requirements.
Preliminary Design Submission (33%)	Proponent to advise within schedule	• Submission of the preliminary bridge concept design including proposed structural system, preliminary geometry, foundation concepts, and design criteria.
Issued for Review (66%)	Proponent to advise within schedule	• Submission of a design package incorporating structural layouts, key details, and preliminary calculations
Issued for Review (99%)	Proponent to advise within submitted schedule	• Submission of near-final design drawings, specifications, and calculations suitable for construction planning. All major design decisions shall be finalized at this stage, subject only to minor revisions.
Issued For Construction	Proponent to advise within schedule	• Final approved drawings and specifications incorporating all review comments and ready for construction.
Commencement of Construction	Proponent to advise within schedule	• Start of on-site construction activities following receipt of all required permits, approvals, and Issued for Construction documentation.
Substantial Completion	December 23, 2026	• Work is sufficiently complete in accordance with the Contract Documents.
Final Completion	December 31, 2026	• Completion of all Work, including correction of deficiencies, submission of record drawings, warranties, test results, and final documentation, to the satisfaction of the Municipality.

2.4 Reference Material

All Proponents will be provided access to relevant Municipal documents, drawings, and background information through the appendices of this RFP document. It is the responsibility of the Proponent to verify the accuracy of all information provided. Any critical dimensions, elevations, or site features shall be field verified by the Proponent prior to proceeding with design or construction activities. The following documents will be included as appendices to the RFP.

A Site Plan illustrating existing grades, approximate dimensions, general site conditions, and conceptual design information. The conceptual designs represent the Municipality's preliminary approaches only, are provided for reference purposes, and do not constitute design requirements. Proponents shall not be bound by these concepts and are responsible for developing their own design solutions that meet the project intent and performance criteria. The conceptual site plan is provided in Appendix B.

The Municipality has retained the services of a consulting firm to undertake a geotechnical assessment of the existing site and associated subsurface conditions. The findings of this geotechnical assessment, as provided in the Appendix D, this information may be relied upon by Proponents for bidding and design purposes.

At the request of the Proponent, the Municipality can provide previous documentation related to inspections of the existing bridge structure.

Except for the referenced geotechnical assessment prepared on behalf of the Municipality, any information provided by the Municipality and/or its consultants is offered solely for general reference only and is not binding.

In addition to the above, the Proponent shall ensure that the design and construction of the new structure comply with the Nova Scotia Transportation and Public Works Highway Construction and Maintenance Standard Specifications (2025), including but not limited to the following sections:

Division 2 – EARTHWORKS

- Section 1: Clearing
- Section 2: Grubbing
- Section 4: Disposal of Surplus Materials
- Section 5: Borrow
- Section 6: Subgrade
- Section 8: Compaction

- Section 10: Rough Grading
- Section 11: Fine Grading
- Section 13: Foundation Excavation for Bridges

Division 3 – GRANULAR MATERIALS

- Section 2: Gravel Type 1, 1S, 2 & M
- Section 4: Clearstone
- Section 5: Compaction of Gravels
- Section 6: Loose Laid Rip Rap
- Section 7: Hand Laid Rip Rap
- Section 8: Armour Rock

Division 5 – STRUCTURES

- Section 3: Structural Steel
- Section 4: Miscellaneous Metal
- Section 5: Reinforcing
- Section 6: Steel Guard Rail Systems and Wooden Guide Posts
- Section 7: Cast-in-Place Concrete
- Section 11: Metal Traffic Barriers and Metal Railings for Structures
- Section 13: Concrete Restoration – Bridge Structures
- Section 17: Coatings for Steel Structures
- Section 19: Elastomeric Bearings

Division 6 – MISCELLANEOUS

- Section 12: Geotextile
- Section 13: Mobilization

Division 7 – ENVIRONMENTAL PROTECTION

- Section 1: Environmental Protection
- Section 2: Sediment Barriers
- Section 5: Inspection and Maintenance
- Section 6: Hydroseeding
- Section 9: Topsoil
- Section 10: Water Control for Bridge Foundations
- Section 11: Turbidity Curtain

It is the Proponent's responsibility to familiarize themselves with all applicable sections of the Nova Scotia Transportation and Public Works Highway Construction and Maintenance Standard Specifications, and to incorporate these requirements into their design methodology, project schedule, construction sequencing, and cost proposal.

Where the Nova Scotia Transportation and Public Works Highway Construction and Maintenance Standard Specifications (2025), are primarily intended for highway infrastructure, the Proponent shall apply such standards in a manner appropriate to the functional, geometric, and operational requirements of this non-highway multi-use trail bridge.

In the event of a conflict between referenced highway standards and the intended use, site constraints, or performance requirements of the Jordan River Trail Bridge Replacement, the Proponent shall identify the conflict and propose suitable alternative solutions that meet the project intent, applicable codes, and regulatory requirements, subject to review and acceptance by the Municipality. The inclusion of this standard within this RFP shall not be interpreted as requiring full "highway-level" design criteria where such criteria are not appropriate to a non-highway bridge application, but rather as providing a baseline reference for design, construction quality, and performance.

All work performed under this RFP shall be governed by a formal Design-Build agreement. The Form of Agreement for this project shall be the CCDC 14 – Design-Build Stipulated Price Contract (2013), as amended by the Municipality.

2.5 Addenda Procedures

The Municipality may issue addenda to add to, delete from, clarify, or otherwise modify the provisions of this Request for Proposals. If addenda are issued, the Municipality will notify the Proponent's designated Project Principal by email or telephone, followed by written confirmation.

Verbal responses or explanations shall not be considered binding unless confirmed by a written addendum issued by the Municipality. All addenda shall form an integral part of this Request for Proposals.

2.6 Requests for Clarification

Any Proponent who has questions regarding the meaning or intent of any part of this Request for Proposals, or who believes this document contains an error, inconsistency, or omission, should submit a written request for clarification to Adam Dedrick, adam.dedrick@municipalityofshelburne.ca.

All requests for clarification or inquiries concerning this Request for Proposals shall be submitted in writing via email to the address provided below no later than 4:00 p.m. (AST) February 12, 2026.

Upon receival of a Request for Clarification the Municipality will determine whether a response to the request for clarification is required. If so, such responses will be provided only in the form of a written addendum issued to all registered recipients of the RFP. The Municipality will not be responsible for any oral instructions, interpretations, or explanations. Only written addenda shall be considered modifications to this RFP. No oral communication shall modify or be deemed to modify any portion of this document. Written inquires submitted within 48 hours of the closing date may not be answered.

2.7 Anticipated Procurement Schedule

The following table outlines the anticipated schedule for the procurement process. The Municipality reserves the right to modify these dates at its sole discretion. Any changes to the schedule will be communicated to all registered Proponents by addendum.

Milestone	Date	Details
Public Announcement of RFP	January 29, 2026	• RFP issued and made available to all interested Proponents.
Deadline for Requests for Clarification	February 12, 2026	• All clarification requests must be submitted via email to adam.dedrick@municipalityofshelburne.ca by February 12, 2026, at 4:00 p.m. (AST)
Final Addenda Issued (If required)	February 19, 2026	• Municipality to issue any final written addenda or clarifications if required.
Proposals Due	March 12, 2026	• Proposals must be submitted by 3:00 p.m. (AST) via email to adam.dedrick@municipalityofshelburne.ca.
Evaluation Period	March 16, 2026 – March 20, 2026	• Proposals reviewed and evaluated by the Municipality.
Interviews (if required)	March 23, 2026 – March 27, 2026	• Proponent interviews, if deemed necessary.
Notice of Selection	April 1, 2026	• Successful Proponent notified of selection decision.
Form of Agreement Execution (CCDC14-2013)	April 6, 2026	• Formal contract execution between the Municipality and the Accepted Proponent.

3.0 GENERAL CONDITIONS

3.1 Submission of Proposals

One digital copy (in PDF format) of the Request for Proposals clearly marked "Engineering Design-Build Services – Jordan River Trail Bridge Replacement" will be accepted until 3:00 p.m. (local time), March 12, 2026.

Responses to this Request for Proposals shall be emailed to the following address: adam.dedrick@municipalityofshelburne.ca. Proponents are solely responsible for ensuring the delivery of their proposals in the manner and time prescribed. Late submissions will not be accepted and will be returned unopened. Faxed proposals will not be accepted. Incomplete proposals may be rejected.

The Municipality will conduct a private proposal opening, and all proponents will be notified of the results once the contract has been awarded.

The Municipal Engineer for this project will be a professional engineer licensed to practice in the Province of Nova Scotia, appointed by the Municipality to oversee the project's design and construction and will be a third-party project management consultant acting on behalf of the Municipality.

3.2 Proposal Acceptance

The Municipality reserves the right to reject any or all proposals and is under no obligation to accept the lowest-priced submission. The Municipality may accept any proposal deemed to be in its best interest.

Proposals that are unsigned, incomplete, conditional, illegible, unbalanced, obscure, or that contain unauthorized additions, deletions, reservations, erasures, alterations, or irregularities of any kind may be rejected as informal. The Municipality reserves the right to waive any formality, informality, or technicality in the acceptance of proposals for this work. Any proposal not supported by the information requested in this Request for Proposals (RFP) may be rejected.

The Municipality further reserves the right to negotiate with any Proponent who has submitted a proposal or with other parties if it is determined to be in the Municipality's best interest.

This Request for Proposals shall not be construed as an offer. The Municipality reserves the right not to proceed with any or all aspects of the work, without compensation to Proponents for costs or expenses incurred in preparing their submissions. The Municipality will not be responsible for any liabilities, costs, expenses, loss of profit, or damage incurred or suffered by a Proponent,

whether before or after the acceptance or rejection of any submission, or due to any delay in the acceptance process.

It is important to note that the Municipality is not bound to accept any proposal. No contractual relationship with the Municipality shall arise through this process until such time as the Municipality formally executes an agreement with the successful Proponent.

3.3 Proponent Declares (Overall)

By submitting a proposal in response to this Request for Proposals (RFP), the Proponent hereby declares and confirms the following:

1. The Proponent has carefully examined all documents, terms, conditions, and requirements of this RFP and fully understands the scope of work and obligations to be performed. The Proponent acknowledges that the submission of a proposal constitutes a binding offer to provide all required services, materials, and deliverables in accordance with the Request for Proposal.
2. All information provided in its submission is true, complete, and accurate to the best of its knowledge, and that the proposal was prepared without collusion or conflict of interest. Proponents must indicate if a conflict of interest exists and must deliver a statement providing a full and complete disclosure in writing if there is a conflict of interest. The Municipality reserves the right to disqualify any proponent that in its sole opinion has an actual or potential conflict of interest, whether existing now or is likely to arise in the future, or may permit the proponent to continue and impose such terms and conditions as necessary.
3. That Request for Proposal Documents and Addenda inclusive were carefully examined.
4. Proponents shall satisfy themselves, by personal examination or otherwise, as to the conditions of the project site and its surroundings, access to the site, and the general and local conditions relating to labour, law, regulations, transportation, communications, utilities, weather, and all other matters that may affect their work. They shall also make all the investigations necessary to thoroughly inform themselves regarding construction industry conditions and capabilities.
5. That all the above were taken into consideration in preparation of this proposal submission.
6. That submitted proposals are valid for acceptance for ninety (90) days from the closing date.

7. The Proponent accepts sole responsibility for the preparation and submission of its Proposal including satisfying itself with the requirements of all documents and the submission of documents within the required time frames.

3.4 Proponent Declares – Option 1 (Rehabilitation)

By submitting a Proposal for Option 1, the Proponent acknowledges and declares that it has considered, accounted, and accepted the inherent risks associated with the rehabilitation of existing bridge substructure elements. The Proponent further declares that the proposed price, schedule, and methodology for Option 1 include allowances for uncertainties and unknown conditions, including but not limited to the following:

1. The existing condition, integrity, and extent of deterioration of the masonry abutments, including concealed defects not visible during site review;
2. The existing condition, geometry, and bearing capacity of the abutment foundations.
3. The existing condition, and structural capacity of the granite block piers, including but not limited to any internal defects, loss of mortar, or differential settlement;
4. The existing condition and performance of the pier foundations, including existing scour, undermining, or any unforeseen foundation conditions; and
5. The presence of unforeseen construction complexities arising from the integration of new structural elements with existing substructure components.

The Proponent acknowledges that rehabilitation work on existing structures inherently involves uncertainty, the proponent is to make themselves aware of all existing conditions.

3.5 Proposal Requirements & Submission

Proponents are required to complete and submit the Proposal Submission Form included in this document in its entirety located in **Appendix A**. In addition to the completed form, Proponents shall prepare and submit their own comprehensive proposal package, including all required information as outlined in subsequent sections (3.5.1 – 3.5.4.) of this document.

3.5.1 Contact Name and General Information

Proponent shall provide the name of the firm, office address, telephone number, and the name and email address of the primary point of contact for the Proponent who shall have the responsibility of discussing any project matters with the Municipality or its appointed representatives.

3.5.2 History of Proponent and Previous Experience

The Proposal shall include information on the key Project resources including:

1. A brief history of the Proponent, including each professional or firm if the Proponent is a consortium or joint venture;
2. Identification of a Project Manager and provide resume for the same;
3. Names of sub-consultant firms to be retained to complete this project including a description of the merits of their participation and a description of their qualifications;
4. A list of the sub-consultant personnel and associates, if any, that will be performing various tasks for this project, including their responsibilities, reporting structure, professional qualifications, experience, expertise, and the proposed role;
5. An organizational chart of the project team shall be included showing lines of responsibility and reporting structure of all staff assigned to the project. These requirements shall apply to subconsultants/subcontractors and the role of any subconsultant/subcontractor shall be clearly defined and outlined;
6. A minimum of three (3) reference projects including the dates the projects were completed, a description of the project scope, a contact person and phone number from the owner of the Project, as well as the estimated and actual budgets of each project.

3.5.3 Financial Submission

The Proponent shall submit a Financial Proposal outlining the total proposed fee(s) for completing the Scope of Work described, exclusive of HST. Proponents may elect to submit pricing for Option 1, Option 2, or both options, as defined in this Request for Proposals. For each option priced, the Financial Proposal shall clearly identify:

1. The total lump-sum price proposed;
2. A breakdown of costs by major project components, phases, and/or deliverables;
3. Hourly billing rates for all key personnel and sub-consultants anticipated to be involved;
4. Any anticipated disbursements or reimbursable expenses, including but not limited to travel, fieldwork, testing, or permitting costs;
5. All assumptions, or exclusions relied upon in developing the proposed pricing; and
6. A statement confirming that the proposed pricing shall remain firm for a minimum period of ninety (90) days from the Proposal submission deadline.

In addition, Proponents are required to complete and submit the Proposal Summary Form included in Appendix A for each option priced. The Proposal Summary Form shall clearly identify the total lump-sum price and key financial information and shall form part of the overall financial submission.

The Municipality reserves the right to request additional clarification or substantiating information related to the Financial Proposal as part of the evaluation process.

3.5.4 Workers Compensation Clearence Letter

All Proponents shall provide a Workers' Compensation Clearance Letter issued by the Workers' Compensation Board of Nova Scotia as part of their proposal submission. The clearance letter must confirm that the Proponent is registered and in good standing with WCBNS at the time of submission.

The Accepted Proponent will be required to maintain current and valid Workers' Compensation coverage for the duration of the contract and shall provide updated clearance letters upon request by the Municipality. Failure to provide the required documentation may result in the rejection of the proposal.

3.6 Insurance & Contract Security

The Accepted Proponent shall provide, maintain, and pay for insurance coverages in accordance with the CCDC-41 insurance requirements, 2020. All Certificates of Insurance must be in the joint names of the Accepted Proponent and The Municipality of Shelburne.

Upon contract execution via Form of Agreement, the Accepted Proponent shall supply a Performance Bond and a Labour and Material Payment Bond, each in the amount of fifty percent (50%) of the estimated Contract Price plus Harmonized Sales Tax.

Should it become apparent that the final cost of the Work will exceed the estimated Contract Price by more than ten percent (10%), the Contractor shall arrange to have the Bonds reissued, based on the projected final Contract Price plus Harmonized Sales Tax. All Contract Security must remain in place for the duration of the Warranty Period and shall be returned to the Contractor at the expiration of the Warranty Period.

3.7 Proposal Evaluation

Proposals will be evaluated by the Municipality in accordance with the criteria outlined below. The evaluation process will be conducted in a fair, consistent, and transparent manner. The Municipality reserves the right to verify any information provided within the proposal and to contact references as required. The Municipality recognizes that Option 1 and Option 2 carry differing technical and construction risks, which proponents are expected to account for in their pricing and methodology.

3.7.1 Technical Proposal

All proposals must meet the minimum technical and submission requirements outlined in this Request for Proposals. Each submission will be reviewed for completeness and compliance with the mandatory criteria. Proposals not meeting these requirements will be deemed non-compliant and may not be considered for further evaluation.

3.7.2 Bid Price

Unless otherwise stated in this document or its addenda, the proposal with the lowest total price shall receive the maximum points allocated for price evaluation. All other proposals will receive a proportionate score based on their cost relationship to the lowest compliant proposal.

The points for the financial evaluation will be calculated using the following formula:

Lowest Price / Proponent's Price × Maximum Price Score = Price Score

Example:

If two technically compliant proposals are received and the maximum available points for price equals 50, the scoring would be calculated as follows:

Bid #	Submitted Price	Calculation	Price Score
Bid #1	$100,000	$100,000/$100,000 x 50	50
Bid #2	$175,000	$100,000/$175,000 x 50	28.5

Accordingly, the lowest priced compliant proposal will receive the full 50 points, and all other proposals will be scored on a sliding scale relative to that amount.

3.7.3 Over-Budget Bids

If all submitted proposals exceed the Municipalities internal estimated contract value, the Municipality reserves the right to, at its sole discretion, to:

A. Proceed with an award based on the proposed amount;
B. Negotiate adjustments to the scope of work with the Successful Proponent in an effort to achieve an acceptable contract price;
C. Cancel this Request For Proposal in whole.

3.7.4 Proposal Evaluation Criteria

Proposals that meet the minimum technical requirements will be scored according to the following weighted evaluation criteria:

Evaluation Category	Weighting	Evaluation Considerations
General Proposal Requirements	5%	• Submissions are clearly organized and concise. • Proponents confirm their ability to meet the Municipality's overall project schedule. • Proposals must demonstrate sufficient staffing, equipment, and resources to complete the project efficiently. • Subcontractors and key suppliers are identified in the proposal.
Design-Build Team Experience & Qualifications	25%	• Demonstrated experience in bridge design and construction, particularly on similar multi-use trail projects. Evidence of successful delivery of design-build contracts of similar size and scope
Project Approach and Methodology	15%	• Understanding of the project objectives, proposed approach to design and construction, schedule management, quality control measures, and strategies for maintaining environmental compliance and public safety.
Bid Price	55%	• Evaluation of total design-build cost based on the submitted fixed price proposal. Price will be scored using a normalized formula relative to the lowest bid.

3.8 Confidentiality

All documents, information, and materials developed or obtained by the Proponent in connection with this project shall be handled in accordance with the Freedom of Information and Protection of Privacy (FOIPOP) provisions of the Nova Scotia Municipal Government Act.

Proponents are advised that any information provided by the Municipality is considered confidential and shall not be disclosed, released, or provided to any third party without the prior written consent of the Municipality. All confidential information must be used solely for the purposes of preparing and completing the work described in this Request for Proposals.

The Municipality will consider all Proposals as confidential until the evaluation process has concluded. The Municipality will, however, have the right to make copies of all Proposals received for its internal review process and to provide copies to its staff, consultants, technical and financial advisors, and representatives.

The Proponent acknowledges and agrees that the Municipality will not be responsible or liable in any way for any losses that the Proponent may suffer from the disclosure of information or materials to third parties as required by law.

The outcome of the procurement process will be posted on the Nova Scotia Procurement Web Portal, including the name successful proponent, and the total value of the successful bid. The Municipality reserves the right to post or not post, the name of each bidder and the value of each bid.

4.0 CONTRACT EXECUTION & DELIVERY REQUIREMENTS

Following the selection of the successful proponent, issuance of the Notice of Award, and the execution of a design-build Form of Agreement (the contract), the Accepted Proponent will be required to fulfill all post-award obligations necessary to complete the awarded Work. The intent of this section is to outline expected procedures and deliverables.

4.1 Submissions By Accepted Proponent

The Accepted Proponent shall submit the following documentation for review and approval by the Municipality or its designated representatives throughout the design-build process. All submissions shall be prepared, signed, and sealed (where applicable) by qualified professional engineers licensed to practice in Nova Scotia. The required submissions include, but may not be limited to:

- Health and Safety Plan – A site-specific Health and Safety plan prepared in accordance with Nova Scotia Occupational Health and Safety Regulations.
- Baseline Design-Build Project Schedule – Detailed schedule outlining all major design and construction milestones, key deliverables, and critical path items.
- Projected Monthly Invoice Cashflows – Forecast of anticipated monthly progress claims and payment requests throughout the project duration.
- Wildfire Safety Mitigation Plan – Procedures outlining measures to prevent and respond to wildfire hazards during construction operations in accordance with provincial and municipal requirements.

- Erosion and Sedimentation Control Plan – Detailed plan addressing soil stabilization, runoff management, and sediment containment measures to protect adjacent watercourses and/or property.
- Hauling Route and Laydown Area Plan – A plan and description identifying the proposed hauling routes for material delivery, bridge components, and equipment access. The plan shall also identify proposed laydown or staging areas, with details on site access, and storage arrangements.
- Superstructure Shop Drawings – Detailed fabrication and installation drawings for all bridge components, including connections, anchorages, bearings, and railing systems.
- Traffic Control Plan – Comprehensive plan identifying traffic management, detour routing (if applicable), signage, and protection of public access (i.e. construction site delineation) throughout the project.
- Demolition Procedures – Sequenced plan detailing methods, equipment, and safety precautions for the removal of the existing bridge structure and all related components (Option 1 or Option 2).
- Concrete Mix Designs – Proposed concrete mixtures for all structural elements, including supporting test data and certification from a recognized testing facility.
- Abutment Formwork Drawings – Formwork and falsework drawings showing geometry, construction sequencing, and load-bearing details for all abutment structures.
- Mortar Mixture Data – Specifications and test data for mortar to be used in masonry or stonework elements.
- Bridge Design Calculations – Complete structural analysis and design calculations verifying compliance with applicable codes and standards, including the latest edition of CSA S6 – Canadian Highway Bridge Design Code and any supplementary municipal or provincial requirements.
- Erection Plan – Methodology for bridge erection and lifting operations, including sequencing, equipment, and safety measures.
- Pier Access Drawings – Plans detailing temporary access structures or platforms required to facilitate work on the existing piers, including re-pointing, masonry repair, or other rehabilitation activities necessary.
- Cofferdam Shop Drawings (if required) – Cofferdam shop drawings and design calculations. Drawings should include, cofferdam layout and limits, type (sheet pile, sandbag, water-inflated, etc.), structural design assumptions and loading, seepage control and dewatering methods, tie-ins to existing structures (if any), installation and

removal sequence, environmental protection measures, and emergency/flood contingency plan.

- Reinforcing Steel Drawings – Shop drawings and bar schedules for all reinforcing steel, including lap splices, bends, and placement details.

All submissions shall be reviewed by the Municipality or its appointed representatives for conformance with project requirements.

The Municipality or its designated representatives will undertake reviews of submitted documents within the following maximum target review periods, measured from the date of submission:

- Routine plans, reports, schedules, and administrative submissions: up to ten (10) business days;
- Shop drawings, reinforcing steel drawings, concrete mix designs, and similar technical submissions: up to ten (10) business days;
- Complex structural submissions, including cofferdam shop drawings, superstructure shop drawings, erection plans, and detailed design calculations: up to fifteen (15) business days

Review comments will be provided in writing. Submissions that are incomplete or require significant revision may be returned for resubmission, in which case the review period shall recommence upon receipt of the revised and complete submission.

All reviews are for general conformance with the Contract requirements. Review or approval by the Municipality does not relieve the Proponent of full responsibility for the accuracy, completeness, constructability, or safety of the design, methods, or sequencing of the Work. Work associated with each submission shall not proceed until written approval has been received.

4.2 Concurrent Design and Construction Provisions

To support efficient project delivery in accordance with the Design and Construction Timeline (Section 2.3) and/or accommodate long-lead times on critical path items, the Municipality may, at its discretion, permit the Proponent to proceed with phased Issued For Construction (IFC) drawing packages, accounting for concurrent design and construction of multiple phases. Activities may include, but are not limited to:

- Early procurement of long-lead materials or components;
- Site preparation, access works, or temporary works;
- Select demolition or foundation works

Where concurrent design and construction work is authorized, the Proponent shall submit the applicable drawings, calculations, and supporting documentation for review and written acceptance by the Municipality prior to commencing each activity.

Authorization to proceed with any concurrent or early works does not:

- Constitute approval of the full design;
- Relieve the Proponent of responsibility for the overall design, coordination, safety, or performance of the Work;
- Entitle the Proponent to additional compensation for redesign, rework, or impacts arising from incomplete or evolving design;
- Limit the Municipality's right to require modifications to later phases of the Work to ensure compliance with Contract requirements.

Any concurrent work undertaken in advance of full design approval shall be at the Proponent's own risk, except where expressly authorized in writing by the Municipality.

The Proponent shall clearly identify all proposed concurrent elements within the Baseline Design-Build Project Schedule and shall coordinate submissions to ensure sufficient review time and logical sequencing. The acceptance of concurrent Work by the Municipality shall not compromise project quality, safety, environmental protection, or regulatory compliance.

4.3 Project Holdbacks

All payments for completed work shall follow the requirements set out under CCDC 14 – 2013 or as otherwise directed by the Municipality. Payments will be issued based on the percentage of work satisfactorily completed, as verified and certified by the Engineer.

Each progress payment will be subject to a 12.5% total holdback, allocated as follows:

- 10% Builders' Lien Holdback, retained in accordance with the Nova Scotia Builders' Lien Act;
- 2.5% Deficiency/Warranty Holdback, retained as security for workmanship and material warranties.

The Builders' Lien Holdback will be released following the expiry of the statutory lien period, 60 days after substantial completion, contingent upon receipt of all necessary statutory declarations and confirmation that no liens or claims exist. The Accepted Proponent shall have full responsibility for the payment of all subcontractors, suppliers, and lower-tier parties and shall not hold against the Municipality any claims, liens, or disputes arising from non-payment or delayed payment to such parties.

The Deficiency/Warranty Holdback will be released at the conclusion of the warranty period, once all deficiencies have been corrected to the satisfaction of the Owner and Engineer. Holdback amounts shall not accrue interest during the retention period.

4.4 Order of Precedence

In the event of any discrepancy, inconsistency, or conflict between the documents forming part of this Request for Proposals or any subsequent Contract Documents, the following order of precedence shall apply, from highest to lowest priority:

1. The executed Form of Agreement between the Municipality and the Accepted Proponent;
2. Definitions (if applicable);
3. Supplementary Conditions;
4. General Conditions (CCDC 14 – Design-Build Stipulated Price Contract, 2013);
5. The Owner's Statement of Requirements, including performance criteria and design intent;
6. The Request for Proposals, including all appendices, reference documents, and conceptual drawings;
7. The Proponent's Proposal, including technical submissions and commitments accepted by the Municipality;
8. Construction Documents, drawings, specifications, and schedules issued during design development and construction.

Conceptual drawings, reference materials, photographs, and background information provided by the Municipality are for information purposes only and shall not override or take precedence over the executed Contract Documents or approved Construction Documents.

4.5 Project Warranties

The Accepted Proponent shall outline all applicable warranties for products and workmanship. A minimum 3-year Warranty shall be applicable for all products and workmanship. Following the expiry of the 3-year warranty period and release of the warranty holdback, Maintenance Security shall be provided to the Municipality for the duration of the extended warranty period. Prior to the expiry of the warranty period, the Proponent's design engineer of record shall carry out an end-of-warranty inspection of the Work and submit a written report identifying any deficiencies, defects, or outstanding warranty items requiring correction. All identified items shall be remedied by the Proponent prior to final release of warranty obligations.

Following the expiry of the three (3)-year warranty period and release of the warranty holdback, Maintenance Security shall be provided to the Municipality for the duration of the extended warranty period. Maintenance Security for the Extended Warranty period shall be in the form of a Certified Cheque, Irrevocable Standby Letter of Credit, Bank Draft, Money Order, or Contract Maintenance Bond, and shall carry a minimum value of 5% of the total contract value.

4.6 Tariff Impacts

In the event that any tariffs, taxes, duties, or trade restrictions are imposed or revoked by the Government of Canada, or the Government of the United States, after the award and execution of a design-build contract, and such measures materially affect the cost or availability of materials, goods, or services required for the performance of the work, all parties shall negotiate in good faith to determine a fair and reasonable adjustment to the contract price and/or project schedule resulting solely and directly from such changes.

The Proponent shall provide written notice to the Municipality within five (5) business days of becoming aware of the imposition or revocation of any such tariffs, taxes, or restrictions. The notice shall include:

- A detailed description of the affected materials, goods, or services;
- The specific cost increase or decrease directly attributable to the change; and
- Any anticipated impacts on the project schedule.

4.7 Record Drawings

The Accepted Proponent shall be responsible for preparing and submitting Record Drawings that accurately reflect all final as-built conditions of the completed work. These drawings shall incorporate all approved design revisions, field changes, and modifications made during construction. Record Drawings shall include, but are not limited to:

- Structural layout and all applicable member details of the super structure;
- Final elevations, grades, and dimensions for abutments, piers, and approaches;
- Locations of any/all utilities, drainage systems, and site features;
- Any deviations from the original design drawings approved by the Municipality or is representatives during construction.

The Accepted Proponent shall maintain a set of marked-up drawings on-site throughout the duration of construction to record all changes as they occur. These shall be kept current and made available to the Municipality or its representatives upon request. Upon completion of the

project and prior to final acceptance, the Accepted Proponent shall provide the Municipality with:

- One (1) complete Record Drawing, digital copy in PDF format;
- One (1) hard copy Record Drawing, printed to scale on a sheet size determined by the Municipality.

All Record Drawings shall be certified by a Professional Engineer licensed to practice in the Province of Nova Scotia, confirming that the information shown accurately represents the constructed conditions. Final payment and release of Builders Lien holdback will not be authorized until the Municipality has received and accepted all required Record Drawings.

5.0 APPENDIX A (PROPOSAL SUBMISSION FORM)

FORM INSTRUCTIONS:

Proponents must complete this form in its entirety and adhere to the following instructions when preparing their submission:

- Proponents are encouraged to provide concise, well-structured proposals that directly address the requirements and evaluation criteria outlined in this Request for Proposals (RFP).
- The Proposal Evaluation Criteria identified in this RFP should be carefully reviewed and considered when preparing responses.
- Incomplete submissions, or those that do not follow the required format, may be deemed non-compliant and disqualified from further evaluation.

PROPOSAL SUBMISSION FORM
PROJECT TITLE: JORDAN RIVER BRIDGE REPLACEMENT
NAME OF FIRM:
PRIMARY CONTACT PERSON, TITLE AND TELEPHONE NUMBER:
FIRM ADDRESS:
SELECT THE OPTION BEING SUBMITTED FOR EVALUATION. IF SUBMITTING FOR BOTH OPTIONS, A SEPARATE PROPOSAL SUBMISSION FORM SHALL BE COMPLETED. ☐ Option 1 – Rehabilitation of Substructure, New Superstructure ☐ Option 2 – Removal and Replacement

SUBCONSULTANT INFORMATION:

This table shall be completed in full by the Proponent to identify all subconsultants proposed to provide professional or technical services as part of the Jordan River Trail Bridge Replacement Project.

Sub-Consultant Firm Name	Discipline	Primary Contact	Email Address	Telephone Number	Years of Relevant Experience

RELEVENT PREVIOUS PROJECT EXPIRENCE:

This table shall be completed in full by the Proponent to demonstrate relevant experience completing design-build or bridge replacement projects of similar scope and complexity to the Jordan River Trail Bridge Replacement Project. The following requirements apply:

- Provide a minimum of three (3) relevant project examples completed within the last fifteen (15) years.
- Include client references for each project listed. The Municipality reserves the right to contact these references during evaluation.
- Projects undertaken by key personnel while employed with another firm may be listed but must be clearly identified as such.

Project Title & Location	Client/Owner	Year Completed	Project Value (CAD)	Proponents Role & Services Description	Client Reference (Name, Title, Phone)
					Name: _____ Title: _____ Phone: _____
					Name: _____ Title: _____ Phone: _____
					Name: _____ Title: _____ Phone: _____

RECEIPT OF ADDENDA:

This table must be completed and included with the Proposal submission. Failure to acknowledge all issued addenda may result in rejection of the Proposal.

- The Municipality of the District of Shelburne may issue addenda to clarify, modify, or supplement the Request for Proposals prior to the closing date.
- Each addendum will be numbered and distributed electronically to all registered plan takers.
- Proponents must confirm receipt of each addendum by listing them in the table below.
- If no addenda were issued, indicate "N/A" in the table.
- It is the Proponent's responsibility to ensure they have received and acknowledged all addenda before submitting their Proposal

Addendum Number	Date Issued	Title	Proponent Initials Confirming Receipt

CERTIFICATION:

By signing below, the Proponent confirms that all addenda issued by the Municipality of the District of Shelburne for the Jordan River Trail Bridge Replacement Project have been received, reviewed, and incorporated into this Proposal submission.

Proponent Name: _____

Authorized Signature: _____

Title: _____

Date: _____

FINANCIAL PROPOSAL FORM (PART A):

- This form must be completed in full and submitted as part of the Proposal package. Failure to provide all requested financial information may result in the rejection of the Proposal.
- The total price submitted shall include all costs associated with design, engineering, materials, labor, equipment, overhead, profit, mobilization, demobilization, and other expenses necessary to complete the full scope of work as described in the RFP.
- Portions of the form within Item 4 – Construction have been identified as "If Required." Where a listed activity or task is not applicable to the specific option being submitted (Option 1 or Option 2), Proponents shall clearly indicate "N/A" in the corresponding field.

Item	Cost	Total
1. Project Management & Administration		
A. Project Management & Administration Services (Design)	$	
B. Project Management & Administration Services (Construction)	$	
Project Admin Phase Sub-Total		$
2. Detailed Design		
A. Survey	$	
B. Preliminary Design Submission (33%)	$	
C. Issued for Review (66%)	$	
D. Issued for Review (99%)	$	
E. Issued for Construction	$	
F. Design Phase Expenses	$	
Design Phase Sub-Total		$
3. Construction Review & Contract Administration		
A. Construction Meetings (Bi-Weekly)	$	
B. Shop Drawing & Submittal Processes	$	
C. Construction Method Verification by Engineer of Record	$	
D. Construction Inspection, Testing and Commissioning Services	$	
E. Deficiency & Warranty Inspections, Follow-Up, and Project Certification	$	
F. Record Information (Incl. Drawings) Package	$	
G. Construction Phase Expenses	$	
Construction Review & Contract Administration Phase Sub-Total		$

4. Construction		
A. Mobilization & Demobilization	$	
B. Demolition and Removal (Excl. Piers)	$	
C. Pier and Pier Foundation Removals (If Required)	$	
D. Abutment & Pier Rehabilitation/Inspection (If Required)	$	
E. Concrete Abutments (If Required)	$	
F. Supply and Installation of Superstructure	$	
G. Miscellaneous Site Civil Works	$	
Construction Phase Sub-Total		$
Total Proposed Maximum Fee (Excl. HST)		$
Contingency Allowance (10% of Total Proposed Maximum Fee Excl. HST)		$
Estimated Contract Price (Excl. HST)		$

FINANCIAL PROPOSAL FORM (PART B):

- This form must be completed in full and submitted as part of the Proposal package. Failure to provide all requested financial information may result in the rejection of the Proposal.
- The amount submitted below will be considered the Total Lump Sum Contract Price and used for evaluation purposes.

Description	Amount (CAD)
A. Estimated Contract Price (Excl. HST)	$_____
B. HST (14%)	$_____
Total Price (A+B)	$_____

ADDITIONAL FINANCIAL INFORMATION:

A separate, itemized cost breakdown is to be provided as an attachment to FINANCIAL PROPOSAL FORM (PART A & PART B). The breakdown should clearly identify all major cost components for this project, including design services, materials, equipment, testing, construction, and site restoration in accordance with the RFP requirements.

Prices submitted shall remain valid for a minimum of ninety (90) days from the RFP closing date.

CERTIFICATION:

By signing below, the Proponent confirms that the Total Lump Sum Price provided herein represents a complete and accurate submission in accordance with the RFP requirements.

Proponent Name: _____

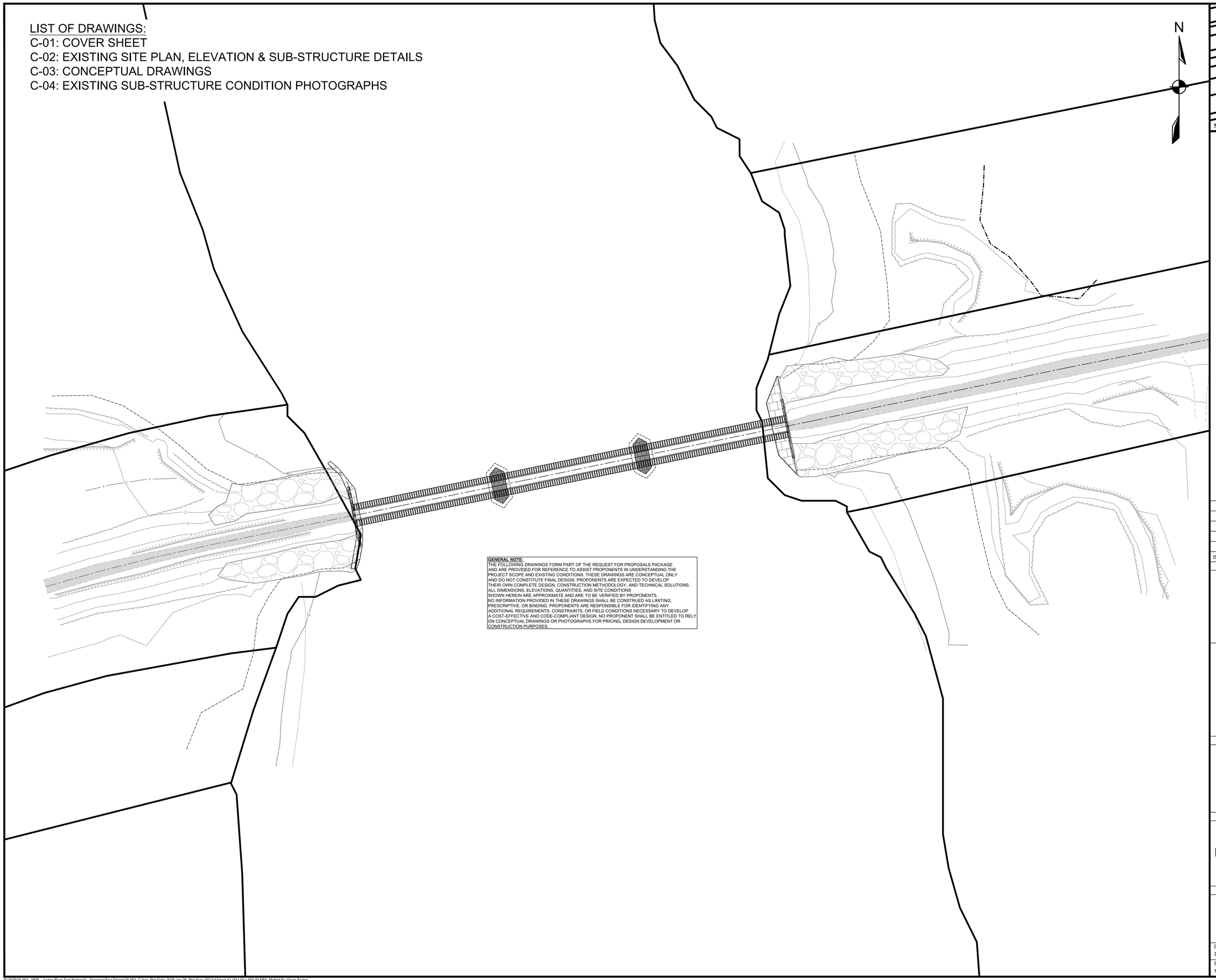
Authorized Signature: _____

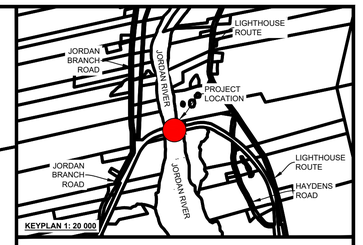
Title: _____

Date: _____

6.0 APPENDIX B (JORDAN RIVER BRIDGE REPLACEMENT PROPOSAL DRAWING PACKAGE)

LIST OF DRAWINGS:
C-01: COVER SHEET
C-02: EXISTING SITE PLAN, ELEVATION & SUB-STRUCTURE DETAILS
C-03: CONCEPTUAL DRAWINGS
C-04: EXISTING SUB-STRUCTURE CONDITION PHOTOGRAPHS





METRES
10 0 10 20
1:300

GENERAL NOTE:
THE FOLLOWING DRAWINGS FORM PART OF THE REQUEST FOR PROPOSALS PACKAGE AND ARE PROVIDED FOR REFERENCE TO ASSIST PROPONENTS IN UNDERSTANDING THE PROJECT SCOPE AND EXISTING CONDITIONS. THESE DRAWINGS ARE CONCEPTUAL ONLY AND DO NOT CONSTITUTE FINAL DESIGN. PROPONENTS ARE EXPECTED TO DEVELOP THEIR OWN COMPLETE DESIGN, CONSTRUCTION METHODOLOGY, AND TECHNICAL SOLUTIONS. ALL DIMENSIONS, ELEVATIONS, QUANTITIES, AND SITE CONDITIONS SHOWN HEREIN ARE APPROXIMATE AND ARE TO BE VERIFIED BY PROPONENTS. NO INFORMATION PROVIDED IN THESE DRAWINGS SHALL BE CONSTRUED AS LIMITING, PRESCRIPTIVE, OR BINDING. PROPONENTS ARE RESPONSIBLE FOR IDENTIFYING ANY ADDITIONAL REQUIREMENTS, CONSTRAINTS, OR FIELD CONDITIONS NECESSARY TO DEVELOP A COST-EFFECTIVE AND CODE-COMPLIANT DESIGN. NO PROPONENT SHALL BE ENTITLED TO RELY ON CONCEPTUAL DRAWINGS OR PHOTOGRAPHS FOR PRICING, DESIGN DEVELOPMENT OR CONSTRUCTION PURPOSES.

ISSUE	DATE	DESCRIPTION	INT.
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1	DEC. 18, 2025	ISSUED FOR PRELIMINARY REVIEW	DS

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MUNICIPALITY OF THE DISTRICT OF SHELBURNE

PROJECT DESCRIPTION

JORDAN RIVER BRIDGE REPLACEMENT DESIGN-BUILD (REQUEST FOR PROPOSALS)

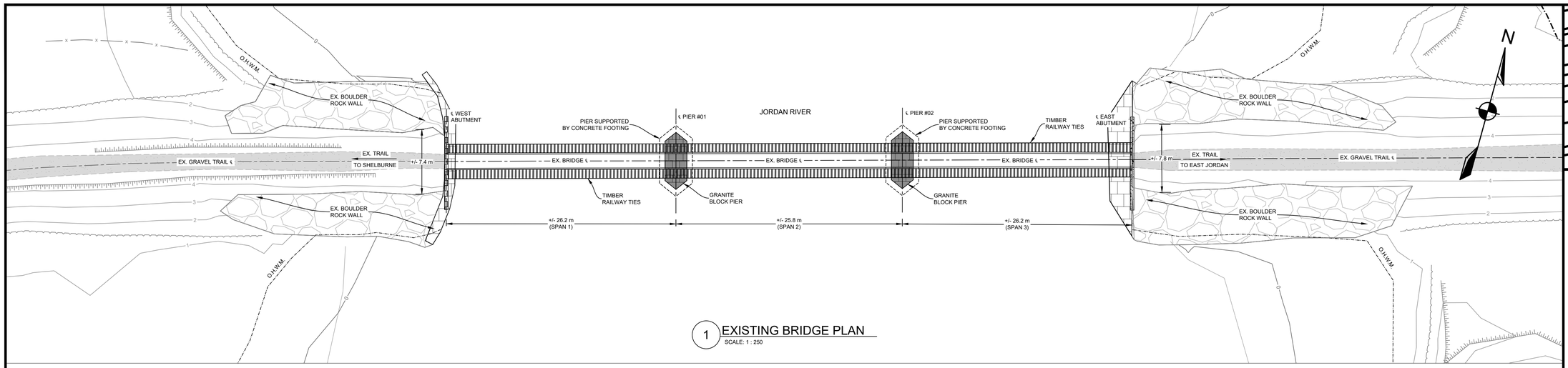
SHELBURNE, NOVA SCOTIA

SHEET DESCRIPTION

COVER SHEET

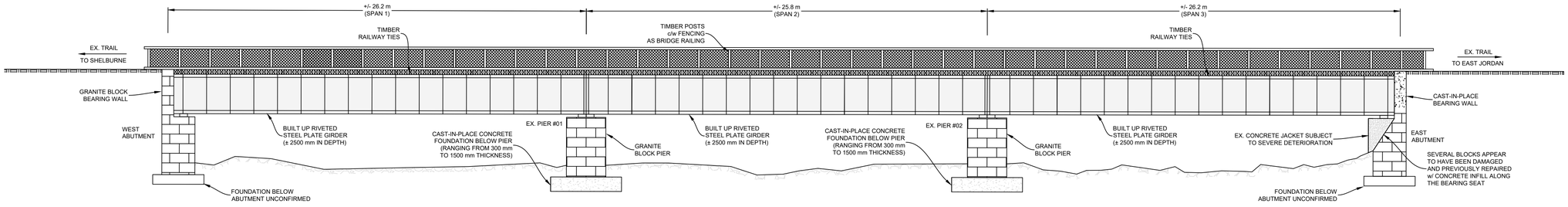
Drawn	Engineer	Project No.	Drawing No.
D. SCELES	E. TEASDALE	25-662	C-01
Scale 1:300	Filename 25-662_C.dwg		01 of 04

P:\2025\25-662 - MDS - Jordan River Trail Bridge\01 - Drawings\Eng Design\25-662_C.dwg, Plot Date: 2026-Jan-26, Plot Size: ISO full bleed A1 (841.00 x 594.00 MM), Plotted By: Devin Sceles



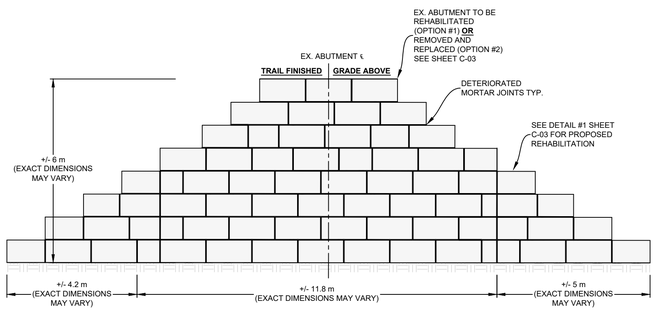
1 EXISTING BRIDGE PLAN
SCALE: 1 : 250

NOTE:
PRESENTATION OF EXISTING INFRASTRUCTURE IS BASED ON BEST AVAILABLE INFORMATION, INCLUDING RECORD INFORMATION, AND IS APPROXIMATE. PROPONENT IS EXPECTED TO VERIFY IN FIELD PRIOR TO SUBMISSION OF PROPOSALS.



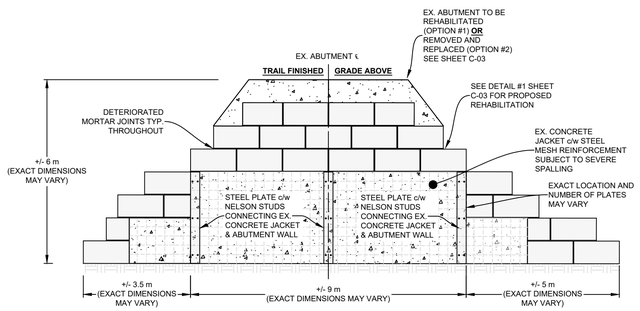
2 EXISTING BRIDGE ELEVATION
SCALE: 1 : 150

NOTE:
PRESENTATION OF EXISTING INFRASTRUCTURE IS BASED ON BEST AVAILABLE INFORMATION, INCLUDING RECORD INFORMATION, AND IS APPROXIMATE. PROPONENT IS EXPECTED TO VERIFY IN FIELD PRIOR TO SUBMISSION OF PROPOSALS.

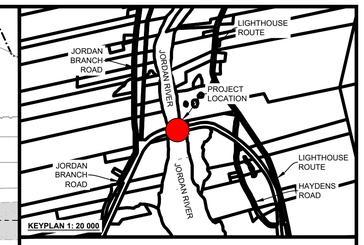


3 EXISTING WEST ABUTMENT
SCALE: 1 : 100

NOTE:
PRESENTATION OF EXISTING INFRASTRUCTURE IS BASED ON BEST AVAILABLE INFORMATION, INCLUDING RECORD INFORMATION, AND IS APPROXIMATE. PROPONENT IS EXPECTED TO VERIFY IN FIELD PRIOR TO SUBMISSION OF PROPOSALS.



4 EXISTING EAST ABUTMENT
SCALE: 1 : 100



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MUNICIPALITY OF THE DISTRICT OF SHELBURNE

PROJECT DESCRIPTION

JORDAN RIVER BRIDGE REPLACEMENT DESIGN-BUILD (REQUEST FOR PROPOSALS)

SHELBURNE, NOVA SCOTIA

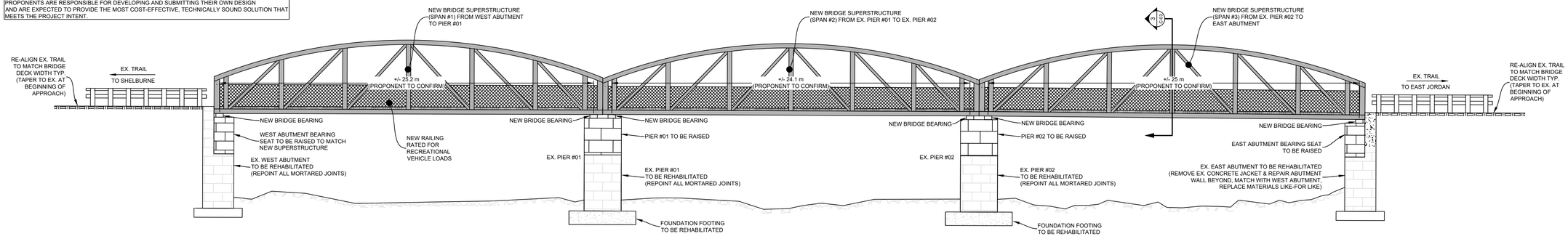
SHEET DESCRIPTION

EXISTING SITE PLAN, ELEVATION & SUB-STRUCTURE DETAILS

Drawn	Engineer	Project No.	Drawing No.
D. SCELES	E. TEASDALE	25-662	C-02
Scale	Filename		02 OF 04
AS NOTED	25-662_C.dwg		

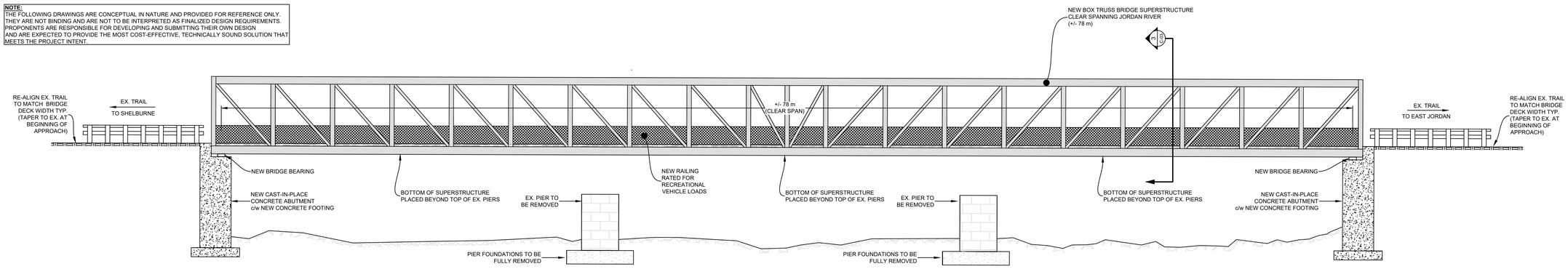
P:\2025\25-662 - MDS - Jordan River Trail Bridge\01 - Drawings\Eng Design\25-662_C.dwg, Plot Date: 2026-Jan-26, Plot Size: ISO full bleed A1 (841.00 x 594.00 MM), Plotted By: Devin Sceles

NOTE:
THE FOLLOWING DRAWINGS ARE CONCEPTUAL IN NATURE AND PROVIDED FOR REFERENCE ONLY. THEY ARE NOT BINDING AND ARE NOT TO BE INTERPRETED AS FINALIZED DESIGN REQUIREMENTS. PROPONENTS ARE RESPONSIBLE FOR DEVELOPING AND SUBMITTING THEIR OWN DESIGN AND ARE EXPECTED TO PROVIDE THE MOST COST-EFFECTIVE, TECHNICALLY SOUND SOLUTION THAT MEETS THE PROJECT INTENT.

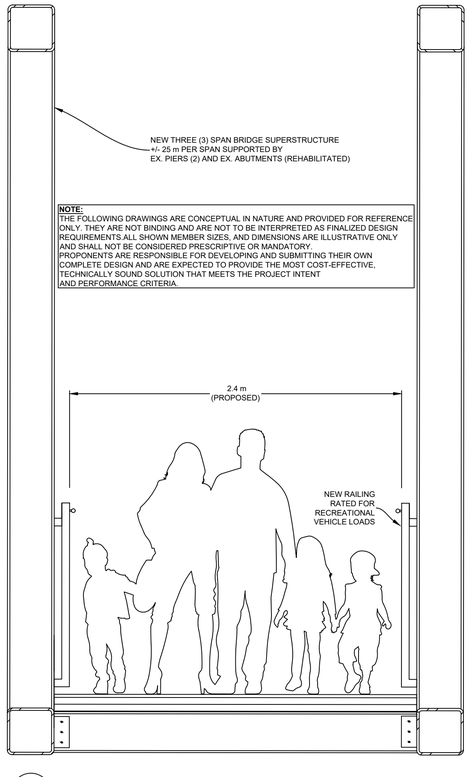


1 CONCEPTUAL BRIDGE ELEVATION (OPTION #1 - REHABILITATION OF SUB-STRUCTURE, NEW SUPERSTRUCTURE)
SCALE: 1 : 150

NOTE:
THE FOLLOWING DRAWINGS ARE CONCEPTUAL IN NATURE AND PROVIDED FOR REFERENCE ONLY. THEY ARE NOT BINDING AND ARE NOT TO BE INTERPRETED AS FINALIZED DESIGN REQUIREMENTS. PROPONENTS ARE RESPONSIBLE FOR DEVELOPING AND SUBMITTING THEIR OWN DESIGN AND ARE EXPECTED TO PROVIDE THE MOST COST-EFFECTIVE, TECHNICALLY SOUND SOLUTION THAT MEETS THE PROJECT INTENT.

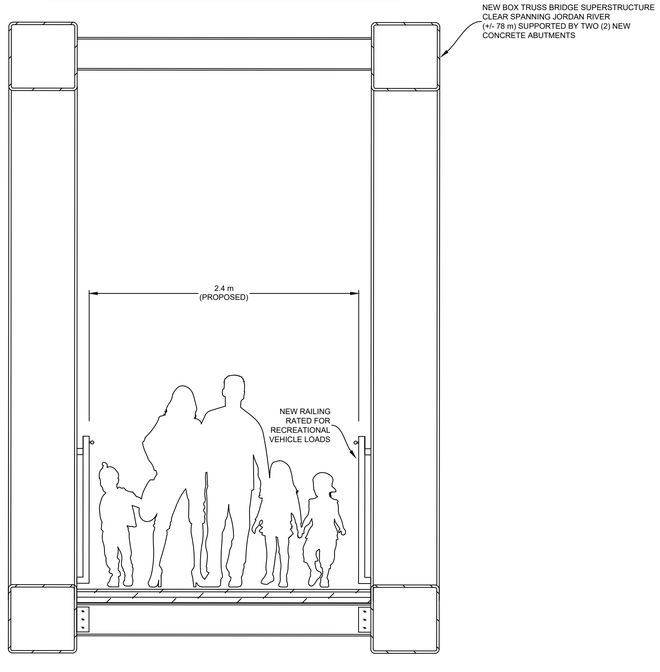


2 CONCEPTUAL BRIDGE ELEVATION (OPTION #2 - REMOVAL AND REPLACEMENT)
SCALE: 1 : 150

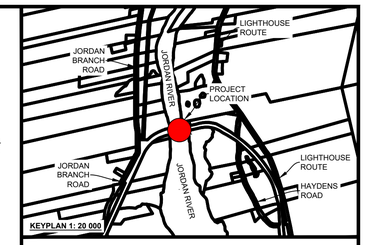


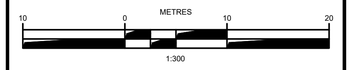
3 CONCEPTUAL BRIDGE SECTION (OPTION #1)
SCALE: 1:20

NOTE:
THE FOLLOWING DRAWINGS ARE CONCEPTUAL IN NATURE AND PROVIDED FOR REFERENCE ONLY. THEY ARE NOT BINDING AND ARE NOT TO BE INTERPRETED AS FINALIZED DESIGN REQUIREMENTS.ALL SHOWN MEMBER SIZES, AND DIMENSIONS ARE ILLUSTRATIVE ONLY AND SHALL NOT BE CONSIDERED PRESCRIPTIVE OR MANDATORY.
PROPONENTS ARE RESPONSIBLE FOR DEVELOPING AND SUBMITTING THEIR OWN COMPLETE DESIGN AND ARE EXPECTED TO PROVIDE THE MOST COST-EFFECTIVE, TECHNICALLY SOUND SOLUTION THAT MEETS THE PROJECT INTENT AND PERFORMANCE CRITERIA.



4 CONCEPTUAL BRIDGE SECTION (OPTION #2 - REMOVAL AND REPLACEMENT)
SCALE: 1:25





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MUNICIPALITY OF THE DISTRICT OF SHELBURNE

PROJECT DESCRIPTION

JORDAN RIVER BRIDGE REPLACEMENT DESIGN-BUILD (REQUEST FOR PROPOSALS)

SHELBURNE, NOVA SCOTIA

SHEET DESCRIPTION

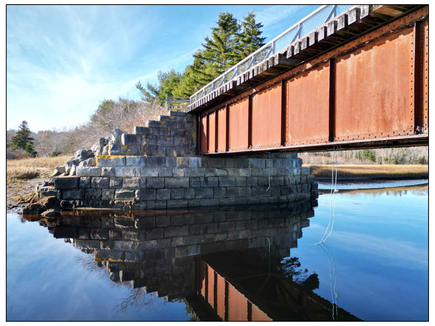
CONCEPTUAL DRAWINGS

Drawn	Engineer	Project No.	Drawing No.
D. SCELES	E. TEASDALE	25-662	C-03
Scale	Filename		03 of 04
AS NOTED	25-662_C.dwg		

P:\2025\25-662 - MDS - Jordan River Trail Bridge\01 - Drawings\Eng Design\25-662_C.dwg, Plot Date: 2026-Jan-26, Plot Size: ISO full bleed A1 (841.00 x 594.00 MM), Plotted By: Devin Scales

SUB-STRUCTURE ELEMENTS EXISTING CONDITIONS

NOTE:
THE FOLLOWING PHOTOGRAPHS ARE PROVIDED FOR GENERAL REFERENCE ONLY. THEY ARE NOT INTENDED TO REPRESENT COMPLETE CONDITIONS AND SHALL NOT BE RELIED UPON FOR DESIGN, MEASUREMENT, OR QUANTIFICATION PURPOSES. PROPONENTS ARE RESPONSIBLE FOR CONDUCTING THEIR OWN SITE ASSESSMENTS AND VERIFICATIONS TO DEVELOP AN ACCURATE UNDERSTANDING OF THE EXISTING SUBSTRUCTURE AND OVERALL PROJECT CONDITIONS.



WEST ABUTMENT (OVERALL)

WEST ABUTMENT (SOUTH SIDE)

WEST ABUTMENT (NORTH SIDE)

WEST ABUTMENT (MORTAR LOSS)

EAST ABUTMENT (OVERALL)

EAST ABUTMENT (SOUTH SIDE)

EAST ABUTMENT (NORTH SIDE)

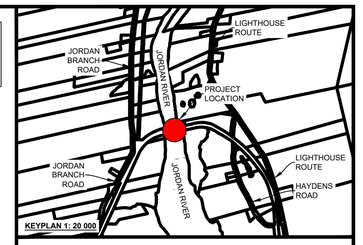
EAST ABUTMENT (CONCRETE JACKET)

WEST PIER (OVERALL)

WEST PIER (NOSING)

EAST PIER (OVERALL)

EAST PIER (NOSING)



METRES
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ISSUE	DATE	DESCRIPTION	INT.
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PROJECT DESCRIPTION

JORDAN RIVER BRIDGE REPLACEMENT DESIGN-BUILD (REQUEST FOR PROPOSALS)
SHELBURNE, NOVA SCOTIA

SHEET DESCRIPTION

EXISTING SUB-STRUCTURE CONDITION PHOTOGRAPHS

Drawn	Engineer	Project No.	Drawing No.
D. SCELES	E. TEASDALE	25-662	C-04
Scale	Filename		04 of 04
	25-662_C.dwg		

P:\2025\25-662 - MDS - Jordan River Trail Bridge\01 - Drawings\Eng Design\25-662_C.dwg, Plot Date: 2026-Jan-26, Plot Size: ISO full bleed A1 (841.00 x 594.00 MM), Plotted By: Devin Sceles

7.0 APPENDIX C (EXISTING CONDITION ASSESSMENTS)

Assessment documents, including inspection reports, photographs, and technical evaluations, are the property of the Municipality and can be provided strictly for the purpose of preparing a proposal for the Jordan River Trail Bridge Replacement Project. By requesting access to these materials, the Proponent agrees to the following conditions:

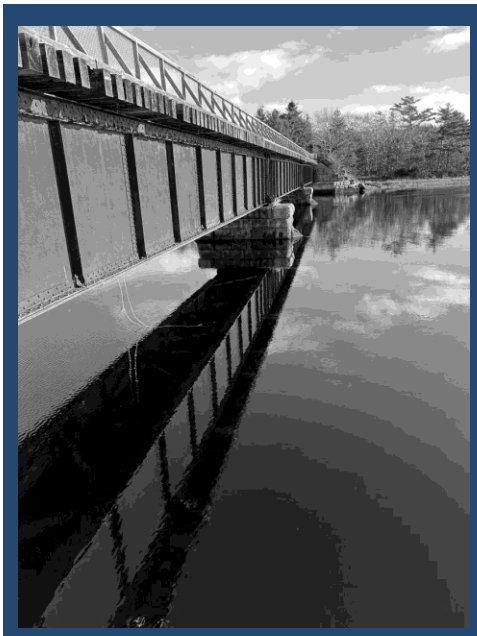
- The documents shall not be copied, reproduced, or distributed in whole or in part for any purpose other than the preparation of a proposal submission under this Request for Proposals.
- Information contained within these documents shall not be shared with any third party except those directly involved in the preparation of the proposal, and only under equivalent confidentiality obligations.
- The Municipality provides these documents for informational purposes only and makes no warranty, expressed or implied, as to their completeness or accuracy. Proponents are responsible for verifying all information through their own site review and field investigation as required.

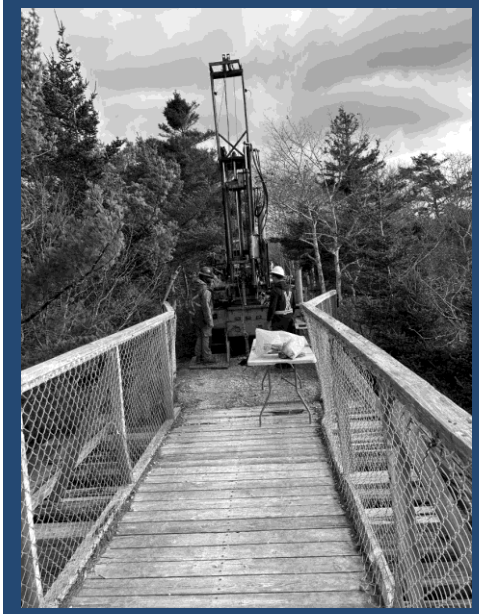
Access to these documents constitutes full acceptance of the above confidentiality conditions.

To request access, please contact the Municipality at:

adam.dedrick@municipalityofshelburne.ca with the subject line: “Request for Existing Condition Assessment Documents – Jordan River Trail Bridge RFP.”

8.0 APPENDIX D (GEOTECHNICAL REPORT)





GEOTECHNICAL REPORT

December 22, 2025

Geotechnical Investigation Jordan River Trail Bridge Assessment, Jordan Falls, Shelburne Co., Nova Scotia

Project Number 25-662

SUBMITTED BY:

DesignPoint Engineering & Surveying Ltd.

90 Western Parkway, Suite 500
Bedford, NS B4B 2J3

SUBMITTED TO:

Municipality of the District of Shelburne

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TABLE OF CONTENTS

1.0 INTRODUCTION

Acting on the request of Municipality of the District of Shelburne (the Municipality), DesignPoint Engineering & Surveying Ltd. (DesignPoint) completed a geotechnical investigation to assist with the assessment of the existing bridge structure on the railway line trail in Jordan Falls, Nova Scotia. The site location and the borehole locations are shown in the below figure and on the attached drawing, Borehole Location Plan.

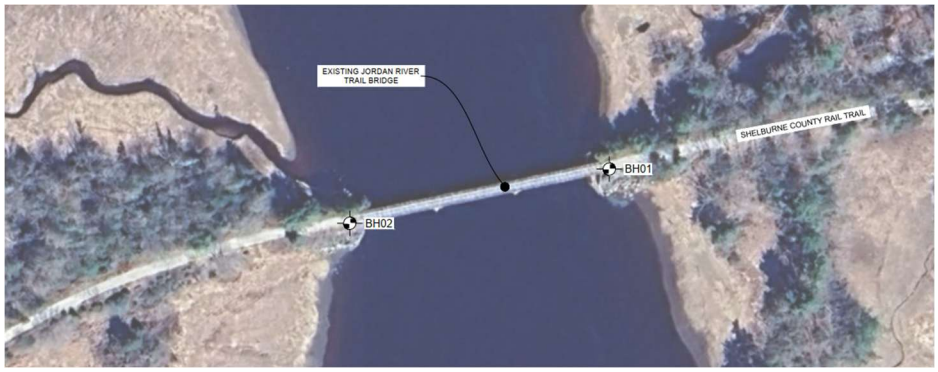
The purpose of the investigation was to characterize the subsurface conditions at the test locations at the site and based on the conditions encountered, provide geotechnical recommendations to assist with planning and design of site preparation and abutment foundations for the potential replacement bridge structure.

The scope of the investigation comprised drilling two (2) boreholes to depths of 18.7 and 12.7 metres, laboratory testing on selected soil and bedrock samples collected from the boreholes, and preparation of a geotechnical investigation report. This geotechnical investigation report presents the field work findings, including laboratory testing, and provides our geotechnical recommendations to assist with design.

2.0 SITE DESCRIPTION AND GEOLOGY

The existing bridge is approximately 350 metres west of Haydens Road and crosses Jordan River on the former railway line trail in Jordan Falls, Nova Scotia.

The site at the time of the investigation comprised an existing three-span bridge structure with timber and steel materials used for decking, and concrete and stone block abutments and pier. The immediate area of the trail surface at the bridge was relatively flat ranging in elevation from approximately 4.6 to 4.5 metres at the borehole locations. The site is surrounded by treed areas and residential dwellings.



Surficial geology mapping classifies the principal overburden at the site as stony till plain overlying Goldenville Formation bedrock which typically presents itself as quartzite.

3.0 FIELD PROCEDURES

The field component of the investigation comprised drilling two (2) boreholes (BH01 and BH02) on November 19th, 20th and 21st, 2025. The boreholes were completed using a diamond drill-rig equipped for geotechnical sampling and testing. A DesignPoint geotechnical representative was onsite to log the subsurface conditions

encountered in the boreholes. Detailed logs of soils, bedrock and groundwater conditions encountered, and sampling and testing carried out are given on the Borehole Records in Appendix A.

3.1 BOREHOLES

BH1 was drilled on the east side of the existing bridge and BH2 was drilled on the west side. Overburden samples were taken at various depth intervals within the boreholes using a 50 mm diameter split-barrel sampler during performance of standard penetration tests (SPTs). N-values obtained from the SPTs were recorded. The N-value is the number of blows to hammer the split-barrel sampler 300 mm into the soil using a standard energy (hammer weight and fall height). N-values indicate soil compactness and can be used to estimate various other soil parameters. In cohesive soils, Shelby tube samples were taken.

Bedrock was cored at each of the boreholes using NQ size core barrel. The Rock Quality Designation (RQD) and recovery of the samples were measured and recorded. The RQD is an indirect measurement of the number of fractures within a rock mass expressed as a percentage. The RQD is based on the modified core recovery percentage in which all pieces of sound core over 100 mm in length are summed and divided by the total length of core run.

Upon completion of drilling, standpipes to permit groundwater depth measurements were installed in the boreholes. Water level measurements were obtained on November 21, 2025.

3.2 LABORATORY TESTING

Soil samples were stored in moisture-tight containers and bedrock core was organized and stored in wooden core boxes. Laboratory testing consisting of moisture contents and sieve analyses were completed on selected soil samples. Uniaxial compressive strength (UCS) testing was completed on selected bedrock core samples.

The strata encountered in the boreholes are described in detail on the appended Borehole Records and are summarized below in Section 4.0. Symbols and Terms Used on Borehole and Test Pit Records provide a brief explanation of the terminology and graphics used in this report and are also appended. Soil classification was based on procedures described in ASTM D2487 Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System) and ASTM D2488 (Standard Practice for Description and Identification of Soils, Visual-Manual Procedure).

3.3 SURVEY

All borehole locations and elevations were surveyed by DesignPoint. Elevations are referenced to Canadian Vertical Geodetic Datum (CGVD2013) and locations are to NAD83, Zone 5 coordinate system. A survey grade GPS (Topcon Hiper SR on the Cannet RTK Network) was used for survey. The borehole locations and associated coordinates are shown on the appended Borehole Location Plan. Elevations are provided on the appended Borehole Records and incorporated within this report.

4.0 SUBSURFACE CONDITIONS

The geotechnical subsurface conditions encountered at the borehole locations are detailed on the appended Borehole Records and summarized herein.

Table 1 – Summary of Borehole Findings

BH No.	Ground Surface El. (m)	Fill Thickness (m)	Sand with Silt and Gravel Thickness (m)	Silt Thickness (m)	Sand with Gravel Thickness (m)	Till, m		Bedrock, m		Measured Groundwater Depth (m)	Depth of Borehole (m)
						Depth	El.	Depth	El.		
BH1	4.6	3.1	4.5	1.5	2.8	11.9	-7.3	16.5	-11.9	4.8	18.7
BH2	4.5	2.4	4.6	0.7 [1]	NE [2]	7.7	-3.2	9.0	-4.5	5.2	12.7

(1) Loose sandy silty containing trace organics
(2) NE=Not Encountered

In general, the boreholes comprised fill overlying sand and silt deposits, then glacial till and quartzite bedrock. Fill thickness was 3.1 and 2.4 metres. In borehole BH01 (east side of the bridge), fill was encountered overlying loose sand with silt and gravel, then compact silt, then compact sand with gravel, glacial till and quartzite bedrock. In borehole BH02 (west side of the bridge), fill was encountered overlying loose to compact sand with silt and gravel, then loose silt containing organics, then glacial till and quartzite bedrock. Till was encountered at depths of 11.9 and 7.7 metres. Bedrock was encountered at depths of 16.5 and 9.0 metres.

4.1 FILL

Fill materials were encountered at the surface of both borehole locations. The fill comprised brown to grey silty gravel with sand overlying black to brown silty sand with gravel containing trace cobbles and boulders.

Grain size analysis completed on one fill sample showed 22 percent gravel, 63 percent sand and 15 percent silt/clay sized particles. Moisture content analyses on two fill samples showed 7 and 9 percent. Grain size analysis and moisture contents of the fill samples are summarized in Table 2.

Table 2 – Summary of Soil Laboratory Test Results - Fill

Borehole No.	Sa. No.	Depth (m)	ASTM Soil Classification[1]	Moisture Content (%)	Percent Material Composition by Particle Size (%)		
					Gravel	Sand	Silt/Clay[2]
BH1	SS4	2.6	-	7	-	-	-
BH2	SS1	0.3	Fill: silty sand with gravel	9	22	63	15

(1) ASTM D2487, Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
(2) The percent of silt and clay-sized particles are reported collectively as the percent fines.

4.2 SAND WITH SILT AND GRAVEL

Grey sand with silt and gravel containing trace cobbles was encountered below the fill at both borehole locations. At borehole BH01, the sand was encountered at a depth of 3.1 metres and was 4.5 metres thick. The sand was loose in borehole BH01. In borehole BH02, the sand was encountered at a depth of 2.4 metres and was 4.6 metres thick. The sand was loose to compact at borehole BH02. Standard penetration testing N-values in the sand varied from 7 to 21.

Grain size analysis completed on one sand with silt and gravel sample showed 20 percent gravel, 72 percent sand and 8 percent silt/clay sized particles. Moisture content analyses on three sand with silt and gravel samples varied from 11 to 30 percent. Grain size analysis and moisture contents of the sand with silt and gravel samples are summarized in Table 3.

Table 3 – Summary of Soil Laboratory Test Results – Sand with silt and Gravel

Borehole No.	Sa. No.	Depth (m)	ASTM Soil Classification	Moisture Content (%)	Percent Material Composition by Particle Size (%)		
					Gravel	Sand	Silt/Clay
BH1	SS6	4.0	SAND with silt and gravel	11	20	72	8
BH2	SS3	2.4	-	18	-	-	-
BH2	SS6	5.4	-	30	-	-	-

(1) ASTM D2487, Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
(2) The percent of silt and clay-sized particles are reported collectively as the percent fines.

4.3 SILT

Grey sandy silt was encountered beneath the sand with silt and gravel at both boreholes. At borehole BH01, the silt was encountered at a depth of 7.6 metres and was 1.5 metres thick. The silt was compact in borehole BH01. In borehole BH02, the silt was encountered at a depth of 7.0 metres and was 0.7 metres thick. The silt in borehole BH02 was loose and contained trace organics.

Grain size analysis completed on one silt sample showed 7 percent gravel, 36 percent sand and 57 percent silt/clay sized particles. Moisture content analysis on the same silt sample was 46 percent. Grain size analysis and moisture content of the silt sample is summarized in Table 4.

Table 4 – Summary of Soil Laboratory Test Results – Silt

Borehole No.	Sa. No.	Depth (m)	ASTM Soil Classification	Moisture Content (%)	Percent Material Composition by Particle Size (%)		
					Gravel	Sand	Silt/Clay
BH1	SS11	7.9	-	46	7	36	57

(1) ASTM D2487, Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
(2) The percent of silt and clay-sized particles are reported collectively as the percent fines.

4.4 SAND WITH GRAVEL

Compact grey sand with gravel was encountered beneath the silt in borehole BH01 at a depth of 9.1 metres. The sand with gravel with 2.8 metres thick and contained some cobbles and boulders. Standard penetration testing N-values in the sand with gravel were 11 and 20. Multiple split-spoon samples encountered refusal on cobbles and/or boulders.

Moisture content analysis on one sand with gravel sample was 13 percent. Moisture content of the sand with gravel sample is shown below in Table 5.

Table 5 – Summary of Soil Laboratory Test Results – Sand with Gravel

Borehole No.	Sa. No.	Depth (m)	ASTM Soil Classification	Moisture Content (%)	Percent Material Composition by Particle Size (%)		
					Gravel	Sand	Silt/Clay
BH1	SS13	10.0	-	13	-	-	-

(1) ASTM D2487, Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
(2) The percent of silt and clay-sized particles are reported collectively as the percent fines.

4.5 GLACIAL TILL

Glacial till was encountered below the sand with gravel in borehole BH01 and beneath the silt in borehole BH02 at depths of 11.7 and 7.7 respectively. The till comprised compact to very dense grey silty gravel with sand containing some cobbles and boulders. Standard penetration testing N-values in the till varied from 30 to in excess of 50 blows per 300 mm. Multiple split-spoon samples encountered refusal on cobbles and boulders.

Grain size analysis completed on one till sample showed 40 percent gravel, 39 percent sand and 21 percent silt/clay sized particles. Moisture content analysis on the same till sample was 10 percent. Grain size analysis and moisture contents of the till sample is summarized in Table 6.

Table 6 – Summary of Soil Laboratory Test Results – Glacial Till

Borehole No.	Sa. No.	Depth (m)	ASTM Soil Classification[1]	Moisture Content (%)	Percent Material Composition by Particle Size (%)		
					Gravel	Sand	Silt/Clay[2]
BH1	SS18	15.5	Silty gravel with sand: TILL	10	40	39	21

(1) ASTM D2487, Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
(2) The percent of silt and clay-sized particles are reported collectively as the percent fines.

4.6 BEDROCK

Quartzite bedrock was encountered and cored in both boreholes at depths of 16.5 and 9.0 metres below the ground surface. Generally, the bedrock was observed to have slight weathering and was grey in color. The Rock Quality Designation (RQD) values of the core samples at the boreholes ranged from 18 to 73 percent, indicating very poor to fair quality rock.

Laboratory compressive strength testing of three (3) intact rock core samples showed unconfined compressive strengths (UCS) varying from 160 to 168 MPa. Based on these results, the quartzite bedrock is generally classified as very strong. The results of the UCS test results are summarized in Table 7.

Table 7 – Unconfined Compressive Strength Test Results

Borehole No.	Depth (m)	Rock Type	Unconfined Compressive Strength (MPa)	Strength Category
BH01	18.3	Quartzite	168	Very Strong
BH02	9.1	Quartzite	160	Very Strong
BH02	11.3	Quartzite	160	Very Strong

4.7 GROUNDWATER

Groundwater measurements were recorded in both boreholes on November 21, 2025. Measured groundwater depth was 4.8 metres in borehole BH01 and 5.2 metres in borehole BH02. Groundwater levels will fluctuate seasonally, in response to specific precipitation events, and with site and surrounding development. Groundwater levels will also be influenced by the river water levels. During the field program, the river level varied by approximately 1.7 metres at high and low tide.

5.0 DISCUSSION AND RECOMMENDATIONS

5.1 GENERAL

We understand that replacement of the existing bridge is being considered. We assume that a new bridge structure would be constructed on the same horizontal and vertical alignment as the current bridge. Specific footing elevations and locations for potential bridge replacement are currently unknown. For a multi-span replacement structure, supplemental boreholes will be prudent at proposed pier locations.

In general, the boreholes comprised fill overlying sand and silt deposits, then glacial till and quartzite bedrock. Fill thickness was 3.1 and 2.4 metres. In borehole BH01 (east side of the bridge), fill was encountered overlying loose sand with silt and gravel, then compact silt, then compact sand with gravel, glacial till and quartzite bedrock. In borehole BH02 (west side of the bridge), fill was encountered overlying loose to compact sand with silt and gravel, then loose silt containing organics, then glacial till and quartzite bedrock. Till was encountered at depths of 11.9 and 7.7 metres. Bedrock was encountered at depths of 16.5 and 9.0 metres.

Based on the subsurface conditions encountered at the boreholes, support of abutments with spread footing foundations or pile foundations would be suitable options for the site. Based on the local topography and subsurface conditions encountered at the boreholes, spread footings for the abutments are estimated to be situated within the sand with silt and gravel at the borehole BH01 location and slightly above the loose silt layer in the borehole BH02 location.

The following subsections provide more detailed geotechnical recommendations for design of spread footing foundations and pile foundations for bridge abutment foundation support along with associated site preparation and approach embankments.

5.2 TEMPORARY CONSTRUCTION WATER CONTROL

Erosion and Sediment Control measures should be established prior to beginning work along with being maintained and adjusted as necessary during the progress of the work. Discharge water quality should be reviewed and monitored prior to off-site disposal to ensure compliance with applicable regulations.

Temporary dewatering measures will be required during excavation and filling along with construction of below grade elements. Control of surface water runoff and groundwater seepage should be established at the onset of construction and maintained throughout the duration of the work. Surface water flow should be directed away from excavations using ditches/swales and/or check dams. Dewatering within the excavations may be accomplished by pumping from sump pits dug below the base of the excavations where required excavation depths are above the channel water level. Cofferdams will be required where required excavations are close to the channel and extend below the channel water level.

5.2.1 Cofferdams

Steel Sheet Pile (SSP) walls, sandbags, or other cofferdam methods able to resist water pressure may be required during construction to permit dewatering of the excavations during installation of the new bridge abutment foundations and retaining walls. The design of the cofferdams will depend on the proximity of construction to the water, the depths of the excavations, and in the cased of SSP walls, the depth of bedrock.

As cobbles/boulders are present within the site soils, the SSP wall sections may be difficult to drive. If this occurs, boulders could be removed prior to driving. A heavy sheet pile section could be used to minimize the potential damage to the SSP sections.

Base heave/piping must be considered inside the cofferdam. Softening of the cofferdam base could be prevented by providing a tremie poured concrete plug at the base of the excavation. A granular base could also be considered which would stabilize the site soils from heave and allow a layer for drainage/pumping during construction. Upon request, additional details can be provided when further bridge design details are known.

5.3 SHALLOW FOUNDATIONS

5.3.1 Site Preparation

Site preparation should include removal of all fill materials and any other deleterious materials encountered down to native site soils. At the borehole BH01 location, it is anticipated that shallow foundations would be situated within the sand with silt and gravel layer. Consideration could be given to removal of the sand with silt and gravel layer and the sandy silt layer to allow footings to be founded on the compact sand with gravel layer which would provide a higher bearing resistance. If footings are situated within the silt layer, removal of this layer is recommended due to the high moisture content and relatively small thickness of the layer. In the borehole BH02 location, excavation to native till is recommended to allow for removal of the loose silt layer with organics. Bearing resistances for the sand with silt and gravel, compact sand with gravel, and glacial till are provided below. Over-excavation into the sand with silt and gravel to obtain a minimum 0.5 metre thickness of structural rockfill within the zone of influence below the new footings is recommended. The zone of influence is defined as the area of the footings plus a horizontal distance beyond the outside edges of the footing footprints to include a structural splay of 1H:1V.

Temporary excavation side slopes should be no steeper than 1.5H:1V and should be closely monitored during construction. Structural fill used to achieve footing subgrade elevation should consist of well-graded rock fill or sand and gravel with a maximum particle size of 150mm and no more than about 10 percent fines (silt/clay sizes). For constructability purposes, a base layer consisting of Nova Scotia Department of Public Works (NSDPW) Type 2 Gravel may be placed over the rockfill. Material proposed for use as structural fill should be inspected and approved prior to use. Structural fill should extend over the entire footing zone of influence.

Structural fill should be compacted to 100% of the Standard Proctor Maximum Dry Density (SPMDD) determined for the material. For rock fill where SPMDD is not applicable, the material should be compacted to at least 80% relative density. Structural fill should be placed within a range of moisture contents that allow compaction to the specified density.

Lift thickness for structural fill should be compatible with the compaction equipment used, to ensure that the required density is achieved over the entire lift. It is recommended that monitoring by experienced geotechnical personnel be carried out during the placement of any structural fill to assure that the required compaction is achieved.

5.3.2 Spread Footing Design

The following geotechnical bearing resistances for spread footings placed on a minimum 0.5 metre thick layer of compacted structural rockfill over sand with silt and gravel are recommended:

- Geotechnical Resistances at Serviceability Limit States (SLS) 100 kPa
- Factored Geotechnical Resistance at Ultimate Limit States (ULS) 150 kPa

The following geotechnical bearing resistances for spread footings placed on compact sand with gravel or native till are recommended:

- Geotechnical Resistances at Serviceability Limit States (SLS) 200 kPa
- Factored Geotechnical Resistance at Ultimate Limit States (ULS) 300 kPa

The serviceability limit states geotechnical resistances on are based on a maximum total and differential settlement of 25 mm and 20 mm respectively. The factored bearing resistance at Ultimate Limit States (ULS) was estimated in accordance with the Canadian Highway Bridge Design Code (CHBDC) and includes a bearing resistance factor of 0.5.

Footings should be placed a minimum of 1.2 m below the finished grade to provide frost protection. Scour protection is recommended in front of the footings to aid in preventing undermining of the foundations.

The prepared bearing surfaces of all footing excavations should be inspected by experienced geotechnical personnel prior to placing concrete to confirm the above noted bearing pressures.

5.4 DEEP FOUNDATIONS

Driven steel H-piles or open-ended pipe piles driven to refusal in bedrock would be suitable deep foundation options to consider. During the investigation, varying amounts of cobbles and boulders were encountered throughout the site soils. Therefore, driven piles may encounter boulders which may cause the pile to go out of plum and/or alignment or achieve early refusal. Allowances for advancing piles through the boulders, and/or removal of boulders prior to pile driving is recommended.

5.4.1 Driven Steel Piles

For steel H-piles or open-ended steel pipe piles driven to refusal on bedrock, a factored geotechnical axial compressive load resistance (using a resistance factor of 0.4) at ultimate limit states of 75 MPa, based on the cross-sectional area of the pile, is recommended for design. The piles may be required to penetrate up to a metre into the bedrock to achieve capacity.

For preliminary planning, a hammer having a minimum rated energy of 300 Joules/cm^2 (1,500 ft.lb/in^2) of steel cross sectional area using a refusal criterion of 20 blows for the last 25 mm of pile penetration is recommended. Final hammer selection and refusal criteria should be established from a driveability wave equation analysis along with dynamic pile testing using the pile driving analyzer (PDA). PDA testing should be completed on the initial pile installations to establish final refusal criteria without overstressing the piles, assess the hammer is operating within normal efficiency, and asses that the estimated design resistance provided is achieved. The contractor should provide full details on the method of installation and equipment used prior to mobilizing to site for pile driving. A representative number of piles should be re-struck a minimum of 24 hours after initial

driving refusal is obtained. If relaxation occurs, all piles should be re-driven to the refusal criteria and the cycle repeated until the refusal criteria can be achieved during the re-strike.

5.4.2 Socketed Piles

The following provides recommendations for rock-socketed piles in bedrock.

For preliminary design, we recommend for compression loading that a factored geotechnical resistance at ultimate limit states (ULS) of 650 kPa be used for the bond stress between the bedrock and the concrete or grout. For tension loading, we recommend that a factored geotechnical resistance at ULS of 490 kPa be used. These values incorporate a resistance factor of 0.4 for compression and 0.3 for uplift. A minimum concrete strength of 35 MPa is recommended.

For uplift loading, it will also be necessary to check the total pullout resistance of the socket. The pullout resistance can be calculated as the weight of rock in a 60-degree apex cone from the bottom of the socket and the weight of overburden in a vertical cylinder from the cone intercept at the bedrock surface.

Where the bedrock surface is very poor to poor quality, advancement up to a 1 metre below the bedrock surface to stabilize the sidewalls prior to socket construction may be required. Similarly, where more intact bedrock with sloping surface irregularities is encountered, the casing may also have to be advanced at least 1 metre into the bedrock to obtain a proper seal.

5.4.3 Lateral Pile Behavior

Lateral pile response of vertical piles to horizontal load involves soil-structure interaction as a function of pile and soil stiffnesses and is commonly analyzed using computer structural analysis. Depth to fixity of piles in the range of 8 to 10 nominal pile widths is recommended for preliminary planning of pile fixity. Once specific pile design configuration is known, computer structural analysis using industry excepted software such as LPile can be used to provide a more accurate indication of pile embedment fixity.

5.4.4 General Pile Installation Considerations

The sum of compressive resistances of piles in groups can be used for pile spacings of at least 2.5 pile diameters.

Settlement of piles founded in bedrock would be negligeable.

Corrosion allowances or protection should be provided for steel piles extending above low water level.

Dynamic pile testing using the pile driving analyzer (PDA) is recommended on a representative number of piles during pile installation to assess final capacities. For driven piles, PDA testing should also be used to establish final refusal criteria and asses for relaxation of resistance. For socketed piles, PDA testing could be performed using an appropriately sized drop hammer. Where PDA testing is used to finalize design resistances, the compression resistance factors noted above for rock socketed and driven piles can be increased to 0.5 and the tension resistance factors can be increased to 0.4. To establish final design resistances along with refusal criteria and assessing for relaxation, PDA testing should be completed on early installed piles.

It is recommended that full time inspection be provided during pile installation. Comparison of pile tip elevations with the elevations of bedrock should be carried out on an ongoing basis to ensure that the piles are based in bedrock. The sidewalls of pile sockets should be reviewed using a down-hole submersible camera prior to installation of rebar cage and concrete placement. Compressive strength testing of concrete used in

the socket and pile shaft should also be completed. Observing the advancement of the drill bit into rock can help assess the overall quality of the socket.

5.5 FOUNDATION BACKFILL

Backfill against the foundation structure should consist of NSDPW Fill Against Structure (FAS), Type 2 gravel, or approved equivalent. Backfill should be compacted to at least 95% of SPMDD, except for within the top 300 mm of the finished design subgrade surface which should be compacted to at least 98% of SPMDD. For rock fill where SPMDD is not applicable, the material should be compacted to at least 80% relative density.

During fill placement, lift thickness should be compatible with the type of compaction equipment and material used (i.e. gradation, particle size, etc.). Compaction of fill adjacent to the structure should be completed with hand operated compactors to prevent the build-up of significant "wedging" pressures that may develop if large compactors are used. Water and loose/soft soils should be removed prior to fill placement. Fill material, compaction, and lift thicknesses should be reviewed by experienced geotechnical personnel.

5.6 APPROACH FILLS

All unsuitable materials (surficial rootmat/topsoil, organics, and debris) in the zone of influence of the approach fills should be removed prior to fill placement. Approach fill could consist of imported NSDPW Borrow material placed at moisture contents within a range that will allow compaction to the specified density. Initial lifts in wet areas may have to comprise of imported NSDPW Gravel Borrow material or rock fill. Approach fill should be compacted to at least 95% of SPMDD, except for within the top 300 mm of the finished design subgrade surface which should be compacted to at least 98% of SPMDD. For rock fill where SPMDD is not applicable, the material should be compacted to at least 75% relative density.

All permanent fill slopes should be no steeper than 2H:1V. Slopes subject to erosion should be suitably protected with appropriate rip-rap, armour stone, and vegetation.

5.7 RETAINING WALLS

Backfill for retaining walls should consist of free draining granular fill such as NSDPW Fill Against Structure, Gravel Type 1 or Type 2, and include a drainage system with a positive outlet. The extent of the granular backfill should be in accordance with the wall design requirements. Backfill material should be placed in compacted lifts not to exceed 300 mm and compacted to a minimum of 95 percent of the materials SPMDD, except for within the top 300 mm of the finished design subgrade surface which should be compacted to at least 98% of SPMDD. During fill placement, lift thickness should be compatible with the type of compaction equipment and material used (i.e. gradation, particle size, etc.). Compaction of fill adjacent to the structure should be completed with hand operated compactors to prevent the build-up of significant "wedging" pressures that may develop if large compactors are used.

5.8 SOIL PARAMETERS

The parameter values provided in the following Table 8 may be used for design.

Table 8 – Soil Parameters

Parameter	Existing Site Fill	Sand with Silt and Gravel	Sand with Gravel	Undisturbed Till	NSDPW FAS, Gravel Type 1 or 2	Sand and Gravel Fill	Rock Fill
Friction Angle, degree	32	30	32	34	36	34	38
Total Unit Weight k/Nm³	21	20	21	21	22	21	22
Submerged Unit Weight kN/m³	11	10	11	11	12	11	12
Active Earth Pressure Coefficient[2]	0.31	0.33	0.31	0.28	0.26	0.28	0.24
Passive Earth Pressure Coefficient[2]	3.25	3.00	3.25	3.57	3.85	3.57	4.17
Friction Factor, soil/mass concrete interface	0.25	0.35	0.4	0.4	0.4	0.4	0.4

(1) Material should be compacted to 95% SPMMD or greater.
(2) Earth pressure coefficients assume frictionless wall with a vertical back face and horizontal ground

5.9 SEISMIC SITE CLASSIFICATION

Based on the findings at the borehole locations, the site classification for seismic site response, determined in accordance with Clause 4.4.3.2 of the Canadian Highway Bridge Design Code is Site Class C.

6.0 CLOSURE

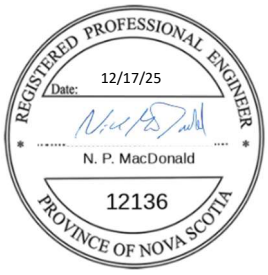
This report was prepared by Nick MacDonald, P.Eng. and reviewed by Brian Grace, P.Eng. This report is based on the subsurface geotechnical conditions encountered at the specific test locations at the time of the work and our current project understanding. The subsurface geotechnical conditions outside of the test locations may vary. If subsurface conditions are encountered that differ from those encountered at the test locations, we should be notified to reassess our recommendations.

We trust that the information contained in this report is adequate for your present purposes. If you have any questions about the contents of the report or if we can be of any other assistance, please contact us at your convenience.

Thank you,

DesignPoint Engineering & Surveying Ltd.

Nick MacDonald, P.Eng.
Geotechnical Engineer



APPENDIX A

- Symbols and Terms used on Borehole and Test Pit Records
- Borehole Records
- Laboratory Test Results
- Borehole Location Plan

SYMBOLS AND TERMS USED ON BOREHOLE AND TEST PIT RECORDS

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Terminology Describing Soil

The classification of soil types is made based on grain size and plasticity in accordance with the Unified Soil Classification System (USCS) (ASTM D 2487 or 2488). The classification excludes particles larger than 76 mm (3 inches). The USCS provides a group symbol (e.g. SM) and group name (e.g. silty sand) for identification.

Particle Size

Soil Type	Millimeters
BOULDERS	> 300
COBBLES	75 to 300
GRAVEL (Coarse/Fine)	19 to 75/4.75 to 19
SAND (Coarse/Medium/Fine)	2 to 4.75/0.425 to 2/0.075 to 0.425
SILT/CLAY	< 0.075

Terminology Describing Non-Matrix Materials (ie: boulders)

Trace, or occasional	< 10%
Some	10-20 %
Frequent	> 20%

Terminology Describing Soil Structure

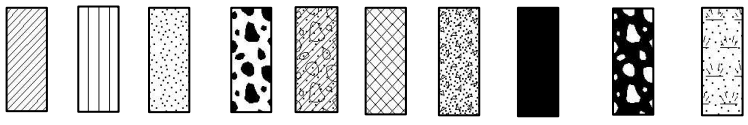
Term	Description
Desiccated	Having visible signs of weathering by oxidation on clay minerals, shrinking cracks, etc.
Fissured	Having cracks and hence a blocky structure
Stratified	Composed of regular alternating successions of different soil types
Homogeneous	Consistent appearance and colour throughout
Varved	Comprised of regular alternating successions of silt and clay
Layer	>75 mm thick
Seam	2 mm to 75 mm thick
Parting	< 2 mm thick

Groundwater Measurement

Inferred

Measured from a standpipe, piezometer or monitor well

Strata Plot



Sample Type

AS	Auger Sample
BS	Bulk sample
DP	Direct-Push sample (small diameter tube sampler hydraulically advanced)
PS	Piston sample
SS	Split spoon sample (obtained by performing the Standard Penetration Test)
ST	Shelby tube sample
WS	Wash sample

Other Tests

S	Sieve analysis
H	Hydrometer analysis
k	Laboratory permeability
γ	Unit weight
G_S	Specific gravity of soil particles
CD	Consolidated drained triaxial
CU	Consolidated undrained triaxial with pore pressure measurements
UU	Unconsolidated undrained triaxial
DS	Direct Shear
C	Consolidation

Recovery

For soil samples, the recovery is recorded as the length of sample recovered.

Standard Penetration Test (N-value)

The N-value is the number of blows from a 140-pound (64 kg) hammer falling 30 inches (760 mm), required to drive a 2 inch (50.8 mm) O.D. split spoon one foot (305 mm) into the soil. If refusal is encountered, the number of blows is reported over the sampler penetration in millimeters (ie: 50/125). No corrections have been applied to the N-values presented on the logs.

Dynamic Cone Penetration Test (DCPT)

The dynamic cone penetration test is performed using a 60-degree cone penetrated into the soil by the same hammer and fall height described for the Standard Penetration Test. The number of blows of the hammer are recorded and reported every foot (305 mm).

Compactness of Cohesionless Soils

Term	SPT N-value
Very Loose	0 to 4
Loose	4 to 10
Compact	10 to 30
Dense	30 to 50
Very Dense	> 50

Consistency of Cohesive Soils

Term	Undrained Shear Strength (kPa)	Approximate SPT N-value
Very Soft	<12	0 to 2
Soft	12 to 25	2 to 4
Firm	25 to 50	4 to 8
Stiff	50 to 100	8 to 15
Very Stiff	100 to 200	15 to 30
Hard	> 200	> 30

SYMBOLS AND TERMS USED ON BOREHOLE AND TEST PIT RECORDS

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Terminology Describing Rock

Rock (also referred to as Bedrock) is described with respect to its geological classification or lithology, Rock Quality Designation (RQD), strength, weathering and discontinuity spacing.

Term	Description
Sedimentary	Rocks formed by the accumulation and lithification of sediment (ie: sandstone, shale, mudstone)
Igneous	Rocks formed by the solidification of molten material (ie: granite, gabbro, basalt)
Metamorphic	Rocks formed by high heat and pressure (ie: slate, quartzite, gneiss)

Rock Quality Designation (RQD)

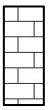
RQD is an indirect measurement of the number of fractures within a rock mass expressed as a percentage. The RQD is based on a modified core recovery percentage in which all pieces of sound core over 100 mm in length are summed and divided by the total length of core run.

RQD Classification	RQD (%)
Very Poor Quality	0 to 25
Poor Quality	25 to 50
Fair Quality	50 to 75
Good Quality	75 to 90
Excellent Quality	90 to 100

Terminology Describing Rock Weathering

Term	Description
Fresh	No visible sign of rock weathering. Minor discolouration on major discontinuity surfaces
Slightly Weathered	Discolouration indicates weathering of rock on discontinuity surfaces. All of the rock may have discolouration.
Moderately Weathered	Less than half of the rock is decomposed and/or disintegrated to a soil
Highly Weathered	More than half of the rock is decomposed and/or disintegrated to a soil
Completely Weathered	All of the rock is decomposed and/or disintegrated to a soil

Strata Plot


Sedimentary


Igneous


Metamorphic

Recovery

For rock core, the recovery is recorded as a percentage of the total length of core recovered over the length drilled on a per run basis.

Sample Type

RC (HQ, NQ, BQ, etc.)	Rock core samples obtained with the use of standard size diamond coring bits.

Other Tests

Q_u	Unconfined compression
I_p	Point Load Index (I_p on Borehole Record equals $I_p(50)$ in which the index is corrected to a reference diameter of 50 mm)

Terminology Describing Rock Mass

Spacing (mm)	Joint Classification	Bedding, Laminations, Bands
> 6000	Extremely Wide	-
2000 to 6000	Very Wide	Very Thick
600 to 2000	Wide	Thick
200 to 600	Moderate	Medium
60 to 200	Close	Thin
20 to 60	Very Close	Very Thin
< 20	Extremely Close	Laminated
< 6	-	Thinly Laminated

Terminology Describing Intact Rock Strength

Term	Unconfined Compressive Strength (MPa)
Extremely Weak	0.25 to 1
Very Weak	1 to 5
Weak	5 to 25
Medium Strong	25 to 50
Strong	50 to 100
Very Strong	100 to 250
Extremely Strong	> 250

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BOREHOLE RECORD

BH01

CLIENT **Municipality of the District of Shelburne**
LOCATION **Jordan River Trail Bridge Assessment - Jordan Falls, Nova Scotia**
DATES: BORING **2025-11-19 - 21** WATER LEVEL **2025-11-21**

PROJECT No.: **25-662**
DATUM: **Geodetic (CGVD2013)**
BH SIZE: **NQ**

DEPTH (m)	ELEVATION (m)	DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES REC. SOIL (mm) REC. ROCK (%)	SAMPLES N VALUE RQD %	OTHER TESTS
	4.6								
0	4.3	FILL: brown to grey silty gravel with sand			SS	1	450	12	
1		FILL: black to brown silty sand with gravel - trace cobbles and boulders			SS	2	300	8	
2					SS	3	250	8	
3	1.5				SS	4	350	9	
4		Loose grey SAND with silt and gravel - trace cobbles			SS	5	50	7	
5				▼	SS	6	350	7	S
6					SS	7	50	16	
7	-3.0				SS	8	275	8	
8		Compact brown to grey sandy SILT - trace gravel			SS	9	50	9	
9	-4.5				SS	10	100	9	
10		Compact grey SAND with gravel - some cobbles and boulders			SS	11	450	11	S
11					SS	12	125	18	
12	-7.3	- multiple boulders encountered at 11.6 m			SS	13	0	50 / 75	
13		Compact to very dense grey silty gravel with sand: TILL - some cobbles and boulders			SS	14	300	20	
14					SS	15	250	11	
15					SS	16	200	99 / 175	
16	-11.9				SS	17	100	23	
17		Very poor quality, slightly weathered, grey quartzite: BEDROCK			SS	18	225	93	
18	-14.1				SS	19	350	66	S
19		End of borehole at 18.7 m - standpipe installed			RC	20	81	25%	
					RC	21	98	18%	Qu

Undrained Shear Strength - kPa
20 40 60 80
Water Content & Atterberg Limits W_P W W_L
SPT N VALUE, Blows/0.3m ●
Dynamic Penetration, Blows/0.3m ★
0 10 20 30 40 50 60 70 80

NOTES:

■ Pocket Penetrometer
▲ Miniature Vane
◆ Field Vane

App'd: NPM

BOREHOLE RECORD BH LOGS.GPJ DESIGN POINT ENGINEERING.GDT 12/17/25

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BOREHOLE RECORD

BH02

CLIENT **Municipality of the District of Shelburne**
LOCATION **Jordan River Trail Bridge Assessment - Jordan Falls, Nova Scotia**
DATES: BORING **2025-11-21** WATER LEVEL **2025-11-21**

PROJECT No.: **25-662**
DATUM: **Geodetic (CGVD2013)**
BH SIZE: **NQ**

DEPTH (m)	ELEVATION (m)	DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES REC. SOIL (mm) REC. ROCK (%)	SAMPLES N VALUE RQD %	OTHER TESTS
	4.5								
	4.2	FILL: brown to grey silty gravel with sand							
1		FILL: black to brown silty sand with gravel - trace cobbles and boulders			SS	1	400	3	S
2	2.1				SS	2	200	6	
		Loose to compact grey SAND with silt and gravel - trace cobbles			SS	3	300	16	
3					SS	4	75	7	
4									
5				▼	SS	5	0	21	
					SS	6	125	14	
6									
					SS	7	100	11	
7	-2.5				SS	8	300	43	
	-3.2	loose grey sandy SILT - trace organic fibres and gravel							
8		Compact to very dense grey silty gravel with sand: TILL - some cobbles and boulders			SS	9	0	50 / 100	
					SS	10	0	50 / 75	
9	-4.5				RC	11	86	63%	Qu
10		Fair quality, slightly weathered, grey quartzite: BEDROCK			RC	12	82	73%	
11									Qu
12	-8.2				RC	13	95	73%	
13		End of borehole at 12.7 m - standpipe installed							
14									
15									
16									
17									
18									
19									

Undrained Shear Strength - kPa
20 40 60 80
Water Content & Atterberg Limits W_P W W_L
SPT N VALUE, Blows/0.3m ●
Dynamic Penetration, Blows/0.3m ★
0 10 20 30 40 50 60 70 80

NOTES:

■ Pocket Penetrometer
▲ Miniature Vane
◆ Field Vane

App'd: NPM

BOREHOLE RECORD BH LOGS.GPJ DESIGN POINT ENGINEERING.GDT 12/17/25

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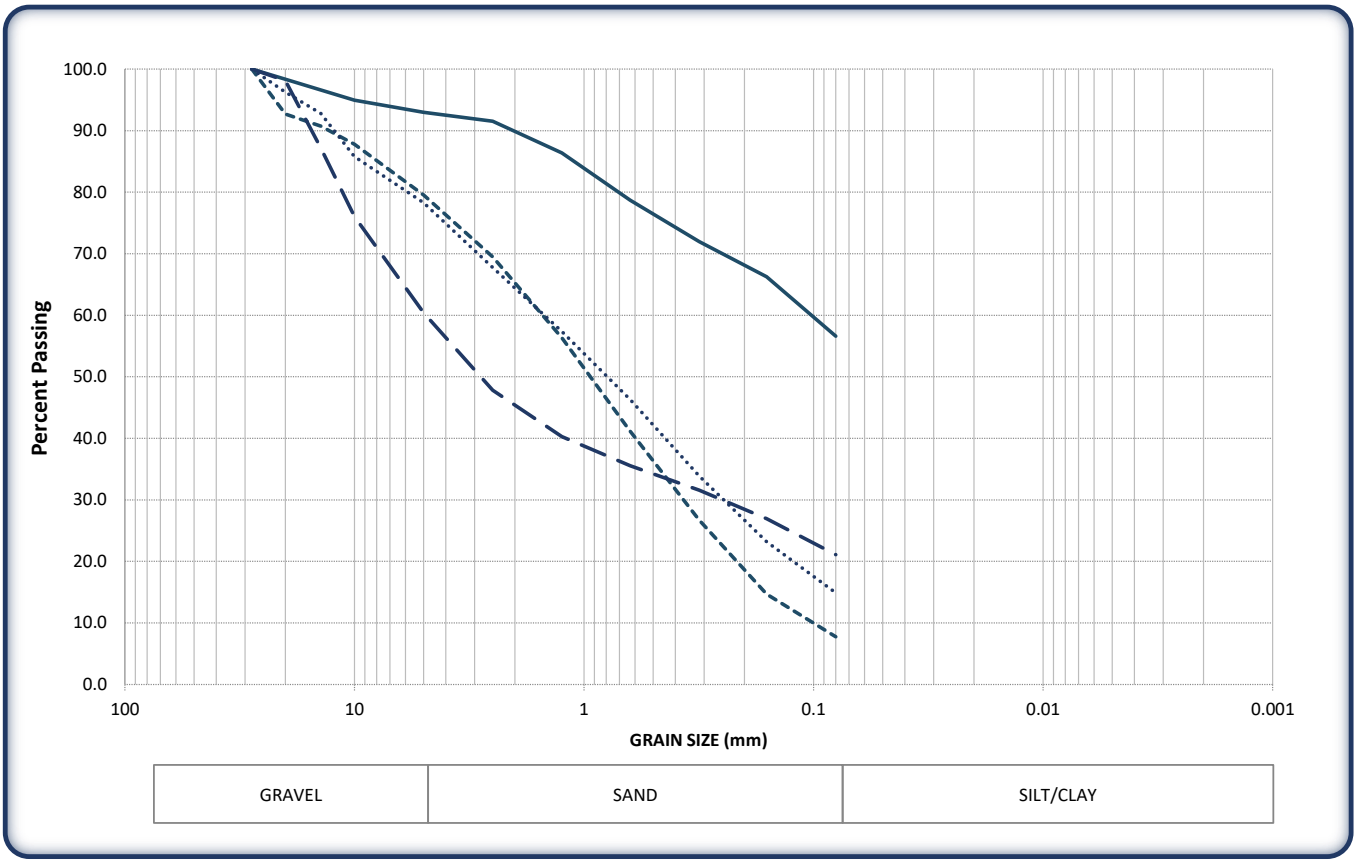
GRAIN SIZE

Project:	Jordan River Trail Bridge Assessment, Jordan Falls, Shelburne Co., NS
Client:	Municipality of the District of Shelburne
Project #:	25-662
Date:	December 10, 2025

GRAIN SIZE DISTRIBUTION PLOT



Plot	Sample	Depth	Gravel (%)	Sand (%)	Silt / Clay (%)	Soil Classification
-----	BH01 - SS6	4.0	20	72	8	Sand with silt and gravel
———	BH01 - SS11	7.9	7	36	57	Sandy silt
— —	BH01 - SS18	15.5	40	39	21	Silty gravel with sand
·····	BH02 - SS1	0.9	22	63	15	Silty sand with gravel

Comments:

Tested By: Amanda Jean, CET **Reviewed By:** Jonathan Steeves, P.Eng.

Figure 1

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MOISTURE CONTENT

Project:	Jordan River Trail Bridge Assessment, Jordan Falls, Shelburne Co., NS
Client:	Municipality of the District of Shelburne
Project #:	25-662
Date:	10-Dec-25

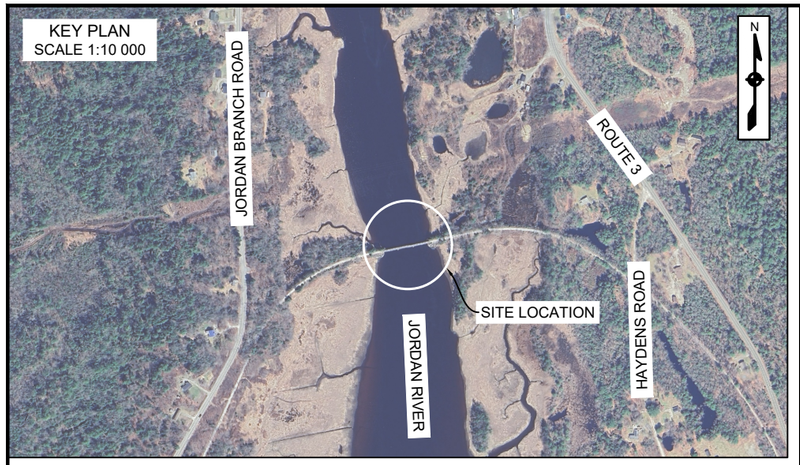
Sample ID	Depth, m	Moisture Content, %	Additional Tests
BH01 - SS4	2.6	7.4%	-
BH01 - SS6	4.0	10.9%	Sieve (see Figure 1)
BH01 - SS8	5.5	12.4%	-
BH01 - SS11	7.9	46.1%	Sieve (see Figure 1)
BH01 - SS13	10.0	12.7%	-
BH01 - SS18	15.5	10.2%	Sieve (see Figure 1)
BH02 - SS1	0.9	9.0%	Sieve (see Figure 1)
BH02 - SS3	2.4	17.9%	-
BH02 - SS6	5.4	29.9%	-

Comments:

Tested By: Amanda Jean, CET **Reviewed By:** Jonathan Steeves, P.Eng.

Figure 2

KEY PLAN
SCALE 1:10 000



N

EXISTING JORDAN RIVER TRAIL BRIDGE

SHELBURNE COUNTY RAIL TRAIL

BH01

BH02

JORDAN RIVER

Borehole No.	Northing (m)	Easting (m)
BH01	4851351.91	25440574.37
BH02	4851334.56	25440491.07
COORDINATES SHOWN IN MTM NAD83 2010, ZONE 5		

METRES
30 0 30 60
1:1000

NOTES

BH BOREHOLE LOCATION

*AERIAL IMAGERY REFERENCED TO GOOGLE EARTH.

CLIENT

Municipality of Shelburne

CONSULTANT

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PROJECT DESCRIPTION

JORDAN RIVER TRAIL BRIDGE
BOREHOLE LOCATION PLAN

SHELBURNE, NOVA SCOTIA

PROJECT NO.	DATE	DRAWING SCALE
25-662	December 4, 2025	1:1000

P:\2025\25-662 - MDS - Jordan River Trail Bridge\08 - Geotechnical\Drawings\25-662_BoreholeLocationPlan.dwg, PLOT DATE: 2025-Dec-4, PLOT SIZE: ANSI full bleed B (11.00 x 17.00 Inches), PLOTTED BY: Jonathan Steeves