Table 6-1: Detailed Design Process Summary

Phase	Tasks	Estimated Time Frame[2]	Estimated Cost[1]
Topographic Survey 	A detailed topographic survey will locate, using real world coordinates, all relevant existing infrastructure including general site grades, curbs, power / communications systems, trees, and any other features that may affect proposed designs.	2-3 Weeks	$15,000
Geotechnical Investigation 	A geotechnical investigation will determine the subsurface conditions and their implications for proposed designs. Test pits and boreholes are completed, as required, to determine properties such as in-situ soil density and to identify the location of bedrock.	3-4 Weeks	$15,000
Environmental Investigations and Approvals 	Environmental investigations will be required in order to assess the existing conditions in the Study Area and to estimate the anticipated impact that may be caused by development of the greenway. Investigations will include wetland, watercourse and archaeological resource impact assessments. *Note that wetland delineation work is required by NSE to be completed between June 1 and September 30th.* Coordination of environmental approval applications will be an important task and includes consultation with multiple departments (DNR, NSE, DFO, etc.) that need to approve various aspects of the project.	6-8 Weeks	$15,000
Preliminary and Detailed Design 	Conceptual layouts are refined based on the results of Study Area investigations to produce preliminary and detailed designs. These designs identify required earthworks, structures, and materials required to install the proposed greenway. Upon completion and approval of detailed design drawings, tender drawings and specifications are issued for bidding by contractors. Construction drawings are issued to the selected proponent.	8-12 Weeks	$80,000
	TOTAL	**18-24 Weeks**	**$125,000**

Notes:
1. Cost estimates are high level and for planning purposes only.
2. Estimated time frames are based on past experience with similar projects. Delays encountered for any of the individual tasks will likely impact the overall project duration.
3. Environmental approval estimate excludes costs associated with habitat compensation.

6.3 Greenway Construction Considerations

Construction of the proposed greenway will need to be coordinated in a manner that limits impact on Highway 107. It may be challenging to avoid disruptions completely, particularly in areas where there is minimal separation between the greenway and the highway. It will also be important that potential impacts on the Chezzetcook Marsh be mitigated to the extent possible.

- Greenway Construction: Construction methods will vary depending on the location. In general, construction will consist of clearing and grubbing all existing vegetation along the greenway alignment and levelling and compacting the existing ground with imported borrow as required to create an even sub-base. Riprap or surge rock will be installed in some locations to protect the greenway fore slope from high tides and waves at the Chezzetcook Inlet.

  Guide rail, jersey barriers, wooden railings, and sign posts will be installed where required before placing and compacting base gravels and finishing with a crusher dust surface. Ditches or swales and culverts will also be required in certain locations to provide proper storm drainage for the greenway. All disturbed areas not covered in gravel or riprap will be reinstated with topsoil & hydroseed.

  There are existing catchbasins located along sections of Highway 107 and it is not currently know where the outlets discharge. The outlets may have to be lengthened in certain areas to extend them past the limits of the greenway.

  Traffic control will be an important part of the construction process to maintain safe access to and from the site for construction personnel and equipment while minimizing disruption to Highway 107 traffic. It is expected that traffic control will be required on Highway 107 for the duration of the project. Lane closure would reduce Highway 107 from two lanes to one lane, which would need to be regulated by either a temporary traffic signal or flagging staff.

  Environmental protection measures will also be an integral part of the construction process to minimize impact to the Chezzetcook Marshlands from construction activities and to prevent sediment-laden runoff from entering wetlands.

- Bridge Construction: Bridge Construction: The two bridges that will be required are expected to consist of pre-fabricated steel structures with cast-in-place concrete abutments on the approaches. The abutments can be installed in place independent of the structure. After the abutments are constructed, the pre-fabricated bridge structure is hoisted in place and secured. The concrete deck is then placed on the trusses to create the trail surface and railings are installed. Asphalt may then be added to the bridge deck and approaches to create a finished greenway surface. This method is advantageous in terms of construction, since the pre-fabricated structure reduces construction time and limits construction disturbance.

Active transportation Bridge in Bedford, NS.

Example of a Pre-fabricated bridge structure being hoisted in place.

6.4 Estimate of Construction Costs

Order of magnitude construction costs have been estimated based on the conceptual designs provided in Appendix B. These cost estimates are limited by the lack of available topographical and geotechnical information, and as a result are provided for preliminary planning purposes only. As summarized below, the total construction cost for the Acadia Marsh Greenway has been estimated at $2,054,000 (not including HST). This cost includes a 35% contingency (to reflect the uncertain nature of the estimates) as well as the $125,000 estimated cost for engineering and approvals provided in Table 6-1.

Acadia Marsh Trail
ESTIMATE OF PROBABLE COSTS

WSP

This estimate of probable construction cost is approximate only. Actual cost may vary significantly from this estimate due to market conditions suchas material and labour costs, time of year, industry workload, competition, etc. This estimate has been prepared based on our experience with similar projects. This estimate has not been prepared by obtaining any estimates or quotes from contractors. Due to the uncertainties of what contractors bid, WSP cannot make any assurances that this estimate will be within a reasonable range of the tendered low bid. When assessing this project for business feasiblity purposes this estimate should not be relied upon without considering these

PROJECT NO.	151-02137
DATE:	Dec. 18, 2015
CLIENT:	SATA
CONSULTANT:	WSP
UNIT PRICE SOURCE:	WSP

NOTES:
1) HST NOT INCLUDED IN INDICATED UNIT PRICES AND TOTALS.
2) NO ALLOWANCE HAS BEEN MADE FOR WETLAND COMPENSATION COSTS WHICH WILL BE SUBJECT TO WETLAND DELINEATION AND THE D.O.E. APPROVAL PROCESS

South Side of Highway 107

DESCRIPTION	UNIT	EST. QUANT.	UNIT PRICE	TOTAL PRICE
20m Pre-fabricated Steel Truss Bridge (Incl. Footings)	each	1	$225,000	$225,000
50m Pre-fabricated Steel Truss Bridge (Incl. Footings)	each	1	$550,000	$550,000
Greenway Construction				
Section A	m	800	$170	$136,000
Section B	m	125	$340	$42,500
Section C*	m	1855	$310	$575,050

Sub-Total	$1,529,000
Contingency (35%)	$535,000
Engineering and Approvals	$125,000
ESTIMATED COST (excl. HST)	**$2,189,000**

*Add $375,000 if Jersey Barrier installation is required

Appendix A
Applicable Policies & Standards

NSTIR Policy PO1033: ***Trail Policy***
NSTIR Policy PO1001: ***Sidewalk Construction and Maintenance***
NSTIR Policy PR5092: ***Trail Construction / Maintenance and Trail Crossings***
Wetland Compensation: What's Required and What Are My Options **(NSE)**

WSP

November 2015

Wetland Compensation

What's Required and What Are My Options?

BECAUSE WETLANDS ARE A VALUABLE PART OF OUR ENVIRONMENT, WE MUST PROCEED WITH CAUTION WHEN CONSIDERING A PROJECT THAT MAY ALTER A WETLAND

You must have approval from your local Nova Scotia Department of Environment field office before you alter a wetland. The approval, if granted, will set out the requirements for compensation.

PURPOSE OF COMPENSATION

The purpose of compensation is to create a healthy and sufficiently sized wetland to make up for the loss of habitat and the role the wetland played before being altered for development. Whenever Nova Scotia Environment grants an approval to alter a wetland—such as draining, filling, flooding, or excavation—it also requires a wetland to be restored, created, or enhanced elsewhere to balance any loss during the alteration process.

Restoring ATV damage in a bog near Lake Charlotte

TYPES OF COMPENSATION

Determining the type of compensation depends, in part, on the details of each situation. It usually involves restoring, enhancing, or creating wetland habitat, but may also be provided in other forms (see types of compensation below):

RATIO 2:1	**RESTORATION** **Restoration is the preferred method of compensation. This involves reestablishing wetland where it previously occurred. Studies show this method has the highest rate of success.**	Compensation ratio for restoration is 2:1 — for every hectare of wetland altered, two hectares must be restored.
RATIO ≥3:1	**ENHANCEMENT** **Enhancement is a management activity conducted in existing wetlands that increases one or more wetland functions, such as sediment retention, flood control, and wildlife support.**	Compensation ratio for enhancement at least 3:1 — exact amount depends on the specific type of enhancement undertaken.
RATIO 4:1	**CREATION** **Creation is the construction of wetland where none existed previously.**	Compensation ratio for creating new wetland is 4:1.
RATIO 2:1	**EXPANSION** **Expansion of an existing wetland into adjacent areas.** There is a lower ratio requirement for this type of compensation because it has proven to be more successful than creating new wetland.	Compensation ratio for expanding an existing wetland into adjacent areas that were not originally wetlands is 2:1.

OTHER TYPES OF COMPENSATION THAT MAY BE CONSIDERED INCLUDE

- protecting an existing wetland or adjacent buffers that have special ecological significance
- constructing naturalized stormwater or wastewater retention wetlands
- conducting studies to identify potential restoration sites
- creating public access facilities and interpretive centres
- publishing public education materials
- funding research to support improved wetland policy

These options are typically only approved when included along with restoration, enhancement, or creation efforts, which have provided a ratio of at least 1:1 replacement of wetland on the ground. The options can be discussed with a Nova Scotia Environment administrator while the proposal is being developed.

COSTS OF COMPENSATION

Costs vary depending on the complexity of the project and the landscape setting. Recent restoration projects have cost between $3 and $10 per square metre of restored wetland, or $30,000 to $100,000 per hectare.

WHEN HIRING A SPECIALIST

Hire a wetland restoration specialist that can meet your compensation requirements. Discuss your specific needs with the wetland consultant to determine if they have the skills required before you hire.

Download a list of available consultants at
http://www.gov.ns.ca/nse/wetland/wetland.professional.resources.asp

REQUIREMENTS FOR APPROVAL

Before receiving approval to complete a project that will alter a wetland, you must take one of two approaches. Both approaches, described in detail on the right side of this page, must be developed and finalized in consultation with Environment staff.

LINKS For more information

- Contact Nova Scotia Environment's Wetland Program at
902-424-2117 or wetlands@gov.ns.ca
- Visit Nova Scotia Environment's website for links to additional information
www.gov.ns.ca/nse/wetland
- Nova Scotia Environment field office information
www.gov.ns.ca/nse/dept/division.emc.asp
- Application for approval to alter a wetland
www.gov.ns.ca/nse/wetland/wetland.alteration.asp
- Wetland Specialists
www.gov.ns.ca/nse/wetland/wetland.professional.resources.asp

CONSULT NOVA SCOTIA ENVIRONMENT STAFF

to determine how best to develop a compensation plan

APPROACH 1:

Develop a comprehensive plan that describes all aspects of the compensation project.

APPROACH 2:

A letter of understanding or contract confirming you have retained the services of a wetland restoration specialist to provide an acceptable compensation project. The letter of understanding should include:

- basic information about the approach that will be taken
- general description of the amount, type, and location of the wetland to be restored, enhanced, or created
- a timeline for completion of different phases of the project (within two years)
- basic commitment to monitoring success (details to follow before project begins)
- agreement to keep Nova Scotia Environment informed of project progress
- signatures from the applicant and consultant on the agreement

FACT SHEETS ALSO AVAILABLE:

- Wetlands in Nova Scotia
- Wetland Checklist
- Development & Wetlands
- Farms & Wetlands
- Woodlots & Wetlands
- Wetlands Policy Fact Sheet

www.gov.ns.ca/nse/wetland/

NOVA SCOTIA

Division: Highway Programs
Section: General
Function: Operations (HP 2.11.25)
Policy Number: **PO1033**

Trail Policy

Policy Statement

This policy is intended to provide staff consistent guidance when approached by government agencies or recognized trail groups seeking approval to either construct trails or trail crossings on highway right-of way. In accordance with this Policy and corresponding procedure, TIR may authorize recognized trail associations or municipal units to develop safe trails or trail crossings which are compliant with acts, regulations, Department procedures, safety goals, objectives and resource management.

Rationale

The Department is committed to support development of the Trans Canada Trail and will work with all recognized trail organizations and municipal units. Trail groups continue to construct new trails and to expand the existing trail network. In addition, trail groups have been given the authority by Department of Natural Resources to use the former railway corridor as part of their trail network.

Policy Objectives

1 To provide consistent direction on the development of trails and crossings within the highway right of way.

2 To provide a safe crossing environment for both trail and road users.

Application

This policy applies directly to all Highway Programs staff involved in highway planning, maintenance, construction or operations where trails extend into the highway right of way.

Accountability

The Area Manager or Construction Manager will be responsible, and accountable, for the administration of this policy.

Monitoring

The District Director will monitor the policy's implementation, performance and effectiveness with regards to construction and maintenance of trail crossings.

Directives

1 Construction of Trails and Trail Crossings

No trail will be constructed on Department right-of-way without a Work Within Highway Right of Way Permit issued by the Area Manager. The Department will not construct or maintain trails. Trail construction and maintenance is the responsibility of the various Trail Organizations or Municipal units.

2 Recognized Trail Organization

A recognized trail organization must have a current Certification of Incorporation as provided for in the *Societies Act* R.S.N.S., c. 435.

3 Surplus Government Assets

Consideration may be given to requests from non-profit groups for government surplus assets in accordance with *Surplus Crown Properties Disposal Act.*

4 Cancellation of Permits and Agreements

The Department reserves the right to cancel a permit to cross highway right of way or to remove the crossing if the trail developer fails to safely maintain a trail crossing location or for any other purpose.

5 New Highway Construction - 100 Series Controlled Access

When new highway construction will affect trail crossings, the Department will work with trail developers to identify trail crossing needs within the new highway corridor.

6 Abandoned Railway Corridors

The Department will not undertake to assess structures or existing trail crossing locations on abandoned railway corridors, except when a request from a trail developer to upgrade an existing established trail crossing location is received.

Guidelines

None

References

TIR Manual - PR5092 Trail Construction / Maintenance and Trail Crossings
The Off-Highway Vehicle's Act
The Off-Highway Vehicles General Regulations, Chapter 323, Amended 2007
The Motor Vehicles Act
The Public Highways Act
The Societies Act
Availability of Surplus Government Assets for Non-Profit Organizations
Surplus Crown Properties Disposal Act

Enquiries

Area Manager
District Traffic Authority / Supervisor
Manager Traffic Engineering Services

Appendices

None

Trail Construction / Maintenance and Trail Crossings

Purpose

This procedure is intended to provide district staff consistent guidance when approached by government agencies or recognized trail groups seeking approval to either construct trails or trail crossings on highway right-of-way.

For the purpose of this procedure, the Department of Transportation and Infrastructure Renewal (the "Department") recognizes there are two main categories of trail users, motorized and non-motorized users. The motorized users include, but are not limited to, all off-highway vehicles while the non-motorized users include, but are not limited to, pedestrians, equestrians, bicyclists and cross country skiers.

Procedure(s)

1 General

1.1 Approval for the construction and maintenance of trails and trail crossings will only be granted to municipalities or recognized trail organizations that hold a certification of incorporation issued pursuant to the *Societies Act* R.S.N.S., c. 435 or other Government agencies (herein referred to as "trail developers").

1.2 a Non-motorized trail construction will be as outlined in TIR Manual PO1001, Sidewalk Construction and Maintenance Policy. Non-motorized trail construction and maintenance is the responsibility of the municipal unit as outlined in the Provincial Municipal Services Exchange.

b Construction and maintenance of trail crossings for both motorized and non-motorized trails is the responsibility of the trail developer or municipal unit.

1.3 Motorized trail construction and maintenance will only be permitted, in limited circumstances, as per Section 2.1 (Trail Construction) of this procedure. In those cases, an agreement must be reached between the trail developer and the Department.

1.4 The trail developer or municipal unit will obtain the 'Work Within Highway Right-0f-Way Permit' prior to any trail development within the highway right-of-way. The Area Manager may request additional information from the trail developer or municipality as part of the trail development approval process.

2 Trail Construction

2.1 Construction of trails for motorized use will not be constructed along (parallel to) any roadway on Department right-of-way. Notwithstanding the above, there may be exceptional situations that exist to warrant the construction of small portions of trails within TIR right-of-way. These include:

a Extending an established trail to permit the trail to cross a non-controlled access highway at the nearest practical crossing location. These crossing locations must comply with section 4.2 of this procedure.

b. Locations where trails have been severed by highway construction.

c Locations where geographical features impede trail connectivity.

Trail construction that may intersect with existing or future property access locations should be avoided.

This trail construction must be approved by the Executive Director Maintenance and Operations. The Area Manager will send the completed "Work Within Highway Right of Way Permit" to him/her for review and approval. The signed / approved permit will be returned to the Area Manager.

2.2 Trail construction for all other non motorized users must be in accordance with Appendix C (Walking and Non-Motorized Multi-Use Trail Treatments - Cross Sections).

2.3 Where established trails are affected by new highway construction, the Department will work with trail groups and accommodate off-highway-vehicle use, to the extent possible, into the design of the highway. Design plans must be approved by the Executive Director Highway Engineering and Construction.

3 Trails on 'K' Class Roads

3.1 As with all other roads, "K" Class Roads are governed by the *Public Highways Act* and the *Motor Vehicle Act* and as such are not available for the exclusive use of off-highway vehicles. The Off-Highway Vehicles General regulations allow off-highway vehicles to operate on "K" Class Roads.

Construction within the right-of-way of "K" Class Roads to render the road exclusively for trail use is strictly prohibited. The option to use the right-of-way of "K" Class Roads exclusively for trail development would require the road to be formally closed by government. A number of factors would have to be considered before Government relinquishes control of any right-of-way:

I Access by abutting land owners
II Potential for future highway development
III Access to natural resources (Eg. pulp companies)
IV Subdivision potential
V Access to beaches, etc.
VI Ownership / title issues (abutting owners)
VII Land swap
VIII *Special Places Protection Act.* R.S., c.438, s.1
IX Interest of Other Government Departments

3.2 Upgrades to "K" Class Roads by Trail Developers

a Any trail group requesting to perform work within the Highway right-of-way on a "K" Class Road, must submit this request in writing to the Area Manager.

b Any upgrades to these roads must follow all procedures and adhere to all standards as outlined in the TIR Manual "Road Upgrading" procedure PR5035.

c All costs associated with the upgrades and the maintenance of such upgrades shall be the responsibility of the trail developers.

d TIR will make no compensation to the trail developer in the event that damage is done, by any party, to the improvements made to the "K" Class Roads.

4 Trail Crossings

A trail crossing is defined as a location where a trail crosses a provincial public highway.

4.1 Trails crossing Controlled Access Highways

a. Trails will not be permitted to cross controlled access highways, without a grade separation specifically designed for that purpose. The *Off-highway Vehicles General regulations* prohibit a person from operating or driving an off-highway vehicle upon or across a highway designated as a controlled access highway pursuant to the *Public Highways Act*.

b Where construction of a controlled access highway crosses a trail corridor the following will apply:

I Installation of grade separated trail crossings will be considered by the Department where the highway alignment crosses an existing established trail. Trail owners / users must be able to provide documentation (maps, leases, permits, deeds), that the trail is well established and that the trail approaches are safe, legal, and undisputed. Minimum spacing between highway / trail crossings is 5 km.

II The definition of an established trail, for the purpose of this procedure will be as defined in the Off-highway Vehicles General Regulations: *"Established trail" means a route or path in existence before April 1, 2006, that has, through traditional use, become a trail for use by off-highway vehicles, and permission to use that route or path has not been withdrawn.*

III A tunnel type structure, under the highway, is preferred for the crossing, however, other designs may be used where determined to be appropriate by the

Department. The structure may be constructed a reasonable distance on either side of the existing trail, depending on topography. In this case, the trail must be realigned, by the trail developer, to meet the structure and minimize travel in the ditch or on the highway slopes.

IV Where new or realigned highways cross existing trails, the Department may consider funding a portion of, or all of, the crossing infrastructure, on an individual basis, depending on the circumstances that exist at the time.

c Any changes to structures on the highway right-of-way, as a result of trail development, will require approval from the Executive Director Highway Engineering and Construction. Costs for evaluation of trail developer designs, such as an addition of cantilever crosswalks on bridge overpasses, will be at the expense of the group or organization requesting trail development.

4.2 Trails crossing Non-Controlled Access Highways

a Trails crossing public roads will only be permitted at locations deemed appropriate by the Area Manager, who will take the following criteria into consideration:

I The intersection of a trail with a public road should be a minimum of one hundred (100) metres from an existing intersection of two (2) public roads.

II The minimum stopping sight distance on the highway, at a trail crossing must satisfy commercial / crosswalk stopping sight distance requirements of one hundred and fifty (150) mm object height.

III The trail crossing must intersect the road at a right angle.

IV The trail crossing must be installed in accordance with the instructions for the installation of a culvert and must be level

(+/-2%) with the edge of the shoulder for a distance of five (5) metres.

V The Area Manager may request from the trail developer the number of recreational vehicles expected to use the trail crossing.

VI Trail developers must provide documentation (maps, leases, permits, deeds) ensuring the trail is well established and that the trail approaches are legal and undisputed.

VII The trail developer must provide a plan, drawn to scale, showing the requested crossing location and meeting all requirements identified above.

VIII The trail developer must provide the Department with written consent for access to their lands, from property owners which are adjacent to the highway at the proposed trail crossing.

As part of the approval process, the District Traffic Supervisor will prepare a trail crossing signage plan for the identified crossing location. This plan will incorporate all required signage and other safety devices as shown on the Appendix A (Newly Developed Trail Crossing - Typical Signage).

The Department will supply, install and maintain Trail Crossing Signs as shown on the typical signage plans approved by the District Traffic Supervisor. Appendix D - Trail Crossing Sign Assembly - Shared-Use Trail Crossing (Motorized Vehicles Permitted); and Appendix E - Trail Crossing Sign Assembly - Multi-Use Trail Crossing (Motorized Vehicles Prohibited)

.

The trail developer is responsible for the provision, installation, inspection and maintenance of all other signs, bollards, barricades or gates required as shown on the approved signage plan.

b Trail Crossings Along Abandoned Rail Corridors.

The *Off-highway Vehicles Act* (the "*OHV Act*") permits off-highway vehicles to cross public highways provided various conditions within the *OHV Act* are met. The off-highway vehicle operator or driver is responsible for complying with the requirements of the *OHV Act* when crossing a highway.

The Department recognizes there are existing trails along the abandoned railway corridor that cross public highways. The Department of Natural Resources (DNR) have issued letters of authority to various trail groups allowing them to establish these trails. The Department will not assess the stopping sight distance at these crossings except when a request from a trail developer to upgrade an existing trail crossing location or a public complaint is received or a safety issue becomes known. The Department will not assess the intersecting angle except when a request from a trail developer to upgrade an existing established trail crossing location is received.

The Area Manager, in consultation with the District Traffic Supervisor, may approve these upgrades provided the safety of the trail crossing location is improved. The trail developer must provide a plan, drawn to scale, of the proposed crossing location upgrades. Safety improvements may include, but are not limited to, improvements to stopping sight distance and/or improved intersecting angles. The trail developer will be responsible for all costs associated with the proposed upgrade(s).

The Area Manger will ensure that all existing trail crossings along the abandoned railway corridor, which are operating under a letter of authority from DNR, have all required signage and other safety devices as shown on Appendix B (Existing Rail Trail Crossing - Typical Signage) with the exception of advisory speed tabs.

If a complaint from the general public is received or when a safety issue becomes known, the Area Manager, in

consultation with the District Traffic Supervisor and trail developer, will review the location to ensure all required signage and safety devices are in place. After this review the Department may install advisory speed tabs if stopping sight distance as described in Section 4.2 (a)(II) is inadequate.

The trail developer is responsible for the provision, installation, inspection and maintenance of all other signs, bollards, barricades or gates required as shown on the approved signage plan.

5 Surplus Government Assets

5.1 The Minister, or his designate, will consider any reasonable request for surplus government assets provided the trail developer making the request is a registered or recognized Nova Scotia community based non-profit organization. Such requests must be directed, in writing, to the Minister of Transportation and Infrastructure Renewal and must include an itemized description of the items desired as well as the intended use of such items. Requests will be considered on a first come first serve basis and the request will be retained for a period of three (3) months. If the requested item(s) does not become available within that time, the request will be returned to the organization.

5.2 Department machinery will not be made available for use by trail developers.

6 Insurance

The Trail Developer shall be required to take out and maintain insurance coverage with a limit of not less than two million dollars ($2,000,000.00) inclusive for any one occurrence. The Trail Developer shall name the Department as an additional insured under this insurance contract. The Trail Developer shall provide proof of this insurance in the form of a “Certificate of Insurance” before any trail construction or trail maintenance begins.

7 Parking

Parking for trail users is the responsibility of the trail developer.

Accountability

Area Managers and Construction Managers are responsible for ensuring adherence to this procedure.

Monitoring

Highway Operations Staff, in conjunction with field staff will periodically audit this procedure's effectiveness and make modifications as required.

References

TIR Manual - PO1033 Trail Policy
TIR Manual - PR5035 Road Upgrading
The Off-Highway Vehicle's Act
The Off-Highway Vehicles General Regulations, Chapter 323, Amended 2007
The Motor Vehicles Act
The Public Highways Act
The Societies Act
Availability of Surplus Government Assets for Non-Profit Organisations (Real Property Services - Inventory Control
Provincial Municipal Services Exchange
Work Within Highway Right of Way Permit

Appendices

Appendix A - Newly Developed Trail Crossing - Typical Signage
Appendix B - Existing Rail Trail Crossing - Typical Signage
Appendix C - Walking and Non-Motorized Multi-Use Trail Treatments (Cross Sections)
Appendix D - Trail Crossing Sign Assembly - Shared-Use Trail Crossing (Motorized Vehicles Permitted)
Appendix E - Trail Crossing Sign Assembly - Multi-Use Trail Crossing (Motorized Vehicles Prohibited)

Enquiries

Highway Maintenance and Operations Division

Division: Highway Programs
Section: Construction
Function: Operations (HP 2.21.4)
Policy Number: **PO1001**

Sidewalk Construction and Maintenance

Policy Statement

The Department of Transportation and Infrastructure Renewal (the Department) will not construct or maintain any sidewalks. Sidewalk construction and maintenance is the responsibility of Municipal Units. Municipal Units will be permitted to construct sidewalks within the Departments right-of-way where the Department determines operational requirements permit such construction.

Rationale

The Province and Municipal Units negotiated the terms and conditions for a Provincial-Municipal Service Exchange which detailed the roles and responsibilities of both parties.

The Provincial-Municipal Service Exchange stated that all sidewalk construction and maintenance would be the responsibility of the Municipal Unit in which the sidewalk was constructed. The Provincial-Municipal Service Exchange applies to all sidewalks, both those existing prior to April 1, 1995 and any sidewalks constructed after April 1, 1995.

Policy Objectives

To clarify responsibilities regarding the construction and maintenance of sidewalks. To provide direction for situations where the Department permits a Municipal Unit to construct a sidewalk within the Department's right-of-way.

Application

This policy applies directly to staff of the Department and indirectly to staff of the Municipal Units. The authority for this policy is derived from the *Public Highways Act* and the Provincial-Municipal Service Exchange.

Accountability

Area Managers will be responsible, and accountable, for the administration of this policy as it applies to Municipal Units within their specific area.

Monitoring

The District Directors will monitor the policy's implementation, performance and effectiveness with regards to maintenance services on local roads.

Directives

The Area Manager will issue a permit for all sidewalk construction projects and will ensure the sidewalk conforms to the Department's Design Standards for such construction. Upon completion of the project the Area Manager will approve the sidewalk construction verifying its compliance with the Department's Standards.

Guidelines

1 Construction of Sidewalks within the Department's Right-of-Way

Sidewalks are the responsibility of the Municipal Unit in which the sidewalk is constructed and are not cost-shared by the Department. Municipal Units will be permitted to construct sidewalks within the right-of-way of provincial roads; however, construction of sidewalks will be required to comply with the Department's design standards (refer to drawing HS501 and HS502 of the Department's Standard Specifications). The only allowable exceptions to the Department's Standard Specifications are described in Appendix A (Urban Type Sidewalks) and Appendix B (Rural Type III Sidewalks), and must have the approval of the District Director. Sub-standard sidewalk designs are not permitted. Sidewalk installation requires a Work Within Highway Right-of-Way Permit issued by the Area Manager. A refundable security deposit will be required. This deposit will be refunded upon satisfactory completion of the work, as determined by the Area Manager.

All costs associated with the sidewalk construction are the responsibility of the Municipal Unit. Costs, such as installation of curbs and gutters, as well as any associated street widening, retaining walls, storm drainage and land acquisition are the responsibility of the Municipal Unit. Any associated works (designs, new construction) in addition to the actual sidewalk, must be approved by the Area Manager. The Area Manager may impose a non-refundable deposit to cover such activities such as design reviews and having a Department inspector on site.

2 Maintenance of Sidewalks/Travelled Way

The Department will not, under any circumstances, maintain a municipal sidewalk. On existing sidewalks and on newly constructed sidewalks, once construction is completed the Department will maintain the travelled way up to and including the curbs and storm drainage system (if applicable).

References

The Provincial-Municipal Service Exchange
The Public Highways Act
The Nova Scotia Department of Transportation & Infrastructure Renewal Standard Specification, Highway Construction and Maintenance
Geometric Design Guide for Canadian Roads
Work Within Highway Right-of-Way Permit and Brochure

Enquiries

District Director
Manager of Highway Planning & Design
Program Management Engineer

Appendices

Appendix A: Urban Type Sidewalks
Appendix B: Rural Type III Sidewalks

Division: Highway Programs
Section: Construction
Function: Operations (HP 2.21.4)
Policy Number: **PO1001**

APPENDIX A

Urban Type Sidewalks

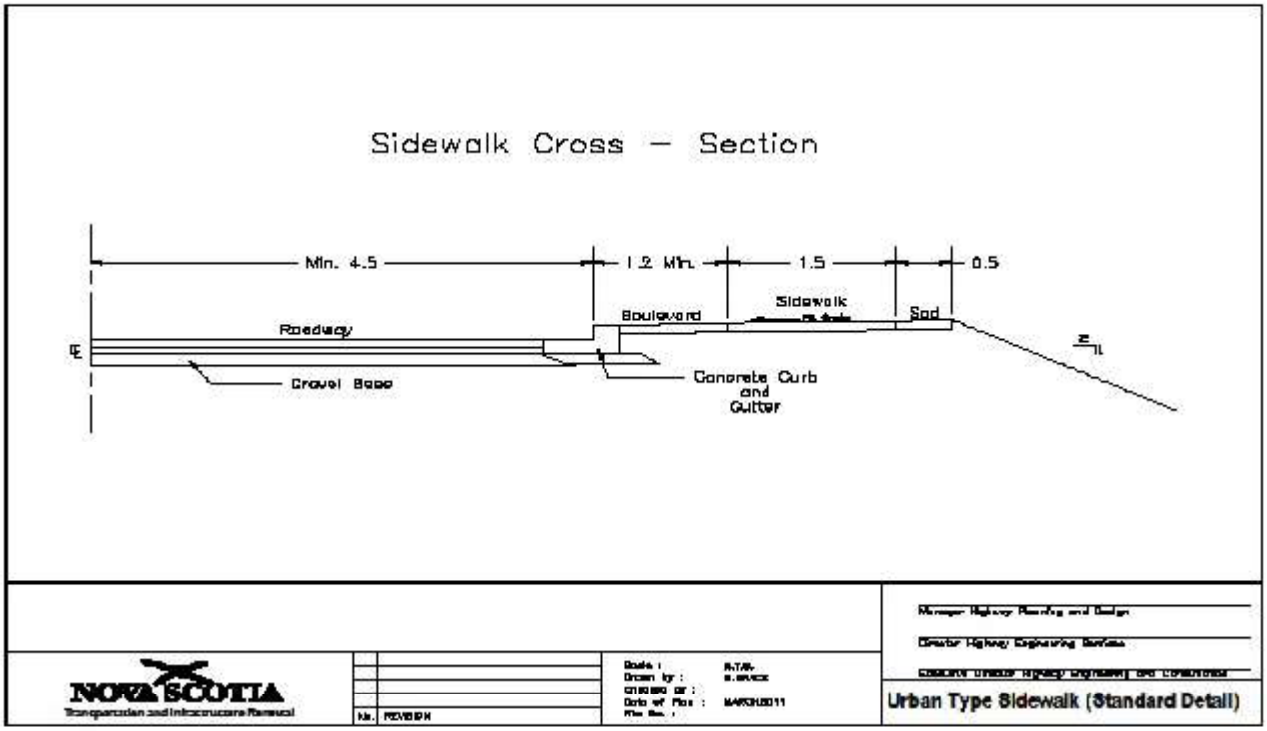
Urban Type Sidewalk (see diagram below)

I. Circumstances may dictate the need to decrease the width of the park lane as recommended in the Geometric Design Guide for Canadian Roads. However, to allow for efficient snow and ice control operations, in no case shall the distance from the centreline of the roadway to the face of the curb be less than 4.5 metres.

II. To allow for an adequate storage of snow, the standard boulevard shall be 1.2 metres measured from face of curb to the start of the sidewalk.

III. The minimum width of the sidewalk shall be 1.5 metres.

IV. For pedestrian safety, a 0.5 metre grassed shoulder must be provided adjacent to the sidewalk. In addition, a minimum 2:1 side slope shall be provided. It may be possible to increase the gradient of the slope, however, in these instances a hand rail must be provided and the material used to stabilize the slope must be approved by the Area Manager.



APPENDIX B

Rural Type III Sidewalk

Rural Type III Sidewalk (see diagram below)

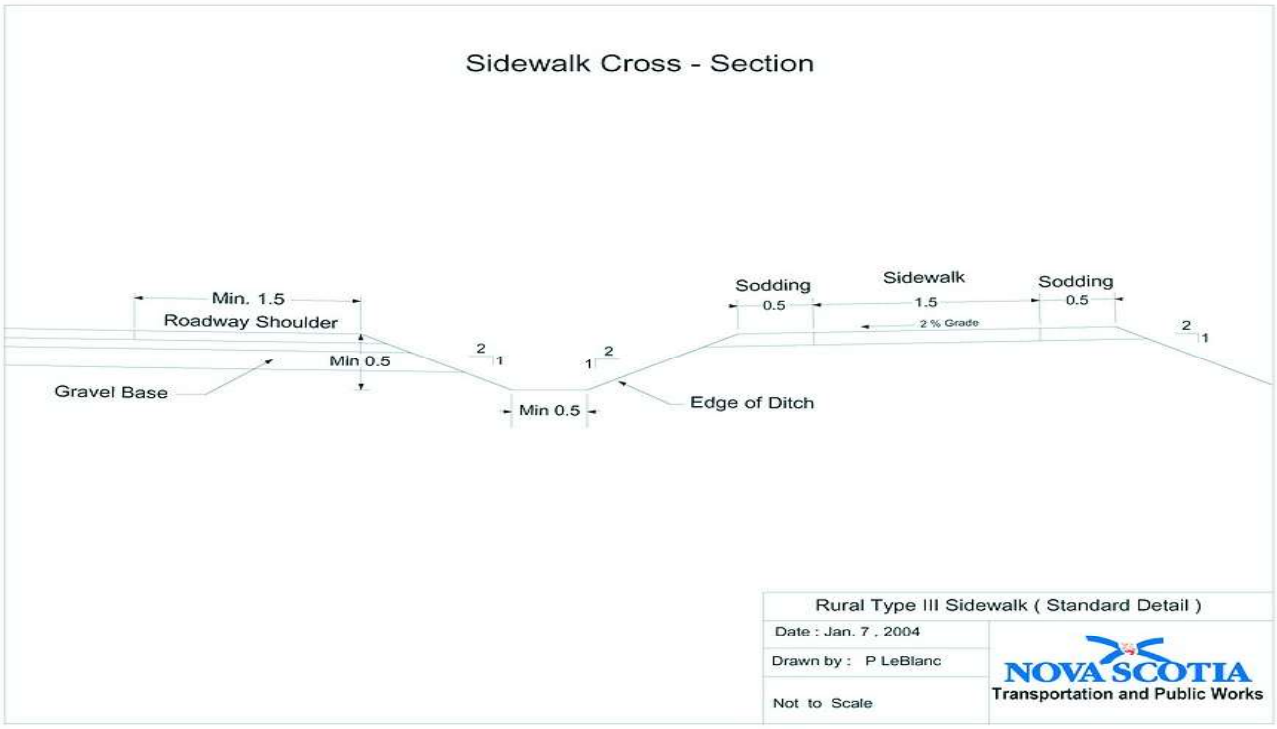
I. The roadway shoulder width shall be a minimum of 1.5 metres.

II. The bottom of the ditch must be a minimum of 0.5 metres in width and the side slopes must not exceed 2:1.

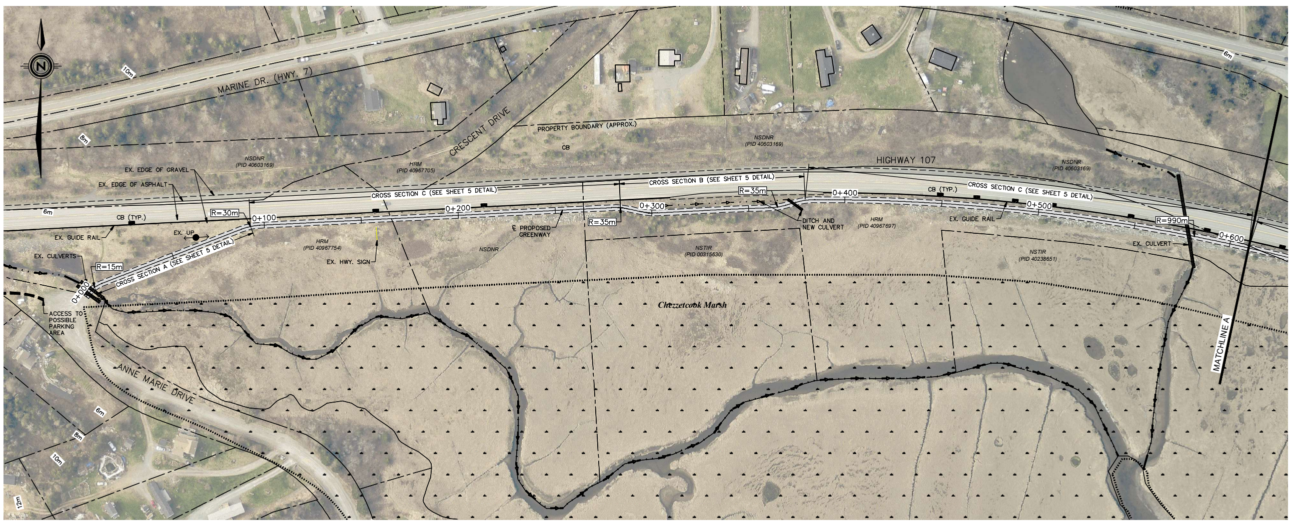
III. For pedestrian safety, a 0.5 metre grassed shoulder must be provided on each side of the sidewalk. In addition, a minimum 2:1 slope shall be provided.

IV. If may be possible to increase the gradient of the slope or back slope, however, in these instances a hand rail must be provided and the material used to stabilize the slope must be approved by the Area Manager.

V. The open ditch must be located between the roadway and the sidewalk. For maintenance considerations, it will not be permissible to construct the ditch between the sidewalk and right-of-way boundary.

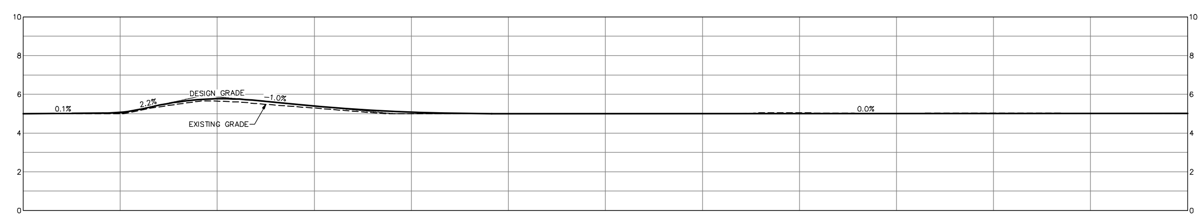


Appendix B
Conceptual Alignment and Profile Sketches



ACADIA MARSH GREENWAY PROFILE

(STA. 0+000 TO 0+600)



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PRELIMINARY

KEY PLAN:

LEGEND:

	PROPOSED	EXISTING
EDGE OF PAVEMENT		
LOTLINE		
EDGE OF GRAVEL		
TOP OF SLOPE		
SWALE / DITCH		
UTILITY LINES & POLE		
STREET BOUNDARY		CULVERT
PROPERTY BOUNDARY		HEADWALL
EASEMENT		FENCE
LIGHT STANDARD		ROAD SIGN
FLOW DIRECTION ARROW		GUIDE RAIL

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DRAWN BY: P. NICKERSON

CHECKED BY: M. CONNORS

SCALE: 1:1000 METRIC
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CLIENT:

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CLIENT REF. #:

PROJECT:

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PORTERS LAKE, NOVA SCOTIA

TITLE:

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FUNCTIONAL PLAN & PROFILE

0+600

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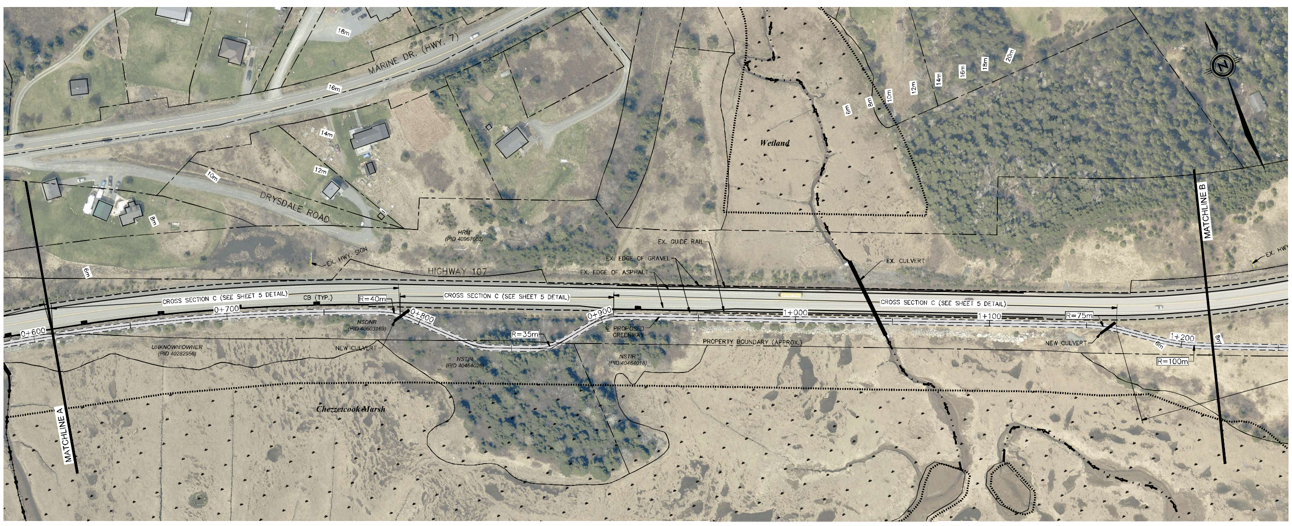
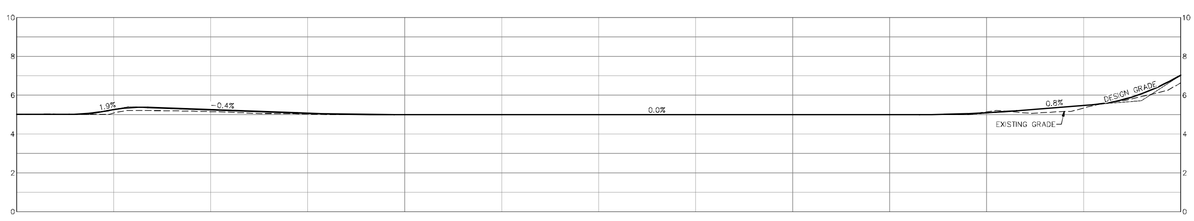


ACADIA MARSH GREENWAY PROFILE

(STA. 0+600 TO 1+200)



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PRELIMINARY

KEY PLAN:

LEGEND: PROPOSED / EXISTING
EDGE OF PAVEMENT · LOTLINE · EDGE OF GRAVEL · TOP OF SLOPE · SWALE / DITCH · UTILITY LINES & POLE · STREET BOUNDARY · PROPERTY BOUNDARY · EASEMENT · LIGHT STANDARD · FLOW DIRECTION ARROW · CULVERT · HEADWALL · FENCE · ROAD SIGN · GUIDE RAIL

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CHECKED BY: M. CONNORS
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CLIENT REF. #:

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STA. 0+600 TO 1+200

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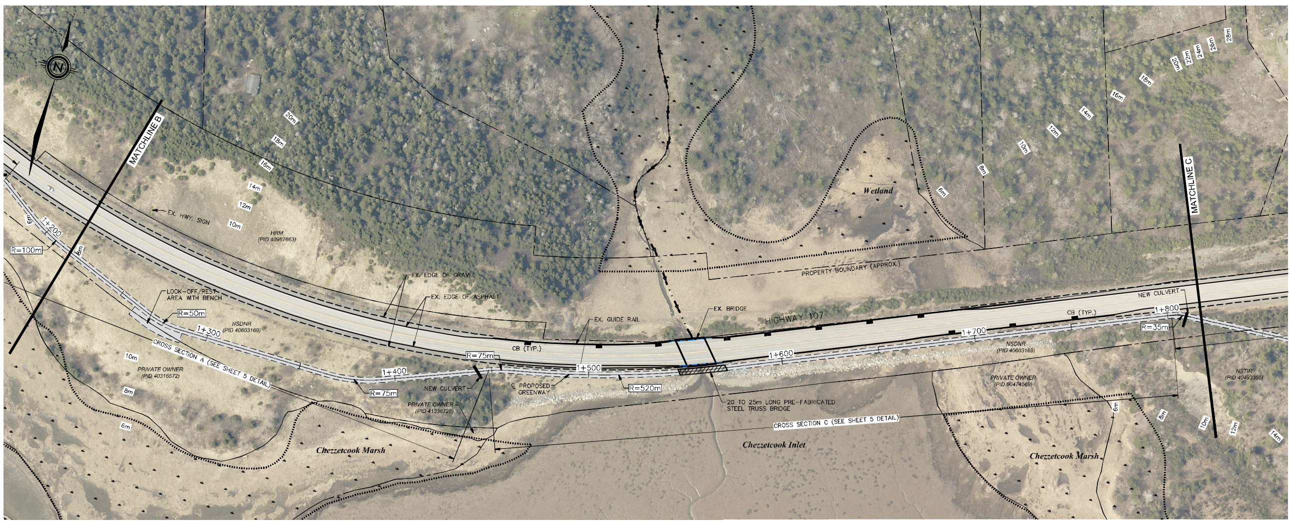
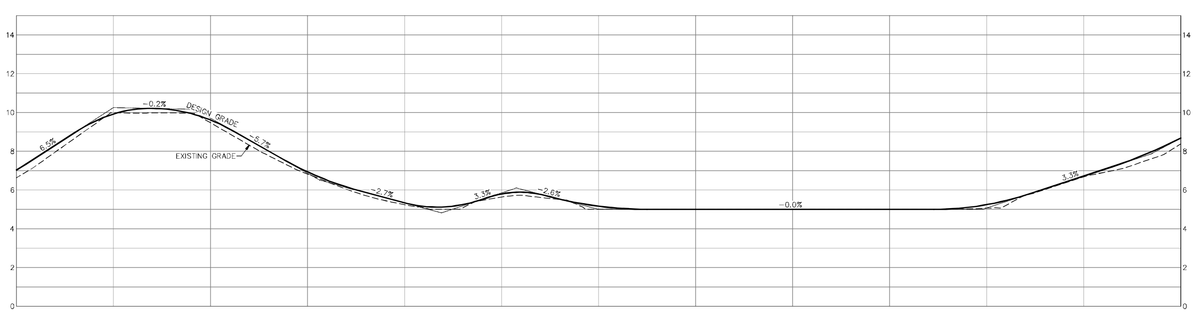


ACADIA MARSH GREENWAY PROFILE

(STA. 1+200 TO 1+800)



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PRELIMINARY

KEY PLAN:

LEGEND:

	PROPOSED	EXISTING
EDGE OF PAVEMENT		
LOTLINE		
EDGE OF GRAVEL		
TOP OF SLOPE		
SWALE / DITCH		
UTILITY LINES & POLE		

STREET BOUNDARY		CULVERT	
PROPERTY BOUNDARY		HEADWALL	
EASEMENT		FENCE	
LIGHT STANDARD		ROAD SIGN	
FLOW DIRECTION ARROW		GUIDE RAIL	

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CLIENT REF. #:

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PORTERS LAKE, NOVA SCOTIA

TITLE:
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STA. 1+200 TO 1+800

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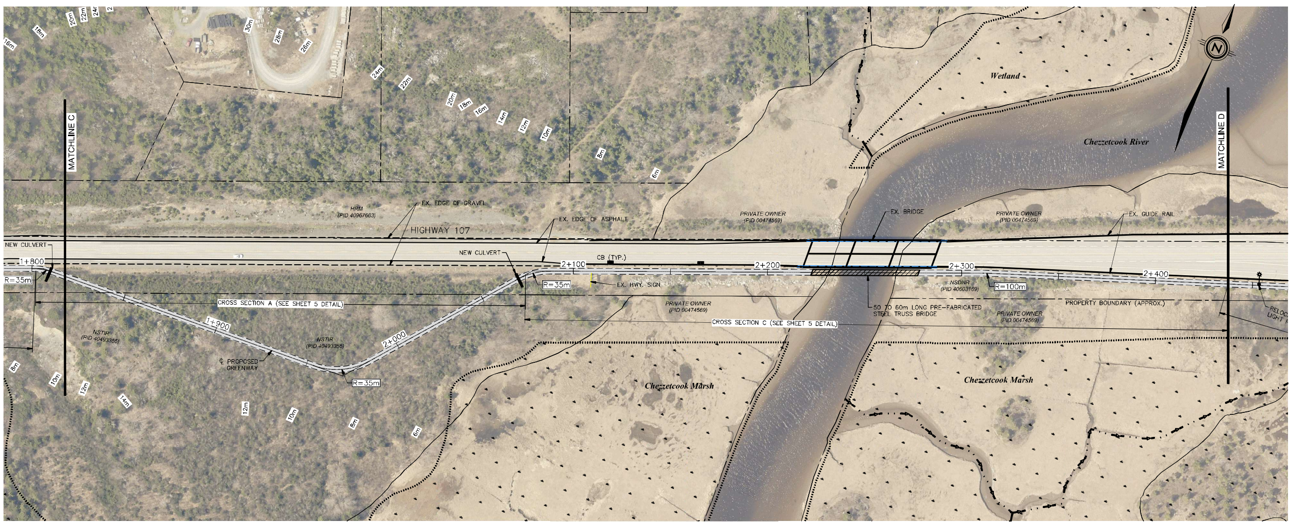
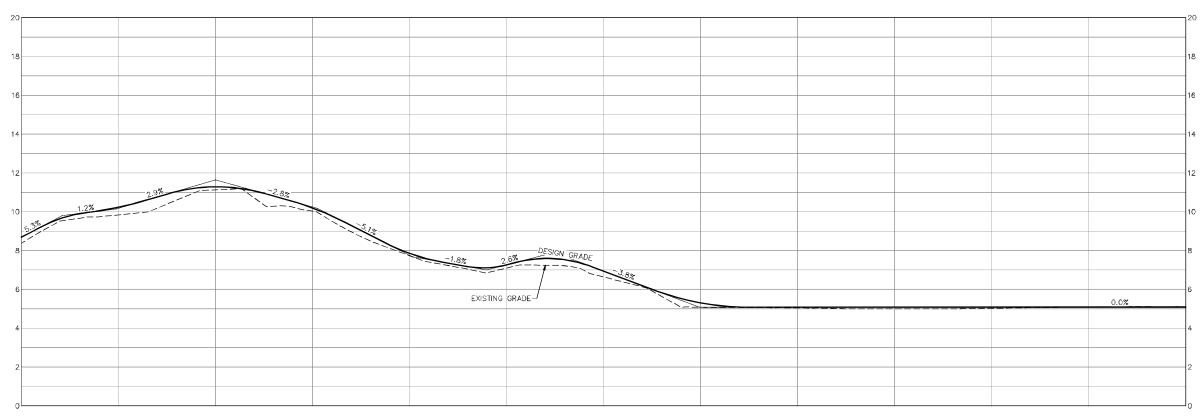


ACADIA MARSH GREENWAY PROFILE

(STA. 1+800 TO 2+400)



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PRELIMINARY

KEY PLAN:

LEGEND:	PROPOSED	EXISTING
EDGE OF PAVEMENT		
LOTLINE		
EDGE OF GRAVEL		
TOP OF SLOPE		
SWALE / DITCH		
UTILITY LINES & POLE		
STREET BOUNDARY		CULVERT
PROPERTY BOUNDARY		HEADWALL
EASEMENT		FENCE
LIGHT STANDARD		ROAD SIGN
FLOW DIRECTION ARROW		GUIDE RAIL

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SCALE: 1:1000 METRIC
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STA. 1+800 TO 2+400

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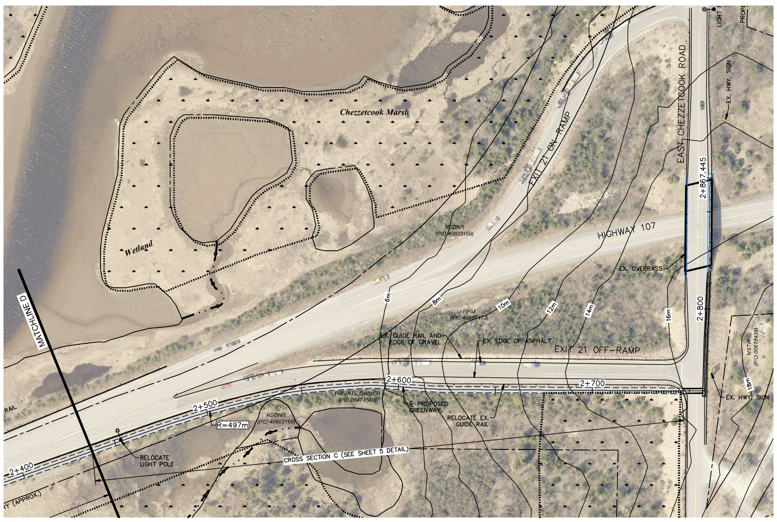
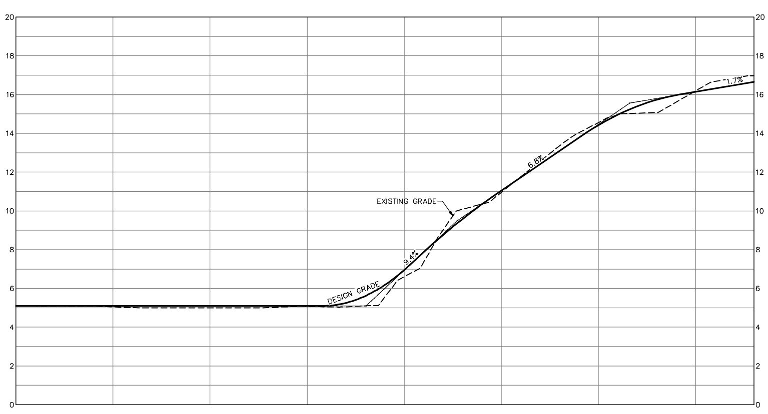


ACADIA MARSH GREENWAY PROFILE

(STA. 2+400 TO 2+780)



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PRELIMINARY

KEY PLAN:

LEGEND:

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LOTLINE		
EDGE OF GRAVEL		
TOP OF SLOPE		
SWALE / DITCH		
UTILITY LINES & POLE		
STREET BOUNDARY		CULVERT
PROPERTY BOUNDARY		HEADWALL
EASEMENT		FENCE
LIGHT STANDARD		ROAD SIGN
FLOW DIRECTION ARROW		GUIDE RAIL

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STA. 2+400 TO 2+780

SHEET NUMBER: 5
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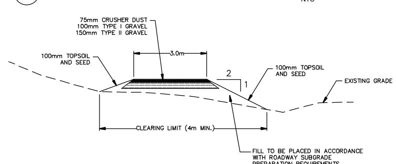
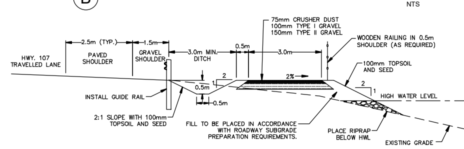
A — TYPICAL GREENWAY CROSS SECTION A (LARGE SEPARATION FROM HIGHWAY)

NTS



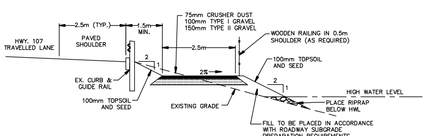
B — TYPICAL GREENWAY CROSS SECTION B (MODERATE SEPARATION FROM HIGHWAY)

NTS



C1 — TYPICAL GREENWAY CROSS SECTION C1 (RESTRICTED SEPARATION FROM HIGHWAY)

NTS



C2 — TYPICAL GREENWAY CROSS SECTION C2 (RESTRICTED SEPARATION FROM HIGHWAY WITH BARRIER)

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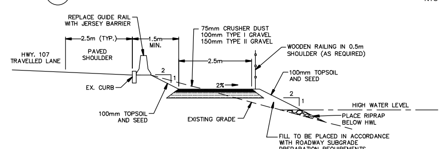

D — WOODEN RAILING DETAIL

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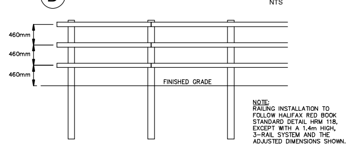

NOTE:
RAILING INSTALLATION TO FOLLOW HALIFAX RED BOOK STANDARD DETAIL HRM 118, EXCEPT WITH A 1.4m HIGH, 3-RAIL SYSTEM AND THE ADJUSTED DIMENSIONS SHOWN.

E — TYPICAL CULVERT CROSS SECTION

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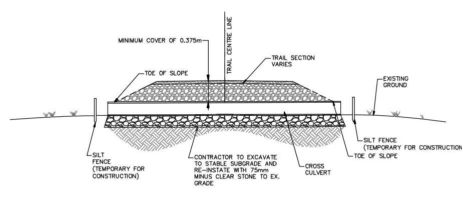

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SCALE: 1:1000 METRIC 20 16 12 8 4 0 20 40 60

CLIENT: SHORE ACTIVE TRANSPORTATION ASSOCIATION
CLIENT REF. #:

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PORTERS LAKE, NOVA SCOTIA

TITLE: HIGHWAY 107 GREENWAY
TYP. CONSTRUCTION DETAILS

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