

The Township of Rideau Lakes



Rideau Lakes

Request for Proposals **Ronald E Holman Municipal Complex** **(441 Highway 15) Pump Track** **Design and Development**

PW2022-19

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1.0 Information to Bidders

General Description

The Township of Rideau Lakes is seeking a seeking a qualified proponent to provide all labour, materials, products, and equipment necessary to execute the pump for the new recreational park area at the Ronal E. Holman Municipal Complex (441 Highway 15) as proposed in the attached tender documents and outlined in the “Scope of Work” under Section 3.0

Bid Submission

Proposals shall be made in the format specified in Section 1, include the forms in Section 2, and fully contemplate the project scope outlined in Section 3. Proposals shall be properly labeled with the proposal number ‘PW2022-19’ and submitted no later than the Closing Date and Time.

Proposals are to be submitted by email to: mnorwood@rideaulakes.ca . No sealed/hard copy submission is required. **Proposals will be received until 3:00p.m. E.S.T., August 16, 2022.** It is the Bidder’s responsibility to ensure that the bid submission is received by the Township prior to the submission deadline.

All proposals received will be held, unopened, and in strict confidence until after the closing date and time.

Registration

Individuals or firms interested in submitting a proposal should register as a Bidder with the Municipality to ensure they receive any addenda which may be issued. Individuals or firms may register by contacting the Manager of Facilities and Parks by email at the contact below:

Malcolm Norwood
Manager of Facilities and Parks
mnorwood@rideaulakes.ca

Optional Site Meeting

There is no required site meeting planned for this bid. **The site is publicly accessible at 441 Highway 15** should you wish to view the property. If you have any questions regarding accessing the site please contact Malcolm Norwood at mnorwood@rideaulakes.ca.

RFP Schedule

Every attempt will be made to meet all dates. The Township of Rideau Lakes reserves the right to modify any or all dates at its sole discretion.

Last Day for Questions: August 11, 2022 at 3:00pm

RFP Closing Date and Time: August 16, 2022 at 3:00pm
Selection of Successful Vendor: August 2022
Project Execution: As per proposal

Cost of Submission

The Township of Rideau Lakes will not be liable nor reimburse any Bidder for any costs incurred in developing a Proposal submission, attending meetings/interviews, demonstrating the goods and or services, legal services, or any other services that may be required in responding to this Request for Proposal.

Right to Accept or Reject Proposal

The Township of Rideau Lakes reserves the right to reject any or all Proposals, as a whole or in part, and waive formalities as the interests of the Corporation may require, without stating reasons. Therefore, the lowest or any Proposal may not necessarily be accepted. If there are a limited number of responses to this request, the Township reserves to right to terminate the request or make further requests for proposals.

Validity

The Proposal submitted shall remain valid for at least one hundred and twenty (120) days from the Proposal Closing Date.

Withdrawal of Proposal Prior to Closing

A Bidder who has submitted a response to this Request for Proposal may request that such response be withdrawn. Withdrawals shall be completed and shall be allowed under the following conditions;

- 1 The RFP closing date and time has not passed. There shall be no withdrawals of Proposals allowed after the closing date and time for receiving Proposals;
- 2 The request is made in writing on the Bidder's letterhead and signed by a senior official of the Bidder, and include his direct contact information; and
- 3 The request is made to the Manager of Facilities and Parks by email or by hand.

In all cases, a request for the withdrawal of a Proposal will be verified by the Township of Rideau Lakes, by way of a telephone call to the senior official representing the Bidder and making the request, to confirm the withdrawal.

All confirmed requests for withdrawal will be placed on record and the associated Proposal shall be given no further consideration.

Review of Documents

The Bidder must personally study the entire Request for Proposal document as to satisfy himself/herself of the conditions and requirements of the Proposal. There will be no consideration of any claim, after submission of Proposals, that there is a misunderstanding with respect to the conditions imposed by the Request for Proposal.

Multiple Proposals

Multiple responses from any one Bidder are acceptable, providing each response is complete as per the format specified herein, and is packaged and transmitted separately;

Addenda

The Township of Rideau Lakes may choose to issue addenda to provide clarification or additional information. Addenda will only be sent to vendors that have registered as Bidders. It is the Bidder's responsibility to ensure they have received all addendums and provide the Township of Rideau Lakes with the proper contact information through the registration process.

Price Submission

The Proposal price shall include total costs, in Canadian Dollars, including, but not limited to: labour, material, equipment, supervision, statutory charges and vendor overhead and profit.

Award

Upon completion of evaluations, the Township of Rideau Lakes may select a Bidder with whom it wishes to undertake negotiations for the project. Negotiations may take the form of adding, deleting, or modifying certain requirements based on the response to the Request for Proposal, and adjusting pricing accordingly if required. Assuming mutually acceptable terms and conditions can be agreed upon, a purchase order will be issued to the selected bidder.

The Township of Rideau Lakes reserves the right in its absolute discretion to:

- 1 Adjust, discontinue, or cancel the submission process, and/or commence a new process for the same or similar goods or services, if the Township of Rideau Lakes, at its sole discretion, deems it necessary.
- 2 Accept or reject any submission(s) in whole or in part.

Therefore, the lowest cost Proposal may not necessarily be accepted. The acceptance and award of a Proposal shall be subject to the approval of The Township of Rideau Lakes' Council.

Collection of Personal Information and Confidentiality Provision

Any personal information collected through the Request for Proposal process will be done so, and managed, in accordance with the *Municipal Freedom of Information and Protection of Privacy Act*. Any personal information collected is being done so for the purposes of proposal review and potential vendor selection.

All responses to this Request for Proposal will only be treated as Third Party Information and/or Economic or Other Interests in accordance with the provisions of the *Municipal Freedom of Information and Protection of Privacy Act* where **an explicit request to do so is provided in writing in the proposal**. Submission of a proposal

without this explicit request shall constitute consent for disclosure in accordance with the Act.

The information contained in this Request for Proposal will be utilized by the Bidder solely for the purposes of preparing a submission. Any other use of the information for any other purpose is not authorized by the Township of Rideau Lakes.

Standard Terms and Conditions

The Township of Rideau Lakes, maintains standard procurement Terms and Conditions that apply to this Proposal. A copy of the Township's Procurement of Goods and Services Policy – Revised March 2013 will be provided on request.

Terms of Payment and Invoices

The terms will be as per the project proposal and any subsequent negotiated agreement. Generally, the Township of Rideau Lakes' terms of payment are net thirty (30) calendar days upon completion of work and receipt of invoice.

Malcolm Norwood
Manager of Facilities and Parks
mnorwood@rideaulakes.ca

Termination

The Township of Rideau Lakes reserves the right to terminate the contract for sufficient cause, including, but not limited to, poor performance, late deliveries, inferior quality, incorrect pricing, statutory non-compliance, and health and safety concerns. If any successful Bidder should neglect to perform the work properly or fail to perform any provision of the Request for Proposal, the Township of Rideau Lakes may terminate the contract after fifteen (15) business days with written notice to the vendor.

Background Check

The Township of Rideau Lakes, at its discretion, may perform background checks on any service personnel, and reserves the right to refuse access to buildings or equipment to any personnel or other representatives of any successful vendor or manufacturer.

Conduct of Vendor Staff

The successful vendor shall employ orderly, competent and skilled staff to ensure that the Request for Proposal is completed in a respectable manner. If any one person employed by the successful vendor in connection with the Request for Proposals efforts, in the opinion of the Township of Rideau Lakes is just cause for complaint, the vendor, upon notification from the Township of Rideau Lakes, shall not permit such person to continue in any future work arising out of the Request for Proposal.

Accessibility

The Township of Rideau Lakes is required to comply with the Accessibility for Ontarians with Disabilities Act, 2005 as amended and any associated regulations.

Any successful Bidder for the completion of work with regards to this Request for Proposal must be aware of these requirements and certifies that all statutory requirements will be met at the vendor's full cost.

Insurance – Liability, Automotive and Non-Owned Automobile Insurance

Without in any way limiting the liability of any successful vendor, the vendor shall:

- 1 Maintain and keep in force during the term of the contract, General Liability Insurance protecting the contractor's liability, legal or assumed, under the contract for all claims arising from personal injury to members of the public, damage to property of public including loss of use of such property and the minimum insurance shall be \$5,000,000.00.
- 2 Maintain and keep in force during the term of the contract, automobile and non-owned automobile insurance on all vehicles used in connection with the work under this contract. Such insurance is to carry the minimum limit of \$2,000,000.00.
- 3 Maintain and keep in force during the term of the contract, Contractor's contingent liability insurance, covering the liability of the Contractor under this contract in respect to his sub-contractor's same limits as required in Clause (a).
- 4 Deposit with the Township of Rideau Lakes, before commencing any work under this contract, a certificate of insurance detailing the coverage and expiry date for all policies duly executed by the insuring company stating that if said policies are cancelled or changed in any manner, sixty (60) days written notice of such change or cancellation will be given to the Corporation of the Township of Rideau Lakes, Clerk, Delta Ontario. The Township shall be shown as an additional insured.

Workplace Safety Insurance Act

Any successful vendor is required to comply with all the regulations of the Workplace Safety and Insurance Board (WSIB) in respect to the contract work and all persons employed on or in connection therewith, and shall furnish a Certificate of Clearance from the Board to the Township of Rideau Lakes, and maintain good standing with the WSIB throughout the contract period.

Contractor's Liability

Any successful vendor shall be liable for all injuries and/or death to persons and for damage to property caused by his/her operations and those of sub-contractors and their employees engaged on and off site; and shall indemnify and save harmless the Township of Rideau Lakes from all suits and actions for damages and costs to such damages to property of others as well as the Township, resulting from negligence, poor workmanship and materials, as well as any cause whatsoever in the performance of the work.

Quality of Work

Any successful vendor at all times shall provide the Township of Rideau Lakes Representative with suitable access, and or status of the work covered under the

Request for Proposal. The Township of Rideau Lakes Representative shall be the sole judge of the work and therefore of its acceptability. Work that is unsatisfactory, in the opinion of the Township of Rideau Lakes Representative, shall be made satisfactory at no additional cost to the Township of Rideau Lakes.

Conflict of Interest

By submitting a bid, a Bidder declares that the submission is not made in connection with any other submitting Bidder or vendor, and is in all respects fair and without collusion or fraud and further that no member of Council, officer or employee of the Township of Rideau Lakes has become interested, directly or indirectly, as a contracting party, partner, stockholder, surety or otherwise on the performance of the said contract.

Lobbying

In order to ensure fairness to all Proponents, the Township must endeavour to prevent unfair advantage created by lobbying. Therefore the Township reserves the right to disqualify, at any time and at its sole discretion, any Proponent engaging in lobbying in connection with a competitive bidding process between a date that is no later than the date of issue of the RFP and the date of signing of a contract or Purchase Order between the Township and the Successful Proponent(s). The Township may disqualify a Proponent at any time in the procurement process, including after the selection process has been completed.

Lobbying may include any activity that the Township, in its sole discretion, determines has or may give an unfair advantage to one Proponent relative to other Proponents. Without limiting the foregoing, lobbying may include:

- a) Verbal or written communication with or to any Township staff / Council member other than those identified as contacts in this RFP in respect of this RFP.
- b) Verbal or written communication with or to any expert or other advisor assisting the Evaluation and Selection of this RFP.
- c) Verbal or written communication with or to any member of the RFP Evaluation and Selection team other than those identified as contacts in this RFP.
- d) Direct or indirect requests by the Proponent to any person, organization or group to provide a written or verbal expression of support not required by this competitive bidding process to any member of the Evaluation and Selection team or Council.
- e) Verbal or written communication with or to media organizations.
- f) Direct or indirect offer of gifts of any kind or value to any Township representative or personnel.

Questions Regarding the Request for Proposal

Bidders having questions or finding discrepancies or omissions, or having doubts as to the meaning or intent thereof, shall contact Malcolm Norwood. The Township may elect to provide clarifications directly or via an Addenda to all vendors, depending on the

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nature, scope and materiality of the questions. Any questions arising from the Request for Proposal shall be directed to:

Malcolm Norwood
Manager of Facilities and Parks
mnorwood@rideaulakes.ca

2.0 Submission Forms

Form # 1 – Price Form

Please submit this form in lump sum as a part of your proposal outlining the costs for the proposed work in response to the scope outlined in Section 3 and associated attachments.

	Unit Cost	Total Cost
Additional pump track base materials		
Cost p/m2 of asphalt top		
Painting / Finishing		
	Subtotal of above work	
	HST	
GRAND TOTAL		

The above noted costs must include all costs related to products, material, labour, site security, delivery, on-boarding, troubleshooting, training, professional fees, and ongoing costs.

SUBCONTRACTORS

If my/our bid is accepted, it is my/our intention to employ the following Subcontractors. All portions of the Work, other than those to be placed with the subcontractors named, shall be executed by ourselves with our own workers and are indicated by the words "Own Forces". The subcontractors identified below will not be changed without the written approval of the Owner.

UNIT OF WORK SUBCONTRACTORS

Other _____
 Other _____
 Other _____

PRESCRIBED SUBCONTRACTORS

I/We acknowledge the subcontractor requirements of the drawings, specifications, and addenda.

Form # 2 – Track Detail Proposal

The Township is requesting that a proposed detail of the general track layout be proposed and included in the attached bid. This form should include:

- a description of the proposed track, skill level and age of user groups which are to use the 2 tracks.

- Graphics showing concept design and cross sections identifying the detailed undulations of the pump track, which should highlight how the design builds upon the base layout that is being developed in the rough grading phase of the exterior recreational area which is to occur early this fall.
- Description of the finishing / painting needed for the track area

Form # 3 - Experience Form

To assist with proposal evaluation, please identify up to three (3) projects of a similar nature that you have completed, the scope of work involved and a reference contact. **Please submit this information as a separate attachment in the format you wish.**

Form # 4 – Bidder’s Declaration Form

I/We (enter name)_____

Title/Position_____

Name of Organization or Business_____

HST #_____

Email_____

Phone #_____

- 1) Declare that no person, firm or corporation other than the one whose signature or the signature of whose proper officers is attached below, has any interest in this proposal or in the contract proposed to be undertaken.
- 2) Further declare that this proposal is made without any connection, knowledge, comparison of figures or arrangements with any other company, firm or person making a proposal for the same work and is in all respects fair and without collusion or fraud.
- 3) Further declare that no Township of Rideau Lakes employee, or member of Township of Rideau Lakes Council and their families is, or will become, interested directly as a contracting party or otherwise or in the performance of the contract or in the supplies, work or business to which it relates or in any portion of the profits thereof, or of any such supplies to be used therein or any of the monies to be derived therefrom.
- 4) Further declare that the several matters stated in the said proposal are in all respects true.
- 5) Further declare that I/We have examined the Project Documents and hereby propose and offer to enter into a contract to provide all of the items mentioned and described or implied therein, including, in every case, freight, duty, exchange, and to accept in full payment therefore, the sums calculated in accordance with the actual quantities provided, and unit prices attached to this proposal.
- 6) Agree that this offer is to continue open for acceptance until a formal contract is executed or a purchase order is issued to the successful Bidder.

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Name of Authorized Officer (please print) _____

Signature of Authorized Officer _____

Signature of Witness _____

Name of Witness (please print) _____

Dated _____

3.0 – Project Scope

The proposed work is a part of a multi-phase development of a new recreational park area on the northern portion of the property at 441 Highway 15, also known as the Ronald E. Holman Municipal Complex. This building houses the South Elmsley Community Hall, newly renovated South Elmsley Library, and also has a public works component. The proposed exterior recreational park area is an outdoor extension of the community uses within the building, which the final product of the vision consists of an asphalt walking trail, pickle ball court, a large pump track and a junior pump track, and various other accessory structures (playground, boardwalk, viewing area etc...).

This RFP is requesting proposals to complete the proposed pump tracks on the tender drawings outlined in the attachments. A proposal for the rough grading of the property has been awarded, and the initial base of the pump tracks are already contracted out to be installed in accordance with the specifications in the attached drawings. The scope of work of this RFP includes:

- Reviewing the proposed pump tracks and base specifications on the attached drawings and making any needed revisions to the pump tracks as needed based on professional expertise and advice for optimal user experience. **Township is requesting that an updated proposal be provided with a submitted bid for proper evaluation of a bidder’s approach to the design.**
- Providing all labour, equipment, and material for the installation of the pump tracks including additional materials/base work for undulations, finishing asphalt surface and any painting/markings on the asphalt once completed

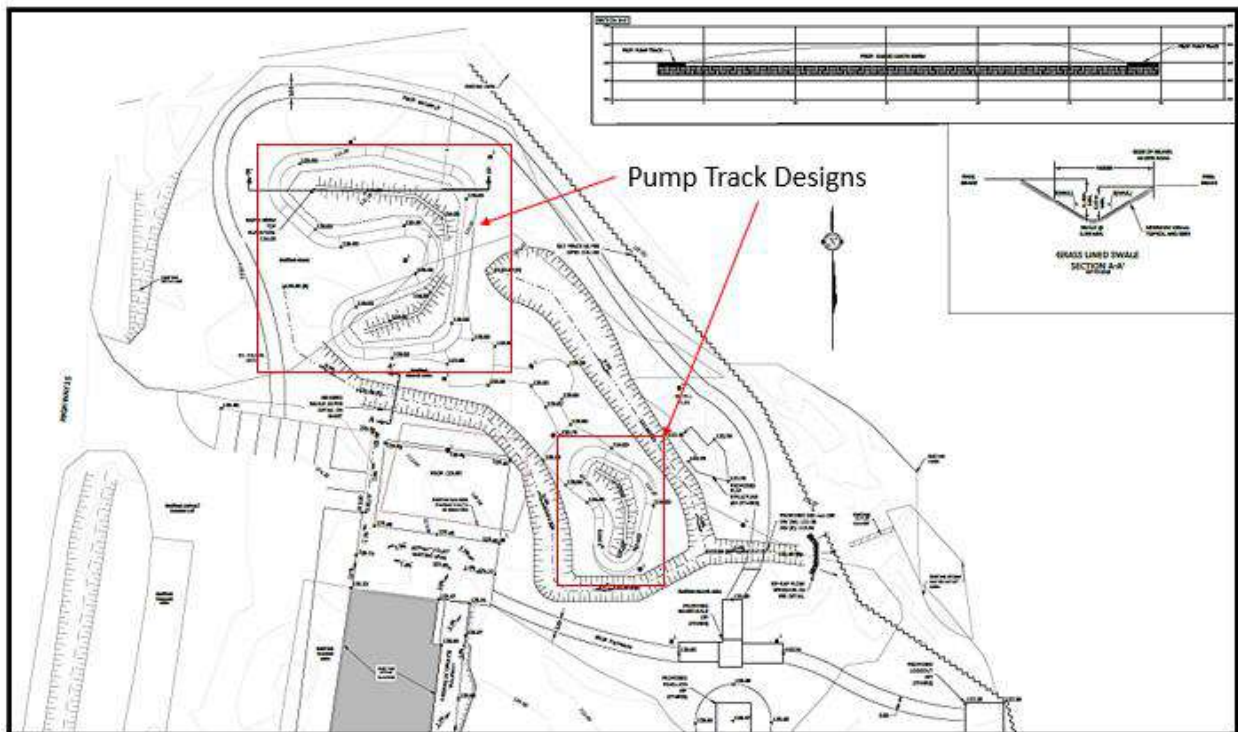
The Work for this bid includes all labour, materials, equipment, required to execute the pump track design (subject to the successful bidder’s review) The Township will acquire the required permit from the Rideau Valley Conservation Authority, and the work is to strictly adhere to this permit’s conditions (permit issuance pending).

The work shall be in strict accordance with all Rideau Valley Conservation Authority, Ministry of the Environment Conservation and Parks (MECP) and Ministry of Labour (MOL) requirements.

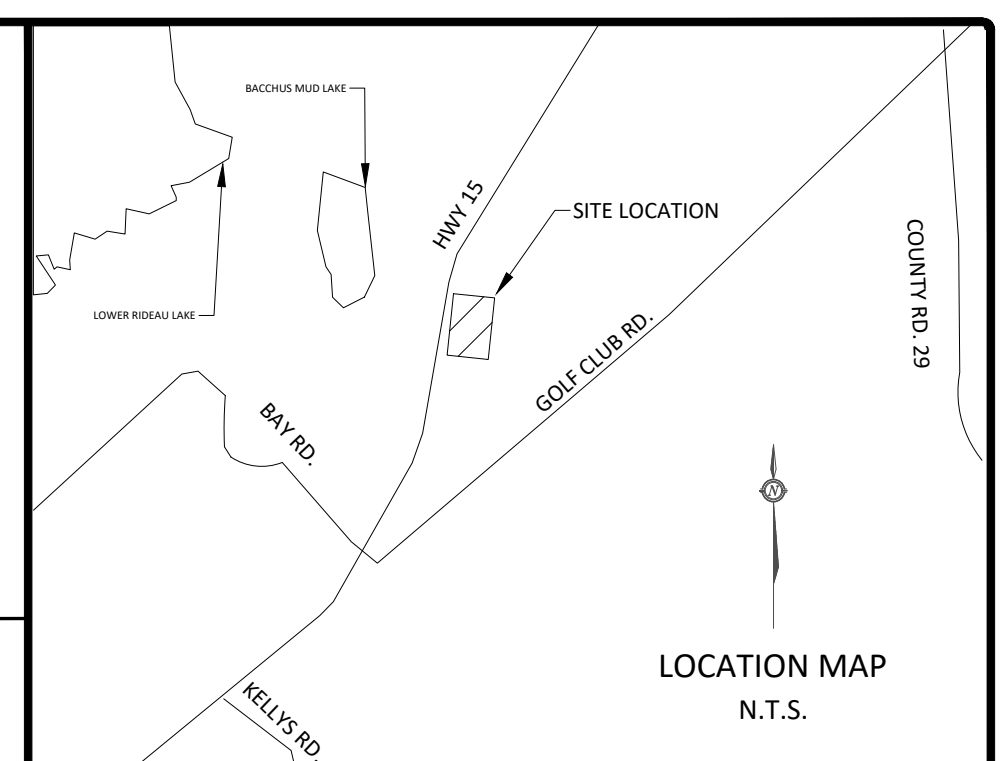
Attachments:

1. Pump Track Design Locations on Plans
2. REHMC Existing Conditions of Site Area
3. REHMC Grading Plan
4. REHMC Details
5. REHMC Pre/Post Development
6. Stormwater Brief

1. Pump Track Design Locations

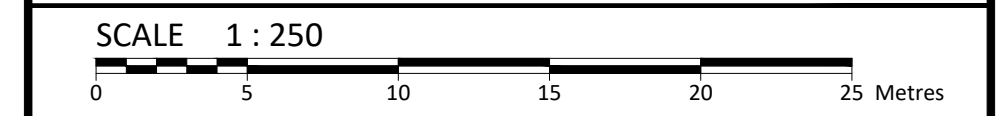


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 LAST PLOTTED: Friday, June 03, 2022, 10:11:52 AM



LEGEND

PROPERTY BOUNDARY	---
LEGAL BOUNDARY	---
EX. ASPHALT	---
EX. GRAVEL	---
EX. DITCH	---
EX. FENCE	---
LOT CORNER GRADE	---
EX. GRADE	---
REMOVALS	---
PROPOSED LOT LINE	---
PROPOSED CENTRELINE	---
PROPOSED ASPHALT	---
PROPOSED GRAVEL	---
PROPOSED DITCH	---
PROPOSED FENCE	---
PROPOSED CULVERT	---
PROPOSED RIPRAP	---
PROPOSED SWALE	---
PROPOSED TOP OF SLOPE	---
PROPOSED SPOT GRADE	---
PROPOSED SWALE GRADE	---
PROPOSED LIGHT BASE	---



No.	Revision/Issue	Date
2	ISSUED FOR TENDER	JUN/30/2022
1	REISSUED FOR REVIEW	MAY/04/2022
0	ISSUED FOR REVIEW	MAR/28/2022

Check and verify all dimensions before proceeding with the work. Do not scale drawings.

McINTOSH PERRY
 1-1329 Gardiners Road Kingston, ON K7P 0L8
 Tel: 613-542-3788 Fax: 613-542-7583
 www.mcintoshperry.com

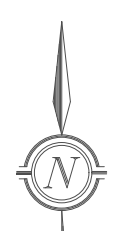
Stamp:

Client:
TOWNSHIP OF RIDEAU LAKES
 1439 COUNTY ROAD 8
 DELTA, ON K0E 1G0

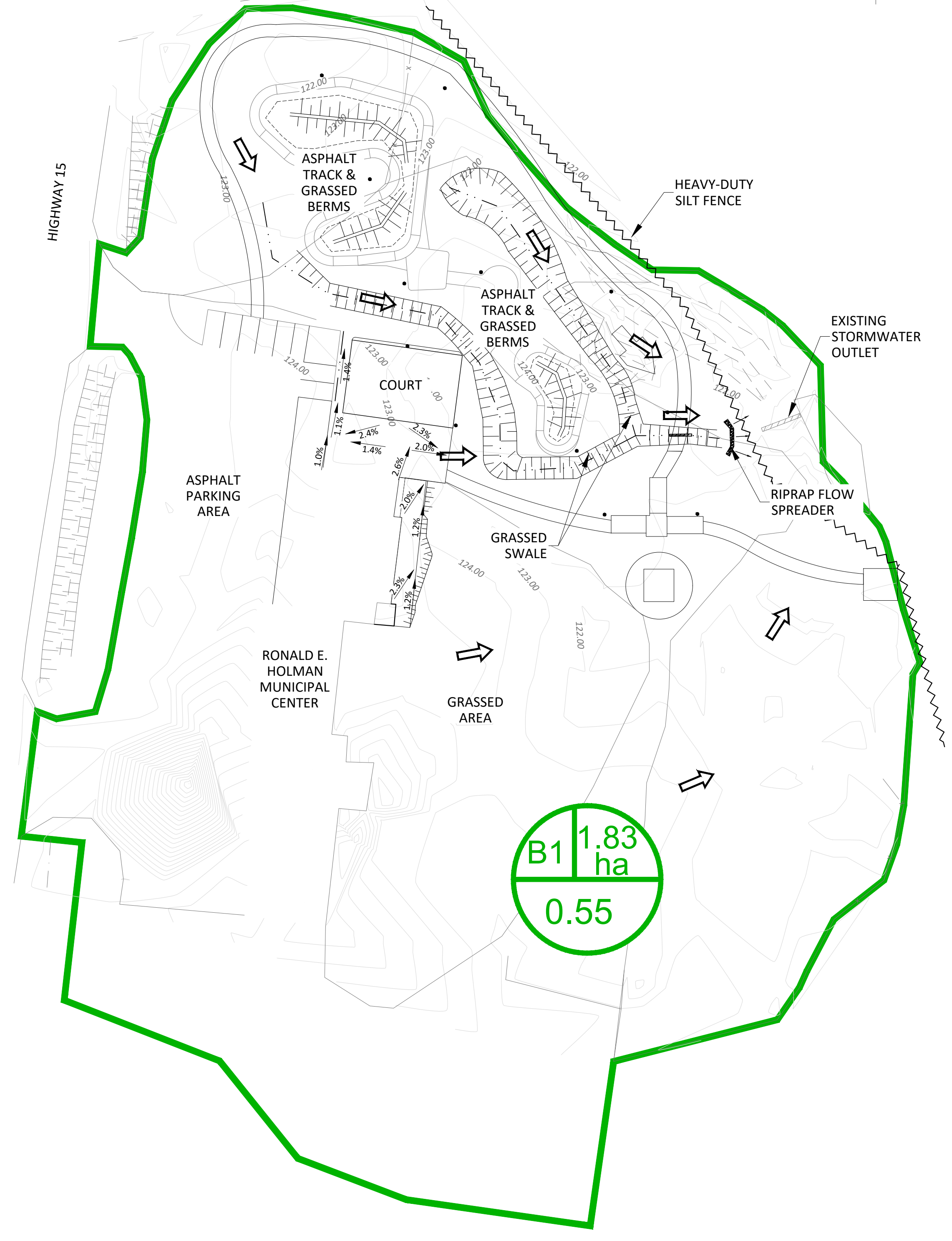
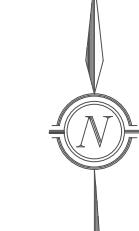
Project:
RONALD E. HOLMAN MUNICIPAL COMPLEX
 RIDEAU LAKES ONTARIO

Drawing Title:
GRADING PLAN

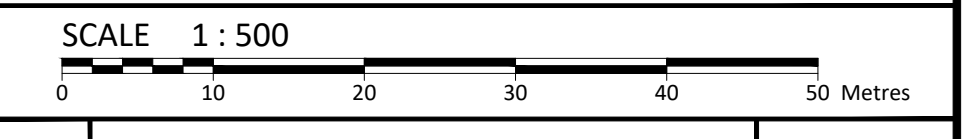
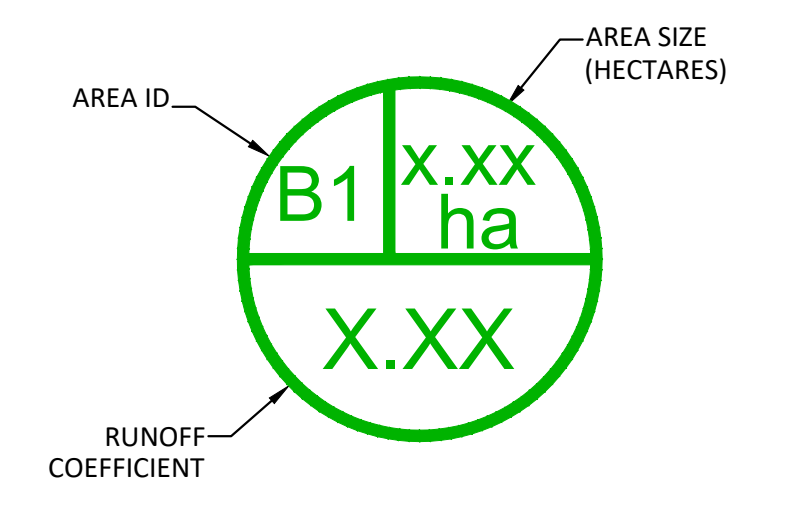
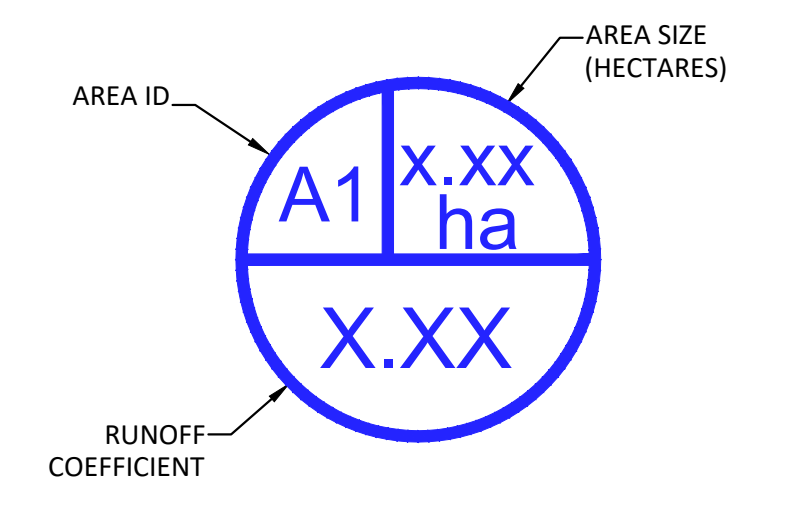
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Drawn by: RP	
Checked by: FA	
Designed by:	



PRE-DEVELOPMENT




POST-DEVELOPMENT



No.	Revision/Issue	Date
2	ISSUED FOR TENDER	JUN/30/2022
0	ISSUED FOR REVIEW	MAY/04/2022

Check and verify all dimensions before proceeding with the work. Do not scale drawings

McINTOSH PERRY
 1-1329 Gardiners Road Kingston, ON K7P 0L8
 Tel: 613-542-3788 Fax: 613-542-7583
 www.mcintoshperry.com

Stamp: 

Client:
TOWNSHIP OF RIDEAU LAKES
 1439 COUNTY ROAD 8
 DELTA, ON K0E 1G0

Project:
RONALD E. HOLMAN MUNICIPAL COMPLEX

RIDEAU LAKES ONTARIO

Drawing Title:
PRE- AND POST-DEVELOPMENT DRAINAGE PLAN

Scale: 1:500	Project Number: CCO-22-2999
Drawn by: DL	
Checked by: RC	Drawing Number:
Designed by:	

P:\Projects\2022\Projects\CCO-22-2999-02_Rideau Lakes Ronald E. Holman Mun Complex\Grading Plan\CCO-22-2999 - PRE-Development.dwg
 LAST SAVED: Wednesday, May 04, 2022, 11:57:43 AM
 LAST PLOTTED: Friday, June 03, 2022, 11:57:43 AM

STORMWATER MANAGEMENT BRIEF

RONALD E. HOLMAN MUNICIPAL COMPLEX



Project No.: CCO-22-2999

Prepared for:

Township of Rideau Lakes
1439 County Road 8
Delta, Ontario
K0E 1G0

Prepared by:

McIntosh Perry Consulting Engineers Ltd.
1-1329 Gardiners Road
Kingston, Ontario
K7P 0L8

May 2022

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APPENDICES

Appendix A: Pre- and Post-Development Drainage Plan & Calculations

1.0 INTRODUCTION

McIntosh Perry Consulting Engineers Limited (McIntosh Perry) has been retained by the Township of Rideau Lakes to complete grading and drainage plans and associated Stormwater Management Brief, as well as construction details and specifications in support of the redevelopment of the Ronald E. Holman Municipal Complex property with various landscaping and recreational features.

The main purpose of this report is to provide stormwater management design analysis in accordance with the recommendations and guidelines provided by the Ministry of Transportation (MTO), the Ministry of the Environment, Conservation and Parks (MECP) and Cataraqui Region Conservation Authority (CRCA) as appropriate. These guidelines encourage the implementation of Best Management Practices (BMPs) for treating and controlling stormwater runoff.

2.0 SITE DESCRIPTION

The subject property is located approximately 4km south of Smiths Falls on the east side of Highway 15. The subject property is approximately 3.5 ha, though the proposed works are located in an area of approximately 1 ha. The site is bounded by Highway 15 to the west and undeveloped treed area to the north, east and south mixed with farmland and wetland area. There are also two Provincially Significant Wetlands in the vicinity of the site – the Bacchus Mud Lake Complex is located west of the site across Highway 15, which appears to drain east across Highway 15 via a culvert located at the north end of the subject property. A stream along the north side of the property drains from this culvert east to the Otter Creek Wetland east of the site.

The property currently consists of a main building with attached garage building, a dome-style building, the remaining foundation of a demolished outbuilding, gravel and asphalt parking, driving and storage areas, landscaped grassed areas and undeveloped vegetated area. The property generally drains from its western limits along Highway 15 east toward the east limits of the site before entering the Otter Creek Wetland via overland flow or via a culvert located on the east side of the site. The area has an approximately 2-3 m elevation difference from the west side of the site to the east. An MECP Well (ID #3603605) is located directly across the Highway from the site and notes a depth to bedrock of 0.6m and a static water level of 6.1m. Soils near the site outside wetland areas, as identified by OMAFRA Agmaps and additional GIS data, appear to consist of sandy, silty glacial till.

3.0 BACKGROUND STUDIES, ASSUMPTIONS & LIMITATIONS

- GIS data (1m interval contours) was obtained through the Digital Raster Acquisition Project for the East (DRAPE) (2014) and was reviewed for site topographical context;
- No legal survey information was provided for the site. A field survey was completed by MP for the project area and was used as a basis for the existing layout and topography, along with aerial imagery and landscaping plans.
- A stormwater management design for the original site was not completed or was not available for review.

- No geotechnical information was provided for the site.

4.0 PROPOSED STORMWATER MANAGEMENT

4.1 Project Stormwater Review

Proposed works, which include a recreational court, a courtyard, asphalt tracks, walkways and wooden structures. The change in the land use and land cover under proposed conditions were compared to the existing conditions of the site with regard to grading and drainage. Impervious areas (asphalt, compacted gravel and structures) and pervious areas (grass and vegetated areas) were measured using AutoCAD Civil 3D software in both the existing and proposed conditions.

The proposed works appear to maintain or increase the pervious area on site, and the hard surface areas to be added do not add large areas of connected pervious area. Proposed works tend to be hard surface areas surrounded or edged by landscaped area. As a result of this analysis, no stormwater quantity storage has been proposed, and the remainder of this report will focus on quality objectives.

4.2 Design Criteria and Methodology

In the absence of a subwatershed plan for this area, the MTO Drainage Management Manual as well as the MECP Stormwater Management Planning and Design Manual were used where applicable. This methodology promotes stormwater management from an environmentally sustainable perspective. The intent of the stormwater management plan is to provide adequate stormwater treatment for both quantity and quality control.

The proposed stormwater management design for the building addition has been designed with the following design criteria:

- Limiting overall post-development peak flow rates to pre-development levels;
- Maintaining existing flow patterns; and
- Protection of water quality leaving the site, achieved through Best Management Practices.

Stormwater Best Management Practices (BMPs) will be implemented at the “lot level” locations. These concepts will be explained further in Section 4.3 To summarize, runoff will sheet flow over grassed surfaces while maintaining existing drainage patterns.

4.3 Best Management Practices

The entire site will employ Best Management Practices (BMPs) wherever possible. The intent of implementing stormwater BMPs throughout the entire development is to ensure that water quality and quantity concerns are addressed at all stages of the development. Stormwater BMPs will be implemented at lot and conveyance levels.

Lot level BMPs include the directing of runoff onto grassed areas and maintaining/returning as much of the lot as possible to a natural/vegetated state.

The conveyance systems to be employed include sheet drainage, as in pre-development, and grass-lined swales. The swales are proposed to be constructed at minimal gradient, thus promoting absorption and infiltration, as well as providing opportunity for particle filtration. During construction, riprap will be placed at erosion-prone areas and all disturbed areas will be re-vegetated as soon as possible.

A flow spreader has also been proposed at the outlet of swales to return flow from the grassed swales to sheet flow prior to outletting via the existing culvert on the east side of the site.

4.4 Runoff Calculations

The rational method has been employed for the stormwater management calculations using the following methodology.

$$Q = 2.78CIA \text{ (L/s)}$$

- Where
- C = Runoff coefficient
 - I = Rainfall intensity in mm/hr (per MTO IDF Lookup Tool)
 - A = Drainage area in hectares

The following coefficients were used to develop an average C for each area:

Impervious (Roofs, Paved Areas)	0.90
Gravel Parking & Driving Areas	0.90
Grassed areas	0.25

The following table is a summary of pre- and post-development runoff for the project area as shown on the enclosed Pre- and Post-Development Drainage Plan.

Area ID	Drainage Area (ha)	C	Q (L/s)	
			5-year	100-year
A1	1.83	0.61	221	370
B1	1.83	0.55	200	335

5.0 EROSION AND SEDIMENT CONTROL

5.1 Temporary Measures

Before construction begins, temporary silt fence will be installed at all natural runoff outlets from the property, with straw bales or other additional measures at any concentrated locations. For this development, the east side of the site is of most concern, since the proposed construction area drains west to east toward the wetland area to the east. The timeline of proposed works will be important in the management of erosion and sediment. It is recommended that silt fence be constructed prior to or concurrently to grading activities as the site allows.

It is crucial that these proposed controls be maintained throughout construction and inspection of sediment and erosion control will be facilitated by the Contractor or McIntosh Perry staff throughout the construction period.

Silt fences will be installed where shown on the final engineering plans, specifically along the downstream property limits. The Contractor, at their discretion or at the instruction of the Owner, McIntosh Perry, MECP or Cataraqui Region Conservation Authority (CRCA), shall increase the quantity of sediment and erosion controls on-site to ensure that the development is operating as intended and no additional sediment finds its way off site. The straw bales and silt fences shall be inspected weekly and after rainfall events. Care shall be taken to properly remove sediment from the fences and straw bales as required.

Any work taking place through winter months shall be closely monitored for erosion along sloped areas. Should erosion be noted, the Contractor shall be alerted and shall take all necessary steps to rectify the situation. Should the Contractor's efforts fail at remediating the eroded areas, the Contractor shall contact McIntosh Perry to review the site conditions and determine the appropriate course of action. As the ground begins to thaw, the Contractor shall place silt fencing at all required locations as soon as ground conditions both warrant and permit. Please see the enclosed Grading Plan for additional details regarding the temporary measures to be installed.

5.2 Permanent Measures

Riprap will be placed at all locations that have the potential for concentrated flow. In particular, a riprap flow spreader is proposed downstream of the majority of proposed impervious surfaces. It is crucial that the Contractor ensure that the geotextile is keyed in properly to ensure runoff does not undermine the riprapped area. Additional riprap is to be placed at erosion prone locations as identified by the Contractor, Contract Administrator, Owner, MECP or CRCA staff.

It is expected that the Contractor will promptly ensure that all disturbed areas receive topsoil and seed/sod and that grass be established as soon as possible. Any areas of excess fill shall be removed or levelled as soon as possible and must be located a sufficient distance from any sensitive areas to ensure sediment is not washed out into downstream areas. As the vegetation growth within the site provides a key component to the control of sediment for the site, it must be properly maintained once established.

6.0 SUMMARY

- The proposed works are proposed to add both impervious and pervious surfaces, while maintaining the percentage of hard surfaces on site and avoiding adding significant connected hard-surface areas.
- Flows from the developed portion of the site will be directed east towards an existing outlet on the east side of the site, as in pre-development.
- Features including grassed swales and a riprap flow spreader are proposed and are anticipated to maintain or improve the quality of flow leaving the site from its current state.
- It is recommended that the Contractor take particular care to construct erosion and sediment controls as outlined above and any additional controls deemed necessary during construction based on conditions in the field or as recommended by McIntosh Perry or CRCA staff.



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A handwritten signature in black ink, appearing to read "David Longmuir".

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