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Item No. 4.1
North West Community Council
March 7, 2022

TO: Chair and Members of North West Community Council

SUBMITTED BY: ***- Original Signed -***
Erin MacIntyre, Director- Current Planning

DATE: February 15, 2022

SUBJECT: **Case 23653: Appeal of Site Plan Approval – 1109 Fall River Road, PID 00506501**

ORIGIN

Appeal of the Development Officer's decision to approve a site plan approval.

LEGISLATIVE AUTHORITY

Halifax Regional Municipality (HRM) Charter; Part VIII, Planning and Development

- s. 247 (1) A development officer shall approve an application for site plan approval unless
  a) the matters subject to site-plan approval do not meet the criteria set out in the land-use by-law; or
  (b) the applicant fails to enter into an undertaking to carry out the terms of the site plan.

  (2) Where a development officer approves or refuses to approve a site plan, the process and notification procedures and the rights of appeal are the same as those that apply when a development officer grants or refuses to grant a variance.
  (3) Notwithstanding subsection (2), the Council may require a larger notification distance for site-plan approvals in its land-use by-law if the municipal planning strategy so provides.
  (4) The Council, in hearing an appeal concerning a site-plan approval, may make any decision that the development officer could have made.

RECOMMENDATION

In accordance with Administrative Order One, the following motion shall be placed on the floor:

That the appeal be allowed.

Community Council approval of the appeal will result in refusal of the site plan approval.
Community Council denial of the appeal will result in approval of the site plan approval.

Staff recommend that North West Community Council deny the appeal.

BACKGROUND

The River Lakes Secondary Planning Strategy (SPS) identifies 1109 Fall River Road as an opportunity site (Site B) to address the pressures of the growing and aging population in Fall River. The site was selected because of it's size, proximity to services and amenities, and ability to provide alternative housing options, specifically in the form of multiple unit dwellings. The River Lakes SPS outlines several of the key concerns and goals for the area, which include supporting the growing population while protecting the Shubenacadie Lakes Watershed, and continuing to monitor phosphorus net loading and increases to traffic in the area. Site B provides an opportunity to develop multiple unit dwelling(s) with services and amenities provided on site. The purpose of this housing option is to support those individuals who may need personalized services or help with activities of daily living, while acknowledging that additional density is required to provide an economy of scale that allows for the establishment of additional site facilities. Policy RL-13 of the River Lakes SPS applies specifically to Site B and enables the creation of the River Lakes Residential Campus Zone within the Planning Districts 14 and 17 Land Use By-law (LUB). Policy RL-13 identifies the controls within the Land Use By-law as the appropriate tool to regulate the development of Site B to ensure the development is complementary to the surrounding neighbourhood.

In March 2019, Regional Council approved a rezoning and Municipal Planning Strategy amendment on the subject site to the River Lakes Residential Campus (RLRC) Zone under the Planning Districts 14 and 17 Land Use By-Law through Case 20594. In April 2021, North West Community Council approved an amendment to the RLRC zone to add "nursing home" as a permitted use.

As per Policy RL-13, development controls related to site design, built form and architecture, landscaping, retention of existing vegetation, driveway access, parking, pedestrian access, lighting, signage, and accessory buildings are included in the RLRC zone and form part of the site plan approval criteria. To address concerns related to phosphorus and traffic impacts, the zone requires that a Phosporus Study and a Traffic Impact Study be submitted as a condition for Development Permit approval.

At this time, a site plan approval application has been submitted, which proposes four buildings comprising of 500 units for seniors housing, and one building containing 140 nursing home beds, at 1109 Fall River Road in Fall River (Map 1). To date, no building permit applications for the proposal have been filed.

Site Details

Zoning

The property is zoned RLRC (River Lakes Residential Campus) under the Planning Districts 14 and 17 Land Use By-law. No development permit can be issued for any use permitted in the RLRC Zone prior to the Development Officer granting site plan approval in accordance with Section 14.G(9). The relevant requirements of the LUB for site plan approval are included within Attachment A. The building's site plan and elevation plans are included within Attachment B.

For the reasons detailed in the Discussion section of this report, the Development Officer approved the requested site plan approval (Attachment D). Thirty-eight property owners within the notification area as shown on Map 1 have appealed the approval (Attachment E) and the matter is now before North West Community Council for decision.

Process for Hearing an Appeal

Administrative Order Number One, the *Procedures of the Council Administrative Order* requires that Council, in hearing any appeal, must place a motion to "allow the appeal" on the floor, even if the motion is in opposition to the staff recommendation. The recommendation section of this report contains the required wording of the appeal motion as well as a staff recommendation.

For the reasons outlined in this report, staff recommend that Community Council deny the appeal and uphold the decision of the Development Officer to approve the request for site plan approval.

DISCUSSION

Development Officer's Assessment of the Site Plan Approval Request:
In hearing an appeal of site plan approval, Council may make any decision that the Development Officer could have made, meaning their decision is limited to the criteria provided in the *Halifax Regional Municipality Charter*.

The *Charter* sets out the following criteria by which the Development Officer shall approve an application for site plan approval:

"247 (1) A development officer shall approve an application for site plan approval unless
a) the matters subject to site-plan approval do not meet the criteria set out in the land-use by-law; or
(b) the applicant fails to enter into an undertaking to carry out the terms of the site plan."

To be approved, any proposed site plan approval must not conflict with any of the site plan approval requirements of the RLRC Zone of the LUB.

Section 14G.9 of the Planning Districts 14 and 17 LUB details the requirements that must be met for a Development Officer to grant site plan approval (Attachment A). The requirements include criteria relating to landscaping, walkways, driveway access, parking areas and the non-disturbance area. In addition to diligence in ensuring that the remaining requirements of the zone are met, in order to align the project with future permit issuance, specific qualified reports have been submitted, reviewed and accepted, in order to address traffic impacts and potential net phosphorus loading to nearby watercourses.

It is the Development Officer's opinion that this proposal has met all of the criteria for site plan approval.

RLRC Zone

The RLRC Zone permits multiple unit dwellings, nursing homes, offices, day care facilities, medical clinics, personal services, parks and open spaces, and recreation uses. Development on Site B is required by the zone to include multiple unit dwellings and amenity areas for residential use, and an office, health and wellness centre, and personal service(s) as supporting uses. The maximum number of main buildings permitted within the zone is five (5), with a maximum height of four (4) storeys or 15 metres (50 feet), and a maximum gross footprint for each building of 4,180.6 square metres (45,000 square feet). The zone only permits development outside the non-disturbance area, in the area generally shown on Schedule O of the LUB (Attachment H), with the exception of walkways and trails not exceeding 3 metres in width, conservation uses, driveway crossings, and infrastructure for wastewater, stormwater, and water, and water control structures. The applicant has submitted a site plan and an elevation drawing (Attachment B) which demonstrates compliance with all zone requirements.

Traffic Impact
Section 14G.8 of the RLRC Zone requires that a Traffic Impact Study be submitted to determine what impacts the development may have on the surrounding road networks. Review of the Traffic Impact Study considers the Fall River Road and Highway 2 Intersection, the Highway 102/Highway 118 interchanges, and the Lockview Road and MacPherson Road intersection, as well as the findings of the Fall River/Waverley/Wellington Transportation Study.

The Traffic Impact Study contains the following conclusions:

- "While the intersection at Fall River Road at Trunk 2 experiences delay in queuing during peak periods, site generated traffic is not expected to have a significant impact to the overall operation of the intersection."
- "When Highway 107 and the Aerotech Connector are open, it is expected that the vehicle volumes would be reduced at the study intersection and therefore the delays be reduced."

HRM staff have reviewed the Traffic Impact Study submitted and found it to be acceptable.

Phosphorus Net Loading
Section 14G.8 of the RLRC Zone requires that a Phosphorus Study be submitted to determine if the development will export any greater amount of phosphorus from the subject site during or after the construction than the amount of phosphorus determined to be leaving the subject property shown on Schedule O (Attachment H) prior to the development taking place.

The Phosphorus Study contains the following conclusion:

- "Based on the modelling done and resulting estimates presented in this report, with proper erosion control and mitigation measures in place, the goal of achieving no-net increase in phosphorus exports due to development is feasible, and may even be exceeded, for the proposed Carr Farm site development".

HRM staff have reviewed the Phosphorus Study submitted and found it to be acceptable.

Appellant's Submission:

While the criteria of the *HRM Charter* limits Council to making any decision that the Development Officer could have made, the appellants have raised certain points in their letters of appeal (Attachment E) for Council's consideration. These points are summarized and staff's comments on each are provided in the following table:

Appellant's Appeal Comments	Staff Response
The scale and size of the development is too great for the proposed location and is not compatible with the surrounding neighbourhood. The influx of new residents will create a drain on community infrastructure.	This item is not relevant to the site plan criteria of Section 14.G(9) of the LUB. Development scale and size were deemed appropriate through the previous planning process when the RLRC Zone was approved in March of 2019.
The increase in traffic is too great for Fall River Community. There is concern that the intersection between Fall River Road and Highway 2 is a hazard as accidents already occur there on a regular basis.	This item is not relevant to the site plan criteria of Section 14.G(9) of the LUB. The Land Use By-Law requires that special consideration be given to the potential impacts of traffic on the Fall River Road and Highway 2 Intersection, the Highway 102/Highway 118 interchanges, and the Lockview Road and MacPherson Road intersection as a condition of Development Permit approval. A Traffic Impact Study was submitted by the applicant and accepted by HRM staff.
The local schools do not have the capacity for the new residents of this proposed development.	This item is not relevant to the site plan criteria of Section 14.G(9) of the LUB. The provincial government has the responsibility to respond to increases in demand for more school capacity.
The Emergency Health Service will not be able to support the needs of this development, where a nursing home is proposed. The site is too far away from required services.	This item is not relevant to the site plan criteria of Section 14.G(9) of the LUB. The EHS has a responsibility to provide service in response to demand due to increased development.

The blasting associated with the proposed development will likely damage foundations and wells in the area.	This item is not relevant to the site plan criteria of Section 14.G(9) of the LUB. HRM's Blasting By-Law B-600 outlines the minimum standards required for blasting within the Municipality. All blasting activities require a Blasting Permit from HRM.
The discharge of sewage effluent into Lake Thomas will impact drinking water quality, the watershed(s), and make it dangerous to use the lake(s). Paddling and swimming are an important part of the Fall River community identity, and this will compromise those activities. The proposed treatment facility uses "unproven" technology.	This item is not relevant to the site plan criteria of Section 14.G(9) of the LUB. Wastewater treatment facilities are regulated by the Province. Appellants have been advised to contact NS Environment in regards to concerns about the treatment of effluent and discharge into Lake Thomas.
The increase of phosphorus from the development will cause blue algae to form in Lake Thomas.	This item is not relevant to the site plan criteria of Section 14.G(9) of the LUB. As a condition of Development Permit approval, the LUB requires that a Phosphorus Study be submitted to determine if the development will export any greater amount of phosphorus from the subject site during or after the construction than the amount of phosphorus determined to be leaving the subject property. The applicant has submitted a Phosphorus Study which has been accepted by staff.
A number of concerns have been raised with regards to noise, smell, water quality, and impacts to ecosystems.	This item is not relevant to the site plan criteria of Section 14.G(9) of the LUB. Any noise generated by the construction of the development or by the future wastewater treatment facility is subject to HRM's Noise By-Law N-200. NS Environment is responsible for any approvals granted for the wastewater treatment facility and potential impacts to water quality and ecosystems.
The proposed development does not meet the required height, number of storeys, and/or gross footprint requirements of the Land Use By-law.	This item is not relevant to the site plan criteria of Section 14.G(9) of the LUB. As submitted, the proposed development meets all requirements of the RLRC Zone. The proposal will be reviewed again at the building permit stage. All parts of the building, above and below grade, will not exceed a gross building footprint of 45,000 square feet, as required by the zone.

Conclusion:

Staff have reviewed all the relevant information in this site plan approval proposal. As a result of that review, the site plan approval request was approved as it was determined that the proposal does not conflict with the statutory criteria provided by the *Charter* and meets the Site Plan Approval criteria of the Land Use By-law. The matter is now before Council to hear the appeal and render a decision.

FINANCIAL IMPLICATIONS

There are no financial implications related to this site plan approval request. The HRM cost associated with processing this application can be accommodated with the approved 2021/22 operating budget for Cost Centre C420, Land Development and Subdivision.

RISK CONSIDERATION

There are no significant risks associated with the recommendation contained within this report.

COMMUNITY ENGAGEMENT

Community Engagement, as described by the Community Engagement Strategy, is not applicable to this process. The procedure for public notification is mandated by the *HRM Charter*. Where a site plan approval is appealed, a hearing is held by Council to provide the opportunity for the applicant, appellants and anyone who can demonstrate that they are specifically affected by the matter, to speak.

ENVIRONMENTAL IMPLICATIONS

There are no environmental implications with the proposed development as it pertains to municipal approvals. Any concerns with regards to blasting and construction are accounted for and regulated through the Blasting By-Law B-600, and the Construction Management Administrative Order 2018-05-ADM. With regards to the Phosphorus Study, sedimentation and erosion controls are addressed in the report (Attachement G). The proposed development will also have to meet the requirements of the Respecting Grade Alteration and Stormwater Management Associated with Land Development By-Law G-200. NS Environment is responsible for the approval of the proposed wastewater treatment facility. Finally, Schedule O (Attachment H) of the Planning Districts 14 and 17 Land Use By-law delineates the non-disturbance area for this development. The subject site is 50 acres in size with 60% of the site (30 acres) included within the non-disturbance area.

ALTERNATIVES

As noted throughout this report, Administrative Order One requires that Community Council consideration of this item must be in the context of a motion to allow the appeal. Council's options are limited to denial or approval of that motion.

1. Denial of the appeal motion would result in the issuance of the site plan approval. This would uphold the Development Officer's decision and this is staff's recommendation.

2. Approval of the appeal motion would result in the refusal of the site plan approval. This would overturn the decision of the Development Officer.

ATTACHMENTS

Map 1:	Location and Notification Area
Attachment A:	RLRC (River Lakes Residential Campus) Zone of the Planning Districts 14 and 17 (Shubenacadie Lakes) Land Use By-Law (LUB)
Attachment B:	Approved Site Plan and Elevation
Attachment C:	Site Plan Approval Criteria Review
Attachment D:	Letter of Approval to Applicant
Attachment E:	Letters of Appeal
Attachment F:	Traffic Impact Study
Attachment G:	Phosphorus Study
Attachment H:	Schedule O of the Planning District 14 & 17 Land Use By-law
Attachment I:	Storm Drainage Schematic

A copy of this report can be obtained online at halifax.ca or by contacting the Office of the Municipal Clerk at 902.490.4210.

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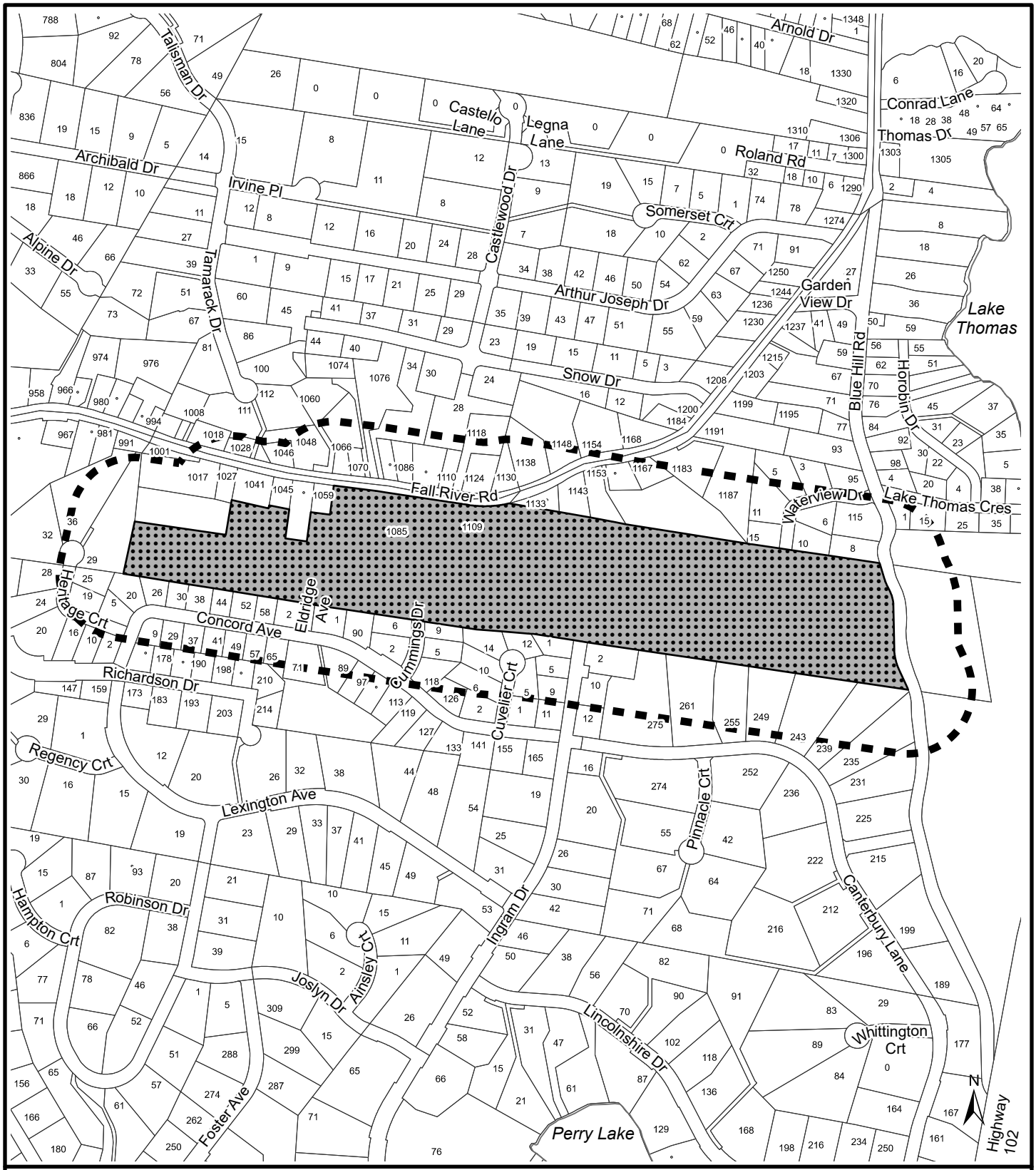

Map 1 - Notification Area

1109 Fall River Rd
Fall River

HALIFAX

Subject Property

Notification Area

100 0 100 200 300
Meters

The accuracy of any representation on this plan is not guaranteed.

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PART 14G: RLRC (RIVER-LAKES RESIDENTIAL CAMPUS) ZONE (RC-Mar 5/19;E-Apr 6/19)

14G.1 RLRC USES PERMITTED

(1) Subject to 14G.10, all development within the RLRC Zone, as shown on Schedule B, shall be subject to Site Plan Approval.

(2) The following uses are permitted within the RLRC (River-Lakes Residential Campus) Zone:

Multiple Unit Dwellings
Nursing Homes (NWCC-Mar 8/21; E-Mar 27/21)
Office
Day Care Facilities
Medical Clinic
Personal Service
Park and Open Space
Recreation Uses

14.G2 RLRC REQUIRED USES

The development shall contain all the following uses on the site:

Residential Uses
Multiple Unit Dwelling
Amenity Area

Supporting Uses
Office
Health and Wellness Centre
Personal Service

14G.3 DEVELOPMENT PERMIT IN RLRC ZONE

(a) No Development Permit shall be issued by the Development Officer for any use permitted in the RLRC (River-Lakes Residential Campus) Zone unless Site Plan Approval has been granted by the Development Officer for the development.

(b) No development permit shall be issued for a development in the RLRC zone unless the required uses and the requirements set out in sections 14G.2, 14G.4, 14G.5, 14G.6, 14G.7, 14G.8 and 14G.9 are met.

14G.4 RLRC ZONE REQUIREMENTS

In any RLRC Zone, a development shall meet the following requirements:

(a) Minimum Lot Area: 5 acres (2.02 hectares)

Minimum Frontage:	**100 feet (30.48 m)**
Minimum Front or Flankage Yard:	**30 feet (9.1 m)**
Minimum Side Yard:	**50 feet (15.24 m)**
Minimum Rear Yard:	**50 feet (15.24 m)**
Maximum Height of Main Building:	**50 feet (15.24 m) and 4 storeys**
Maximum Number of Main Buildings In the "general area of development" as shown on Schedule O:	**5**

(b) All proposed development shall be located centrally on the site as generally shown on Schedule O.

14G.5 OTHER REQUIREMENTS: MAXIMUM BUILDING FOOTPRINT

The gross footprint of any single main building shall not exceed 45,000 square feet (4,180.5 m^2).

14G.6 OTHER REQUIREMENTS: PARKING

(1) Notwithstanding clause 4.25 (b), the parking requirement for all proposed development on the site generally shown on Schedule O shall be a minimum of 0.5 spaces per dwelling unit.

(2) Supporting Uses listed in 14G.2 shall require no parking.

14G.7 OTHER REQUIREMENTS: SUPPORTING USES & ACCESSORY BUILDINGS

(a) Office, Medical Clinic, Health and Wellness Centre, Personal Service, Day Care Facilities, and Recreation Uses may be located in any building on the site.

(b) Accessory buildings located on the development site are permitted in the following number:

- **(i) a maximum of one (1) accessory building for each Multiple Unit Dwelling in accordance with Section 4.11; or**
- **(ii) notwithstanding Section 4.11 and subject to 14G.7(c), one (1) additional stand alone building.**

(c) The accessory building provided for in accordance with 14G.7(b)(ii) shall not contain Dwelling Units and shall not exceed 5,000 square feet (464.5 m^2) in size.

14G.8 OTHER REQUIREMENTS: CONDITIONS

(1) No Development Permit in the RLRC Zone shall be issued unless the following conditions have been met:

- **(a) a Traffic Study is provided to the Municipality to determine the impacts the development (full build out) may have on the surrounding road networks;**
- **(b) the required Traffic Study considers:**

(i) the Fall River Road and Highway 2 Intersection, the Highway 102/Highway 118 interchanges, and the Lockview Road and MacPherson Road intersection, and

(ii) the findings of the Fall River/Waverley/Wellington Transportation Study; and

(c) a Phosphorus Net Loading Study is provided to the Municipality to determine if the development will export any greater amount of phosphorus from the subject site during or after the construction than the amount of phosphorus determined to be leaving the subject property shown on Schedule O prior to the development taking place.

(2) If the Traffic Study reveals that the development may have impact on the surrounding road network, then the proposed development shall only be permitted if the Development Officer is satisfied that methods/improvements have been taken to reduce the impact.

(3) If the Phosphorus Net Loading Study reveals that the phosphorus levels predicted to be exported from the proposed development exceed the phosphorus levels currently exported from the site, then the proposed development shall only be permitted if the Development Officer is satisfied that the methods to be taken will reduce phosphorus export levels to those levels that existed before the proposed development, such as a reduction in density, or the building footprint.

(4) Any stormwater management devices designed to treat phosphorus shall be located on the development site.

(5) A study necessary to meet the conditions in subsection 14G.8(1) shall be prepared by a qualified professional and submitted to the Municipality when applying for a development permit.

14G.9 GENERAL REQUIREMENTS: SITE PLAN APPROVAL

(1) Applications for Site Plan Approval shall be in the form specified in Appendix B.

(2) All Applications for Site Plan Approvals shall be accompanied by a site plan drawn to scale and of sufficient detail to address all matters identified in this Section.

(3) The Development Officer shall approve an application for Site Plan that meets 14G.8 and the following requirements:

(a) all proposed and existing buildings shall be located centrally on the site, as generally shown on Schedule O as "General Area of Development";

(b) all proposed parking and loading facilities shall be located:

(i) in close proximity to the buildings, and

(ii) centrally on the development site, as generally shown on Schedule O as "General Area of Development". (Parking may include underground parking).

(c) driveway access shall be limited to one access to Fall River Road and any

existing driveway access that the Development Officer determines is no longer necessary shall be removed;

(d) an emergency secondary access shall be provided to Cummings Drive or Ingram Drive, as required;

(e) landscaping, hedges, or fencing shall be used as buffering along the yard setbacks, parking areas, and along property lines;

(f) within the non-disturbance area,

(i) existing natural vegetation shall be retained, and

(ii) activity shall be limited to walkways and trails not exceeding 3 metres in width, conservation uses, driveway crossings, and infrastructure for wastewater, stormwater, and water, and water control structures;

(g) all proposed walkways shall be:

(i) located to provide safe and accessible pedestrian access to the buildings from the parking area and from the street,

(ii) surfaced with a non-slip material, such as brick, concrete, or any other suitable material to clearly delineate pedestrian walkways from vehicle circulation areas, and

(iii) continuous, well-lit, free of obstruction, with low curbs, and accommodate mobility devices such as walkers, wheelchairs and scooters;

(h) all lighting devices shall be designed to direct light to driveways, parking areas, loading area, building entrances and walkways, and arranged to divert the light away from streets, adjacent lots, and buildings;

(i) different purpose oriented lighting shall be provided, such as flush mount lighting for building accent, or ground-oriented lighting along pathways,

(j) lighting shall comprise full cut-off fixtures that are properly shielded to reduce the spillover of lighting onto adjacent properties;

(k) any alteration of land, including the removal of topsoil, shall be undertaken in a manner which does not impact negatively on the natural function of any watercourse abutting the property or located on the property including runoff and erosion;

(l) measures are identified for the effective drainage of stormwater within the development site as well as any downstream or upstream areas which may be affected by the development; and

(m) site design and layout shall take into consideration the soil conditions and shall minimize the amount of clearing and grubbing on steep slopes or erosive soils.

(4) The notification distance for the approval or refusal of a Site Plan Approval in the RLRC zone shall be 328.08 feet (100 metres) from the property boundary of the lot that is the subject of the approval or the refusal.

(5) All matters considered by site plan approval shall be adequately maintained.

14.G.10 EXEMPTIONS FOR SITE PLAN APPROVAL

(1) The following matters do not require site plan approval

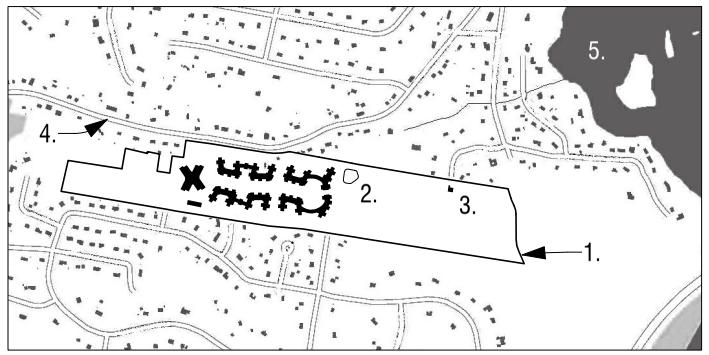
(a) interior renovations; and

(b) additions having a gross floor area of 807.3 square feet (75m^2) or less, providing floor area maximums are met, and the street facing facades are not changed.

(2) All other requirements of this Bylaw shall be met before a development permit is issued.

A Proposed Site Plan for an Age-in-Place Community

This proposed community would provide housing for seniors to live comfortably in the Fall River area. Its 500 apartments encourage "outdoor living" with generous verandahs and winter gardens that connect indoor to outdoor spaces. A shared street invites people of all ages and abilities to move between buildings. Residents in need of greater care have access to homecare as well as 100 full-care beds in the nursing home on site.



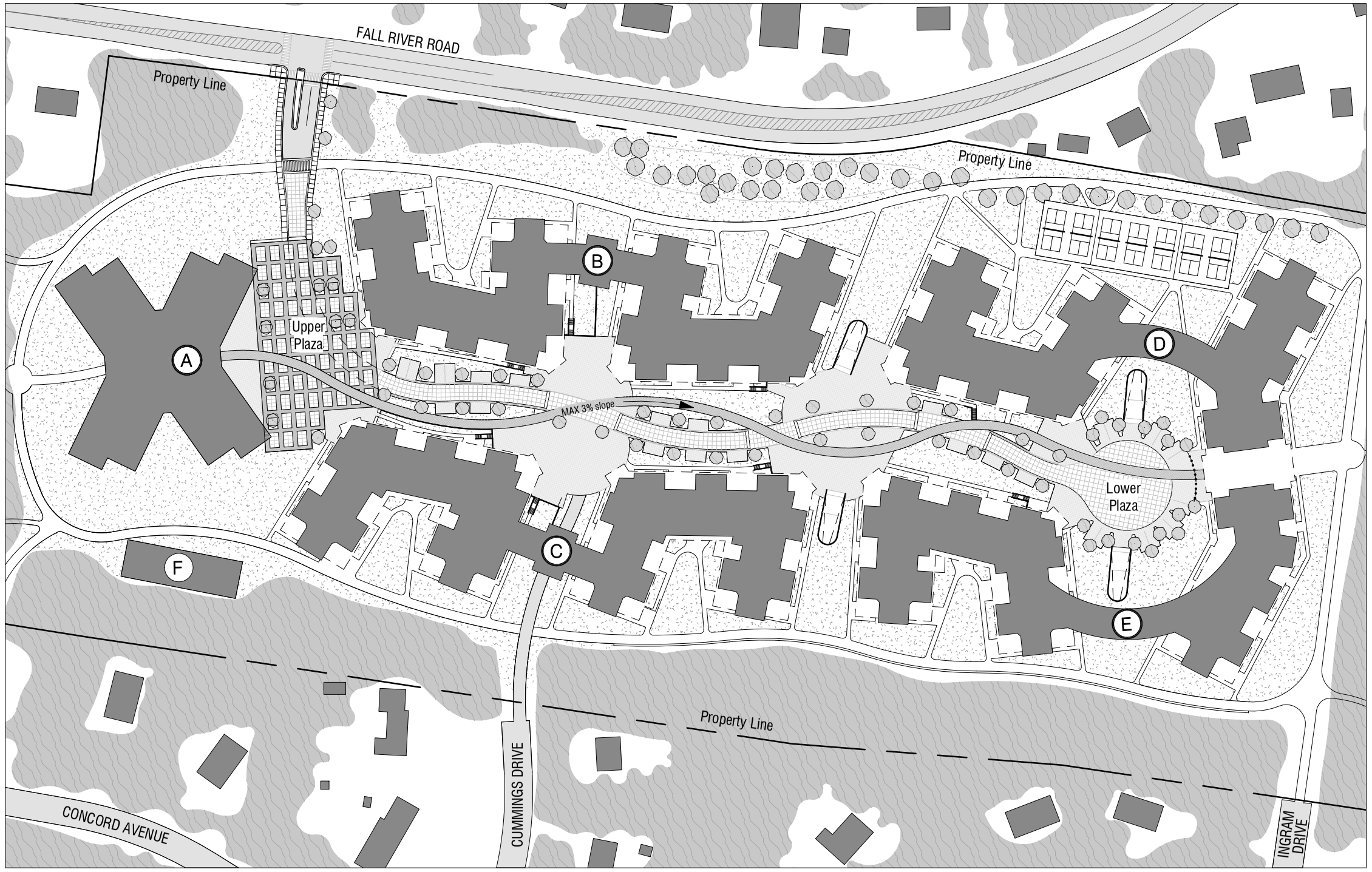
1. site boundary
2. stormwater pond
3. wasterwater treatment plant
4. Fall River Road
5. Thomas Lake

DRAWING SCALE = 1 : 20,000

LOCATION:	1109 & 1008 Fall River Road (PID 00506501)	
HRM FILE #:	23653	
BUILDINGS:	(A) Nursing Home	- 100 beds
	(B) - (E) Apartments	- 8 three bedroom - 236 two bedroom - 256 one bedroom
	(F) Community Centre	
PARKING:	580 underground; 53 in shared street	
LOT AREA:	50 Acres (20 hectares)	
FOOTPRINTS:	The *gross building footprint* of each building will not exceed 45,000 SF	

Other Notes:

1. The Cummings Dr. entrance is for emergency vehicles only.
2. The Ingram Dr. entrance is to be closed to motor vehicles.
3. Nova Scotia Environment has approved a private wastewater treatment plant for this community.
4. A stormwater management system will be in place to control stormwater and phosphorous.



SITE PLAN

DRAWING SCALE = 1 : 1500

ELEVATION OF BUILDING "B"

DRAWING SCALE = 1 : 1000

existing woodland to remain

soft landscaping: sod, shrubs, etc.

new trees

retaining wall

building footprint

verandah / eaves / winter garden

dark concrete (barrier free walkway)

medium-tone concrete (parking/walking/loading)

light-tone concrete (driving / cycling)

two-tone concrete (upper plaza)

Attachment B- Approved Site Plan and Elevation

Attachment C- Site Plan Approval Review

Development Officer Review Section 14G.9: General Requirements: Site Plan Approval		
Criteria		**Review Comment**
(1)	*Applications for Site Plan Approval shall be in the form specified in Appendix B.*	The application submitted meets all submission requirements as outlined in Appendix B of the Planning Districts 14 and 17 Land Use By-Law.
(2)	*All Applications for Site Plan Approvals shall be accompanied by a site plan drawn to scale and of sufficient detail to address all matters identified in this Section.*	The site plan submitted is drawn to scale and includes sufficient detail to address all matters identified in this section.
(3)	*The Development Officer shall approve an application for Site Plan that meets 14G.8 and the following requirements:*	*See below.*
(a)	*all proposed and existing buildings shall be located centrally on the site, as generally shown on Schedule O as "General Area of Development";*	The site plan shows all proposed and existing buildings to be located centrally on the site, as generally shown on Schedule O as "General Area of Development".
(b)	*all proposed parking and loading facilities shall be located:* *(i) in close proximity to the buildings, and* *(ii) centrally on the development site, as generally shown on Schedule O as "General Area of Development". (Parking may include underground parking).*	The site plan shows all proposed parking and loading facilities to located in close proximity to the buildings and within the "General Area of Development".
(c)	*driveway access shall be limited to one access to Fall River Road and any existing driveway access that the Development Officer determines is no longer necessary shall be removed;*	The site plan shows one proposed driveway access to Fall River Road.
(d)	*an emergency secondary access shall be provided to Cummings Drive or Ingram Drive, as required;*	The site plan shows the proposed emergency secondary access to Cummings Drive.
(e)	*landscaping, hedges, or fencing shall be used as buffering along the yard setbacks, parking areas, and along property lines;*	The site plan shows proposed landscaping along the yard setbacks, parking areas, and along property lines.
(f)	*within the non-disturbance area,* *(i) existing natural vegetation shall be retained, and* *(ii) activity shall be limited to walkways and trails not exceeding 3 metres in width, conservation uses, driveway crossings, and infrastructure for wastewater, stormwater, and water, and water control structures;*	The site plan shows existing natural vegetation is to remain within the non-disturbance area, and activity is limited to walkways and trails, driveway crossings, and infrastructure for wastewater, stormwater and water, and water control structures.

(g)	*all proposed walkways shall be:* *(i) located to provide safe and accessible pedestrian access to the buildings from the parking area and from the street,* *(ii) surfaced with a non-slip material, such as brick, concrete, or any other suitable material to clearly delineate pedestrian walkways from vehicle circulation areas, and* *(iii) continuous, well-lit, free of obstruction, with low curbs, and accommodate mobility devices such as walkers, wheelchairs and scooters;*	The site plan shows that the proposed walkways as providing safe and accessible pedestrian access to the buildings from the parking area and from the street. The proposed walkway materials vary between dark-tone, medium-tone, light-tone, and two-toned concrete to delineate pedestrian walkways from vehicle circulation areas and cycling pathways. The applicant has confirmed in writing that the walkways will be well-lit, free of obstruction, with low curbs and will accommodate mobility devices such as walkers, wheelchairs and scooters. These criteria will be further reviewed during the building permit review.
(h)	*all lighting devices shall be designed to direct light to driveways, parking areas, loading area, building entrances and walkways, and arranged to divert the light away from streets, adjacent lots, and buildings;*	The applicant has confirmed in writing that all lighting devices shall be designed to direct light to driveways, parking areas, loading area, building entrances and walkways, and arranged to divert the light away from streets, adjacent lots, and buildings. These criteria will be reviewed in further detail during the building permit review.
(i)	*different purpose oriented lighting shall be provided, such as flush mount lighting for building accent, or ground-oriented lighting along pathways,*	The applicant has confirmed in writing that different purpose-oriented lighting shall be provided, such as flush mount lighting for building accent, or ground-oriented lighting along pathways. These criteria will be reviewed in further detail during the building permit review.
(j)	*lighting shall comprise full cut-off fixtures that are properly shielded to reduce the spillover of lighting onto adjacent properties;*	The applicant has confirmed in writing that lighting shall comprise full cut-off fixtures that are properly shielded to reduce the spillover of lighting onto adjacent properties. These criteria will be reviewed in further detail during the building permit review
(k)	*any alteration of land, including the removal of topsoil, shall be undertaken in a manner which does not impact negatively on the natural function of any watercourse abutting*	The civil engineering documents demonstrate a scheme for erosion and sedimentation control and the protection of watercourses. The applicant is required to comply with

	the property or located on the property including runoff and erosion;	By-Law G-200 “Respecting Grade Alteration and Stormwater Management Associated with Land Use”. These criteria will be reviewed in further detail during the building permit review.
(l)	*measures are identified for the effective drainage of stormwater within the development site as well as any downstream or upstream areas which may be affected by the development; and*	The civil engineering documents demonstrate a scheme for stormwater control and the protection of areas downstream. The applicant is required to comply with By-Law G-200 “Respecting Grade Alteration and Stormwater Management Associated with Land Use”. These criteria will be reviewed in further detail during the building permit review.
(m)	*site design and layout shall take into consideration the soil conditions and shall minimize the amount of clearing and grubbing on steep slopes or erosive soils.*	The applicant has confirmed in writing that the site plan minimizes grubbing and excavation, while providing a barrier-free shared street connecting all the buildings. The applicant is required to comply with By-Law G-200 “Respecting Grade Alteration and Stormwater Management Associated with Land Use”. These criteria will be reviewed in further detail during the building permit review.
(4)	*The notification distance for the approval or refusal of a Site Plan Approval in the RLRC zone shall be 328.08 feet (100 metres) from the property boundary of the lot that is the subject of the approval or the refusal.*	Property owners within 328.08 feet (100 metres) from the property boundary of the subject site were notified of the site plan approval and were provided a copy of the site plan.
(5)	*All matters considered by site plan approval shall be adequately maintained.*	This requirement will be ongoing after the development is completed.

Attachment D- Letter of Approval to Applicant

October 26, 2021

Design Point Engineering and Surveying Ltd.
c/o Glenn Woodford
222 Waterfront Drive
Suite 104
Halifax, N.S. B4A 0C4

Re: Site Plan Approval Application (#23653) - 1109 Fall River Rd, Fall River, PID 00506501

As the Development Officer for the Halifax Regional Municipality, I have approved your request for site plan approval under Part 14G.9 of the Planning Districts 14 and 17 Land Use By-Law as follows:

Location: **1109 Fall River Rd, Fall River N.S. (PID 00506501)**

Project proposal: **Four buildings comprising of 500 seniors dwelling units and one building containing 100 nursing home beds.**

Pursuant to Section 247 of the Halifax Regional Municipal Charter, assessed property owners within 30 meters of the property have been notified of this application. Those property owners have the right to appeal and must file their notice, in writing, to the Clerk's Officer on or before **November 15, 2021.**

PERMITS WILL NOT BE ISSUED UNTIL ANY APPEAL HAS BEEN DISPOSED OF OR THE APPEAL PERIOD HAS EXPIRED.

You will be notified once the appeal period has expired as to whether any appeals have been filed. Should no appeals be filed, a development permit shall be issued.

If you have any questions or require clarification of any of the above, please call Claire Tusz at 902.430.0645.

Sincerely,

[redacted]

Trevor Creaser
Principal Planner and Development Officer
Planning and Development
Halifax Regional Municipality

Tel 902.476.1591
Email creaset@halifax.ca

cc. Municipal Clerks Office

Councillor Cathy Deagle Gammon

November 5, 2021
REVISED NOTIFICATION - INCLUDES UPDATED APPEAL PERIOD END DATE

Design Point Engineering and Surveying Ltd. c/o Glenn Woodford
222 Waterfront Drive
Suite 104
Halifax, N.S. B4A 0C4

Re: Site Plan Approval Application (#23653) - 1109 Fall River Rd, Fall River, PID 00506501

As the Development Officer for the Halifax Regional Municipality, I have approved your request for site plan approval under Part 14G.9 of the Planning Districts 14 and 17 Land Use By-Law as follows:

Location: **1109 Fall River Rd, Fall River N.S. (PID 00506501)**

Project proposal: **Four buildings comprising of 500 seniors dwelling units and one building containing 100 nursing home beds.**

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PERMITS WILL NOT BE ISSUED UNTIL ANY APPEAL HAS BEEN DISPOSED OF OR THE APPEAL PERIOD HAS EXPIRED.

You will be notified once the appeal period has expired as to whether any appeals have been filed. Should no appeals be filed, a development permit shall be issued.

If you have any questions or require clarification of any of the above, please call Claire Tusz at 902.430.0645.

Sincerely,

Trevor Creaser
Principal Planner and Development Officer
Planning and Development
Halifax Regional Municipality

Tel 902.476.1591
Email creaset@halifax.ca

cc. Municipal Clerks Office

Councillor Cathy Deagle Gammon

Tusz, Claire

From: Office, Clerks
Sent: Monday, November 15, 2021 8:49 AM
To: Creaser, Trevor; Tusz, Claire
Cc: MacIntyre, Erin; Lovasi-Wood, Andrea
Subject: APPEAL - Site Plan Approval 23653 - Site 1109 Fall River Road (PID 00506501) development

Hi, Trevor and Claire, please see the below correspondence regarding the subject line, received by our office, which we are forwarding to you for action as you deem appropriate.

Regards,

Les

From: Jaccob Bing [redacted]
Sent: Sunday, November 14, 2021 5:22 PM
To: Office, Clerks <clerks@halifax.ca>
Subject: [External Email] Appeal

[This email has been received from an external person or system]

I Jaccob Ryan Bing my Wife Sarah Marie Bing and our children of [redacted] are appealing the site plan application of #23653- 1109 Fall River rd, PID 00506501.

We are appealing the scale and size of this development and the environmental impact on Lake Thomas. The said development is far to big for the community and will take away from what makes Fall River, Fall River. a semi remote community with the highest objects being trees. This development will directly contradict that. Please consider our appeal,

Jaccob Bing

Tusz, Claire

From: Office, Clerks
Sent: Monday, November 15, 2021 9:47 AM
To: Creaser, Trevor; Tusz, Claire
Cc: MacIntyre, Erin; Lovasi-Wood, Andrea
Subject: APPEAL - Site Plan Approval 23653 - Site 1109 Fall River Road (PID 00506501) - Carr Farm

Hi, Trevor and Claire, please see the below correspondence regarding the subject line, received by our office, which we are forwarding to you for action as you deem appropriate.

Regards,

Les

From: Robin Sherwood [redacted]
Sent: Saturday, November 13, 2021 4:43 PM
To: Office, Clerks <clerks@halifax.ca>
Cc: DeagleGammon, Cathy <deaglec@halifax.ca>; [redacted]
Subject: [External Email] Carr Fram Development Resident Appeal

[This email has been received from an external person or system]

Good afternoon,

I reside at [redacted] and wish to file an appeal to the above captioned development.

There are a number of reasons I file this appeal and will be happy to expand on them when needed.

The following are the basis of my appeal:

1. The size and scope of the development: 500 apartments in four five story buildings is a massive development for a community the size of Fall River. There is also a proposed 100 bed nursing home. The scale of this development is simply too large and the influx of new residents will create a drain on community infrastructure which will greatly exceeds our current capacity. Development needs to responsible and more importantly, implemented as part of a community growth plan - which grows community supports and infrastructure in a sustainable way.

2. Transportation issues: There will be an obvious increase in traffic as Fall River does not have a bus route so vehicles are needed by residents. This development could add over 700 cars to Fall River Road. This does not include other vehicles needed by staff for the nursing home. I have been told that as a resident I am not allowed to see the traffic studies that may have been completed by the developer and or HRM.

3. Constraints on our schools: The current school infrastructure is already overflowing, with students in temporary portables as there is not enough classroom space. Additional children will create further strains on this system.

4. EHS - as we are all aware, there are currently challenges within EHS and despite sterling efforts to try and add capacity to this system, I cannot see how adding 100 bed nursing home - which will require additional calls for service - is going to help. The proposed site is far removed from hospitals. In my experience, most homes are built near to medical facilities and or on direct routes with more EHS coverage.

5. Impact of blasting: The development will require extensive blasting which will likely damage foundations and wells in the area.

6. Discharge of sewage into Lake Thomas: I understand that 200,000 liters of sewage effluent will be discharged into the lake systems. Our lakes are already having issues because of climate change and are becoming unsafe - this is BEFORE the introduction of over 200,000 litres of sewage a day! This isn't safe and impacts drinking water and watersheds for many and will make it dangerous to use the lakes. Many of our children have grown up at Cheema and use the lake system for paddling and swimming. This is an important part of our community identity.
These lakes and canals are also used by residents and fisherman. To contaminate them with sewage is beyond comprehension.

I am against this development for the above reasons and this serves as my appeal.

Please let me know if you need anything further from me.

Kind regards,

Robin Sherwood
[redacted]

Tusz, Claire

From: Tusz, Claire
Sent: Monday, November 15, 2021 8:36 AM
To: Carla Seewald
Cc: Office, Clerks; Creaser, Trevor
Subject: RE: Site plan approval application #23653

Good morning Carla,

I have forwarded your appeal to the Clerks Office. At the appeal hearing (date to be determined), you will have the opportunity to speak for five minutes to inform North West Community Council of your reasons for appealing the approval. The Clerks Office (Cc'd) can provide further direction on the procedure for speaking, should you be interested.

Kind regards,
Claire

CLAIRE TUSZ
PLANNER II | RURAL POLICY AND PLANNING APPLICATIONS CURRENT PLANNING | PLANNING AND DEVELOPMENT

HΛLIFΛX
PO BOX 1749
HALIFAX NS B3J 3A5
T. 902.430.0645
F. 902.490.4645
halifax.ca

-----Original Message-----
From: Carla Seewald [redacted]
Sent: Sunday, November 14, 2021 10:26 AM
To: Tusz, Claire <tuszc@halifax.ca>
Subject: [External Email] Re: Site plan approval application #23653

[This email has been received from an external person or system]

Thanks Claire,

I would like to submit an appeal. As a resident within 100 m of the property on a drilled well and with no access to city water I have concerns about the impacts of blasting for construction. There has been no testing of surrounding wells to be used in the case that water supply or quality is impacted. Residents in the area should not have to pay out of pocket to prove the water wells in the area have been affected. At the very least pump tests and water quality analysis should be completed by the developer on the wells within 100 m of the site prior to the construction. This would provide baseline information in the case that wells are impacted.

The other concern is the increased traffic. There are currently traffic issues in the area especially at Fall River Road and Highway 2, and such a large influx of people would only exasperate this. The traffic study that was completed should be available to the public.

Thank you

Carla Sutherland
[redacted]

> On Nov 4, 2021, at 1:36 PM, Tusz, Claire <tuszc@halifax.ca> wrote:
>
> Hello Carla,
>
> Thank you for your email. We realized there was an error with the public notification mail out that you received, and the “proposed site plan” was not attached. We have informed the HRM Print Centre and a revised notification has been issued. It includes the attachment (proposed site plan) and the appeal period end date has been updated to reflect the new mail out timeline.
>
> As for the transportation and phosphorus studies, these studies were submitted as part of the site plan approval application and have been reviewed and approved by HRM engineering staff. They have therefore been deemed acceptable by the Development Officer. The developer is not required to release these studies to the public as part of the site plan approval process.
>
> Please call or email if you any questions about the development or the appeal process - I'm happy to answer any questions I can.
>
> Kind regards,
> Claire
>
> CLAIRE TUSZ
> PLANNER II | RURAL POLICY AND PLANNING APPLICATIONS CURRENT PLANNING
> | PLANNING AND DEVELOPMENT
>
> HΛLIFΛX
> PO BOX 1749
> HALIFAX NS B3J 3A5
> T. 902.430.0645
> F. 902.490.4645
> halifax.ca
>
>
>
>
> -----Original Message-----
> From: Office, Clerks <clerks@halifax.ca>
> Sent: Thursday, November 4, 2021 9:00 AM
> To: Carla Seewald [redacted]; Tusz, Claire
> <tuszc@halifax.ca>
> Cc: Creaser, Trevor <creaset@halifax.ca>
> Subject: RE: Site plan approval application #23653
>
> Good Morning Carla,
>
> Thank you for your message. By copy of this I'm forwarding your inquiry to Clair Tusz, Planner, for a response.
>
> Best regards,

>
> April Stewart
> Administrator, Records & Access
> OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES
>
> T. 902.490.4210
> F. 902.490.4208
>
> HΛLIFΛX
> _____
>
> The Halifax Regional Municipality is located in Mi'kma'ki, the ancestral and traditional lands of the Mi'kmaq people. The municipality acknowledges the Peace and Friendship Treaties signed in this Territory and recognizes that we are all Treaty People.
>
> This communication may contain privileged or confidential information and is intended for the addressee(s) only. Any copying, distribution, or other use or disclosure of the information in this communication by person(s) other than the addressee is prohibited. If you have received this communication in error, please notify the sender and delete or destroy all copies of this communication, including from your deleted items folder.
>
>
>
>
> -----Original Message-----
> From: Carla Seewald [redacted]
> Sent: Wednesday, November 3, 2021 5:10 PM
> To: Office, Clerks <clerks@halifax.ca>
> Subject: [External Email] Site plan approval application #23653
>
> [This email has been received from an external person or system]
>
>
>
> Hello,
> We've received a letter that this application was approved, can you
> please tell me the outcome of the traffic and water studies in the
> area? We live within 100 m of the site on Concord Ave, we do not have
> access to city water and are concerned about the impacts of blasting
> for development. I can't seem to find the results of these studies
> that we thought were part of the approval process,
>
> Thanks a lot
>
> Carla Sutherland
>
>

Tusz, Claire

From: Office, Clerks
Sent: Friday, November 12, 2021 8:28 AM
To: Creaser, Trevor; Tusz, Claire
Cc: MacIntyre, Erin; Lovasi-Wood, Andrea
Subject: APPEAL - Site Plan Approval 23653 - Site 1109 Fall River Road (PID 00506501) development
Attachments: appeal fall river.docx

Hi, Trevor and Claire, please see the attached correspondence regarding the subject line, received by our office, which we are forwarding to you for action as you deem appropriate.

Regards,

Les

From: Tom Attebery [redacted]
Sent: Thursday, November 11, 2021 5:40 PM
To: Creaser, Trevor <creaset@halifax.ca>
Cc: Office, Clerks <clerks@halifax.ca>
Subject: [External Email] 1109 Fall River Road (PID 00506501) development

[This email has been received from an external person or system]

I am a homeowner within 100 metres of the proposed development on Fall River Road. Please find attached a letter of appeal outlining my concerns. I look forward to hearing back from you at your earliest convenience.
Best regards,
Thomas Attebery
[redacted]

Tusz, Claire

From: Office, Clerks
Sent: Monday, November 15, 2021 8:51 AM
To: Creaser, Trevor; Tusz, Claire
Cc: MacIntyre, Erin; Lovasi-Wood, Andrea
Subject: APPEAL - Site Plan Approval 23653 - Site 1109 Fall River Road (PID 00506501) development

Hi, Trevor and Claire, please see the below correspondence regarding the subject line, received by our office, which we are forwarding to you for action as you deem appropriate.

Regards,

Les

From: Keiji Yamanaka [redacted]
Sent: Sunday, November 14, 2021 2:42 PM
To: Office, Clerks <clerks@halifax.ca>
Subject: [External Email] site plan approval application#23653

[This email has been received from an external person or system]

i would like to appeal development of site plan approval of 1109 fall river rd fall river

Tusz, Claire

From: Office, Clerks
Sent: Monday, November 15, 2021 2:23 PM
To: Creaser, Trevor; Tusz, Claire
Cc: MacIntyre, Erin; Lovasi-Wood, Andrea
Subject: APPEAL - Site Plan Approval 23653 - Site 1109 Fall River Road (PID 00506501) development

Hi, Trevor and Claire, please see the below correspondence regarding the subject line, received by our office, which we are forwarding to you for action as you deem appropriate.

Regards,

Les

From: Rich B [redacted]
Sent: Monday, November 15, 2021 2:01 PM
To: Office, Clerks <clerks@halifax.ca>
Subject: [External Email] Appeal: Site Plan Approval Application (#23653)

[This email has been received from an external person or system]

Hello,

Please accept this as an appeal to the site plan application #23653 on behalf of my wife Bethany and I as one of the homeowners within 100 meters of the proposed build.

The blasting required for this project is going to have devastating effects on resident's wells, water supplies, and the contamination of water as well. These impacts will be felt for years as construction of this size is going to take well beyond 5 years.

The infrastructure is not in place to accommodate waste from such a large project, so we'll just treat it and pump it into the lake instead? This alone shows that this type of development does NOT belong here. There was zero transparency with how the waste issue was going to be handled.

I fully support the development of this plot of land with senior housing, but within reason. This plan is absolutely absurd.

Richard Bennett
[redacted]

Tusz, Claire

From: Office, Clerks
Sent: Tuesday, November 16, 2021 9:05 AM
To: Creaser, Trevor; Tusz, Claire
Cc: MacIntyre, Erin; Lovasi-Wood, Andrea
Subject: APPEAL: Site Plan Approval Application (#23653) - Appeal

Good Morning Trevor and Claire - please see the correspondence below, which I am forwarding to you for action as you deem appropriate.

April

OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: Liz Voellinger [redacted]
Sent: Monday, November 15, 2021 11:57 PM
To: Office, Clerks <clerks@halifax.ca>
Subject: [External Email] Site Plan Approval Application (#23653) - Appeal

[This email has been received from an external person or system]

Hi there. I have been identified as a property owner within 100 m of 1109 Fall River Road and am appealing the provisions indicated in Part 14G.9. I am appealing based on the following concerns:

(1) Blasting: Damage to homes, water wells and septic fields;
(2) Traffic: I would like to see further info on this. I understand a traffic study was done but has not been released to property owners in the area.
(3) Sewage: A new unproven sewage treatment plan discharging high volumes of effluent into Lake Thomas daily.

Regards,

Liz Voellinger & Family
[redacted]

Tusz, Claire

From: Office, Clerks
Sent: Wednesday, November 17, 2021 8:35 AM
To: Creaser, Trevor; Tusz, Claire
Cc: MacIntyre, Erin; Lovasi-Wood, Andrea
Subject: APPEAL: Case 23653, 1109 Fall River Road

Hi Trevor and Claire – please see below, which I'm forwarding to you for action as you deem appropriate.
April

OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: Michael Kidd [redacted]
Sent: Tuesday, November 16, 2021 5:19 PM
To: Office, Clerks <clerks@halifax.ca>; Creaser, Trevor <creaset@halifax.ca>; DeagleGammon, Cathy <deaglec@halifax.ca>
Subject: Re: Automatic reply: [External Email] Letter dated October 27 2021

Municipal Clerk
Halifax Regional Municipality

Re: Site Plan Approval Application (#23653) - 1109 Fall River Rd., Fall River, PID 00506501

Pursuant to Section 247 and any other appropriate Section of the Halifax Regional Municipal Charter or other appropriate legislation that protects a property owner of the Halifax Regional Municipality, I am appealing those provisions indicated in Part 14G.9, in writing, to the Clerk's Officer prior to the November 22nd deadline to receive a guarantee for the 'safe and secure' supply of water equal to that received by the Halifax Regional Water Commission.

I have noted in the Proposed Site Plan for 'an Age-In-Place Community' that underground parking development has been granted; specifically, 580 underground parking spaces.

As this approved development will affect my sole source of water (drilled well located at [redacted] via blasting or other similar excavation technique(s), I am seeking a written guarantee that the Halifax Regional Municipality will provide my residence with an immediate supply of water when any water interruption occurs

during, or one year after, this site development and excavation takes place. My property lies within 100 meters of the property which has been granted Site Plan Approval. Until your letter dated November 3rd 2021, I received no notification of the immediate jeopardy to my water supply or assurance that my existing water supply would be protected from such risk. When or if the development of this Site Plan were to damage the newly installed underground HRM water supply to local residents, I am confident the HRM will immediately reconnect all affected residents to their water supply. I am appealing to receive the exact same written guarantee and level of assurance to protect my existing well which lies within 100 meters of the Site Plan.

As a resident of Fall River, I also have concerns about the proposed septic provisions afforded this development but a 'safe and secure' water supply remains my primary concern for appeal.

In conclusion, my written appeal to the Clerk's Officer is to obtain water security. The same water security that the Halifax Water Commission receives against any disruption to its 'safe and secure' distribution of water to its customers, of which in point of fact, I am one. I pay annual taxes to the Halifax Regional Municipality as well as to Halifax Regional Water Commission. I believe every resident who loses water from their well during, or even after, this Site Plan development proceeds ought to be defended by the Halifax Regional Municipality against such risk. I write this letter to obtain confirmation that my water supply receives the same protection from HRM as that of the Halifax Regional Water Commission.

Respectfully,

Michael Kidd
[redacted]

On Tue, Nov 2, 2021 at 6:58 PM Office, Clerks <clerks@halifax.ca> wrote:

> This is to confirm that your email has been received by the Office of the Municipal Clerk for the Halifax Regional Municipality. You can also reach us by phone, Mon-Fri 8:30am-4:30pm, at 902.490.4210.
>
> Information regarding submitting correspondence for the public record can be found on Halifax.ca:
> https://www.halifax.ca/city-hall/regional-council/communicating-halifax-regional-council

Tusz, Claire

From: Office, Clerks
Sent: Wednesday, November 17, 2021 8:37 AM
To: Creaser, Trevor; Tusz, Claire
Cc: MacIntyre, Erin; Lovasi-Wood, Andrea
Subject: APPEAL: case 23653 - 1109 Fall River Road development

Hi Trevor and Claire – please see below, which I'm forwarding to you for action as you deem appropriate.
April

OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: s pembroke [redacted]
November 16, 2021 7:29 PM
To: Office, Clerks <clerks@halifax.ca>
Cc: s pembroke [redacted]
Subject: [External Email] Appealing case 23653 - 1109 Fall River Road development

[This email has been received from an external person or system]

Good Evening,

I am writing tonight as I wish to appeal the site plan approval for case 23653 -1109 Fall River Road. Reasons for appealing are extensive, including but not limited to traffic impact/personal safety on Fall River proper, environmental impact on Lake Thomas/wastewater treatment, blasting impact on surrounding properties and beyond, noise pollution, and impact on our overcrowded schools. Yes, our schools. There is no guarantee seniors will occupy the space. There are a number of other concerns, but I am fully expecting answers directly from the province where they are involved in the approval process, such as for WWTP and effluent, as well as traffic impact/road and pedestrian safety, as examples. Please come prepared to the in-person public hearing.

It is time to listen to existing residents, and act on our behalf to protect all that makes Fall River amazing. We will no longer tolerate being shrugged off by HRM and the developer.

Please reply to acknowledge receipt of this appeal.

Regards,
Stephanie Dixon

November 16, 2021

Attn: Trevor Creasor,
Principal Planner and Development Officer
Halifax Regional Municipality
Halifax, N.S.

We are writing with regard to the current site approval application at 1109 Fall River Road.

The notice we received from your office in October of 2020 requested resident feedback on the developer's intent to build a long term care facility on this site. The accompanying diagram showed the total number of units in the entire development, including the long term care facility, to be 390. This is a very large number of people, traffic and waste issues for a small village like Fall River to sustain, so it will be a strain on the current infrastructure.

We were told at that time that no decisions had been made yet, pending a traffic study on Fall River Rd., as well as a study on the proposed methods of sewage disposal. We assumed that the results of these reports would be sent to us, or at least, accessible for public viewing.

We were very surprised to receive your notice last week, asking for feedback for the **now proposed 500 apartment units, plus an additional 100 bed long term care facility!** Is this a new proposal, from a new developer? We agree that this community needs long term care and additional *affordable* rental units, but the scope of this project has increased to the type of development that a community like Bedford West could sustain. Not Fall River. With only one way to access this development, Fall River Road, traffic is a huge concern.
Also, with the current plan of a for-profit company being responsible to treat waste going into Lake Thomas, we have no guarantee that the proposed on-site treatment system will work without failure or upset. It only takes one mistake to contaminate the lake for a very long time. Given the current state of Grand Lake and its contamination this past summer, many residents of Fall River, not just the 113 homes that received your notice, are very concerned about this plan for treating waste water. Because there will be pharmaceuticals used in the long term care facility and possibly in the Seniors residences, is there any thought being given to the possibility of these pharmaceuticals being flushed into in the waste water? Is the developer accountable to regional council when contamination occurs?

Another surprise is that we are now being told that reports on traffic study and waste water were completed by the developer, but the results are not available to the public. This is just not acceptable. Given that traffic was almost non existent, with schools and many businesses closed for the first part of 2020 due to the pandemic, the very least we should know is when the study was done. Date? Time of day? Weekday or weekend? I do not have to tell you the impact these variables would have on any traffic study. The fact that the developer conducted the studies could also lead to suspicion instead of transparency.

At the very first town hall meeting at the Gordon Snow Centre, we were assured by the developer that there were no plans for underground parking and thus there would be no blasting. Blasting can easily damage foundations, septic systems and wells in a developed area like this location. The current proposal has proposed underground parking under each of the buildings, and once again, we have been misled. Honest answers would be greatly appreciated. If and when the damage occurs, who will be paying for repairs? The developer? Will residents have a written promise to this effect?

We have tried to be understanding of the developer and the proposed plans, but there has been no offer of compromise nor understanding of the concerns voiced by residents at any of the town hall meetings, and particularly at the Regional Council meeting of March 2019, where our concerns fell on deaf ears and the major issues were not even open to debate. We are extremely frustrated and disappointed with our Regional Council's actions through the history of this process, and we feel that we are being given lip service and nothing more. Could the developer not be asked to scale down the project and provide the much needed nursing home and a modest number of rental units at an affordable cost for our Seniors? This would be much more in keeping with the village of Fall River. It would also provide alternatives for waste disposal as there would be a lot less of it. Could the results of the traffic and water studies be released? This project is larger than a simple, small development which could be approved *in camera.* It has potential huge and long lasting impacts to the whole area and indeed the extended watershed northwest of the harbour.

For the reasons stated above, we cannot provide any approval of this proposal as it currently stands. We formally appeal to the Planning Department to meet again with this developer and come to a better solution that addresses the concerns of the residents of Fall River, who definitely want the Seniors housing and long term care, but **not this project as it is currently proposed.**

Thank you.
Bill and Elaine Morrow
[redacted]

Tusz, Claire

From: Office, Clerks
Sent: Tuesday, November 16, 2021 2:28 PM
To: Creaser, Trevor; Tusz, Claire
Cc: MacIntyre, Erin; Lovasi-Wood, Andrea
Subject: APPEAL: Case 23653 - Carr farm development
Attachments: Carr farm development appeal document.pdf

Hi Trevor and Claire - please see the correspondence below, which I am forwarding to you for action as you deem appropriate.

April

OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: Elaine Morrow [redacted]
November 16, 2021 9:34 AM
To: Office, Clerks <clerks@halifax.ca>
Cc: DeagleGammon, Cathy <deaglec@halifax.ca>
Subject: [External Email] document re. Carr farm development

[This email has been received from an external person or system]

Please find attached a letter of appeal regarding the proposed development at 1109 Fall River Rd, Fall River. Thank you. Bill and Elaine Morrow

Tusz, Claire

From: Office, Clerks
Sent: Thursday, November 18, 2021 8:37 AM
To: Creaser, Trevor; Tusz, Claire
Cc: MacIntyre, Erin; Lovasi-Wood, Andrea
Subject: APPEAL: Site Plan Approval Application (#236530) PID 00506501

Hi Trevor and Claire – please see below, which I'm forwarding to you for action as you deem appropriate.
April

OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: Cheryl Geddes [redacted]
Sent: Wednesday, November 17, 2021 7:37 PM
To: DeagleGammon, Cathy <deaglec@halifax.ca>
Cc: Office, Clerks <clerks@halifax.ca>
Subject: [External Email] Site Plan Approval Application (#236530) PID 00506501

[This email has been received from an external person or system]

Good morning Councillor Deagle-Gammon,

I am writing to you this letter as I wish to appeal the site plan approval for Fall River Road, Fall River, NS.

It took me a long time to decide whether to write this letter or not. I just felt that my voice would not be heard as we were shut out when the plan was approved.I hope that this letter will be considered when considering this development. My name is Cheryl Geddes and I live at [redacted] not far from this proposed Site for the apartment buildings that are going to be built at 1109 Fall River Road.

When we received the plans in the mail I was shocked to see that it had grown and was quite a departure from the original plan. It was our understanding that this was going to be 3 buildings with less than 300 units. This plan shows 4-5 story apartment blocks with close to 500 apartments in addition to 100 nursing units. Also the height of the buildings will definitely be aesthetically displeasing and not fit into the Fall River landscape. Who would want to have this in their backyard as well as their view?

Let's say that each apartment has two tenants with two vehicles. That would be 1000 extra vehicles on this property. I don't believe that there has ever been a traffic study done on this road. If there was, they would have seen that there is no way that this area can sustain that type of traffic increase. It now takes me a while to turn left to go down the hill, I can't imagine what it will be like once this is built.

Can the developers really guarantee that the wastewater treatment plant will be adequid to work and if it isn't then what? It will be too late! The amount of outflow in the surrounding area or worse having it piped to flow into Lake Thomas should never be a consideration. The developers will be long gone and who will be left to clean it up?

The noise pollution that this development is going to cause will greatly impact the people whose properties are not just within the 100 metre limit but at a much greater distance. Hearing the pounding and large trucks coming and going from this property all day will be very distressing as I enjoy spending time outdoors.

This plan also exceeds the maximum residential density for this property. It was proposed to have three buildings with a total of 300 apartments. Again, I was shocked by the amendment made to the new plan to 500 apartments plus the senior home. I know that we were certainly not consulted in any way.

My house is on a well. We have good water flow and good drinking water. I have a concern that this will change our water table and that we will have less water going into our well. Yes, we have city water that goes by our house but we have decided not to hook on for two reasons. We have adequate water and the price of the hook up is quite expensive.What is going to happen if my well is compromised? Who will be responsible to fix it?

With all the blasting that is proposed for underground parking will there be a chance that my septic system will be compromised as well and if it is who will be responsible for that?

Lastly, with all the extra people moving into the area I have a concern about safety and increased crime in the area. Will Fall River have increased policing?

Both my husband and I greatly opposed the amendment made to this development and we hope that it will be overturned.

Thank you in advance
Cheryl Geddes
[redacted]

Tusz, Claire

From: Office, Clerks
Sent: Thursday, November 18, 2021 8:40 AM
To: Creaser, Trevor; Tusz, Claire
Cc: MacIntyre, Erin; Lovasi-Wood, Andrea
Subject: APPEAL: Carr Farm Development Appeal

Hi Trevor and Claire – please see below, which I'm forwarding to you for action as you deem appropriate.
April

OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: Ralph Jodrey [redacted]
Sent: Wednesday, November 17, 2021 7:55 PM
To: Office, Clerks <clerks@halifax.ca>
Subject: [External Email] Carr Farm Development Appeal

[This email has been received from an external person or system]

To whom it may concern:

I live in one of the 113 homes that are within 100 meters of the Carr Farm Development in Fall River. I am appealing on the following grounds:

Potential damage to my house foundation and my well from drilling and blasting - The project will include drilling and blasting to allow for 2 floors of underground parking for each building.

Dumping of sewage effuent into Lake Thomas - There will be an on-site sewage treatment plant installed that will allow the treated sewage
effuent to be discharged into Lake Thomas. A pipe is to be installed along Waterview Dr., down
Lake Thomas to Horobin Dr. and discharged into the lake.

Increased traffic - This complex will be made up of four buildings of five stories each with 500 apartments and 100 nursing home beds. It is
possible this will house 1,100 people and add an additional 700 cars to Fall River Road plus service vehicles, staff vehicles and buses.

Ralph Jodrey - [redacted]

From: glenda baker [redacted]
To: clerk@halifax.ca
Date: Nov 15, 2021 4:22:20 PM
Subject: **Proposed Project 1109 Fall River Road #23653 PID 00506501**

ATTENTION: The Municipal Clerk

In relation to the proposed project at 1109 Fall River Road -

My property backs on this proposed project and I have concerns .....

The truck traffic on the Fall River Road which will bring equipment and supplies .....

the Fall River Road is congested enough without all this extra traffic and the road is not designed to accommodate this type of traffic.

The noise level of all this ground preparation work and construction of a project of this size....

there will be truck traffic noise and pounding of bedrock daily for hours on end.

The effects of the ground preparation work on the water table....

there will be extensive in-ground work to prepare for the excavation for the underground parking...removal
of bedrock by force. This will interrupt the water seams which will cause many wells in the area to go dry. There will be structural
damage to foundations caused by the work of getting through the bedrock.

The massive amount of sewer that will be generated by this project once finished and occupied....

to have the outflow of this distributed in the surrounding ground or worse having it piped to flow into Lake Thomas. DISGUSTING!!!

A tremendous increase in traffic after completion....

bringing what could amount to an additional 1000 cars thru one entrance/exit off and onto Fall River

OVER

Road is another huge problem. There has been a huge increase in traffic over the past few years and has increasingly become a problem.

Proposed building height....

this height of architecture is not found in Fall River area. The proposed buildings will look very out of place.

My suggestion would be .....

the nursing home is needed and would be a benefit to Fall River and if need be, one or two apartment building half the proposed
height; which would lead too half as many people, half as many cars and half as much sewer and undoubtedly half as much concern for the
neighbours and the rest of the community!! Also half as much construction time.

Thanking you in advance for your consideration,

Greg Baker, [redacted]

Tusz, Claire

From: Office, Clerks
Sent: Thursday, November 18, 2021 10:19 AM
To: Creaser, Trevor; Tusz, Claire
Cc: MacIntyre, Erin; Lovasi-Wood, Andrea
Subject: APPEAL: Case 23653, 1109 Fall River Road - Glenda Baker
Attachments: APPEAL - Case 23653 - Greg Baker.pdf

Hi Trevor and Claire – please see attached received via Canada Post to our office, which I'm forwarding to you for action as you deem appropriate.

Leslie
OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

Tusz, Claire

From: Office, Clerks
Sent: Thursday, November 18, 2021 1:03 PM
To: Creaser, Trevor; Tusz, Claire
Cc: MacIntyre, Erin; Lovasi-Wood, Andrea
Subject: APPEAL: Carr Farm

Hi Trevor and Claire – please see below, which I'm forwarding to you for action as you deem appropriate.

This resident had sent a similar message yesterday, however this new email clearly notes that this IS an appeal.

April
OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: Natalie Hartt [redacted]
Sent: Thursday, November 18, 2021 12:01 PM
To: Office, Clerks <clerks@halifax.ca>
Subject: [External Email] Re: Carr Farm

[This email has been received from an external person or system]

To Whom It May Concern:

I am writing to you today about the Carr Farm Development project. "I wish to appeal the decision of this site plan approval.

I have deep roots in this community. My family were some of the first settlers to Fall River; I have grown up here and am raising my own family in the community.

I live at [redacted], which is directly behind the Carr Farm property. I had no issues with the initial proposal for the property of townhouses on the property. This development met with the existing infrastructure of the area. Fall River has very limited options for **traffic flow**, as well as **water** and **waste** disposal services, which is why I have to write with my concerns regarding the size

of the current development proposal. I also do not feel that 16 residents favorable to the development and 10 against is an appropriate representation of the approximate 2500 residents of Fall River.

I attended the community meetings as well as the council vote for the last proposal. I do not feel that the councillor at the time, Steve Stretch, appropriately represented the interests of this community. He had his own agenda and moved forward with that regardless of the outcries of those who were affected. The response to the concerns of the residents in the meeting was **"sacrifice the few for the benefit of the many".** I am one of those **"FEW"** and I do not think my councillor nor city council should adopt this way of thinking of their community members. Most residents in Fall River may and have already been sacrificed for this development. One example is when water was rushed through the community with no consultation at an expense that some could not afford to pay while others did not receive water. My street, which borders the Carr Farm property, did not receive water and is at the most risk of water contamination during blasting. This is one instance where not enough time was taken to appropriately plan for the future of the community as well as the development.

Due to the rushed and incomplete planning, I have concerns about the safety of our well. We drink our well water; use it in cooking and brushing our teeth. First, blasting may change the water tables leading to surrounding wells drying up. This may affect not only wells along the border of the property but properties in the surrounding area. The residents of these homes did not receive a letter giving them the opportunity to voice their concerns; Residents who initially received a letter but were not included in this appeal. This makes the process appear to be lacking transparency and generally, when things are rushed and/or concealed it is because there are negative impacts that if acknowledged would change the things and possibly even halt the development.

It is well documented that there are high levels of arsenic in the soil of Nova Scotia. I am concerned blasting for an underground parkade will disturb the soil and cause our drinking water to be contaminated. What type of safety procedures are in place to ensure that anytime during the process that my family is not poisoned? In addition, what compensation will be given to the residents should our wells dry up or become contaminated? Is the developer required to fix the problem as well as compensate for the inconvenience? What recourse is available should my family become sick from contamination? What safeguard is in place to ensure the developer claims responsibility for any issues caused and does not hide behind expensive lawyers that we would not have the resources to match.

We have requested the traffic and sewage reports from HRM but were advised that they have no responsibility to provide these to the public and therefore will not provide these documents. We were advised the developer could provide these however when searching for the developer, Glenn Clark's information, all I can find is his home address. I return to the lack of transparency, regardless if there is a requirement to provide these reports it feels like some things are being hidden from the community.

Even without this information, I know that **IF** a traffic study was conducted, it was completed during COVID shutdowns, when many members of the community are working from home. Once we start working back in the office, the traffic will significantly increase. Prior to COVID and working from home the traffic on the Fall River Road was consistently backed up past Georges P. Vanier where there are limited ways out of Fall River. With the addition of 500 units, a potential of 1000 people and cars as well as staff for 100 nursing beds the Fall River road will not be able to handle that amount of congestion. As well, even with the addition of the roundabout and highway exit Highway 118 is extremely dangerous with the amount of backup and will only be worse with the added cars. The argument that the development is going to be a "seniors" complex has been made however; seniors are anyone from age 55+. There are many seniors who work up into their seventies meaning they will have cars on the road. There is no transit infrastructure so all of the seniors will need to drive to the grocery store, doctor, dentist etc. It has been mentioned that the seniors can walk to the grocery store but this is not

realistic as the Sobeys is 2km's away and it is unreasonable to expect a senior to walk 4km's and carrying groceries.

Where we do not have a sewer infrastructure we rely on septic systems and in a development of 500 plus units, a sewage system of this size is extremely concerning. I have witnessed many septic systems in the area failing, even brand new systems put into place, which were replaced multiple times because they were not appropriate for the waste delivered to it. What safeguards are in place for the brand new technology treatment plant discharging 200,000 litres of effluent into Lake Thomas? I am aware that other buildings discharge effluent into the lakes in the areas however; with the amount the system will discharge, I have major environmental concerns. This year we have had issues with our lakes such as Grand Lake and Lake Thomas with contaminants causing blue algae killing two dogs and hospitalizing a resident who drew water from the lake. We swim in that lake and residents draw water from that lake. This new system needs to have the filter replaced each year. What safeguards are in place should the filter require replacing earlier or if the system itself fails and begins discharging sewage waste directly into the lake?

I know there is a need for housing in Halifax but please do not approve this structure out of hastiness. The size of this project is not appropriate for the infrastructure in this community. This development is more suited in a place where there is sewer, water, and transit.

Thank you,

Natalie Carr-Hartt

Tusz, Claire

From: Office, Clerks
Sent: Thursday, November 18, 2021 2:28 PM
To: Creaser, Trevor; Tusz, Claire
Cc: MacIntyre, Erin; Lovasi-Wood, Andrea
Subject: APPEAL: to Site Plan 23653

Hi Trevor and Claire – please see below, which I'm forwarding to you for action as you deem appropriate.

This resident had sent a similar message yesterday, however this new email clearly notes that this IS an appeal.

April
OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: Jamieson McNeil [redacted]
Sent: Thursday, November 18, 2021 2:11 PM
To: Office, Clerks <clerks@halifax.ca>
Subject: [External Email] Appeal to Site Plan 23653

[This email has been received from an external person or system]

11/20/21

Municipal Clerk
HALIFAX REGIONAL MUNICIPALITY
PO BOX 1749, HALIFAX, NS, B3J 1A5

I am writing, and emailing, my notice of appeal for the Site Plan Approval Application #23653.
Beyond the obvious and significant negative impact to property values and privacy concerns, there are legitimate mental health concerns from years of construction noise, traffic, inconvenience and over population and strain on local resources, among other concerns.

Two concerns I am raising in this appeal are regarding traffic and property damage.

Traffic:

The traffic situation in Fall River general and specifically Fall River Rd is already a major concern for residents. The traffic backup daily during rush hours is significant coming off the highway onto Hwy 2 and getting worse for people cutting through Windsor Junction to go down Fall River Rd to turn left on Hwy 2 towards Wellington, which blocks all other traffic on the Fall River Rd for an extended period.

The addition of hundreds of vehicles on the Fall River Rd will become unmanageable. Considering the absence of alternate in/out routes from Fall River Rd, residents will be isolated and immobile for extended periods daily, impacting convenience, emergency, and school traffic.

Property Damage:

Property damage is a significant concern for property owners in the vicinity of the new development.

There is a common concern for property damage from blasting, construction vehicles on roads, and work done to surrounding areas.
I am personally trying to get a resolution on property damage caused by just road work done last year.

In this instance, whether related to this development or not, a culvert was added in front of my house and the resulting damage is that water now directs to my property which has eroded my top parting spot, driveway, and yard.

I have called Halifax Water Commission more than six times to report and inquire on this and each time I am told that it has been escalated but not addressed. This has been over 9 months with no attention or resolution, and I am just one resident with one issue. How will residents be treated, and damage addressed from this project when potentially dozens of property owners experience significant damage, considering my single issue hasn't even been looked at after 9 months of reporting it.

I agree with many residents that the addition of a 100-unit nursing home is welcome in our community, but the addition of 500 residential units across five large buildings (the largest buildings in Fall River), will have a massive negative impact on the Fall River, and surrounding, communities.

SINCERELY,
JAMIESON MCNEIL

[redacted]

[redacted] mailed to:
Municipal Clerk
HALIFAX REGIONAL MUNICIPALITY
PO BOX 1749, HALIFAX, NS, B3J 1A5

Tusz, Claire

From: Office, Clerks
Sent: Friday, November 19, 2021 2:11 PM
To: Creaser, Trevor; Tusz, Claire
Cc: Lovasi-Wood, Andrea; MacIntyre, Erin
Subject: APPEAL: Application of #23653- 1109 Fall River rd, PID 00506501

Hi Trevor and Claire – please see below, which I'm forwarding to you for action as you deem appropriate.

April
OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: GLevis Gravel [redacted]
[redacted] November 19, 2021 1:50 PM
To: Office, Clerks <clerks@halifax.ca>
Subject: [External Email] Appeal - Application of #23653- 1109 Fall River rd, PID 00506501

[This email has been received from an external person or system]

I, Greg Gravel, my wife Terry and 4 Boys, at [redacted] are appealing the site plan application of #23653- 1109 Fall River rd, PID 00506501.

We are appealing the scale and size of this development and the environmental impact on Lake Thomas with the discharging of some 200000 liters, daily, of supposedly treated sewage from a new unproven treatment technology.
The said development is ridiculously far too big for the community and will take away from what makes Fall River, Fall River.
In reality, all involved and all who it will impact, will be far more than 113 families who have received your letter.
Common sense shows that this development as it is proposed will in fact touch and change's lives even beyond Grand Lake!!!

Damage to our home is very real with our well water being impacted due to construction blasting. This along with the fact that the timeline for this project may very well extend over a period of some 8 to 9 years!!! I can appreciate the intent of the developer (2 individuals), but not at the expense of directly destroying hundreds and hundreds of individuals' pristine way of life which Fall River has been known for for decades.

Additionally, we have yet to really understand traffic impact since, as it is now, it is becoming more and more congested every day, to the point of being overbearing for our existing roadways. What impact will this truly have when adding some 1100 to 1200 individuals to this already excessive volume of traffic?

In closing, we are appealing this project and are absolutely opposed to this humongous development!

Thank you.
The Gravel Family.
Greg, Terry, Jacob, Jesse, Joshua and Nick.

P.S. Please acknowledge receipt of our appeal with a confirmation return email to this email address. Thank you. G.

Tusz, Claire

From: Office, Clerks
Sent: Monday, November 22, 2021 9:03 AM
To: Tusz, Claire; Creaser, Trevor
Cc: Lovasi-Wood, Andrea; MacIntyre, Erin
Subject: APPEAL: site plan approval application (#23653)

Hi Trevor and Claire – please see below, which I'm forwarding to you for action as you deem appropriate.

April
OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: Anthony Whitman [redacted]
Sent: Sunday, November 21, 2021 2:46 PM
To: Office, Clerks <clerks@halifax.ca>
Subject: [External Email] Fw: site plan approval application (#23653)

[This email has been received from an external person or system]

----- Forwarded Message -----
From: Anthony Whitman [redacted]
To: clerk@halifax.ca <clerk@halifax.ca>
Sent: Sunday, November 21, 2021, 02:19:01 p.m. AST
Subject: site plan approval application (#23653)

To whom it may concern,

I am writing in response to the planning approval notice for the seniors' complex to be located on what was formerly known as the Carr Farm off the Fall River Rd. I wish to express in writing two main objections I have to the planned development, though I am not apposed to having a seniors' development on the property. If there is to be development on the property, I would prefer the land be used by mature, responsible adults over new home buyers and single family dwellings, or some form of commercial/industrial venture.

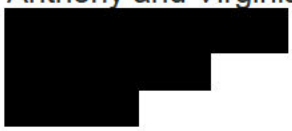
The first concern I have is in direct relation with the ongoing drilling and blasting for deep underground parking and foundation work. The ground water throughout the community can be of reduced supply and contaminated with various elements and minerals that can pose various health risks. The process of blasting can cause water veins to close off, shift, or open up to unhealthful elements in the ground that may contaminate current safe water supplies. What safeguards are in place to ensure residents do not lose the valuable resource we currently enjoy? Such an unfortunate circumstance would create serious unnecessary expense to local residents.

Secondly, with the existing volume of neighborhood traffic on Fall River Rd., which makes entrance to and exiting from the roadway dangerous during morning and evening rush hours, as well as the speed at which through traffic travels on this road throughout the day, further heightening the risk of living along this road, the inclusion of the additional proposed residents to this development will inflate traffic of various forms through construction and service vehicles to licensed additional residents that this road is not constructed to support. There would have to be some expensive adjustments to the local infrastructure to support this influx in general. To me this seems untenable.

I could also cite the ongoing atmospheric pollution of dust, dirt, run-off, garbage, noise, and profanity that marks any construction site which would be visited to our back yards (literally, seeing as the work would be conducted behind our property), but these are more of a general nuisance inherent in any construction process and, while are possible to be managed to a tolerable level, are to be expected as communities grow. The above two concerns are sufficient for my household to appeal the size of the proposed project due to the degree of disruption, discomfort, and potential hazard the construction and sizable population will generate. I hereby offer my appeal for the board's consideration.

Sincerely,

Anthony and Virginia Whitman



Tusz, Claire

From: Office, Clerks
Sent: Monday, November 22, 2021 9:08 AM
To: Tusz, Claire; Creaser, Trevor
Cc: Lovasi-Wood, Andrea; MacIntyre, Erin
Subject: APPEAL - ADDITIONAL INFO: Site Plan Approval Application-(#2365)-1109 Fall River Rd, PID00506501

Hi Claire and Trevor – please see additional info below to accompany this resident's original appeal email.
April

OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: Sandi Nicholson [redacted]
Sent: Sunday, November 21, 2021 9:14 PM
To: Office, Clerks <clerks@halifax.ca>
Subject: [External Email] Re: Site Plan Approval Application-(#2365)-1109 Fall River Rd, PID00506501

[This email has been received from an external person or system]

Hi there,

I would like to add to my initial email to let you know the reasons why I am appealing this plan:

1. **Blasting** - the project will include drilling and blasting to allow for 2 floors of underground parking for each building. As a result there will be damage to homes, water wells, and septic fields;
2. **Building Timeline** - the hours of construction are 7am-9pm Mon-Fri and 7am-5pm on weekends and holidays. This means that these construction hours will persist for 4-7 years in order to complete this project...really, this is unacceptable.
3. **Traffic** - I have not been provided with a traffic study.....why is this?
4. **Sewage** - the new sewage treatment plan for this apartment complex will be discharging approximately 200k liters of treated sewage effluent into Lake Thomas daily, which equates to 73M liters per year. How is this allowed to happen with all the environmental conditions these days. You can't even cut down a tree on your own property if it is within a certain distance from the lake.....again really, how is this allowed to happen.

Also, as I noted previously, the plan was not attached to the letter provided by HRM and the link noted in the letter did not work....why is this?
Looking forward to hearing from you about our appeal and concerns with how this appeal was disseminated to the homes within 100 meters of the proposed apartment complex; namely, the missing information.

Sincerely,
Doug and Sandra Nicholson

On Sat, Nov 20, 2021 at 9:11 PM Sandi Nicholson [redacted] wrote:

> Dear Municipal Clerk,
>
> Due to a death in the family we were not able to write to appeal the above noted until now. The two week notice was not an acceptable time frame given the importance of this proposal and we did not receive this until Nov 3 due to the mail system. Also, a copy of the proposed site plan was not attached to the letter.
>
> I am appealing this site plan as I have learned that the sewage system would come down our streets and flow into Lake Thomas. This is totally unacceptable. Also, the blasting to take place in order to do this would have an impact on all the wells in the area. This is major and I am sure the developer will not pay to have these fixed.
>
> Sincerely,
> Doug and Sandra Nicholson
> [redacted]

Tusz, Claire

From: Office, Clerks
Sent: Monday, November 22, 2021 9:10 AM
To: Tusz, Claire; Creaser, Trevor
Cc: Lovasi-Wood, Andrea; MacIntyre, Erin
Subject: APPEAL: Carr Farm Development Appeal

Hi Trevor and Claire – please see below, which I'm forwarding to you for action as you deem appropriate.

April
OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: Chastity Mckinnon [redacted]
Sent: Sunday, November 21, 2021 9:59 PM
To: DeagleGammon, Cathy <deaglec@halifax.ca>; Tusz, Claire <tuszc@halifax.ca>; Office, Clerks <clerks@halifax.ca>
Subject: [External Email] Carr Farm Development Appeal

[This email has been received from an external person or system]

Good day,
We live at [redacted], Fall River, one of the households who received the recent letter regarding the Carr Farm Development.

We wish to appeal the decision of this site plan approval.

We have many concerns about this development and how it will negatively impact the community including potential damage from the blasting, noise pollution from the construction over a period of several years, negative impact on traffic in the community and the fact that there are plans for the effluent from the septic treatment plant to be pumped into Lake Thomas.

We are very concerned that it seems no one is looking at all of the proposed and planned projects for the Fall River community holistically and what the cumulative impacts will be on the community. For example we understand the Provincial Department of Education does not "need" to be consulted on such developments but wouldn't it be prudent

for the city to consult them when it is a known fact that the schools in the area are already at capacity (some more than capacity as seen with the portables)? As parents, we am extremely concerned about the schools in the area. This particular development is being touted as a seniors complex but what happens when all units can't be rented to seniors? Will they remain vacant? Is there any guarantee families will not live in these units? Also, is anyone thinking of the ripple effect? If all these units are occupied by seniors where will the seniors come from? Fall River? If yes, who will buy the seniors homes? Families perhaps?

Bottom line, the community does not have the infrastructure to accommodate such a large development.

Chastity and Andrew McKinnon

Tusz, Claire

From: Office, Clerks
Sent: Monday, November 22, 2021 9:11 AM
To: Creaser, Trevor; Tusz, Claire
Cc: MacIntyre, Erin; Lovasi-Wood, Andrea
Subject: APPEAL: Appeal for Site Plan Approval Application (#23653) - 1109 Fall River Rd, Fall River, PID 00506501

Hi Trevor and Claire – please see below, which I'm forwarding to you for action as you deem appropriate.

April
OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: Kori Maccara [redacted]
[redacted] November 21, 2021 10:42 PM
To: Office, Clerks <clerks@halifax.ca>
Subject: [External Email] Appeal for Site Plan Approval Application (#23653) - 1109 Fall River Rd, Fall River, PID 00506501

[This email has been received from an external person or system]

Hello,

I would like to file my notice of appeal of the site plan application approval #23653 - 1109 Fall River Rd, PID 00506501.

I live at [redacted]

Thank-you,
Kori

Tusz, Claire

From: Office, Clerks
Sent: Monday, November 22, 2021 9:40 AM
To: Creaser, Trevor; Tusz, Claire
Cc: Lovasi-Wood, Andrea; MacIntyre, Erin
Subject: APPEAL: Carr Farm development appeal

Hi Trevor and Claire – please see below, which I'm forwarding to you for action as you deem appropriate.

April
OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: kate Simonds [redacted]
[redacted] November 22, 2021 7:18 AM
To: Office, Clerks <clerks@halifax.ca>
Subject: [External Email] Carr Farm development appeal

[This email has been received from an external person or system]

Good morning,

I am writing to appeal the Carr farm development in Fall River. I live on Fall River Road with my husband and two small children. I am very concerned with the huge amount of traffic this development will case. Cars go too fast on our road as it is, the two lanes are not equipped for 500 apartments and the nursing home.
The blasting for the development will, no doubt, cause problems with our well, the foundation and septic system under ground.
I have also learned the septic from the development will be pumped into the lake!! What?!! This is unacceptable. We swim in the lake along with many other families, never mind the impact on the wildlife and fish.

Please reconsider the development. I understand someone wants to make a lot of money from this... fall River is not set up for so much traffic, the environmental impact and also the noise and construction waste.

Sincerely, a very concerned resident.

Tusz, Claire

From: Office, Clerks
Sent: Monday, November 22, 2021 9:41 AM
To: Tusz, Claire; Creaser, Trevor
Cc: Lovasi-Wood, Andrea; MacIntyre, Erin
Subject: APPEAL: Carr Farm Development #23653 1109 Fall River Road PID 00506501

Hi Trevor and Claire – please see below, which I'm forwarding to you for action as you deem appropriate.

April
OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

-----Original Message-----
From: Greg Connell [redacted]
[redacted] November 22, 2021 7:41 AM
To: Office, Clerks <clerks@halifax.ca>
Cc: [redacted]
Subject: [External Email] Fwd: Appeal Carr Farm Development #23653 1109 Fall River Road PID 00506501

>
> Dear Municipal Clerk,
>
> Please register this email as an appeal for a property 100 meters from the above stated address. The development scale has been challenged since the beginning but we were not represented by our councillor.
>
> My appeal is based on the lack of transparency of the traffic study done during COVID and lack of planning for the proposed increase to traffic. The developer has declined to share the study.
>
> I am concerned about my basement and current well durning blasting of a two story underground parking. What protection is their for my foundation, well and my septic field? The current plan does not protect home owners within 100 metres of the site.
>

Tusz, Claire

From: Office, Clerks
Sent: Monday, November 22, 2021 10:51 AM
To: Tusz, Claire; Creaser, Trevor
Cc: Lovasi-Wood, Andrea; MacIntyre, Erin
Subject: APPEAL: Site Plan Approval Application (#23653) - 1109 Fall River Road, Fall River PID 00506501

Hi Trevor and Claire – please see below, which I'm forwarding to you for action as you deem appropriate.

April
OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: [redacted]
Sent: Monday, November 22, 2021 8:20 AM
To: Office, Clerks <clerks@halifax.ca>
Subject: [External Email] Site Plan Approval Application (#23653) - 1109 Fall River Road, Fall River PID 00506501

[This email has been received from an external person or system]

Hello

I would like to appeal the above development.

I have lived at [redacted] since 1990. Fall River Road cannot handle the additional traffic that these 500 units will cause.

The drilling and blasting from the construction of the underground parking will cause damage to our home, wells and septics.

The noise from the construction will disrupt our lives as the construction is expected to take 4 to 7 years to complete and will take place every day of the week.

We do not want a sewage treatment facility at the end of our street and have the treated water run into Lake Thomas.

Mark King

[redacted]

[redacted]

Tusz, Claire

From: Office, Clerks
Sent: Monday, November 22, 2021 11:00 AM
To: Tusz, Claire; Creaser, Trevor
Cc: Lovasi-Wood, Andrea; MacIntyre, Erin
Subject: APPEAL: Carr Farm Development, Fall River Road

Hi Trevor and Claire – please see below, which I'm forwarding to you for action as you deem appropriate.

April
OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

-----Original Message-----
From: Blake Trask [redacted]
[redacted] November 22, 2021 8:22 AM
To: Office, Clerks <clerks@halifax.ca>
Subject: [External Email] Carr Farm Development, Fall River Road

[This email has been received from an external person or system]

Good morning,

I would like to appeal the Carr Farm Development. I have concerns about our well water being adversely affected.

Sent from my iPhone

Tusz, Claire

From: Office, Clerks
Sent: Monday, November 22, 2021 11:44 AM
To: Creaser, Trevor; Tusz, Claire
Cc: Lovasi-Wood, Andrea; MacIntyre, Erin
Subject: REPLACEMENT APPEAL: Carr Farm Development Appeal

Hi all – please see below, which I'm forwarding for action as you deem appropriate**. The resident has confirmed that this is to replace their message from earlier this morning and this version has some differences.**

April

OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: Roger Williamson [redacted]
Sent: Monday, November 22, 2021 11:36 AM
To: Office, Clerks <clerks@halifax.ca>; DeagleGammon, Cathy <deaglec@halifax.ca>
Subject: [External Email] Carr Farm Development Appeal

[This email has been received from an external person or system]

November 22, 2021

To Cathy Deagle Gammon and Halifax City Council,

RE: Carr Farm Development

I wish to appeal the site plan approval for the proposed Carr Farm Development 23653.

We live at [redacted] in Fall River Village which borders on the proposed development. We have serious concerns a development of this size will have on the community. We have several concerns regarding the size and scope of this development and its impact on quality of life and ecological impacts of the current proposal.

Old growth flora, natural terrain and water runoff

There will be impacts to water run off as there is a natural seasonal drainage that comes from the property onto ours, which we have a culvert under our driveway to drain excess runoff, altercations to the land may lead to flooding issues on our property and local properties.

There are several old growth maple and hemlock trees on the borderline of this property, many of which have a diameter 3 feet or more, these should not be disturbed. Proper drainage must be a consideration before approval of this property. I strongly implore council to take this into account and make amendments to the proposal before approval.

Sheer size and height of development

The way the development has been depicted in drawings are from above and do not consider the geology of the land, as there is at least a 50-foot hill between the lower and higher parts of this. Based on current plans, **this will result in the top of some of the buildings having a 90 foot height difference between the lower terrain and the top of some proposed structures**. This does not fit with the character of the community, and will become the dominant structure of Fall River.

This proposal has been iterated several times over the years, with each iteration growing in size. The city's study on this states that there is no financial impact from a municipal perspective. This is incorrect, while there may be no impact immediately, there will be a need to increase the traffic flow on Fall River Road, which today can have 1km lineups to the intersection with Highway 2 in the mornings and in the afternoons. Adding 500+ vehicles per day to this intersection and road will have negative impacts on the quality of life and add financial pressures to the municipality, in the millions of dollars. With the amount of new people, bus routes will become a necessity as well.

Impact to local lakes

It has never been public until now that the proposed development plans to dump waste water into Lake Thomas and the connecting lakes. It is outrageous that this is even being considered. This will have detrimental impacts to the quality of the lake water in Lake Thomas, Lake Fletcher and Grand Lake, which already has experienced algae blooms in the summer months resulting in the death of two dogs this past summer. This is by far the most negative impact this will have, impacting the lakes for years to come.

I strongly implore council to reject this proposal in favour of a smaller less impactful development.

Sincerely,

Roger Williamson and Lori Ferguson

[redacted]

[redacted]

[redacted]

[redacted]

November 22, 2021

Dear Municipal Clerk

We are writing to appeal the proposed site plan for the Carr Farm property (application #236530). It appears that HRM is complicit in continuing to change the rules to allow the developer to place a large development in a semi-rural setting on a property where it does not belong. Remember that the Fall River Vision Plan excluded a development like this. City Council then changed the rules just so that this development could take place. The right place for a seniors' development would be where there are bus routes, taxis, and amenities within walking distance. This property offers none of these services.

This site plan will require extensive blasting for 580 underground parking spots next to many properties on wells and septic. This will cause extreme damage and stress to these properties. The surface water runoff and septic cannot be controlled enough to protect the Shubenacadie Lakes. HRM has limited the appeals to only the immediate property owners, while deferring the wide ranging environmental assessment to the NSECC.

HRM and the Province are desperate for Seniors' developments, and are willing to enable this huge development in the wrong location. This development is the too large for the immediate area, and will cause environmental stress on the lakes, and will cause harm to the neighbouring properties.

Yours truly

Michael Barclay
Judy Barclay

Tusz, Claire

From: Office, Clerks
Sent: Monday, November 22, 2021 12:21 PM
To: Creaser, Trevor; Tusz, Claire
Cc: Lovasi-Wood, Andrea; MacIntyre, Erin
Subject: APPEAL: Carr Farm Development Appeal
Attachments: Carr Farm Appeal 2021.pdf

Hi Trevor and Claire – please see below and attached, which I'm forwarding to you for action as you deem appropriate.

April
OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: Mike Barclay [redacted]
Sent: Monday, November 22, 2021 12:06 PM
To: Office, Clerks <clerks@halifax.ca>
Cc: DeagleGammon, Cathy <deaglec@halifax.ca>
Subject: [External Email] Development Appeal

[This email has been received from an external person or system]

Hello:
We have been residents of Fall River for 38 years. We have also been tax payers of a medium size business in HRM, so we understand business and development.
We strongly object to the original development plan for the Carr Farm Property (Case #23653). We also object to the whole process of how HRM has allowed the process to
morph into a development that meets the developer's objectives, and HRM wishes while it ignores the harm to neighbours, the community, and the environment. We are not sure how
the appeal process actually works, but attached is a copy of a letter appealing the approval of the development.

Yours truly

Michael and Judy Barclay
[redacted]

[redacted]

Sent from Mail for Windows

Tusz, Claire

From: Office, Clerks
Sent: Monday, November 22, 2021 12:18 PM
To: Creaser, Trevor; Tusz, Claire
Cc: Lovasi-Wood, Andrea; MacIntyre, Erin
Subject: APPEAL: appeal #23653

Hi Trevor and Claire – please see below, which I'm forwarding to you for action as you deem appropriate.

April
OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: Allison Jones [redacted]
Sent: Monday, November 22, 2021 12:10 PM
To: Office, Clerks <clerks@halifax.ca>
Subject: [External Email] appeal #23653

[This email has been received from an external person or system]

Please accept this as my appeal

November 16, 2021

Municipal Clerk
Halifax Regional Municipality
P.O. Box 1749, Halifax, NS B3J 3A5
clerks@halifax.ca

Dear Sir or Madam:

Re: Site Plan Approval Application (#23653) 1109 Fall River Road, Fall River, PID 00506501

Pursuant to Section 247 - Part 14G.9 myself Allison Jones and my husband Peter Jones wish to appeal. We are located at [redacted] Road and did receive both letters from Halifax Regional Municipality dated October 27, 2021 and November 3, 2021.

We wish to appeal the following issues:

1) **Blasting** - Our home is directly across the street from Carr Farm, we have a well, septic field and brick on the front of our home, we also have a perfect foundation. We are also one of 3 properties on the Fall River Road that we're not given a water hook up at the end of our driveway. So in fact, if this development does destroy any of the above mentioned features to our home, we will have no water, sewer or a foundation to speak of. We were informed by HRM that it is required for them to complete an assessment on each home owners property within a certain distance, prior to the blasting beginning. To date, there has been no Hydrologist visit our property to complete any type of inspection. In fact, we have requested the company name of the Hydrologist Firm responsible for the Carr Farm project. To date we have received no information.

Another concern relates to the amount of time this project will take to complete. Our information is that for the next several years there will be blasting for each individual building. This is a major concern because the developer with also put a huge strain on everyones wells, septic fields and foundations. Blasting separately for 5 building is guaranteed to destroy properties. There is potential that in the next 10 years the ongoing blasting, high construction traffic levels and major noise will take its toll on all residence in Fall River.

2) **Sewage** - A new unproven sewage treatment plant discharging approximately 200,000 litres of toasted sewage effluent into Lake Thomas daily. In saying that this will affect the entire Shubie Canal System from Halifax Harbour to Bay of Fundy. This would seriously effect the water, fish and plant stocks and the natural clean water way that exists currently.

Over the years several developments have tried to get approval to build on Lake Thomas, some have succeeded and others could not meet the Phosphorous requirements, such as the most recent attempt located at 3195 Highway 2, Fall River, NS. This is also located on Lake Thomas.

Recently, on a report signed by Kevin O'Leary, P. Eng. Municipal Engineer.

On page 5 of this report it stated:

"WSP prepared this report solely for the use of the intended recipient(client), in accordance with the professional services agreement. The intended recipient is solely responsible for the disclosure of any information contained in this report."

HRM promised total transparency, so far we have not see any Phosphorus Net Loading Assessments, or any other reports. We Citizens of Fall River were advised that these would be disclosed. To date we have seen nothing, however the above statement written by Kevin O'Leary would explain the reasoning why no report has been forth coming, the developer was not required to disclose it, which we assume took that option. This is not transparency.

3) **Traffic** - The traffic study, has also not been disclosed to the citizens of Fall River and surrounding area, to our knowledge. Currently the traffic is already at an all time high. To add and additional 580 underground parking spots and 53 street level, with the only entrance to the Carr Farms on the Fall River Road is insane. This amount does not include any allowance for construction crews, staff, deliveries and visitors. A proper traffic study on the Fall River Road should be completed and all findings disclosed to the public. There are approximately **2337 residence in Fall River alone,** as of 2016, to add a minimum of 633 new cars, not including staff, workers and visitors, would create a traffic nightmare.

4) **Noise** - This project will take several years to complete, the noise, because of blasting, trucks continually on Fall River Road and support streets, traffic stops etc is also a big concern.

Thank you for your time and I await your response.

Yours truly,

Peter and Allison Jones

[redacted]

Lindsay Fitzpatrick
[redacted]
November 22, 2021

CARR FARM APPEAL

To Whom it May Concern,

After receiving the appeal notice letter regarding Site Plan Approval Application# 23653 – 1109 Fall River Rd, Fall River, PID 00506501, I wish to appeal the project because of the following reasons:

- Environmental impact – why isn't the developer using 'green construction' practices? These buildings will have a huge impact on the environment during construction as well as long term.
- Contamination & pollution of nearby lakes from sewer/septic/run off (into lake Thomas)
- Traffic (reason# 1) – I am a Pediatric Operating Room Registered Nurse, and I need to be able to leave my house quickly to get to work in the event of an emergency (My job requires me to work Stand by, which would require I get to work within 30 minutes of an emergency call) – If traffic is stopped or backed up because of construction at the proposed development site, I would not be able to respond to these emergencies in the appropriate amount of time.
- Traffic (reason# 2) – I already have a difficult time getting out of my driveway because of traffic, cars driving too fast, blind crests – with increased traffic from that many apartment buildings, there is nothing in place to make that area safer as far as traffic goes.
- Traffic (reason # 3) – The intersection of fall river road/hwy#2 at the wilson's/sobeys is already extremely backed up during peak hours. There is already extreme traffic congestion in Fall River, the proposed development (of this size) will have a significantly negative influence on the traffic and will worsen the situation.
- Construction Noise
- Negative impact to wildlife – destruction of habitat – What is being done to protect the wildlife?
- There are only sidewalks on one side of fall river road (opposite of the proposed development).
- There isn't any public transit on fall river road
- Lack of infrastructure to support that amount of people in Fall River
- Light Pollution (during construction and once development is completed)

Living directly across the street from this proposed development, I will be the greatest impacted by all of the traffic, noise, lights, delays (inability to leave my driveway and return to my home due to traffic stops from construction). I believe that this development should not go forward on the scale that is proposed. The integrity of our environment is important, developments should not be permitted to move forward until they can prove they adhere to green building practices and will put systems in place that will minimize their environmental impacts. It is simply to large for our small community which does not have the infrastructure in place to support this.

Sincerely,

Lindsay Fitzpatrick

Tusz, Claire

From: Office, Clerks
Sent: Monday, November 22, 2021 1:47 PM
To: Tusz, Claire; Creaser, Trevor
Cc: Lovasi-Wood, Andrea; MacIntyre, Erin
Subject: APPEAL: Letter for Site Plan Approval Application# 23653 - 1109 Fall River Rd, Fall River, PID 00506501
Attachments: Carr Farm Appeal Nove 22 2021.docx

Hi Trevor and Claire – please see below and attached, which I'm forwarding to you for action as you deem appropriate.

April
OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: Fitzpatrick, Lindsay [redacted]
Sent: Monday, November 22, 2021 1:40 PM
To: Office, Clerks <clerks@halifax.ca>
Cc: Linds Fitzpatrick [redacted]
Subject: [External Email] Appeal Letter for Site Plan Approval Application# 23653 - 1109 Fall River Rd, Fall River, PID 00506501

[This email has been received from an external person or system]

Hello,

Please find attached my letter of appeal for Site Plan Approval Application# 23653 - 1109 Fall River Rd, Fall River, PID 00506501. Please let me know if you have any questions or concerns.

All the best,
Lindsay Fitzpatrick

[redacted]

"People are capable, at any time in their lives, of doing what they dream of."

— Paulo Coelho (The Alchemist)

Please consider the environment before printing this email

Tusz, Claire

From: Office, Clerks
Sent: Monday, November 22, 2021 9:32 AM
To: Creaser, Trevor; Tusz, Claire
Cc: Lovasi-Wood, Andrea; MacIntyre, Erin
Subject: APPEAL: Site approval plan (#23653) 1109 Fall River Road

Hi Trevor and Claire – please see below, which I'm forwarding to you for action as you deem appropriate.

April
OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

-----Original Message-----
From: Theresa Brown [redacted]
Sent: Sunday, November 21, 2021 11:10 PM
To: Office, Clerks <clerks@halifax.ca>
Cc: Keith Brown [redacted]
Subject: [External Email] Site approval plan (#23653) 1109 Fall River Road

[This email has been received from an external person or system]

Dear Sir or Madam:

We are appealing the site plan for the Carr Farm property at 1109 Fall River Road, Fall RIver, NS. (PID 00506501).
The plans for development have ballooned to such an extent that the development will be potentially structurally damaging to the existing properties, to the integrity of their wells and septic fields.
The treated effluent will flow into Lake Thomas, a lake that was contaminated with a blue algae bloom this summer. So it is already fragile. And the amount of effluent that will flow into it with 600 units and so probably at least 1000 residents is far beyond what is safe and reasonable.
Fall River Road will see a tremendous increase of traffic. The density of this development is extreme for our community.

Having seniors and seniors requiring nursing home care in Fall River is absolutely a wonderful idea. Making a modest plan into a monster plan is unacceptable and very inconsiderate to those already living in this beautiful community.
Respectfully

[redacted]

Sent from my iPad

November 22, 2021

RE: CARR FAMILY DEVELOPMENT, FALL RIVER ROAD, FALL RIVER
VIA EMAIL: clerks@halifax.ca

To Whom It May Concern:

My name is Nadine Lamontagne and I live at [redacted] in Fall River, NS. I am writing on behalf of my husband Mark and myself as owners of the afore-mentioned property.

When we moved to Nova Scotia in September of 2014, we visited just about every part of Halifax Regional Municipality searching for the right place to raise our three teenagers. We were immediately taken with the feel of Fall River and jumped at the opportunity to purchase our home in Fall River Village.

We liked the two-acre properties, the trees, the natural beauty of the lakes, the size of the community and the amenities it offered.

Growth in Fall River has been rapid in Fall River in the intervening years. There are more cars navigating the roads, more children in our schools to the point of overcrowding, greater need for family physicians, more access points in and out of the area are a necessity and increased need for public services like fire and policing and recreational facilities are a need-to-do, not a nice-to-do. At this point in time, I believe that the growth in our community has far outpaced the addition of resources to sustain the quality of life that we choose Fall River for in the first place.

Instead of allowing the community resources to catch up, Halifax is moving at a reckless pace allowing development in this community that the current infrastructure cannot support. The Carr Farm Development on Fall River is most concerning at this point in time from both a personal and community viewpoint.

Please permit to outline my concerns, point-by-point.

1). I acknowledge that we are in Mi'kma'ki the ancestral territory of the Mi'kmaq people. According to the Shubenacadie Canal Waterway: *"The Mi'kmaq have traversed the Shubenacadie River and the lakes to its south as a major transport route since time immemorial. Artifacts found along the waterway date back over 4,000 years, with some suspected to be much older."* Three landmark decisions by the Supreme Court of Canada in 2004 and 2005 established the common law duty to consult. Have the Mi'kmaq people been consulted on the dumping of effluents into their traditional waterways? If yes, is there a written or electronic the recording these discussions published in a place that is accessible to the public? I am keenly aware of the potential impact on an organization in this community that offers a sport to the youth of our community traditional to the Mik'maq people. This long traditional of producing outstanding and impactful Canadian citizens by this organizations that will greatly impacted by any damage to the waterways. We are keenly interested to confirm that aboriginal leaders have been consulted on this matter.

In addition, we are Septic Management System being proposed is not the most reliable technology and is failing on a consistent basis early after installation. What are the safeguards that will be put in place to ensure these systems do not fail? Some people use these lakes as a source of water. How does this impact them? Does this mean that Blue Green Algae is now our

new norm? Are you comfortable with that? I'm not. Will the developer be testing various locations on Lake Thomas on a regular basis to reassure all residents that is safe to use? If not, where does this responsibility lie? Lake Thomas flows down to Lake Fletcher and Grand Lake, what about health of those waterways? So many questions and no answers.

2). Look at a map and you will see that our property at [redacted] will back closely to the new Septic Management System (SMS) the developer is installing. The impacts this will have on our quality of life are too many to name but here are a few:

a. Impact to property value. Our home is an investment. We thought long and hard about where we purchased to ensure property value was at a minimum sustained but was more likely to grow in the years we lived here. Who will compensate us for the lost ROI from this facility being built within a 100 m of our home? And it will have an impact, to say otherwise is a joke.

b. My research indicates that the release of pathogenic airborne microrganisms is a very real concern. The resulting health side effects have been documented in numerous studies. Please see this specific study from the Journal of Environmental and Public Health. https://www.hindawi.com/journals/jeph/2016/8467023/ There is ethical and moral duty (by the developer, the city of Halifax and the provincial Department of Environment) to consult and communicate in a more in-depth manner with homeowners within close proximity to the treatment facility. The nonchalance with which this development and subsequent SMS is being placed on this land is mindboggling.

c. Noise and Smell – An industrial facility like this one will be built in my backyard. LITERALLY, in my backyard. The apartments buildings are one thing. The SMS is quite another. Nothing like sitting outside on a nice summer day on what was your private, two-acre lot with the constant hum of the treatment plant whirling in the background, as the smell of treated human excrement wafts gently in the summer breeze. It's living the dream, but the dream is a nightmare.

d). Increased prevalence of mosquitos and other insects in area where SMS' are built are a reality not a myth. There are too many studies to name that support this side effect of this type of infrastructure.

3). Traffic. Traffic at the corner of Hwy #2 and Fall River Road is a nightmare. Traffic coming off the 118 on to the #2…nightmare. Traffic coming from the 102 on the #2…nightmare. Traffic in the round-about at peak times…you guessed it…nightmare. You are proposing a development with 600 units all trying to navigate an area with infrastructure that is already compromised and bursting at the seams. If it proceeds, navigating Fall River Road will be like navigating Sackville Drive. This was not anticipated when this area was developed in the first place. Who conducted the traffic survey? Why isn't it published in a publicly accessible location?

4). All this bluster about 'aging in place' was a scam to get this development pushed through council and to get a certain segment of the population onside. The process was flawed from the get-go. The previous District One councillor was biased towards the developer/development. Take a look back at his tweets from the night of the public hearing and you'll see seniors holding 'yes' signs, all bussed in for the evening. The installation of city water along Fall River Road had a "deal with devil" like feel to it and it came a huge cost to the residents along that street. His motivations for his approach on this development you can interpret as you wish (I have my own) but he did not serve all his constituents by taking an unbiased approach to this project. At the end of the day, you have a development where rent will be extremely high, where the relationship with Northwood is shaky at best, where the amenities are strained to meet needs

and demands that are a certain and local residents of Fall River Road with huge water installation bills to pay for infrastructure that was badly needed by this developer to make his plan work.

5). Transportation evacuation networks in the event of an emergency are scary to contemplate. There are two ways in and out the main areas of Fall River - Fall River Road and Windsor Junction Road. The hugely developed area behind Lockview High School stretching to Kinsac Lake all spills out on to Fall River Road. There is literally no alternative. Fall River Village and Perry Lake Estates spills out on to both Fall River Road and Windsor Junction Road. WJR is also an access point shared with Waverley, Windsor Junction, Stonemount and Lakeview. Running right through the middle of all of this is a railway line that carries unknown cargo every single day. They're not shipping water in those rail cars from General Liquids, afterall. No one ever imagined a Lac Megantic could happen. But it did. I can't even let my mind stray to the chaos of trying to exit our area in the event of a chemical/environmental spill or forest fire. It would be disastrous. Add in the residents of this proposed development and others that are in the works and we've got a major problem on our hands that no one seems overly concerned about.

6). There is a lack of public transit. If density is your game, then supporting infrastructure better be your aim. Public transit resources are but one example of what is needed. Density for the sake of density makes little sense in a rural setting.

7). Lack of school capacity. Georges P. Vanier is already operating with what were supposed to be temporary portable classrooms. Is this what we envision for our student's education? Lockview and Ash Lea are also busting at the seams.

8). Lack of family physicians. If only we have the same number of doctors in this community as we have dentists, we would be laughing. But we don't. Does anyone have a plan for that conundrum?

9). Recreational facilities are lacking when you take into account the demographic of the community and amount of taxes paid by residents. There is no soccer field, no track, no swimming pool and no rink. Apartment buildings pay property tax for sure but nothing relative to the demands that 600 units and that approximate 1200-1500 people added place on community infrastructure. I pay very high taxes and receive few services in return – a light pole near my house (sort of), garbage collection and what in the past few years has been half hearted snow clearing. We pay more than our share but see few of the benefits.

At the end of the day, this comes down to money for the developer, the city and the province. And yes, money for us as well when you look at the potential impact to the value of our property.

It is so much more than that though, it is a first and foremost a quality-of-life issue.

We chose to live in this community because of the natural beauty that surrounds us. Good schools that weren't overcrowded and busting at the seams. A pace of life that didn't resemble the hustle and bustle of Sackville, Halifax or Bedford. We paid a premium for that both from a real estate and tax perspective.

Fall River Road and indeed anywhere in this community is not the place to build multi-story apartment complexes. It doesn't fit the current real estate landscape, nor is the vital infrastructure in place to support such an influx of people. For the record, we are not anti-

development but are anti-development that has a negative economic, environmental, infrastructural and social development impact on the place we call home.

Again, we ask for someone knowledgeable of the project to walk the property with us so that we can get a first-hand understanding of the SMS relative to our backyard. It's, at a minimum, the 'neighbourly' thing to do.

The biggest ask though is to ask council to put on the brakes and re-evaluate this development proposal from all viewpoints. Decisions made around this project will have a ripple effect on the fabric and dynamic of the community and its demands on provincial transportation and environment resources and municipal infrastructure planning for years to come. It's worth some sober second thought and another look.

We can be reached at [redacted]

Thank you for your consideration and time. We look forward to hearing from you very soon.

Sincerely,

Nadine & Mark Lamontagne

cc: Cathy Deagle-Gammon, District 1 Councillor
Brian Wong, MLA

Tusz, Claire

From: Office, Clerks
Sent: Monday, November 22, 2021 4:26 PM
To: Creaser, Trevor; Tusz, Claire
Cc: Lovasi-Wood, Andrea; MacIntyre, Erin
Subject: APPEAL: Carr Farm Development - Fall River Road
Attachments: carr farm development letter.pdf; [External Email] Re: Carr Farm Development - Fall River Road

Hi Trevor and Claire – please see below and attached, which I'm forwarding to you for action as you deem appropriate. As confirmed by the resident via separate email (attached), this constitutes their appeal.

April
OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: Nadine AntleLamontagne [redacted]
Sent: Monday, November 22, 2021 2:53 PM
To: Office, Clerks <clerks@halifax.ca>
Cc: DeagleGammon, Cathy <deaglec@halifax.ca>; [redacted]
Subject: [External Email] Carr Farm Development - Fall River Road

[This email has been received from an external person or system]

Dear Sir or Madam,
Please find attached a letter regarding the Carr Farm Development from the perspective of the residents of [redacted]
We anxiously await your response.
Thank you.
Sincerely,
Nadine Lamontagne

Tusz, Claire

From: Office, Clerks
Sent: Tuesday, November 23, 2021 8:35 AM
To: Tusz, Claire; Creaser, Trevor
Cc: Lovasi-Wood, Andrea; MacIntyre, Erin
Subject: APPEAL of 23653 Site Plan Approval

Hi Trevor and Claire – please see below, which I'm forwarding to you for action as you deem appropriate.

April
OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: Berringer, John PWC [redacted]
Sent: Monday, November 22, 2021 6:12 PM
To: Office, Clerks <clerks@halifax.ca>
Subject: [External Email] FW: Appeal of 23653 Site Plan Approval

[This email has been received from an external person or system]

From: Berringer, John PWC
Sent: 22 Nov 2021 6:02 PM
To: [redacted]; deaglec@halifax.ca; clecks@halifax.ca
Subject: Appeal of 23653 Site Plan Approval

I am sending this message from my [redacted] as sending from my personnel email has failed to be delivered. The below email has been sent twice to the clerks@halifax.ca email address once on Nov. 17 , 2021 and today Nov. 22, 2021. I have sent this same message to my councillor and appears it did not get delivered. I have in the passed had problem with some mail servers having trouble with the [redacted] email address.

I hope this works. Please note this is my appeal and not my employer but this is the only email other than my personnel one that I have access too.

Thanks you for your understanding.

Forwarding original message that was not received by your office. I call today and was asked to resend email

------ Original Message ------
From: [redacted]
To: clerks@hailfax.ca
Sent: Wednesday, November 17, 2021 10:26 AM
Subject: Appeal of Site Plan Approval Application #23653

I plan on appealing this site application. the letter that HRM provide does not state what the appeal process is and what is required. Can you please provide this info and what format is required.

The letter is lacking in details and the site plan provided only show residential building. The plan also state the present of walking trails not shown and two water treatment sites also not shown to scale.

I have many other issues to discuss.

John Berringer

[redacted]

From: [redacted]
Sent: 22 Nov 2021 5:48 PM
To: Berringer, John PWC [redacted]
[redacted] External] Fwd: RE: 23653 Site Plan Approval

------ Original Message ------
From: clerks@halifax.ca
To: [redacted]
Cc: tuszc@halifax.ca
Sent: Monday, November 22, 2021 11:47 AM
Subject: RE: 23653 Site Plan Approval

Hello John,

Further to Claire's email below and the voicemail I left you just now, I can confirm that the Office of the Municipal Clerk has not received any email from you as of yet. If you prefer, appeals can also be sent to

us via fax (902.490.4208) or by dropping it off at the security desk at Halifax City Hall's main entrance, 1841 Argyle Street Halifax. If you choose to drop off your document in person please ensure that it's clearly labelled "Office of the Municipal Clerk."

The deadline to appeal this matter is today, Monday November 22, 2021.

If you have any questions regarding how to submit your appeal please don't hesitate to phone or email our office.

April Stewart

Administrator, Records & Access

OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210

F. 902.490.4208

HALIFAX

_____

The Halifax Regional Municipality is located in Mi'kma'ki, the ancestral and traditional lands of the Mi'kmaq people. The municipality acknowledges the Peace and Friendship Treaties signed in this Territory and recognizes that we are all Treaty People.

From: Tusz, Claire <tuszc@halifax.ca>
Sent: Monday, November 22, 2021 11:00 AM
To: [redacted]
Cc: Office, Clerks <clerks@halifax.ca>
Subject: 23653 Site Plan Approval

Hello John,

Today is the last day to appeal the site plan approval for 1109 Fall River Rd. Appeals should be directed to clerks@halifax.ca. Attached is the PDF for the River Lakes Residential Campus Zone as per the Planning Districts 14 and 17 Land Use By-Law.

Kind regards,

Claire

CLAIRE TUSZ
PLANNER II | RURAL POLICY AND PLANNING APPLICATIONS

HALIFAX

PO BOX 1749

HALIFAX NS B3J 3A5

T. 902.430.0645

F. 902.490.4645

halifax.ca

November 20, 2021

To Whom It May Concern:

I am writing to you today wishing to appeal the Site Plan Approval Application (#23653) known as the Carr Farm Development project. I will expound on the reasons presented below at the Appeal hearing.

I live at [redacted], where the back of my property directly borders the proposed development at 1109 Fall River Road.

My concerns and reasons for appealing are based on the following:

1. environmental impact related to the development size and wastewater management,
2. traffic impact
3. protecting and preserving the current healthy structure of the well on my property
4. maintaining the integrity of my home's concrete basement foundation
5. inadequate existing infrastructure in Fall River area that is required to support the magnitude of the proposed development.
6. missing oversight of the 'domino' effect of other development proposals all being looked at in isolation of each other.

I look forward to a reply confirming receipt and submission of this appeal letter.

Sincerely,

Shauna Houk
[redacted]

Tusz, Claire

From: Office, Clerks
Sent: Tuesday, November 23, 2021 8:39 AM
To: Tusz, Claire; Creaser, Trevor
Cc: Lovasi-Wood, Andrea; MacIntyre, Erin
Subject: APPEAL: Letter of Appeal
Attachments: Appeal Lettter Nov 19, 2021.pdf

Hi Trevor and Claire – please see below and attached, which I'm forwarding to you for action as you deem appropriate.

April
OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: Shauna Houk [redacted]
Sent: Monday, November 22, 2021 7:00 PM
To: Office, Clerks <clerks@halifax.ca>
Cc: DeagleGammon, Cathy <deaglec@halifax.ca>; Shauna Houk [redacted]
Subject: [External Email] Letter of Appeal

[This email has been received from an external person or system]

I have attached my letter of appeal for Site Plan Approval Application #23653.
Please confirm receipt and submission acceptance.

Sincerely,
Shauna Houk

Tusz, Claire

From: Office, Clerks
Sent: Tuesday, November 23, 2021 8:40 AM
To: Tusz, Claire; Creaser, Trevor
Cc: Lovasi-Wood, Andrea; MacIntyre, Erin
Subject: APPEAL: Development in Fall River

Hi Trevor and Claire – please see below, which I'm forwarding to you for action as you deem appropriate.

April

OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: nadine strickey [redacted]
Sent: Monday, November 22, 2021 9:21 PM
To: Office, Clerks <clerks@halifax.ca>
Subject: [External Email] Re: [External Email] Development in Fall River

[This email has been received from an external person or system]

I would like to appeal this proposed development. I just received the letter today and I am very concerned with this huge development and water treatment plant that looks like it is right behind my house. There really isn't anytime to figure out how far this is from my house will there be future building and what damage it will cause to my home and property. Will any damage be an expense for me as I am also a senior retiring possibly this year. I am very concerned with all this new information.
Nadine Strickey
[redacted]

Sent from my iPhone

> On Nov 22, 2021, at 9:04 AM, Office, Clerks <clerks@halifax.ca> wrote:

Hello Nadine Strickey,

Thank you for your email. This is to confirm that your message regarding Site Plan Approval Application 23653 has been received by the Office of the Municipal Clerk and has been forwarded to appropriate staff for a response.

Best Regards,

April Stewart
Administrator, Records & Access
OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

-----Original Message-----
From: nadine strickey [redacted]
Sent: Sunday, November 21, 2021 6:37 PM
To: Office, Clerks <clerks@halifax.ca>
Subject: [External Email] Development in Fall River

[This email has been received from an external person or system]

I am concerned with my property with the new development. I am concerned with the blasting as I am on a well and septic system. Is there a guarantee that besides my privacy that my house, septic and well will be not damaged. I live on [redacted] and my neighbor also on [redacted] had to give me an update as I did not receive any letter or information on this new development which I find concerning. This sewer treatment plant I should have been informed. The pipes will go right by my house. I am concerned that no notice or consideration was given to me.
I am a very concerned citizen of the development area

Nadine Strickey
[redacted]

Sent from my iPhone

Tusz, Claire

From: Office, Clerks
Sent: Tuesday, November 23, 2021 8:42 AM
To: Tusz, Claire; Creaser, Trevor
Cc: Lovasi-Wood, Andrea; MacIntyre, Erin
Subject: APPEAL: 1109 Fall River Rd., Fall River, PID 00506501

Hi Trevor and Claire – please see below, which I'm forwarding to you for action as you deem appropriate.

April
OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: Kelly Casey [redacted]
Sent: Monday, November 22, 2021 9:26 PM
To: Office, Clerks <clerks@halifax.ca>
Cc: Kelly Casey [redacted]
[redacted] [External Email] Appeal 1109 Fall River Rd., Fall River, PID 00506501

[This email has been received from an external person or system]

Municipal Clerk

Halifax Regional Municipality

P.O. Box 1749

Halifax, NS

B3J 3A5

To Whom It Concerns,

I am writing to express my families concerns about the proposed apartments and nursing home going in at 1109 Fall River Road, Fall River, PID 00506501.

While I understand the need for a nursing home in the Fall River area, I do not believe that under the current infrastructure this location can handle an influx of (at a minimum) an additional 600 people coming and going on the Fall River Road. Long lines in traffic exist now beyond just during peak hours; I currently sit in traffic on Fall River Road while going to work in the morning and have sat on highway 118 in the afternoon trying to get into Fall River. We do not have public transportation in Fall River so this plan increases the use of a road that already over used.

I am also concerned about the environmental impact of dumping "treated" water into a lake system. As you may recall, this last summer the lake system in Fall River / Grand Lake had an out break of blue-green algal blooms can be caused by **agricultural and stormwater runoff as well as leaching from septic systems**. By placing this many buildings, containing this many people we run the risk of permanently ruining the freshwater system.

I am also concerned that if the construction plan goes through that my family's well will be affected during the construction by the blasting as well as the blasting could also cause cracks and leaks in our foundation.

Before we expand the Fall River /Beaver Bank / Wellington areas, the city needs to seriously study the impact on nature, the infrastructure and not just grow the area just to say we grew the area.

Thank you for your time,

Sincerely,

Gerald and Kelly Casey

[redacted]

Tusz, Claire

From: Office, Clerks
Sent: Tuesday, November 23, 2021 8:45 AM
To: Tusz, Claire; Creaser, Trevor
Cc: Lovasi-Wood, Andrea; MacIntyre, Erin
Subject: FW: [External Email] Carr Farm Appeal

Hi Claire and Trevor - please see below; there is no reference to this being a formal appeal. Would you like it to be processed as an appeal or would you like to respond to the resident for clarification?

Thanks,
Apri

-----Original Message-----
From: Susan Hilchie [redacted]
Sent: Monday, November 22, 2021 9:58 PM
To: Office, Clerks <clerks@halifax.ca>; Susan Hilchie [redacted]
Subject: [External Email] Carr Farm Appeal

[This email has been received from an external person or system]

Dear Sir/Madam;

As a resident within 100 m of the Carr Farm Development, I feel it necessary to submit my huge concern for the size of this development!

I applaud the initial plan that was on a much smaller scale and would welcome that in our lovely community.

The scale of the now proposed development concerns me greatly. I cannot see this but having a very negative effect on our entire community. We should not be committing to such a large development!

I am a senior with a very ill spouse right now, and we actually signed up for a potential unit, but I cannot imagine even living there now, especially if rumours are true that this could take up to 7 years to develop. The disruption living there and even close to there is mind boggling.

Please review everything with the utmost care and due diligence that the residents of Fall River will not be negatively impacted by this!

Thank you!

Respectfully,
Susan Hilchie
[redacted]

[redacted] [redacted]

Tusz, Claire

From: Office, Clerks
Sent: Tuesday, November 23, 2021 8:46 AM
To: Tusz, Claire; Creaser, Trevor
Cc: Lovasi-Wood, Andrea; MacIntyre, Erin
Subject: APPEAL for Carr's farm development in Fall River

Hi Trevor and Claire – please see below, which I'm forwarding to you for action as you deem appropriate.

April
OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: Meaghan Stewart [redacted]
Sent: Monday, November 22, 2021 10:27 PM
To: Office, Clerks <clerks@halifax.ca>
Subject: [External Email] Appeal for Carr's farm development in Fall River

[This email has been received from an external person or system]

Hello,
We as residents of [redacted] in Fall River would like to put forth our appeal for the Carr's Farm development.
A) This significant development will substantially increase an already congested traffic area in and out of Fall River.
B) the blasting for underground parking and construction may cause damage to our well, foundation and inground pool
C) the waste water treatment plan should not be flowing into lake Thomas

Thank you

Tusz, Claire

From: Office, Clerks
Sent: Tuesday, November 23, 2021 9:12 AM
To: Tusz, Claire; Creaser, Trevor
Cc: Lovasi-Wood, Andrea; MacIntyre, Erin
Subject: APPEAL: Site Plan Approval Application (#236530) PID 00506501

Hi Claire and Trevor,

As per the resident's clarification, I'm sending this to you as an appeal, for action as you deem appropriate. I note that their original submission was received prior to the appeal deadline.

April
OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: Earle Baker [redacted]
Sent: Tuesday, November 23, 2021 9:09 AM
To: Tusz, Claire <tuszc@halifax.ca>
Cc: DeagleGammon, Cathy <deaglec@halifax.ca>; Office, Clerks <clerks@halifax.ca>; Creaser, Trevor <creaset@halifax.ca>; [redacted]
Subject: [External Email] Re: Site Plan Approval Application (#236530) PID 00506501

[This email has been received from an external person or system]

Good morning Claire,

Our email is an official appeal of the site plan approval.

Thank you,
Earle and Luella Baker

On Mon, Nov 22, 2021 at 4:19 PM Tusz, Claire <tuszc@halifax.ca> wrote:

Hello Earle and Luella,

The Office of the Municipal Clerk is looking for clarification as to whether your email below is an official appeal of the site plan approval or sent as feedback only. Please provide clarification.

Kind regards,

Claire

CLAIRE TUSZ
PLANNER II | RURAL POLICY AND PLANNING APPLICATIONS

CURRENT PLANNING | PLANNING AND DEVELOPMENT

HALIFAX

PO BOX 1749

HALIFAX NS B3J 3A5

T. 902.430.0645

F. 902.490.4645

halifax.ca

From: Earle Baker [redacted]
Sent: Sunday, November 21, 2021 8:34 PM
To: DeagleGammon, Cathy <deaglec@halifax.ca>
Cc: Office, Clerks <clerks@halifax.ca>; [redacted]
Subject: [External Email] Fwd: Site Plan Approval Application (#236530) PID 00506501

[This email has been received from an external person or system]

Dear Councillor Deagle-Gammon,

We are writing to you today as constituents of District 1 in Fall River. We are life-long residents of Fall River (81 years) and have spent the past 60+ years at [redacted]

We would like to express our concern over the Site Plan Approval for 1109 Fall River Rd and the shocking departure from the original plan, along with the manner by which it was approved. The departure from the original plan essentially comes down to a “bait and switch” scenario.

Firstly, Property owners beyond a 100m distance will be impacted by this development and should have been notified and provided the opportunity to weigh in. The entire community of Fall River will be negatively impacted by this proposed development, not just those living within 100m. All voices opposed to this development need to be heard.

The approved site plan clearly violates important sections of the Land Use By-Law in relation to waste-water, residential density, and building height, and for this reason alone, the site plan should be overturned.

The blasting that will occur to allow for underground parking will most certainly cause damage to surrounding homes, water wells, and septic fields.

Traffic is already a major concern on the Fall River Road. Anyone who regularly travels on this road at any time of day or night would be aware that the increased traffic from this development is not sustainable. We have not been provided with the traffic studies completed by the developer and HRM. Why have the results of these not been disclosed?

We share in the concerns of all residents in the surrounding area and greatly oppose the amendments to this development. We ask that the approval of this site plan be overturned.

Thank you in advance,

Earle and Luella Baker

[redacted]

[redacted]

Tusz, Claire

From: Office, Clerks
Sent: Thursday, November 4, 2021 10:08 AM
To: Creaser, Trevor; Tusz, Claire
Cc: Lovasi-Wood, Andrea; Neate, Leslie
Subject: APPEAL: Site plan approval # 23653
Attachments: 1001_001.pdf

Hi Trevor and Claire – please see the **appeal** below regarding Case 23653. Would you please acknowledge receipt to the appellant, and advise them regarding the appeal process for "other residents" and also their request for a deadline extension?

Thanks,
April

OFFICE OF THE MUNICIPAL CLERK | LEGAL & LEGISLATIVE SERVICES

T. 902.490.4210
F. 902.490.4208

HALIFAX

From: Dave Hawboldt [redacted]
Sent: Thursday, November 4, 2021 9:24 AM
To: Office, Clerks <clerks@halifax.ca>
Subject: [External Email] Site plan approval # 23653

[This email has been received from an external person or system]

To whom it may concern: After receiving the attached letter regarding Site Plan Approval Application # 23653 – 1109 Fall River Rd, Fall River, PID 00506501, myself and other residents are seeking to appeal the provisions in Part 14G.9 as further information has been presented to us that differs from the original concept of the project.
We seek to have a 30 day extension to the right to appeal and would like to have the right to appeal on or before December 15, 2021.

Please advise if this is acceptable

TRAFFIC IMPACT STUDY
1109 FALL RIVER ROAD

PREPARED FOR:
GFC MANAGEMENT LTD.

Project No. 191-01951

MARCH 2019

wsp

TABLE OF CONTENTS

APPENDICES

1 INTRODUCTION

Background

Plans are being prepared for the development of a Multi-Unit Mature Lifestyle Residential Development at 1109 Fall River Road (PID #00506501) in Fall River, NS (See Figure 1).

The development is planned to include up to 500 adult housing units with access via a two-way driveway onto Fall River Road. Completion of the development is anticipated by 2021.

WSP Canada Inc. has been retained to complete a Traffic Impact Study for this development.

A Traffic Impact Study Usually Considers Four Questions

A TIS usually consists of determining answers for the following questions:

1. **What is the existing transportation situation** adjacent to the study site? How have volumes changed historically?
2. **What transportation changes are expected** at key Study Area locations? How many vehicle and active mode trips are expected to be generated by the proposed development during weekday peak hours? What routes are the trips expected to use to travel within and through the Study Area?
3. **What transportation impacts will occur** on Study Area roads, sidewalks, and intersections?
4. **What transportation improvements are required** to mitigate project impacts on Study Area travel? Are there transportation modifications that should be made to improve the travel experience for all users?

Study Objectives

1. Develop projected 2021 background weekday AM and PM peak hourly volumes for Study Area roads that do not include trips generated by proposed site development.
2. Estimate the number of weekday AM and PM peak hour trips that will be generated by the proposed development.
3. Distribute and assign site generated trips to Study Area intersections to project 2021 peak hourly volumes that include site generated trips.
4. Evaluate impacts of site generated traffic on the performance and level of service of study intersections.
5. Complete traffic signal and turn lane warrant analyses, as necessary, for Study Area intersections and recommend improvements that may be needed at study intersections to mitigate the impacts of site development.

Figure 1 – Site Plan

2 STUDY AREA DESCRIPTIONS

Description of Proposed Development and Site Access

The proposed site is an approximately 8.75-acre undeveloped property bounded by Fall River Road and existing residential development. The development is planned to include up to 500 adult housing units. It is anticipated that buildout of the development will be complete by 2021.

Vehicular access to the site will be via one driveway onto Fall River Road (See Figure 1). There is sufficient sight distance for an approach speed of 70 km/h on Fall River Road (See Photos 1 and 2). Emergency access / egress will be provided to either Cummings or Ingram Drive.

Photo 1: Looking west (to the left) on Fall River Road from the Site Access

Photo 2: Looking east (to the right) on Fall River Road from the Site Access

Existing Road Descriptions

Fall River Road is a two-lane major collector street with curb, gutter, and sidewalk on the north side and gravel shoulder with open ditch on the south side (Photos 1, 2, and 3). The street has a posted speed limit of 60 km/h, is approximately 3.5 kilometers long, and connects Highway 2 to the east with Windsor Junction Road to the west. Data collected by HRM at the Highway 2 / Fall River Road intersection show that there were approximately 950 two-way vehicles per hour (vph) in the AM Peak Hour and 1,215 vph in the PM peak hour.

Photo 3: Looking east on Fall River Road toward Highway 2

Highway 2 to the east of the site is a 2-lane arterial roadway with concrete sidewalk on the east side and gravel shoulder with open ditch on the west side. The street has a posted speed limit of 60 km/h. Data collected by HRM at the Highway 2 / Fall River Road intersection show that there were approximately 1,320 vph in the AM Peak Hour and 1,525 vph in the PM peak hour.

Intersection Descriptions

1- The Highway 2 / Fall River Road intersection (See Photo 4) is signalized with pedestrian crossings on all approaches. The northbound, westbound, and southbound approaches each have a through / right shared lane and left turn lane, while the eastbound (Fall River Road) approach has a left / through shared lane and a right turn lane.

Photo 4: Looking south on Highway 2 at the Fall River Road intersection

2- The Highway 2 – Highway 102 SB Ramps T-intersection is unsignalized with STOP control on the Highway 102 SB offramp and free flow on Highway 2. There are wide radius right turn channels for both the southbound (Highway 2) and eastbound (Hwy ramp) approaches and there is a northbound left turn lane on Highway 2 for traffic turning to the Highway 102 onramp.

3- The Fall River Road – McPherson Road T-intersection is unsignalized with STOP control on the McPherson Road and free flow on Fall River Road. All approaches are single lane.

4- The Fall River Road – Lockview Road T-intersection is unsignalized with STOP control on the McPherson Road and free flow on Fall River Road. Lockview Road has a two-lane approach (left turn lane and right turn lane) at the intersection and there is an eastbound left turn lane on Fall River Road for traffic turning onto Lockview Road.

Turning Movement Counts

Intersection Turning Movement Counts were obtained by HRM Traffic Management during AM and PM peak periods on Tuesday, June 27, 2017 at intersection #1, Highway 2 / Fall River Road intersection.

Additional turning movement counts were obtained by WSP during the afternoon (4-6PM) peak period on Wednesday, February 20, 2019 and the morning (7-9AM) peak period on Thursday, February 21, 2019 at the following intersections:

2. Highway 2 at Highway 102 SB Ramps;
3. Fall River Road at McPherson Road; and,
4. Fall River Road at Lockview Road.

Intersection counts have been tabulated (See Appendix) in 15-minute intervals with peak hours indicated by shaded areas.

Traffic Growth Rate

Counted peak hour volumes at the study intersections have been increased by an annual growth rate of 1.0 %, which is considered typical for this area, to project background traffic volumes without site development.

Planned Burnside Connector

The NSTIR planned Burnside Connector (107 Extension) will connect Highway 102 at Duke Street in Bedford to Highway 107 / 118 in Burnside. Federal funding for the project was announced February 21, 2019 and it is anticipated construction will begin Spring 2019. The connector would be a controlled access freeway that would provide an additional route for this high demand corridor and also connect the existing 107 with Highway 102. Currently, these travel lines are serviced by the Magazine Hill and the Highway 102 to Highway 118 connection through Fall River. It is expected that once built, the Connector will reduce the trips connecting between Highways 102 and 118 that travel within the study area by providing an additional connection between Highway 102 and Highway 118 / 107.

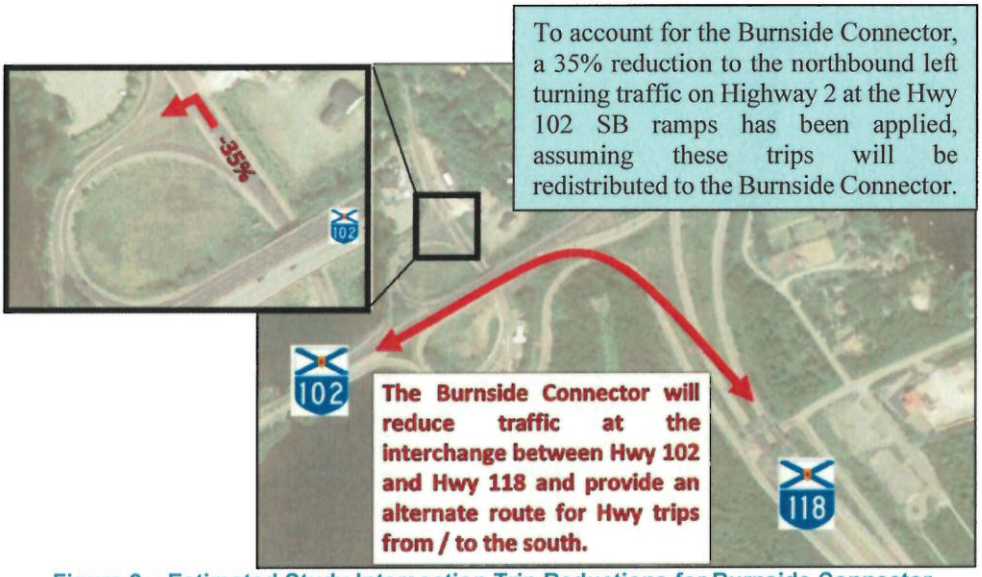


Figure 2 – Estimated Study Intersection Trip Reductions for Burnside Connector

Projected 2021 Background Volumes

Projected 2021 AM and PM peak hour background volumes are shown diagrammatically in Figure A-1, Appendix.

3 TRIP GENERATION, DISTRIBUTION, AND ASSIGNMENT

Anticipated Land Use for Proposed Development

The proposed development is planned to include up to 500 adult housing units, which typically have reduced trip generation during the peak periods compared to single family homes since many of the residents are retired or work out of a home office and often do not run their errands during the peak periods.

> "Senior adult housing consists of attached independent living developments, including retirement communities, age-restricted housing, and active adult communities.... Residents in these communities live independently, are typically active, and may or may not be retired."
>
> ~ Land Use 252, *Trip Generation 10th Edition*

Estimation of Total Site Generated Trips

The number of trips that will be generated by the proposed development has been estimated using rates published in *Trip Generation, 10th Edition* (Institute of Transportation Engineers, Washington, 2017). Trip generation estimates are summarized in Table 1.

Table 1 – Trip Generation Estimates

Land Use	Units[2]	Trip Generation Rates[3]				Trips Generated[3]			
		AM Peak		PM Peak		AM Peak		PM Peak	
		In	Out	In	Out	In	Out	In	Out
Senior Adult Housing - Attached[1] (Land Use 252)	500	0.07	0.13	0.14	0.12	35	65	72	59

Notes:
1. Trip generation rates use the average rates for indicated Land Use from *Trip Generation, 10th Edition* (Institute of Transportation Engineers, Washington, 2017).
2. Units are 'number of dwelling units'.
3. Vehicles per hour per unit for rates; vehicles per hour for peak hours.

It is estimated that the development will generate:

- 100 two-way primary trips (35 entering and 65 exiting) during the AM peak hour; and,
- 131 two-way primary trips (72 entering and 59 exiting) during the PM peak hour.

Trip Distribution and Assignment

Trips generated by the proposed development were assigned to the roadway network based on counted volumes and local knowledge of the area considering major trip origins and destinations in the region.

- North 10% Airport, Truro, etc.
- East 30% Highway 118 to Burnside / Dartmouth Crossing / Cole Harbour / Halifax via Bridges
- South 20% Halifax, Bayers Lake, etc.
- West 40% On Fall River Road

Projected 2021 Traffic Volumes with Site Trips

Trips generated by the proposed development (Figure A-2, Appendix) have been added to the projected 2021 background volumes (Figure A-1, Appendix) to provide projected 2021 AM and PM peak hourly volumes that include site generated trips, illustrated diagrammatically in Figure A-3, Appendix.

4 INTERSECTION OPERATIONAL ANALYSIS

Intersection Analysis was completed to estimate how intersections may be expected to operate into the future without and with site generated trips.

Left-Turn Lane Warrant Analysis

Left-turn movements on a two-lane street may cause both operational and safety problems. Operational problems result as a vehicle stopped waiting for an opportunity to turn across 'heavy' opposing traffic causes a queue of stopped vehicles to form. Safety problems result from rear end collisions when a stopped left-turning vehicle is struck by an advancing vehicle, or from head-on or right-angle collisions when a left-turning vehicle is struck by an opposing vehicle.

The Geometric Design Standards for Ontario Highways Manual contains nomographs for left-turn lane analysis for two lane streets at unsignalized intersections. The analysis method, which is normally used by WSP Atlantic to evaluate the need for left-turn lanes, uses a series of nomographs that consider speed, advancing volumes, left-turns as a percentage of advancing volumes, and opposing volumes. A point, based on 'opposing' and 'advancing' volumes, plotted to the right of the 'warrant line' of the appropriate '% left-turns' and 'approach speed' nomograph, indicates that a left-turn lane is warranted for the conditions used in the analysis. Similarly, a point that is plotted to the left of the warrant line indicates that a left-turn lane is not warranted.

Evaluation of left turn warrants at the site entrance driveway has been completed using the estimated 2021 AM and PM peak hourly volumes that include site generated trips (Figure A-4). The left turn warrant indicates that a westbound left turn lane on Fall River Road **is** expected to be warranted during the PM peak hour with site generated trips.

Traffic Signal Warrant Analysis

A signal warrant analysis is completed to determine if the installation of traffic signals at an intersection will provide a positive impact on total intersection operation. That is, the benefits in time saved and improved safety that will accrue to vehicles entering from a side street will exceed the impact that signals will have in time lost and potential additional collisions for vehicles approaching the intersection on the main street.

The Canadian Traffic Signal Warrant Matrix Analysis (Transportation Association of Canada (TAC), 2005) considers 100 warrant points as an indication that traffic signals will provide a positive impact. Signal warrant analysis uses vehicular and pedestrian volumes, and intersection, roadway and study area characteristics to calculate a warrant point value.

Signal warrant analysis was completed for the intersection of Fall River Road at Lockview Road with projected 2021 background traffic with the addition of trips generated by the proposed development. Results indicate that signals **are not** expected to be warranted (57 warrant points, Table A-5, Appendix).

Additional signal warrant analysis was completed for the intersection of Trunk 2 at the Highway 102 southbound ramps and since the average hourly projected 2021 traffic volume entering the intersection from the minor street (39 vehicles per hour, vph) is substantially lower than the volume threshold required in the signal warrant of 75 vph, traffic signals are not expected to be warranted at this intersection.

Intersection Capacity Analysis Results

Synchro 10.0 software has been used for performance evaluation of Study Area intersections for 2021 AM and PM peak hour volumes without and with site development. Analysis results are included in Appendix A and summarized in Tables 2 to 5 below.

Study intersections:

- ***Highway 2 at Fall River Road (Table 2)***
- ***Highway 2 at Highway 102 SB Ramps (Table 3)***
- ***Fall River Road at McPherson Road (Table 4)***
- ***Fall River Road at Lockview Road (Table 5)***
- ***Fall River Road at Site Driveway (Table 6)***

Overall performance at all study intersections is expected to remain satisfactory both without and with the addition of site generated trips. All movements at all study intersections are expected to continue to operate within HRM acceptable limits.

Table 2 – 2021 Intersection Capacity Analysis for Highway 2 at Fall River Road

Analysis Criteria	Control Delay (sec/veh), Level of Service (LOS), v/c Ratio, and 95th %ile Queue (m) by Intersection Movement								Overall Intersection
	Fall River Road		Sobeys		Highway 2				
	EB-LT	EB-R	WB-L	WB-TR	NB-L	NB-TR	SB-L	SB-TR	Delay
AM Peak Hour **without** Site Development (Page A-10)									
Delay	17.9	25.0	17.3	12.4	48.5	9.0	11.4	23.9	22.8
v/c	0.30	0.85	0.20	0.18	0.78	0.17	0.18	0.82	
Queue	29.1	96.4	16.8	16.6	42.5	16.5	14.7	106.1	
AM Peak Hour **with** Site Development (Page A-18)									
Delay	18.4	29.8	17.6	12.8	70.1	9.0	11.3	23.6	26.2
v/c	0.30	0.89	0.20	0.17	0.91	0.17	0.17	0.81	
Queue	29.5	109.0	16.7	16.8	50.7	16.5	14.7	106.1	
PM Peak Hour **without** Site Development (Page A-14)									
Delay	66.3	9.5	29.3	36.2	36.7	13.6	29.5	44.5	31.5
v/c	0.84	0.43	0.30	0.69	0.89	0.50	0.20	0.88	
Queue	69.0	27.7	29.8	93.2	135.4	78.8	14.8	91.5	
PM Peak Hour **with** Site Development (Page A-23)									
Delay	64.7	10.0	29.1	35.9	50.9	13.8	29.6	45.5	34.8
v/c	0.84	0.47	0.30	0.68	0.97	0.50	0.20	0.81	
Queue	69.6	31.3	29.8	93.3	157.1	78.8	14.8	92.1	

Table 3 – 2021 Intersection Capacity Analysis for Highway 2 at Southbound Ramps

Analysis Criteria	Control Delay (sec/veh), Level of Service (LOS), v/c Ratio, and 95th %ile Queue (m) by Intersection Movement					Overall Intersection
	SB Ramps		Highway 2			
	EB-L	EB-R	NB-L	NB-T	SB-TR	Delay
AM Peak Hour **without** Site Development (Page A-11)						
Delay	42.1	18.8	10.2	0.0	0.0	1.5
v/c	0.22	0.08	0.11	0.17	0.70	
Queue	6.0	1.9	2.7	0.0	0.0	
AM Peak Hour **with** Site Development (Page A-19)						
Delay	47.1	19.5	10.4	0.0	0.0	1.6
v/c	0.26	0.08	0.11	0.18	0.72	
Queue	7.4	2.0	2.8	0.0	0.0	
PM Peak Hour **without** Site Development (Page A-15)						
Delay	149.2	11.7	8.4	0.0	0.0	5.2
v/c	0.74	0.15	0.15	0.64	0.31	
Queue	25.5	4.1	4.1	0.0	0.0	
PM Peak Hour **with** Site Development (Page A-24)						
Delay	203.8	12.0	8.5	0.0	0.0	6.8
v/c	0.91	0.16	0.16	0.66	0.33	
Queue	31.7	4.3	4.2	0.0	0.0	

Table 4 – 2021 Intersection Capacity Analysis for Fall River Road at McPherson Road

Analysis Criteria	Control Delay (sec/veh), Level of Service (LOS), v/c Ratio, and 95th %ile Queue (m) by Intersection Movement			Overall Intersection
	Fall River Road		McPherson Road	
	EB-LT	WB-TR	SB-LR	Delay
AM Peak Hour **without** Site Development (Page A-12)				
Delay	0.1	0.0	25.7	2.7
v/c	0.49	0.26	0.40	
Queue	0.1	0.0	13.9	
AM Peak Hour **with** Site Development (Page A-20)				
Delay	0.1	0.0	29.2	2.9
v/c	0.54	0.27	0.44	
Queue	0.1	0.0	16.0	
PM Peak Hour **without** Site Development (Page A-16)				
Delay	0.2	0.0	27.8	1.0
v/c	0.56	0.47	0.22	
Queue	0.2	0.0	6.1	
PM Peak Hour **with** Site Development (Page A-25)				
Delay	0.2	0.0	33.9	1.2
v/c	0.65	0.50	0.26	
Queue	0.2	0.0	7.6	

Table 5 – 2021 Intersection Capacity Analysis for Fall River Road at Lockview Road

Analysis Criteria	Control Delay (sec/veh), Level of Service (LOS), v/c Ratio, and 95th %ile Queue (m) by Intersection Movement					Overall Intersection
	Fall River Road			Lockview Road		
	EB-L	EB-T	WB-TR	SB-L	SB-R	Delay
AM Peak Hour **without** Site Development (Page A-13)						
Delay	8.6	0.0	0.0	55.0	10.8	9.2
v/c	0.14	0.23	0.23	0.72	0.14	
Queue	3.7	0.0	0.0	36.3	3.6	
AM Peak Hour **with** Site Development (Page A-21)						
Delay	8.7	0.0	0.0	68.8	11.0	10.5
v/c	0.14	0.26	0.24	0.79	0.14	
Queue	3.8	0.0	0.0	41.9	3.7	
PM Peak Hour **without** Site Development (Page A-17)						
Delay	9.8	0.0	0.0	37.9	12.9	5.0
v/c	0.06	0.16	0.44	0.57	0.12	
Queue	1.5	0.0	0.0	24.0	3.0	
PM Peak Hour **with** Site Development (Page A-26)						
Delay	10.1	0.0	0.0	52.2	13.4	6.2
v/c	0.07	0.19	0.47	0.67	0.12	
Queue	1.6	0.0	0.0	30.9	3.2	

Table 6 – 2021 Intersection Capacity Analysis for Fall River Road at Site Driveway

Analysis Criteria	Control Delay (sec/veh), Level of Service (LOS), v/c Ratio, and 95th %ile Queue (m) by Intersection Movement				Overall Intersection
	Fall River Road			Site Driveway	
	EB-TR	WB-L	WB-T	NB-LR	Delay
AM Peak Hour with Site Development (Page A-22)					
Delay	0.0	8.2	0.0	12.5	1.6
v/c	0.23	0.20	0.11	0.13	
Queue	0.0	0.5	0.0	3.3	
PM Peak Hour **with** Site Development (Page A-27)					
Delay	0.0	8.1	0.0	13.4	1.5
v/c	0.20	0.04	0.23	0.13	
Queue	0.0	0.9	0.0	3.4	

5 SUMMARY, RECOMMENDATIONS, AND CONCLUSION

5.1 SUMMARY

Description of the Proposed Development	1. Plans are being prepared for the development of up to 500 adult housing units at 1109 Fall River Road in Fall River, NS (PID #00506501). Completion of the development is anticipated by 2021.
Proposed Site Access	2. Vehicular access to the site will be via a two-way driveway onto Fall River Road.
Study Area Roads	3. ***Fall River Road*** is a two-lane major collector street with curb, gutter, and sidewalk on the north side and gravel shoulder with open ditch on the south side. 4. ***Highway 2*** to the east of the site is a 2-lane arterial roadway with concrete sidewalk on the east side and gravel shoulder with open ditch on the west side.
Traffic Volume Data	5. Turning Movement counts at the Highway 2 / Fall River intersection were collected by HRM in 2017. Additional turning movement counts at the remaining study intersections were collected by WSP in February 2019.
2021 Background Traffic Volumes	6. Projected 2021 weekday AM and PM peak hour background volumes were estimated using an annual traffic volume growth rate of 1.0%.
Estimation of Site Generated Trips	7. Trip generation estimates, were prepared using rates published in *Trip Generation, 10th Edition* (Institute of Transportation Engineers, Washington, 2017). It is estimated that the development will generate: • 100 two-way primary vehicle trips (35 entering and 65 exiting) during the AM peak hour; and, • 131 two-way primary vehicle trips (72 entering and 59 exiting) during the PM peak hour.
Trip Distribution and Assignment	8. Vehicle trips generated by the development have been assigned to study area streets and intersections based on counted volumes and consideration of major trip origins and destinations in the region. Trips were distributed to the north (10%), east (30%), south (20%), and west (40%).
Left-Turn Lane Warrant	9. Analyses of left-turn lane warrants were completed and found that a westbound left turn lane is expected to be warranted on Fall River Road for traffic turning in to the site.
Summary – Intersection Capacity Analysis	10. The intersection level of performance at each of the study area intersections is expected to remain within HRM acceptable limits without and with the addition of site generated trips.

5.2 RECOMMENDATIONS

Left turn Lanes	11. A westbound left turn lane should be installed on Fall River Road at the site driveway.
Signalization	12. Signalization is not expected to be warranted at any of the unsignalized study intersections by 2021.

5.3 CONCLUSION

Impacts to Vehicular Traffic	13. With the above noted recommendations, site generated trips are not expected to have a significant impact to levels of performance on adjacent intersections or to the regional road network.

APPENDIX

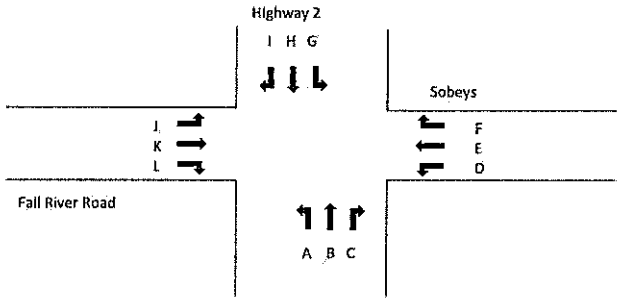
A

TRAFFIC VOLUME DATA AND INTERSECTION PERFORMANCE ANALYSIS

Table A-1

Highway 2
@
Fall River Road / Sobeys

Fall River, NS
Tuesday, June 27, 2017



AM Peak Period Volume Data

Time		Highway 2 Northbound Approach			Sobeys Westbound Approach			Highway 2 Southbound Approach			Fall River Road Eastbound Approach			Total Vehicles
		A	B	C	D	E	F	G	H	I	J	K	L	
07:00	07:15	22	18	4	17	5	6	16	87	13	9	19	82	298
07:15	07:30	30	21	4	16	6	4	18	109	12	10	17	124	371
07:30	07:45	17	22	8	12	21	2	13	135	16	9	21	123	399
07:45	08:00	37	34	4	16	12	6	25	156	24	12	18	174	520
08:00	08:15	37	20	7	22	18	7	16	112	23	14	24	136	436
08:15	08:30	16	18	8	21	13	14	13	107	17	15	23	123	388
08:30	08:45	30	22	11	9	22	2	32	117	44	9	29	81	409
08:45	09:00	25	11	12	12	31	3	26	107	32	8	28	92	387
AM Peak Hour		**120**	**94**	**30**	**70**	**65**	**29**	**86**	**492**	**108**	**50**	**94**	**514**	**1752**
07:00	08:00	106	95	20	63	44	18	72	487	65	40	75	503	1588
08:00	09:00	108	71	38	64	84	26	87	443	116	46	104	432	1619

PM Peak Period Volume Data

Time		Highway 2 Northbound Approach			Sobeys Westbound Approach			Highway 2 Southbound Approach			Fall River Road Eastbound Approach			Total Vehicles
		A	B	C	D	E	F	G	H	I	J	K	L	
16:00	16:15	91	91	22	21	42	13	9	55	19	25	18	64	470
16:15	16:30	117	110	15	25	40	16	6	51	32	21	23	46	502
16:30	16:45	123	108	8	26	45	14	8	48	24	27	22	49	504
16:45	17:00	130	100	14	16	89	19	9	66	18	21	17	64	563
17:00	17:15	119	107	10	21	68	9	13	64	16	21	9	58	515
17:15	17:30	117	105	15	26	66	14	8	71	19	16	17	59	535
17:30	17:45	117	94	22	23	43	12	13	56	21	20	15	49	485
17:45	18:00	104	94	17	18	52	19	9	62	21	26	7	60	489
PM Peak Hour		**489**	**420**	**47**	**91**	**268**	**56**	**38**	**249**	**77**	**87**	**65**	**230**	**2117**
16:00	17:00	461	409	59	90	216	62	32	220	93	94	80	223	2039
17:00	18:00	457	400	64	88	229	54	43	253	77	85	48	226	2024

* Count completed by HRM Traffic Management

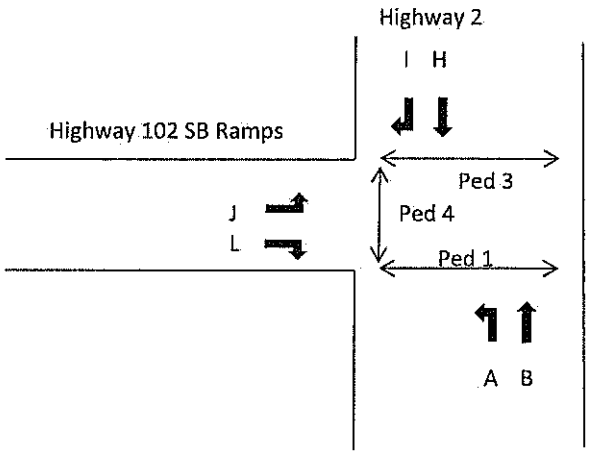
Table A-2

Highway 2 @ Highway 102 SB Ramps

Fall River, NS

PM: Wednesday, February 20, 2019

AM: Thursday, February 21, 2019



AM Peak Period Volume Data

Time		Highway 2 Northbound Approach		Highway 2 Southbound Approach		Highway 102 SB Ramps Eastbound Approach		Total Vehicles
		A	B	H	I	J	L	
07:00	07:15	17	23	176	86	2	10	314
07:15	07:30	24	42	200	68	7	3	344
07:30	07:45	34	54	215	70	5	4	382
07:45	08:00	33	90	197	51	12	3	386
08:00	08:15	25	71	181	85	2	10	374
08:15	08:30	42	101	116	68	7	3	337
08:30	08:45	30	71	122	69	5	4	301
08:45	09:00	17	80	115	51	11	3	277
AM Peak Hour		**116**	**257**	**793**	**274**	**26**	**20**	**1486**
07:00	**08:00**	**108**	**209**	**788**	**275**	**26**	**20**	**1426**
08:00	**09:00**	**114**	**323**	**534**	**273**	**25**	**20**	**1289**
		Ped 1		**Ped 3**		**Ped 4**		**Total Peds**
07:00	**08:00**	**0**		**0**		**0**		**0**
08:00	**09:00**	**0**		**0**		**0**		**0**

PM Peak Period Volume Data

Time		Highway 2 Northbound Approach		Highway 2 Southbound Approach		Highway 102 SB Ramps Eastbound Approach		Total Vehicles
		A	B	H	I	J	L	
16:00	16:15	53	199	76	55	23	20	426
16:15	16:30	57	243	56	49	12	19	436
16:30	16:45	72	242	70	40	13	23	460
16:45	17:00	64	244	56	43	12	22	441
17:00	17:15	74	237	80	62	8	24	485
17:15	17:30	53	249	71	49	14	17	453
17:30	17:45	64	237	63	55	11	18	448
17:45	18:00	25	224	48	49	8	9	363
PM Peak Hour		**263**	**972**	**277**	**194**	**47**	**86**	**1839**
16:00	**17:00**	**246**	**928**	**258**	**187**	**60**	**84**	**1763**
17:00	**18:00**	**216**	**947**	**262**	**215**	**41**	**68**	**1749**
		Ped 1		**Ped 3**		**Ped 4**		**Total Peds**
16:00	**17:00**	**0**		**0**		**0**		**0**
17:00	**18:00**	**0**		**0**		**0**		**0**

* Count completed by WSP

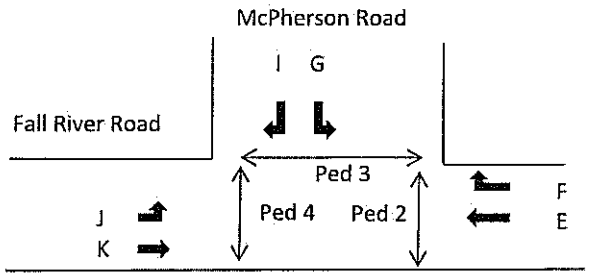
Table A-3

Fall River Road @ McPherson Road

Fall River, NS

PM: Wednesday, February 20, 2019

AM: Thursday, February 21, 2019



AM Peak Period Volume Data

Time		Fall River Road Westbound Approach		McPherson Road Southbound Approach		Fall River Road Eastbound Approach		Total Vehicles
		E	F	G	I	J	K	
07:00	07:15	23	1	4	0	0	123	151
07:15	07:30	38	1	7	0	1	144	191
07:30	07:45	47	4	7	0	0	176	234
07:45	08:00	71	9	17	1	3	146	247
08:00	08:15	66	8	29	1	1	151	256
08:15	08:30	84	11	9	0	3	90	197
08:30	08:45	87	13	23	2	3	108	236
08:45	09:00	110	10	37	0	0	98	255
AM Peak Hour		**347**	**42**	**98**	**3**	**7**	**447**	**944**
07:00	**08:00**	**179**	**15**	**35**	**1**	**4**	**589**	**823**
08:00	**09:00**	**347**	**42**	**98**	**3**	**7**	**447**	**944**
		Ped 2		**Ped 3**		**Ped 4**		**Total Peds**
07:00	**08:00**	**0**		**3**		**0**		**3**
08:00	**09:00**	**0**		**5**		**0**		**5**

PM Peak Period Volume Data

Time		Fall River Road Westbound Approach		McPherson Road Southbound Approach		Fall River Road Eastbound Approach		Total Vehicles
		E	F	G	I	J	K	
16:00	16:15	133	10	4	2	2	80	231
16:15	16:30	144	7	6	0	5	92	254
16:30	16:45	141	8	8	1	0	77	235
16:45	17:00	172	13	4	3	1	88	281
17:00	17:15	157	7	8	4	1	96	273
17:15	17:30	172	22	7	1	2	80	284
17:30	17:45	172	9	8	2	1	102	294
17:45	18:00	169	6	3	0	0	98	276
PM Peak Hour		**673**	**51**	**27**	**10**	**5**	**366**	**1132**
16:00	**17:00**	**590**	**38**	**22**	**6**	**8**	**337**	**1001**
17:00	**18:00**	**670**	**44**	**26**	**7**	**4**	**376**	**1127**
		Ped 2		**Ped 3**		**Ped 4**		**Total Peds**
16:00	**17:00**	**0**		**2**		**0**		**2**
17:00	**18:00**	**0**		**0**		**0**		**0**

* Count completed by WSP

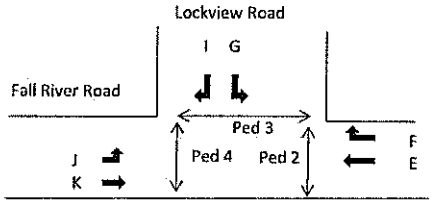
Table A-4

Fall River Road @ Lockview Road

Fall River, NS

PM: Wednesday, February 20, 2019

AM, midday: Thursday, February 21, 2019



AM Peak Period Volume Data

Time		Fall River Road Westbound Approach		Lockview Road Southbound Approach		Fall River Road Eastbound Approach		Total Vehicles
		E	F	G	I	J	K	
07:00	07:15	16	3	34	4	2	86	145
07:15	07:30	18	18	46	2	2	105	191
07:30	07:45	20	24	61	4	9	123	241
07:45	08:00	34	37	49	8	20	107	255
08:00	08:15	41	23	58	21	26	103	272
08:15	08:30	48	30	31	24	22	77	232
08:30	08:45	62	27	30	23	31	86	259
08:45	09:00	58	52	25	19	69	90	313
AM Peak Hour		209	132	144	87	148	356	1076
07:00	08:00	88	82	190	18	33	421	832
08:00	09:00	209	132	144	87	148	356	1076
		Ped 2		Ped 3		Ped 4		Total Peds
07:00	08:00	0		2		0		2
08:00	09:00	0		6		0		6

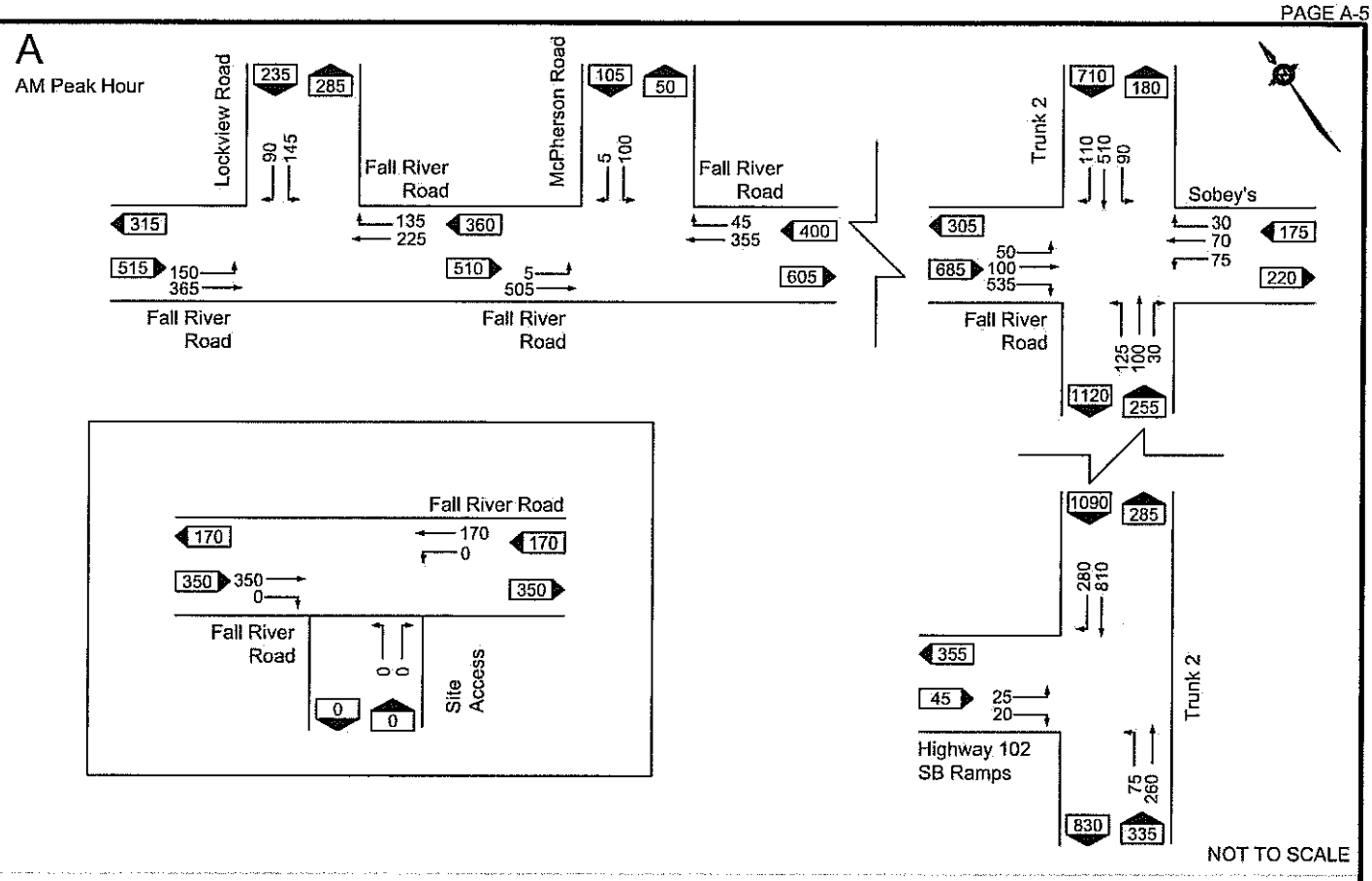
Midday Peak Period Volume Data

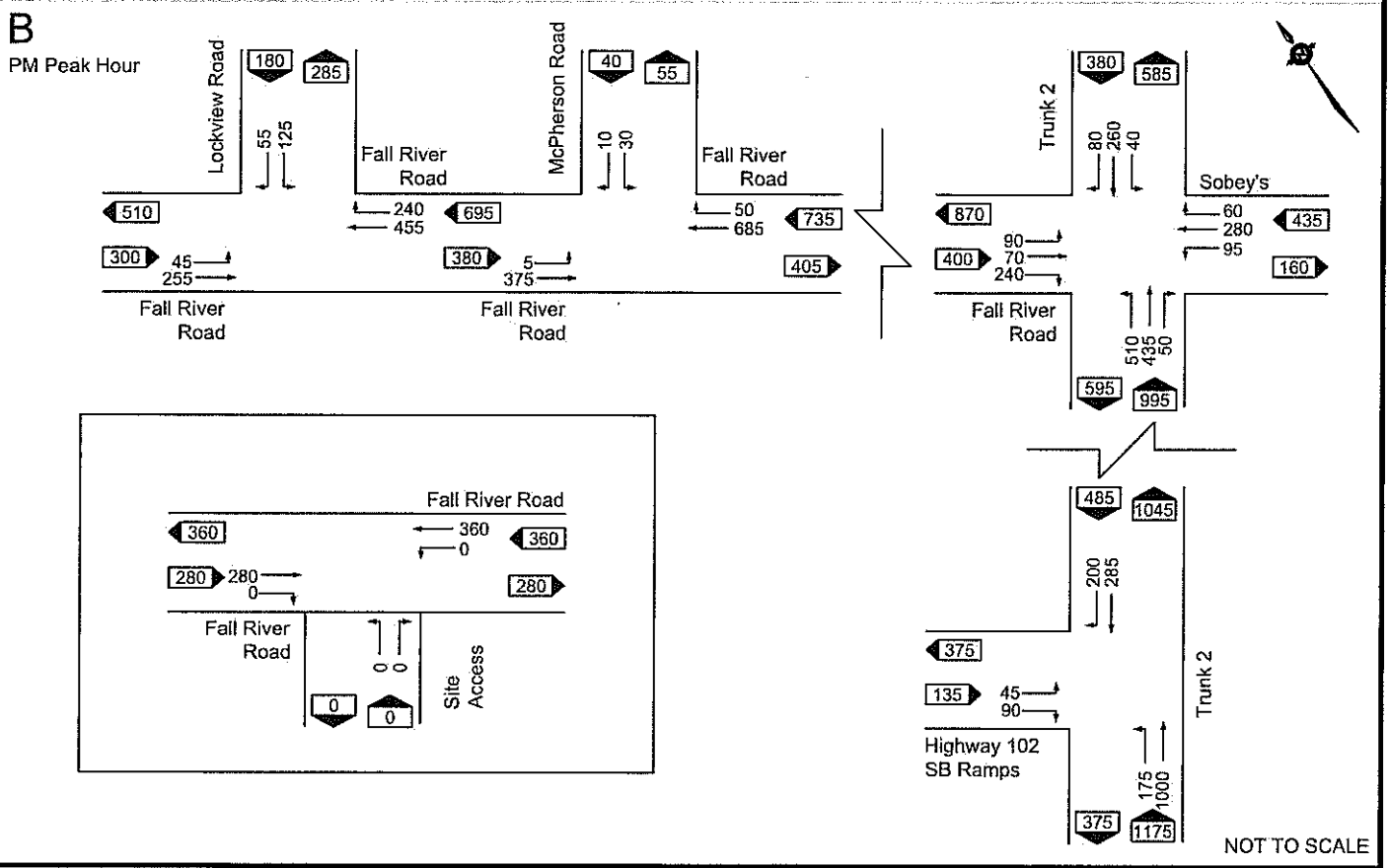
Time		Fall River Road Westbound Approach		Lockview Road Southbound Approach		Fall River Road Eastbound Approach		Total Vehicles
		E	F	G	I	J	K	
11:00	11:15	26	13	15	3	6	38	101
11:15	11:30	28	18	15	5	3	39	108
11:30	11:45	27	11	19	3	8	39	107
11:45	12:00	34	23	30	5	5	40	137
12:00	12:15	30	26	44	5	2	29	136
12:15	12:30	41	38	20	5	4	31	139
12:30	12:45	39	21	16	9	13	33	131
12:45	13:00	27	25	21	2	4	26	105
Midday Peak Hour		144	108	110	24	24	133	543
11:00	12:00	115	65	79	16	22	156	453
12:00	13:00	137	110	101	21	23	119	511
		Ped 2		Ped 3		Ped 4		Total Peds
11:00	12:00	0		1		0		1
12:00	13:00	0		0		0		0

PM Peak Period Volume Data

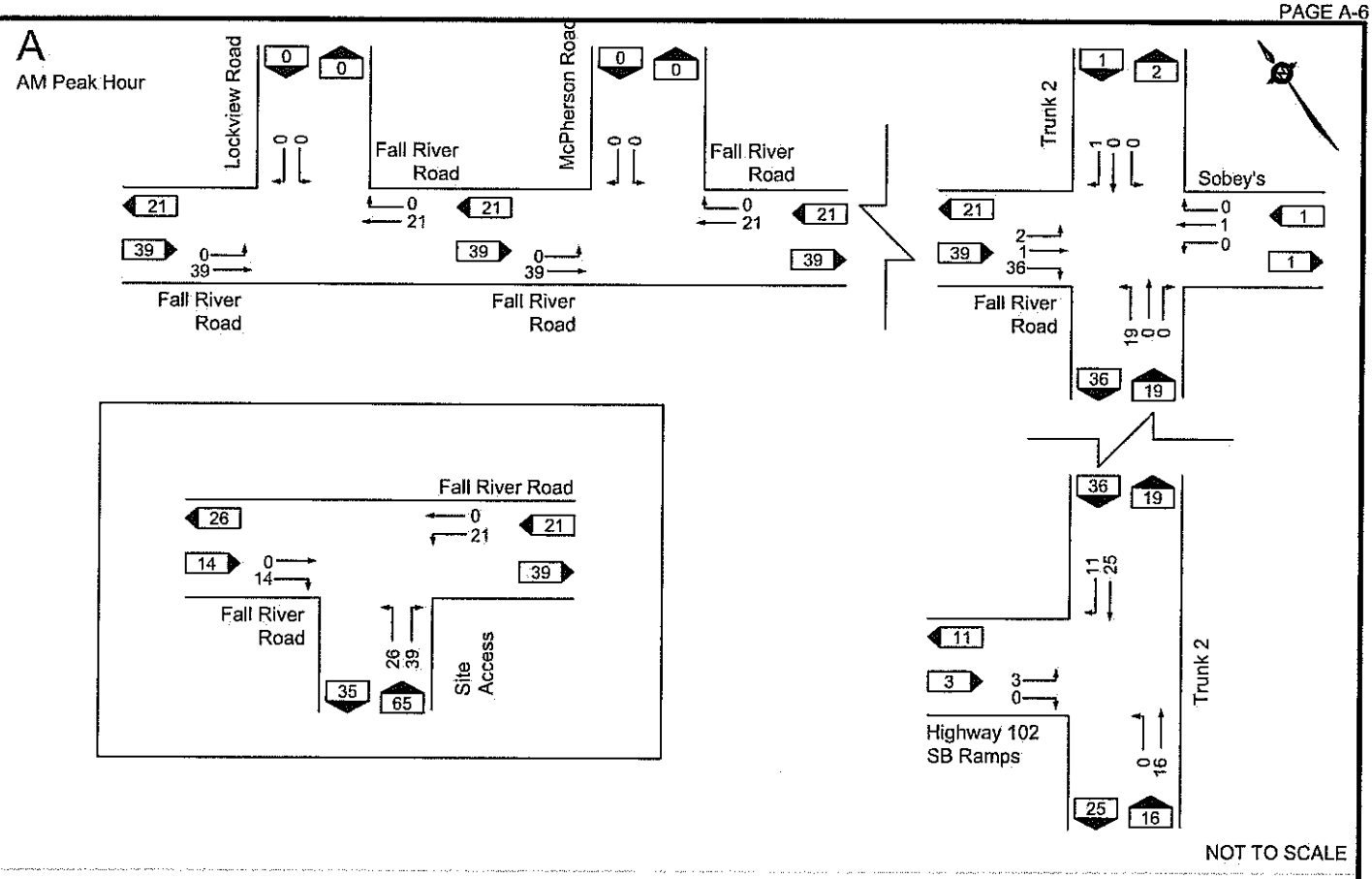
Time		Fall River Road Westbound Approach		Lockview Road Southbound Approach		Fall River Road Eastbound Approach		Total Vehicles
		E	F	G	I	J	K	
16:00	16:15	98	35	26	9	14	52	234
16:15	16:30	88	57	33	14	12	62	266
16:30	16:45	88	55	32	13	8	51	247
16:45	17:00	104	63	35	5	7	60	274
17:00	17:15	105	48	32	13	10	62	270
17:15	17:30	107	64	29	15	13	56	284
17:30	17:45	113	63	30	15	12	68	301
17:45	18:00	114	61	30	12	9	66	292
PM Peak Hour		439	236	121	55	44	252	1147
16:00	17:00	378	210	126	41	41	225	1021
17:00	18:00	439	236	121	55	44	252	1147
		Ped 2		Ped 3		Ped 4		Total Peds
16:00	17:00	0		2		0		2
17:00	18:00	0		0		0		0

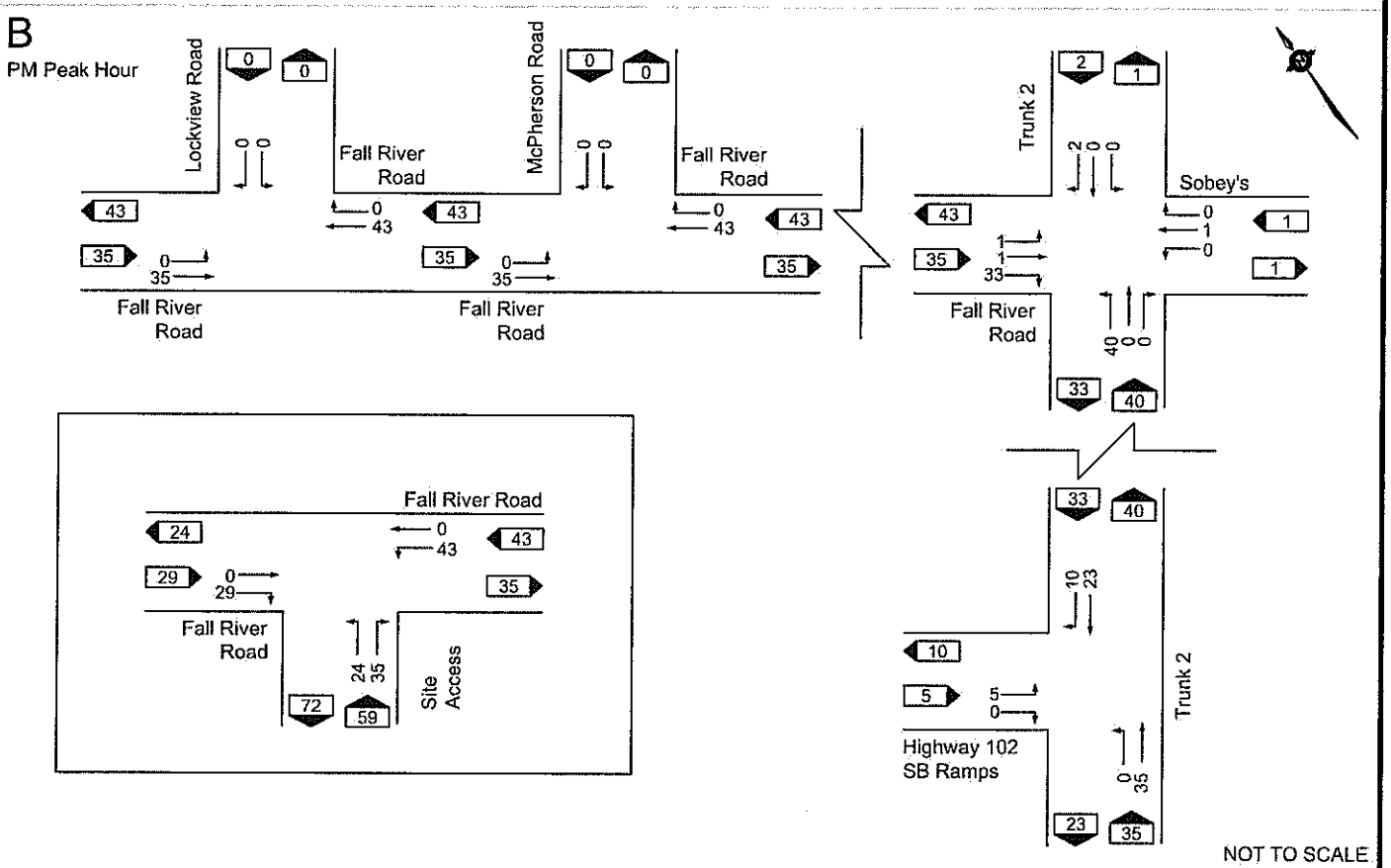
* Count completed by WSP



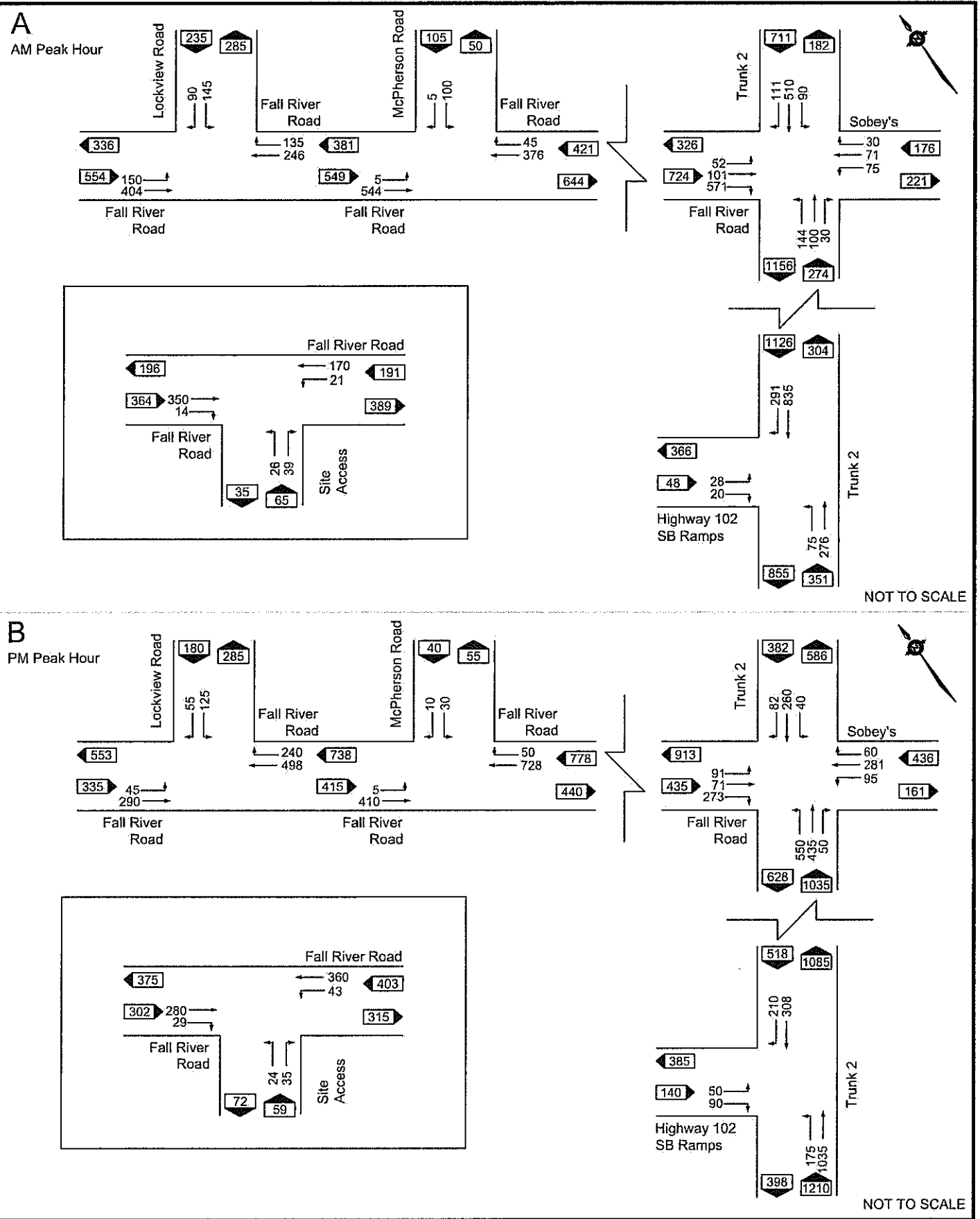


WSP	Traffic Impact Study - Proposed Residential Development Fall River, NS	Figure A-1
	Projected 2021 Weekday AM and PM Peak Hour Background Traffic Without Site Development	March 2019

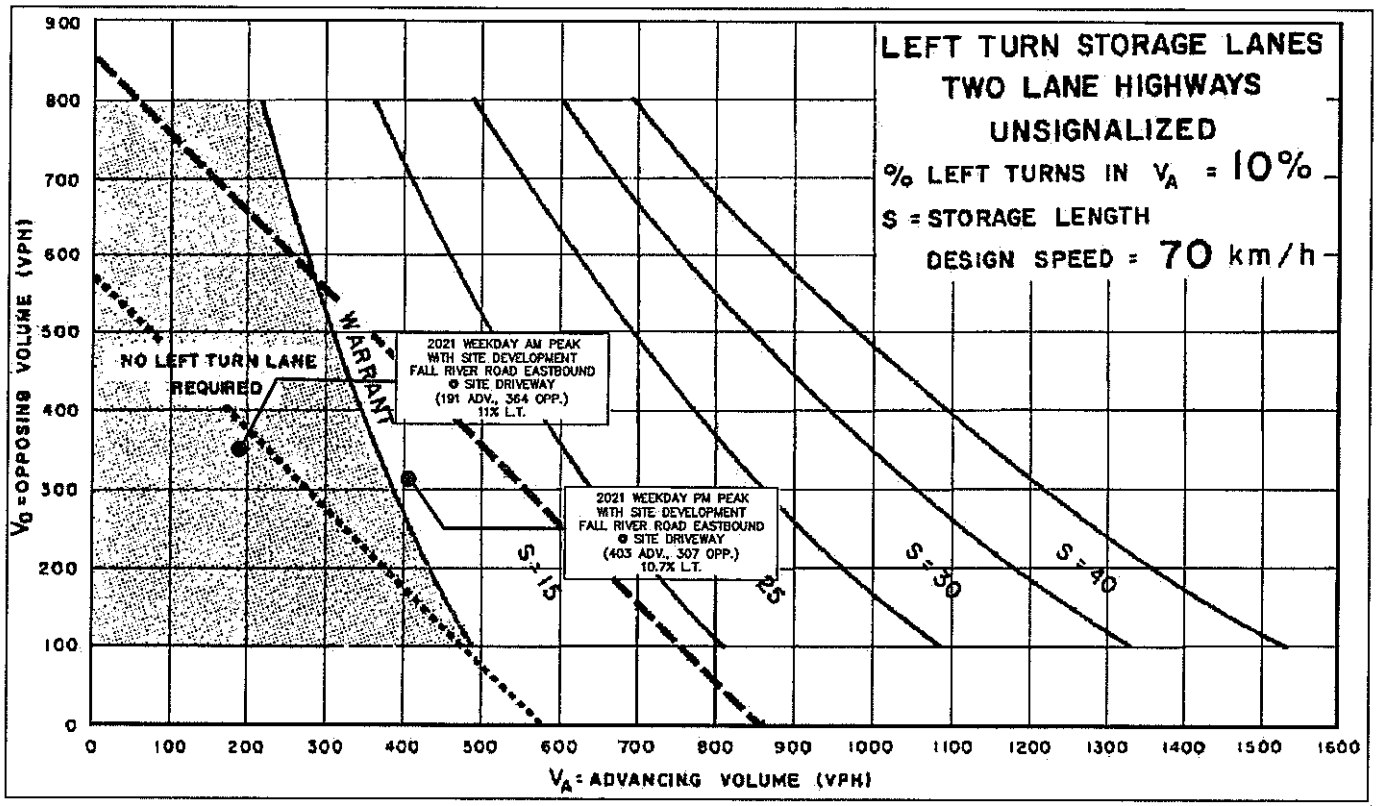




WSP	Traffic Impact Study - Proposed Residential Development Fall River, NS	Figure A-2
	Estimated Site Generated Trips	March 2019



WSP	Traffic Impact Study - Proposed Residential Development Fall River, NS	Figure A-3
	Projected 2021 Weekday AM and PM Peak Hour Background Traffic With Site Development	March 2019


LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 10%
S = STORAGE LENGTH
DESIGN SPEED = 70 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
2021 WEEKDAY AM PEAK WITH SITE DEVELOPMENT FALL RIVER ROAD EASTBOUND @ SITE DRIVEWAY (191 ADV., 364 OPP.) 11% L.T.
2021 WEEKDAY PM PEAK WITH SITE DEVELOPMENT FALL RIVER ROAD EASTBOUND @ SITE DRIVEWAY (403 ADV., 307 OPP.) 10.7% L.T.
S=15
S=25
S=30
S=40
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600

2005 Canadian Traffic Signal Warrant Matrix Analysis

Table A-5 - Fall River Road at Lockview Road - Projected 2021 Volumes with Site Development

Main Street (name)	Fall River Road	Direction (EW or NS)	EW	Date:	March 2019
Side Street (name)	Lockview Road	Direction (EW or NS)	NS	City:	HRM

Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes	
Fall River Road	WB				1				
Fall River Road	EB	1		1					
N/A	NB								
Lockview Road	SB	1				1			

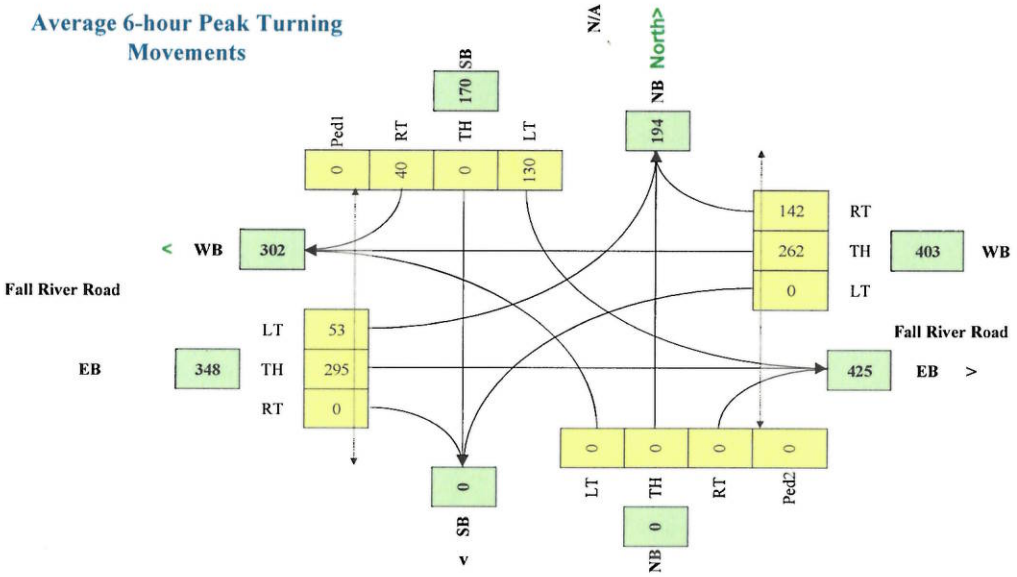
Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Fall River Road	EW	50	2.0%	n	0.0
Lockview Road	NS	50	2.0%	n	

	Ped1 NS W Side	Ped2 NS E Side	Ped3 EW N Side	Ped4 EW S side
7:00 - 8:00	0	0	2	
8:00 - 9:00	0	0	6	
11:00 - 12:00	0	0	1	
12:00 - 13:00	0	0	0	
16:00 - 17:00	0	0	2	
17:00 - 18:00	0	0	0	
Total (6-hour peak)	0	0	11	0
Average (6-hour peak)	0	0	2	0

Demographics		
Elementary School	(y/n)	y
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	400,000
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
7:00 - 8:00	0	0	0	195	0	20	0	115	85	35	480	0
8:00 - 9:00	0	0	0	145	0	90	0	230	135	150	400	0
11:00 - 12:00	0	0	0	80	0	15	0	135	65	20	180	0
12:00 - 13:00	0	0	0	105	0	20	0	160	110	25	145	0
16:00 - 17:00	0	0	0	130	0	40	0	430	215	40	265	0
17:00 - 18:00	0	0	0	125	0	55	0	500	240	45	300	0
Total (6-hour peak)	0	0	0	780	0	240	0	1,570	850	315	1,770	0
Average (6-hour peak)	0	0	0	130	0	40	0	262	142	53	295	0

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F(X_{v\text{-}p}) L) / K_2] \times C_i$$

W =	57	57	0
		Veh	*Ped*

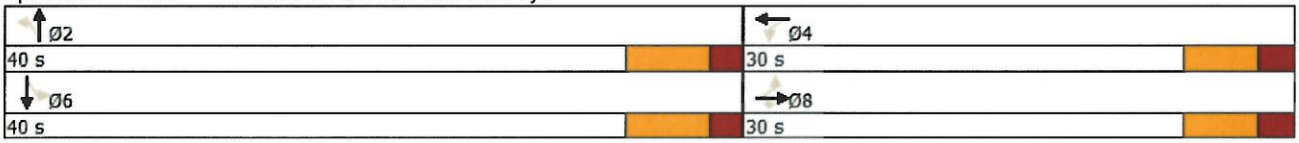
NOT Warranted

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	100	535	75	70	30	125	100	30	90	510	110
Future Volume (vph)	50	100	535	75	70	30	125	100	30	90	510	110
Satd. Flow (prot)	0	1853	1601	1789	1799	0	1789	1818	0	1789	1833	0
Flt Permitted		0.868		0.654			0.209			0.666		
Satd. Flow (perm)	0	1635	1601	1232	1799	0	394	1818	0	1254	1833	0
Satd. Flow (RTOR)			242		33			30			21	
Lane Group Flow (vph)	0	163	582	82	109	0	136	142	0	98	674	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8		8	4			2			6		
Total Split (s)	30.0	30.0	30.0	30.0	30.0		40.0	40.0		40.0	40.0	
Total Lost Time (s)		6.2	6.2	6.2	6.2		6.4	6.4		6.4	6.4	
Act Effct Green (s)		19.3	19.3	19.3	19.3		26.0	26.0		26.0	26.0	
Actuated g/C Ratio		0.33	0.33	0.33	0.33		0.44	0.44		0.44	0.44	
v/c Ratio		0.30	0.85	0.20	0.18		0.78	0.17		0.18	0.82	
Control Delay		17.9	25.0	17.3	12.4		48.5	9.0		11.4	23.9	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		17.9	25.0	17.3	12.4		48.5	9.0		11.4	23.9	
LOS		B	C	B	B		D	A		B	C	
Approach Delay		23.5			14.5			28.4			22.3	
Approach LOS		C			B			C			C	
Queue Length 50th (m)		13.9	36.2	6.7	6.1		13.3	7.7		6.8	65.9	
Queue Length 95th (m)		29.1	#96.4	16.8	16.6		#42.5	16.5		14.7	106.1	
Internal Link Dist (m)		84.4			131.6			1209.4			240.9	
Turn Bay Length (m)			13.0	32.0			50.0			23.0		
Base Capacity (vph)		707	830	533	797		240	1122		766	1128	
Starvation Cap Reductn		0	0	0	0		0	0		0	0	
Spillback Cap Reductn		0	0	0	0		0	0		0	0	
Storage Cap Reductn		0	0	0	0		0	0		0	0	
Reduced v/c Ratio		0.23	0.70	0.15	0.14		0.57	0.13		0.13	0.60	

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 58.7
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 22.8 Intersection LOS: C
Intersection Capacity Utilization 88.2% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Trunk 2 & Fall River Road/Sobeys



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	20	75	260	810	280
Future Volume (Veh/h)	25	20	75	260	810	280
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	22	82	283	880	304
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1479	1032	880			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1479	1032	880			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	78	92	89			
cM capacity (veh/h)	124	283	768			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1
Volume Total	27	22	82	283	1184
Volume Left	27	0	82	0	0
Volume Right	0	22	0	0	304
cSH	124	283	768	1700	1700
Volume to Capacity	0.22	0.08	0.11	0.17	0.70
Queue Length 95th (m)	6.0	1.9	2.7	0.0	0.0
Control Delay (s)	42.1	18.8	10.2	0.0	0.0
Lane LOS	E	C	B		
Approach Delay (s)	31.6		2.3		0.0
Approach LOS	D				

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	505	355	45	100	5
Future Volume (Veh/h)	5	505	355	45	100	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	549	386	49	109	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			109			
pX, platoon unblocked	0.99				0.99	0.99
vC, conflicting volume	435				970	410
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	421				963	396
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				61	99
cM capacity (veh/h)	1123				279	645

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	554	435	114
Volume Left	5	0	109
Volume Right	0	49	5
cSH	1123	1700	286
Volume to Capacity	0.00	0.26	0.40
Queue Length 95th (m)	0.1	0.0	13.9
Control Delay (s)	0.1	0.0	25.7
Lane LOS	A		D
Approach Delay (s)	0.1	0.0	25.7
Approach LOS			D

Intersection Summary			
Average Delay		2.7	
Intersection Capacity Utilization		43.1%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	150	365	225	135	145	90
Future Volume (Veh/h)	150	365	225	135	145	90
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	163	397	245	147	158	98
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			269			
pX, platoon unblocked						
vC, conflicting volume	392				1042	318
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	392				1042	318
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	86				28	86
cM capacity (veh/h)	1167				219	722

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	163	397	392	158	98
Volume Left	163	0	0	158	0
Volume Right	0	0	147	0	98
cSH	1167	1700	1700	219	722
Volume to Capacity	0.14	0.23	0.23	0.72	0.14
Queue Length 95th (m)	3.7	0.0	0.0	36.3	3.6
Control Delay (s)	8.6	0.0	0.0	55.0	10.8
Lane LOS	A			F	B
Approach Delay (s)	2.5		0.0	38.1	
Approach LOS				E	

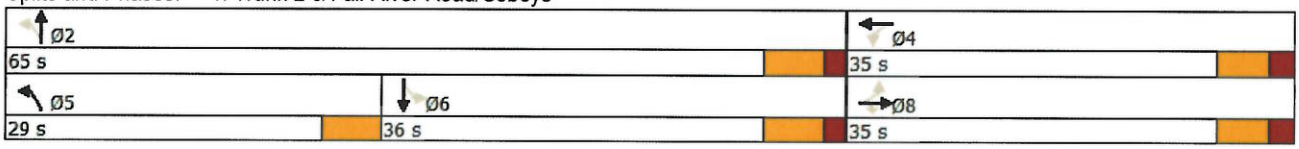
Intersection Summary			
Average Delay	9.2		
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	70	240	95	280	60	510	435	50	40	260	80
Future Volume (vph)	90	70	240	95	280	60	510	435	50	40	260	80
Satd. Flow (prot)	0	1833	1601	1789	1834	0	1789	1855	0	1789	1818	0
Flt Permitted		0.383		0.632			0.227			0.468		
Satd. Flow (perm)	0	721	1601	1190	1834	0	428	1855	0	881	1818	0
Satd. Flow (RTOR)			206		11			10			16	
Lane Group Flow (vph)	0	174	261	103	369	0	554	527	0	43	370	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		8			4		5	2			6	
Permitted Phases	8		8	4			2			6		
Total Split (s)	35.0	35.0	35.0	35.0	35.0		29.0	65.0		36.0	36.0	
Total Lost Time (s)		6.2	6.2	6.2	6.2		4.6	6.4		6.4	6.4	
Act Effct Green (s)		25.8	25.8	25.8	25.8		53.0	51.2		22.2	22.2	
Actuated g/C Ratio		0.29	0.29	0.29	0.29		0.59	0.57		0.25	0.25	
v/c Ratio		0.84	0.43	0.30	0.69		0.89	0.50		0.20	0.80	
Control Delay		66.3	9.5	29.3	36.2		36.7	13.6		29.5	44.5	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		66.3	9.5	29.3	36.2		36.7	13.6		29.5	44.5	
LOS		E	A	C	D		D	B		C	D	
Approach Delay		32.2			34.7			25.4			42.9	
Approach LOS		C			C			C			D	
Queue Length 50th (m)		28.5	7.1	14.0	55.6		68.4	53.8		6.2	60.2	
Queue Length 95th (m)		#69.0	27.7	29.8	93.2		#135.4	78.8		14.8	91.5	
Internal Link Dist (m)		84.4			131.6			1209.4			240.9	
Turn Bay Length (m)			13.0	32.0			50.0			23.0		
Base Capacity (vph)		235	661	388	605		628	1234		295	620	
Starvation Cap Reductn		0	0	0	0		0	0		0	0	
Spillback Cap Reductn		0	0	0	0		0	0		0	0	
Storage Cap Reductn		0	0	0	0		0	0		0	0	
Reduced v/c Ratio		0.74	0.39	0.27	0.61		0.88	0.43		0.15	0.60	

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 89.8
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 31.5
Intersection LOS: C
Intersection Capacity Utilization 93.4%
ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Trunk 2 & Fall River Road/Sobeys



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	45	90	175	1000	285	200
Future Volume (Veh/h)	45	90	175	1000	285	200
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	49	98	190	1087	310	217
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1886	418	310			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1886	418	310			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	26	85	85			
cM capacity (veh/h)	66	635	1250			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1
Volume Total	49	98	190	1087	527
Volume Left	49	0	190	0	0
Volume Right	0	98	0	0	217
cSH	66	635	1250	1700	1700
Volume to Capacity	0.74	0.15	0.15	0.64	0.31
Queue Length 95th (m)	25.5	4.1	4.1	0.0	0.0
Control Delay (s)	149.2	11.7	8.4	0.0	0.0
Lane LOS	F	B	A		
Approach Delay (s)	57.5		1.2		0.0
Approach LOS	F				

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↱		Y	
Traffic Volume (veh/h)	5	375	685	50	30	10
Future Volume (Veh/h)	5	375	685	50	30	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	408	745	54	33	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			109			
pX, platoon unblocked	0.68				0.68	0.68
vC, conflicting volume	799				1190	772
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	468				1043	428
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				81	97
cM capacity (veh/h)	743				171	426

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	413	799	44
Volume Left	5	0	33
Volume Right	0	54	11
cSH	743	1700	201
Volume to Capacity	0.01	0.47	0.22
Queue Length 95th (m)	0.2	0.0	6.1
Control Delay (s)	0.2	0.0	27.8
Lane LOS	A		D
Approach Delay (s)	0.2	0.0	27.8
Approach LOS			D

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	49.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	45	255	455	240	125	55
Future Volume (Veh/h)	45	255	455	240	125	55
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	49	277	495	261	136	60
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			269			
pX, platoon unblocked	0.80				0.80	0.80
vC, conflicting volume	756				1000	626
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	575				879	413
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				43	88
cM capacity (veh/h)	803				240	514

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	49	277	756	136	60
Volume Left	49	0	0	136	0
Volume Right	0	0	261	0	60
cSH	803	1700	1700	240	514
Volume to Capacity	0.06	0.16	0.44	0.57	0.12
Queue Length 95th (m)	1.5	0.0	0.0	24.0	3.0
Control Delay (s)	9.8	0.0	0.0	37.9	12.9
Lane LOS	A			E	B
Approach Delay (s)	1.5		0.0	30.3	
Approach LOS				D	

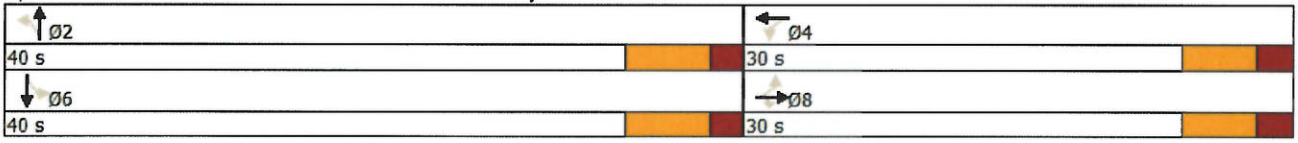
Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	101	571	75	71	30	144	100	30	90	510	111
Future Volume (vph)	52	101	571	75	71	30	144	100	30	90	510	111
Satd. Flow (prot)	0	1851	1601	1789	1799	0	1789	1818	0	1789	1833	0
Flt Permitted		0.864		0.651			0.206			0.666		
Satd. Flow (perm)	0	1627	1601	1226	1799	0	388	1818	0	1254	1833	0
Satd. Flow (RTOR)			242		33			30			22	
Lane Group Flow (vph)	0	167	621	82	110	0	157	142	0	98	675	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8		8	4			2			6		
Total Split (s)	30.0	30.0	30.0	30.0	30.0		40.0	40.0		40.0	40.0	
Total Lost Time (s)		6.2	6.2	6.2	6.2		6.4	6.4		6.4	6.4	
Act Effct Green (s)		20.8	20.8	20.8	20.8		27.5	27.5		27.5	27.5	
Actuated g/C Ratio		0.34	0.34	0.34	0.34		0.45	0.45		0.45	0.45	
v/c Ratio		0.30	0.89	0.20	0.17		0.91	0.17		0.17	0.81	
Control Delay		18.4	29.8	17.6	12.8		70.1	9.0		11.3	23.6	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		18.4	29.8	17.6	12.8		70.1	9.0		11.3	23.6	
LOS		B	C	B	B		E	A		B	C	
Approach Delay		27.4			14.8			41.1			22.0	
Approach LOS		C			B			D			C	
Queue Length 50th (m)		15.8	47.7	7.5	6.8		17.0	7.7		6.8	65.9	
Queue Length 95th (m)		29.5	#109.0	16.7	16.8		#50.7	16.5		14.7	106.1	
Internal Link Dist (m)		84.4			131.6			1209.4			240.9	
Turn Bay Length (m)			13.0	32.0			50.0			23.0		
Base Capacity (vph)		660	793	497	750		222	1055		718	1060	
Starvation Cap Reductn		0	0	0	0		0	0		0	0	
Spillback Cap Reductn		0	0	0	0		0	0		0	0	
Storage Cap Reductn		0	0	0	0		0	0		0	0	
Reduced v/c Ratio		0.25	0.78	0.16	0.15		0.71	0.13		0.14	0.64	

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 61.6
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 26.2
Intersection LOS: C
Intersection Capacity Utilization 90.4%
ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Trunk 2 & Fall River Road/Sobeys



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	28	20	75	276	835	291
Future Volume (Veh/h)	28	20	75	276	835	291
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	22	82	300	908	316
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1530	1066	908			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1530	1066	908			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	74	92	89			
cM capacity (veh/h)	115	270	750			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1
Volume Total	30	22	82	300	1224
Volume Left	30	0	82	0	0
Volume Right	0	22	0	0	316
cSH	115	270	750	1700	1700
Volume to Capacity	0.26	0.08	0.11	0.18	0.72
Queue Length 95th (m)	7.4	2.0	2.8	0.0	0.0
Control Delay (s)	47.1	19.5	10.4	0.0	0.0
Lane LOS	E	C	B		
Approach Delay (s)	35.4		2.2		0.0
Approach LOS	E				

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	544	376	45	100	5
Future Volume (Veh/h)	5	544	376	45	100	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	591	409	49	109	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			109			
pX, platoon unblocked	0.97				0.97	0.97
vC, conflicting volume	458				1034	434
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	428				1021	403
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				57	99
cM capacity (veh/h)	1100				253	629

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	596	458	114
Volume Left	5	0	109
Volume Right	0	49	5
cSH	1100	1700	260
Volume to Capacity	0.00	0.27	0.44
Queue Length 95th (m)	0.1	0.0	16.0
Control Delay (s)	0.1	0.0	29.2
Lane LOS	A		D
Approach Delay (s)	0.1	0.0	29.2
Approach LOS			D

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	150	404	246	135	145	90
Future Volume (Veh/h)	150	404	246	135	145	90
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	163	439	267	147	158	98
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			269			
pX, platoon unblocked						
vC, conflicting volume	414				1106	340
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	414				1106	340
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	86				21	86
cM capacity (veh/h)	1145				200	702

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	163	439	414	158	98
Volume Left	163	0	0	158	0
Volume Right	0	0	147	0	98
cSH	1145	1700	1700	200	702
Volume to Capacity	0.14	0.26	0.24	0.79	0.14
Queue Length 95th (m)	3.8	0.0	0.0	41.9	3.7
Control Delay (s)	8.7	0.0	0.0	68.8	11.0
Lane LOS	A			F	B
Approach Delay (s)	2.3		0.0	46.6	
Approach LOS				E	

Intersection Summary			
Average Delay	10.5		
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	350	14	21	170	26	39
Future Volume (Veh/h)	350	14	21	170	26	39
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	380	15	23	185	28	42
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			395		618	388
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			395		618	388
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		94	94
cM capacity (veh/h)			1164		444	661

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	395	23	185	70
Volume Left	0	23	0	28
Volume Right	15	0	0	42
cSH	1700	1164	1700	552
Volume to Capacity	0.23	0.02	0.11	0.13
Queue Length 95th (m)	0.0	0.5	0.0	3.3
Control Delay (s)	0.0	8.2	0.0	12.5
Lane LOS		A		B
Approach Delay (s)	0.0	0.9		12.5
Approach LOS				B

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	29.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	71	273	95	281	60	550	435	50	40	260	82
Future Volume (vph)	91	71	273	95	281	60	550	435	50	40	260	82
Satd. Flow (prot)	0	1833	1601	1789	1834	0	1789	1855	0	1789	1816	0
Flt Permitted		0.385		0.627			0.221			0.468		
Satd. Flow (perm)	0	725	1601	1181	1834	0	416	1855	0	881	1816	0
Satd. Flow (RTOR)			231		11			10			16	
Lane Group Flow (vph)	0	176	297	103	370	0	598	527	0	43	372	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		8			4		5	2			6	
Permitted Phases	8		8	4			2			6		
Total Split (s)	35.0	35.0	35.0	35.0	35.0		29.0	65.0		36.0	36.0	
Total Lost Time (s)		6.2	6.2	6.2	6.2		4.6	6.4		6.4	6.4	
Act Effct Green (s)		26.5	26.5	26.5	26.5		53.6	51.8		22.5	22.5	
Actuated g/C Ratio		0.29	0.29	0.29	0.29		0.59	0.57		0.25	0.25	
v/c Ratio		0.84	0.47	0.30	0.68		0.97	0.50		0.20	0.81	
Control Delay		64.7	10.0	29.1	35.9		50.9	13.8		29.6	45.5	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		64.7	10.0	29.1	35.9		50.9	13.8		29.6	45.5	
LOS		E	A	C	D		D	B		C	D	
Approach Delay		30.3			34.4			33.5			43.9	
Approach LOS		C			C			C			D	
Queue Length 50th (m)		29.0	8.6	14.1	55.9		~81.2	53.8		6.2	60.6	
Queue Length 95th (m)		#69.6	31.3	29.8	93.3		#157.1	78.8		14.8	92.1	
Internal Link Dist (m)		84.4			131.6			1209.4			240.9	
Turn Bay Length (m)			13.0	32.0			50.0			23.0		
Base Capacity (vph)		232	669	377	594		617	1211		289	608	
Starvation Cap Reductn		0	0	0	0		0	0		0	0	
Spillback Cap Reductn		0	0	0	0		0	0		0	0	
Storage Cap Reductn		0	0	0	0		0	0		0	0	
Reduced v/c Ratio		0.76	0.44	0.27	0.62		0.97	0.44		0.15	0.61	

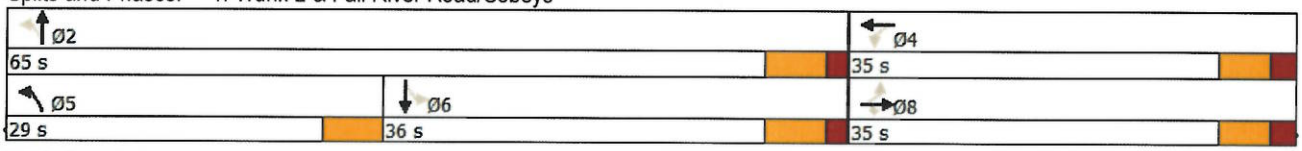
Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 91
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 34.8
Intersection LOS: C
Intersection Capacity Utilization 95.8%
ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Trunk 2 & Fall River Road/Sobeys



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	90	175	1035	308	210
Future Volume (Veh/h)	50	90	175	1035	308	210
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	98	190	1125	335	228
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1954	449	335			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1954	449	335			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	9	84	84			
cM capacity (veh/h)	59	610	1224			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1
Volume Total	54	98	190	1125	563
Volume Left	54	0	190	0	0
Volume Right	0	98	0	0	228
cSH	59	610	1224	1700	1700
Volume to Capacity	0.91	0.16	0.16	0.66	0.33
Queue Length 95th (m)	31.7	4.3	4.2	0.0	0.0
Control Delay (s)	203.8	12.0	8.5	0.0	0.0
Lane LOS	F	B	A		
Approach Delay (s)	80.1		1.2		0.0
Approach LOS	F				

Intersection Summary			
Average Delay	6.8		
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	410	728	50	30	10
Future Volume (Veh/h)	5	410	728	50	30	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	446	791	54	33	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			109			
pX, platoon unblocked	0.65				0.65	0.65
vC, conflicting volume	845				1274	818
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	492				1152	451
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				77	97
cM capacity (veh/h)	696				141	396

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	451	845	44
Volume Left	5	0	33
Volume Right	0	54	11
cSH	696	1700	168
Volume to Capacity	0.01	0.50	0.26
Queue Length 95th (m)	0.2	0.0	7.6
Control Delay (s)	0.2	0.0	33.9
Lane LOS	A		D
Approach Delay (s)	0.2	0.0	33.9
Approach LOS			D

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	45	290	498	240	125	55
Future Volume (Veh/h)	45	290	498	240	125	55
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	49	315	541	261	136	60
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			269			
pX, platoon unblocked	0.76				0.76	0.76
vC, conflicting volume	802				1084	672
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	577				950	404
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				33	88
cM capacity (veh/h)	753				204	489

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	49	315	802	136	60
Volume Left	49	0	0	136	0
Volume Right	0	0	261	0	60
cSH	753	1700	1700	204	489
Volume to Capacity	0.07	0.19	0.47	0.67	0.12
Queue Length 95th (m)	1.6	0.0	0.0	30.9	3.2
Control Delay (s)	10.1	0.0	0.0	52.2	13.4
Lane LOS	B			F	B
Approach Delay (s)	1.4		0.0	40.3	
Approach LOS				E	

Intersection Summary			
Average Delay	6.2		
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	280	29	43	360	24	35
Future Volume (Veh/h)	280	29	43	360	24	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	304	32	47	391	26	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			336		805	320
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			336		805	320
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		92	95
cM capacity (veh/h)			1223		338	721

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	336	47	391	64
Volume Left	0	47	0	26
Volume Right	32	0	0	38
cSH	1700	1223	1700	494
Volume to Capacity	0.20	0.04	0.23	0.13
Queue Length 95th (m)	0.0	0.9	0.0	3.4
Control Delay (s)	0.0	8.1	0.0	13.4
Lane LOS		A		B
Approach Delay (s)	0.0	0.9		13.4
Approach LOS				B

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	33.3%	ICU Level of Service	A
Analysis Period (min)	15		

October 13, 2021

Mr. Harrison McGrath, P.Eng.
DesignPoint Engineering & Surveying Ltd.
222 Waterfront Drive, Suite 104
Bedford, Nova Scotia, B4A 0H3 [via email: Original Redacted]

RE: Traffic Impact Study Addendum – 1109 Fall River Road, Fall River, Nova Scotia

Dear Mr. McGrath,

WSP completed a Traffic Impact Study (TIS) for the proposed development at 1109 Fall River Road in March 2019. HRM provided comments regarding the proposed development (Case #23653) on September 16, 2021 and DesignPoint Engineering & Surveying Ltd. has requested that WSP complete an addendum to the original TIS that addresses the comments.

WSP has been retained to complete an addendum that reviews the comments from HRM and includes the addition of a Nursing Home with 140 beds/units to the proposed development.

PROJECT BACKGROUND

The proposed development is planned to include 500 adult housing units and a nursing home of 140 beds/units that are accessed via a two-way driveway onto Fall River Road. The site plan has been revised since the TIS was completed and is shown in Figure 1.

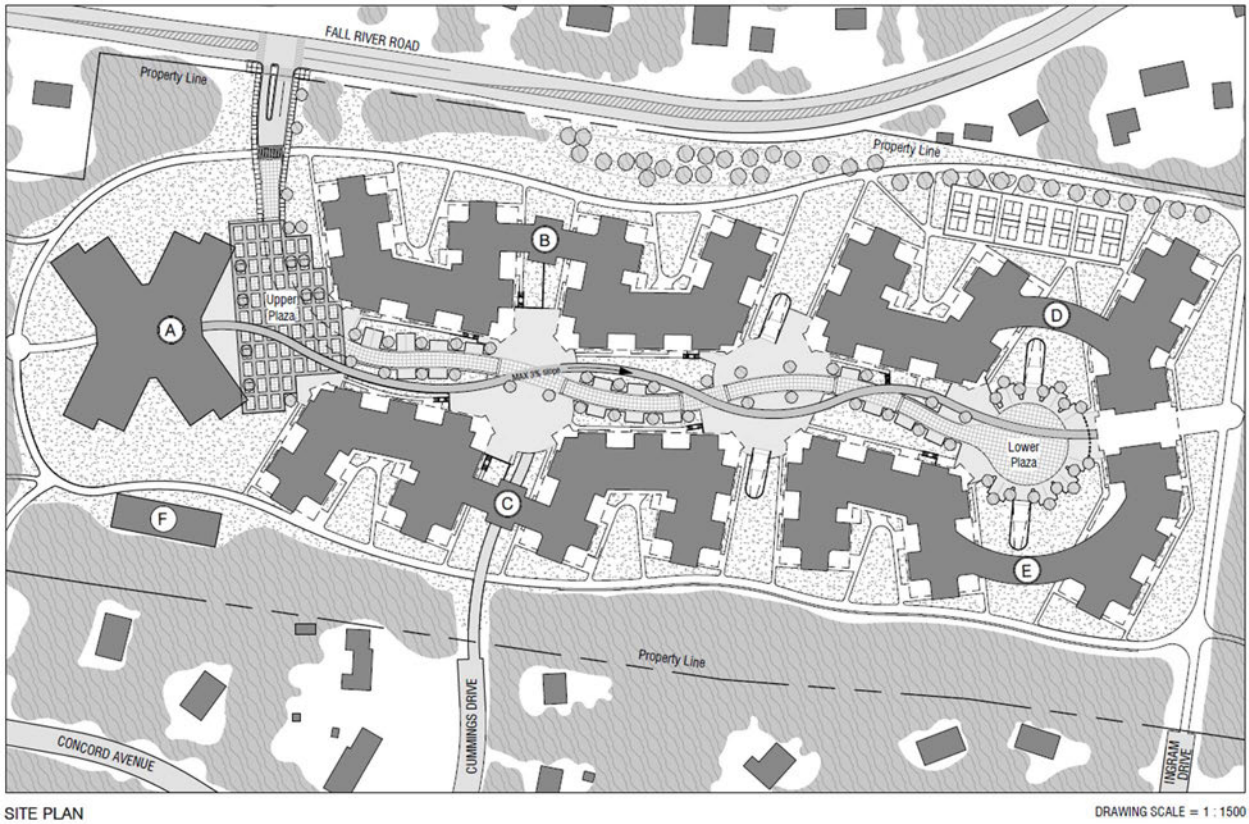


Figure 1 – Updated Site Plan

TRIP GENERATION

The projected number of trips that are expected from build-out of the development has been updated since the TIS was completed to account for an additional planned 140 bed nursing home. When using the published trip generation rates in *Trip Generation Manual, 10th Edition* (Institute of Transportation Engineers, Washington, 2017) the transportation engineer's objective should be to provide a realistic estimate of the number of trips that will be generated. The trip generation estimates for the proposed development are summarized in Table 1. It is estimated that the development will generate:

- 124 two-way trips (52 entering and 72 exiting) during the AM peak hour; and,
- 162 two-way trips (82 entering and 80 exiting) during the PM peak hour.

Table 1 – Trip Generation Estimates for the proposed development

Land Use[1]	Units[2]	Trip Generation Rates[3]				Trips Generated[3]			
		AM Peak		PM Peak		AM Peak		PM Peak	
		In	Out	In	Out	In	Out	In	Out
Senior Adult Housing - Attached (Land Use 252)	500 Units	0.07	0.13	0.14	0.12	35	65	72	59
Nursing Home (Land Use 620)	140 units	0.12	0.05	0.07	0.15	17	7	10	21
Trip Generation Estimates for Proposed Development						52	72	82	80

Notes:
1. Trip generation rates use the fitted curve equations for indicated Land Use from *Trip Generation, 10th Edition* (Institute of Transportation Engineers, Washington, 2017).
2. Units are 'number of dwelling units' and 'number of beds'.
3. Vehicles per hour per unit for rates; vehicles per hour for peak hours.

TRIP DISTRIBUTION AND ASSIGNMENT

Trips generated by the proposed development were assigned to the roadway network using the TIS percentages with this addendum focused on the Fall River Road/Trunk 2 intersection.

OPERATIONAL ANALYSIS

Intersection capacity analysis was completed to estimate how the Fall River Road at Trunk 2 intersection may be expected to operate in the future without and with the proposed development. *Synchro 11.0* software was used to evaluate the performance of the intersection and the analysis results are included in Appendix A and summarized in Table 2. HRM has requested additional discussion on the operational analysis.

HRM thresholds for v/c ratio indicate that a through movement should not exceed 0.85. As highlighted in Table 2, the eastbound left-turn/through movement during the PM peak hour without and with the development exceeds the v/c ratio through movement threshold.

The queue lengths exceed the available storage for certain movements as highlighted in Table 2. Without and with development, the queue length exceeds available storage for the eastbound left/through lane (approximately 45m) during the AM and PM peak periods, as well as the northbound left-turn movement (approximately 75m) during the PM peak period.

Table 2 – Fall River Road at Trunk 2

Analysis Criteria	Control Delay (sec/veh), v/c Ratio, and 95th %ile Queue (m) by Intersection Movement								Overall Intersection
	Fall River Road		Sobeys		Trunk 2				
	EB-LT	EB-R	WB-L	WB-TR	NB-L	NB-TR	SB-L	SB-TR	Delay
AM Peak Hour **without** Site Development (Page A-1)									
Delay	33.0	26.4	31.2	25.0	9.3	6.0	14.4	26.9	24.1
v/c	0.44	0.87	0.28	0.24	0.37	0.13	0.17	0.81	
Queue	48.1	106.5	26.4	28.4	14.8	14.0	18.2	138.6	
AM Peak Hour **with** Site Development (Page A-3)									
Delay	32.0	31.1	30.9	24.5	13.4	5.9	14.8	31.7	27.1
v/c	0.41	0.90	0.26	0.23	0.52	0.13	0.18	0.85	
Queue	49.0	126.3	26.5	28.8	19.4	14.0	18.2	139.0	
PM Peak Hour **without** Site Development (Page A-2)									
Delay	74.0	5.6	30.2	37.4	35.7	13.4	32.2	51.9	32.7
v/c	0.88	0.41	0.30	0.70	0.87	0.50	0.21	0.85	
Queue	70.6	17.5	29.8	94.4	138.9	79.9	15.7	106.2	
PM Peak Hour **with** Site Development (Page A-4)									
Delay	83.2	5.7	30.5	38.1	45.9	13.3	32.1	52.8	35.6
v/c	0.92	0.46	0.31	0.70	0.94	0.49	0.21	0.85	
Queue	72.8	18.8	29.8	94.7	162.7	79.9	15.7	107.4	

MITIGATIVE MEASURES

The study intersection of Fall River Road at Trunk 2 is expected to experience delays, exceed the v/c ratio as per HRM guidelines for certain movements as described and have long queues that spill over from the left-turn storage lanes without the development. With the addition of the development, the issues that the intersection is experiencing are increased slightly.

The mitigative measures for the study intersection that HRM should further investigate may include:

- Adding a second northbound left-turn lane, which would impact the alignment through the intersection, the north leg would need to be reconstructed and may impact the southbound left-turn lane into Shoppers driveway access.
- Increasing the eastbound left-turn lane length
- Replacing the signalized intersection with a roundabout

There are two ongoing highway projects that are currently under construction that may reduce the number of vehicles on Trunk 2 or Fall River Road, they are Highway 107 extension and the Aerotech Connector. Completion of Highway 107 will provide another access route for traffic from Fall River Road to Dartmouth and the Burnside areas. Highway 107 is expected to reduce traffic volumes from Fall River Road to the south on Trunk 2. Aerotech Connector is expected to reduce the through volume on Trunk 2 through the Fall River Road intersection, as traffic generated north of Fall River Road will have a new connection to Highway 102. The Aerotech Connector Traffic Study (Opus/Griffin, February 2015) was completed and it noted that a 10% diversion during peak hours of traffic moving between Fall River and Exit 5 will divert to Exit 5A.

When the connections are open, it is recommended that HRM monitor and review the traffic volumes to continue planning needs for the study intersection.

SUMMARY

1. WSP completed a Traffic Impact Study (TIS) for the proposed development at 1109 Fall River Road in March 2019. WSP has been retained to complete an addendum that reviews the comments from HRM and includes the addition of a Nursing Home with 140 beds/units to the proposed development.

2. Trip generation estimates for the proposed development were prepared using rates published in *Trip Generation, 10th Edition* (Institute of Transportation Engineers, Washington 2017).

   It is estimated that the development will generate:
   - 124 two-way trips (52 entering and 72 exiting) during the AM peak hour; and,
   - 162 two-way trips (82 entering and 80 exiting) during the PM peak hour.

3. The study intersection is expected to operate over capacity for the eastbound left-turn/through movement during the AM and PM peak hours without and with the development. The queue length for the eastbound and northbound left-turn storage lanes are exceeded in the PM peak hour without and with the development.

4. The construction of the two nearby highway projects, may reduce the vehicle volumes on Trunk 2 and/or Fall River Road.

CONCLUSION

5. While the intersection at Fall River Road at Trunk 2 experiences delay in queuing during peak periods, site generated traffic is not expected to have a significant impact to the overall operation of the intersection.

6. When Highway 107 and the Aerotech Connector are open, it is expected that the vehicle volumes would be reduced at the study intersection and therefore the delays be reduced. It is recommended that HRM monitor and review the traffic volumes to continue planning needs for the study intersection.

If you have any questions or comments, please contact me by email at courtney.mccarthy@wsp.com or by telephone at 902-536-0982.

Sincerely,

Original Redacted

Courtney McCarthy, P.Eng.
Traffic & Transportation Engineer
WSP Canada Inc

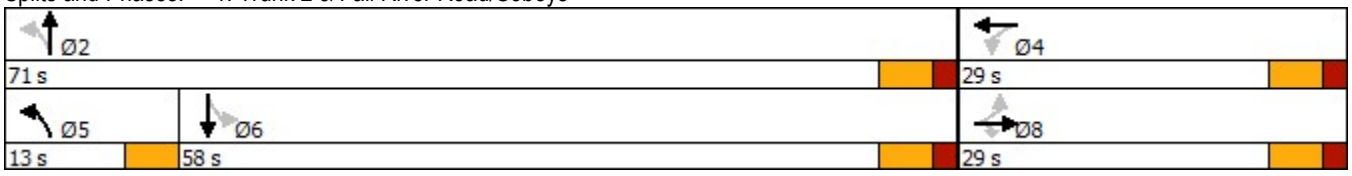
APPENDIX A – OPERATIONAL ANALYSIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	100	545	75	70	30	125	100	30	90	520	115
Future Volume (vph)	55	100	545	75	70	30	125	100	30	90	520	115
Satd. Flow (prot)	0	1851	1601	1789	1799	0	1789	1818	0	1789	1833	0
Flt Permitted		0.846		0.648			0.163			0.666		
Satd. Flow (perm)	0	1593	1601	1220	1799	0	307	1818	0	1254	1833	0
Satd. Flow (RTOR)			387		20			31			17	
Lane Group Flow (vph)	0	169	592	82	109	0	136	142	0	98	690	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		8			4		5	2			6	
Permitted Phases	8		8	4			2			6		
Total Split (s)	29.0	29.0	29.0	29.0	29.0		13.0	71.0		58.0	58.0	
Total Lost Time (s)		6.0	6.0	6.0	6.0		4.0	6.0		6.0	6.0	
Act Effct Green (s)		19.0	19.0	19.0	19.0		47.6	45.4		36.0	36.0	
Actuated g/C Ratio		0.24	0.24	0.24	0.24		0.61	0.58		0.46	0.46	
v/c Ratio		0.44	0.87	0.28	0.24		0.37	0.13		0.17	0.81	
Control Delay		33.0	26.4	31.2	25.0		9.3	6.0		14.4	26.9	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		33.0	26.4	31.2	25.0		9.3	6.0		14.4	26.9	
LOS		C	C	C	C		A	A		B	C	
Approach Delay		27.9			27.7			7.6			25.4	
Approach LOS		C			C			A			C	
Queue Length 50th (m)		22.3	30.5	10.3	11.0		8.4	7.3		9.4	95.4	
Queue Length 95th (m)		48.1	#106.5	26.4	28.4		14.8	14.0		18.2	138.6	
Internal Link Dist (m)		105.2			81.9			1211.6			240.9	
Turn Bay Length (m)				32.0			75.0			23.0		
Base Capacity (vph)		524	786	401	605		378	1472		859	1261	
Starvation Cap Reductn		0	0	0	0		0	0		0	0	
Spillback Cap Reductn		0	0	0	0		0	0		0	0	
Storage Cap Reductn		0	0	0	0		0	0		0	0	
Reduced v/c Ratio		0.32	0.75	0.20	0.18		0.36	0.10		0.11	0.55	

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 77.7
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 24.1 Intersection LOS: C
Intersection Capacity Utilization 88.9% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Trunk 2 & Fall River Road/Sobeys

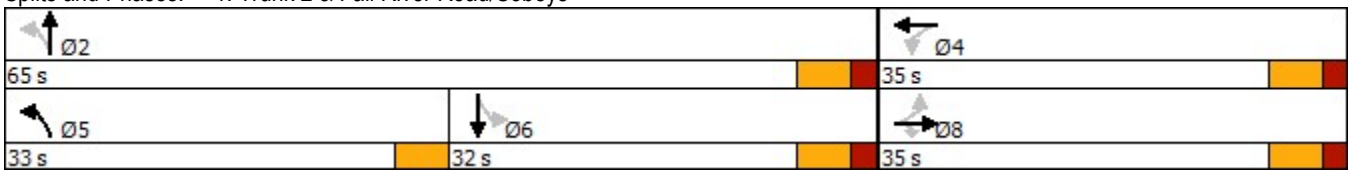


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	70	245	95	285	60	520	445	50	40	265	80
Future Volume (vph)	90	70	245	95	285	60	520	445	50	40	265	80
Satd. Flow (prot)	0	1833	1601	1789	1834	0	1789	1855	0	1789	1818	0
Flt Permitted		0.366		0.622			0.195			0.464		
Satd. Flow (perm)	0	689	1601	1172	1834	0	367	1855	0	874	1818	0
Satd. Flow (RTOR)			266		11			10			15	
Lane Group Flow (vph)	0	174	266	103	375	0	565	538	0	43	375	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		8			4		5	2			6	
Permitted Phases	8		8	4			2			6		
Total Split (s)	35.0	35.0	35.0	35.0	35.0		33.0	65.0		32.0	32.0	
Total Lost Time (s)		6.0	6.0	6.0	6.0		4.0	6.0		6.0	6.0	
Act Effct Green (s)		26.8	26.8	26.8	26.8		55.9	53.9		22.0	22.0	
Actuated g/C Ratio		0.29	0.29	0.29	0.29		0.60	0.58		0.24	0.24	
v/c Ratio		0.88	0.41	0.30	0.70		0.87	0.50		0.21	0.85	
Control Delay		74.0	5.6	30.2	37.4		35.7	13.4		32.2	51.9	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		74.0	5.6	30.2	37.4		35.7	13.4		32.2	51.9	
LOS		E	A	C	D		D	B		C	D	
Approach Delay		32.6			35.9			24.8			49.8	
Approach LOS		C			D			C			D	
Queue Length 50th (m)		31.6	0.0	15.3	61.9		76.7	54.8		6.5	64.9	
Queue Length 95th (m)		#70.6	17.5	29.8	94.4		#138.9	79.9		15.7	#106.2	
Internal Link Dist (m)		105.2			81.9			1211.6			240.9	
Turn Bay Length (m)				32.0			75.0			23.0		
Base Capacity (vph)		218	690	372	590		672	1202		249	528	
Starvation Cap Reductn		0	0	0	0		0	0		0	0	
Spillback Cap Reductn		0	0	0	0		0	0		0	0	
Storage Cap Reductn		0	0	0	0		0	0		0	0	
Reduced v/c Ratio		0.80	0.39	0.28	0.64		0.84	0.45		0.17	0.71	

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 92.9
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 32.7 Intersection LOS: C
Intersection Capacity Utilization 93.3% ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Trunk 2 & Fall River Road/Sobeys

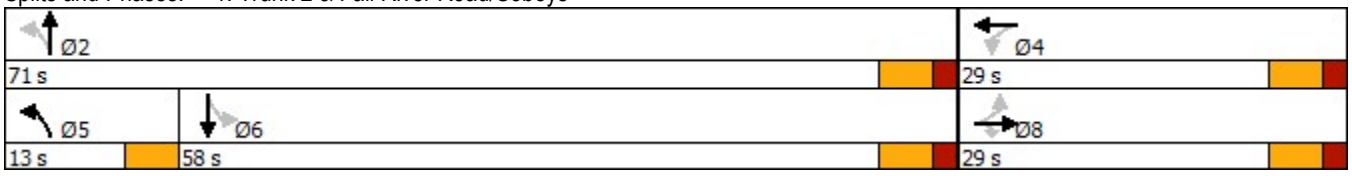


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	101	585	75	71	30	153	100	30	90	520	116
Future Volume (vph)	57	101	585	75	71	30	153	100	30	90	520	116
Satd. Flow (prot)	0	1850	1601	1789	1799	0	1789	1818	0	1789	1833	0
Flt Permitted		0.846		0.633			0.134			0.666		
Satd. Flow (perm)	0	1593	1601	1192	1799	0	252	1818	0	1254	1833	0
Satd. Flow (RTOR)			387		20			31			17	
Lane Group Flow (vph)	0	172	636	82	110	0	166	142	0	98	691	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		8			4		5	2			6	
Permitted Phases	8		8	4			2			6		
Total Split (s)	29.0	29.0	29.0	29.0	29.0		13.0	71.0		58.0	58.0	
Total Lost Time (s)		6.0	6.0	6.0	6.0		4.0	6.0		6.0	6.0	
Act Effct Green (s)		21.9	21.9	21.9	21.9		51.6	49.6		36.6	36.6	
Actuated g/C Ratio		0.26	0.26	0.26	0.26		0.62	0.59		0.44	0.44	
v/c Ratio		0.41	0.90	0.26	0.23		0.52	0.13		0.18	0.85	
Control Delay		32.0	31.1	30.9	24.5		13.4	5.9		14.8	31.7	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		32.0	31.1	30.9	24.5		13.4	5.9		14.8	31.7	
LOS		C	C	C	C		B	A		B	C	
Approach Delay		31.3			27.2			10.0			29.6	
Approach LOS		C			C			A			C	
Queue Length 50th (m)		22.9	40.9	10.4	11.3		10.4	7.3		9.4	95.7	
Queue Length 95th (m)		49.0	#126.3	26.5	28.8		19.4	14.0		18.2	139.0	
Internal Link Dist (m)		105.2			81.9			1211.6			240.9	
Turn Bay Length (m)				32.0			75.0			23.0		
Base Capacity (vph)		449	729	336	521		324	1437		799	1174	
Starvation Cap Reductn		0	0	0	0		0	0		0	0	
Spillback Cap Reductn		0	0	0	0		0	0		0	0	
Storage Cap Reductn		0	0	0	0		0	0		0	0	
Reduced v/c Ratio		0.38	0.87	0.24	0.21		0.51	0.10		0.12	0.59	

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 83.8
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 27.1 — Intersection LOS: C
Intersection Capacity Utilization 91.5% — ICU Level of Service F
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Trunk 2 & Fall River Road/Sobeys

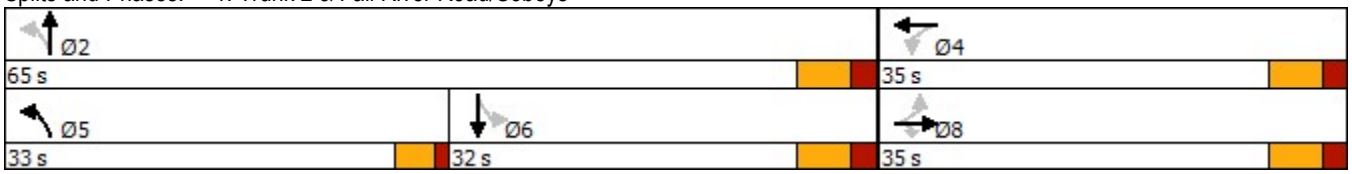


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	71	290	95	286	60	566	445	50	40	265	82
Future Volume (vph)	92	71	290	95	286	60	566	445	50	40	265	82
Satd. Flow (prot)	0	1833	1601	1789	1834	0	1789	1855	0	1789	1818	0
Flt Permitted		0.357		0.613			0.189			0.464		
Satd. Flow (perm)	0	672	1601	1155	1834	0	356	1855	0	874	1818	0
Satd. Flow (RTOR)			315		11			10			15	
Lane Group Flow (vph)	0	177	315	103	376	0	615	538	0	43	377	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		8			4		5	2			6	
Permitted Phases	8		8	4			2			6		
Total Split (s)	35.0	35.0	35.0	35.0	35.0		33.0	65.0		32.0	32.0	
Total Lost Time (s)		6.0	6.0	6.0	6.0		4.0	6.0		6.0	6.0	
Act Effct Green (s)		27.3	27.3	27.3	27.3		57.7	55.7		22.5	22.5	
Actuated g/C Ratio		0.29	0.29	0.29	0.29		0.61	0.59		0.24	0.24	
v/c Ratio		0.92	0.46	0.31	0.70		0.94	0.49		0.21	0.85	
Control Delay		83.2	5.7	30.5	38.1		45.9	13.3		32.1	52.8	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		83.2	5.7	30.5	38.1		45.9	13.3		32.1	52.8	
LOS		F	A	C	D		D	B		C	D	
Approach Delay		33.5			36.5			30.7			50.7	
Approach LOS		C			D			C			D	
Queue Length 50th (m)		32.7	0.0	15.4	62.3		91.5	54.8		6.5	65.4	
Queue Length 95th (m)		#72.8	18.8	29.8	94.7		#162.7	79.9		15.7	#107.4	
Internal Link Dist (m)		105.2			81.9			1211.6			240.9	
Turn Bay Length (m)				32.0			75.0			23.0		
Base Capacity (vph)		206	709	354	570		655	1161		240	510	
Starvation Cap Reductn		0	0	0	0		0	0		0	0	
Spillback Cap Reductn		0	0	0	0		0	0		0	0	
Storage Cap Reductn		0	0	0	0		0	0		0	0	
Reduced v/c Ratio		0.86	0.44	0.29	0.66		0.94	0.46		0.18	0.74	

Intersection Summary

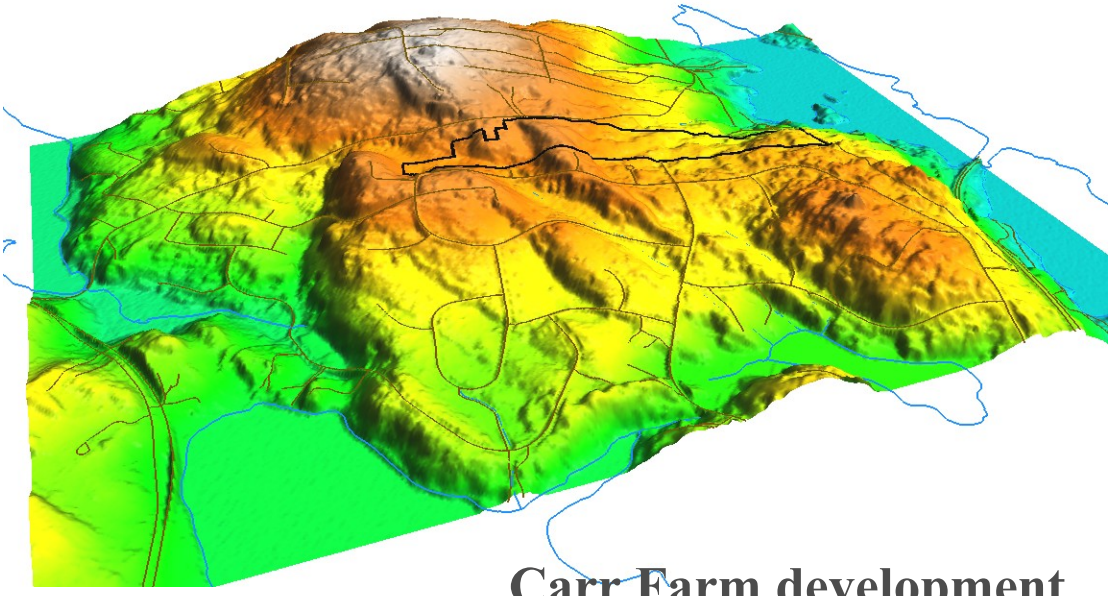
Cycle Length: 100
Actuated Cycle Length: 95.1
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 35.6 Intersection LOS: D
Intersection Capacity Utilization 96.1% ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Trunk 2 & Fall River Road/Sobeys



August 2021

Project 164UC01



Carr Farm development net phosphorus export assessment, Fall River, Nova Scotia

Prepared for:
Vision 7 Developments Ltd.

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Report disclaimer

This report was prepared for the sole benefit of Vision 7 Developments Ltd. for the purpose of defining model-derived estimates of the net phosphorus export from the construction area of a proposed new development off of Fall River Road in Fall River, NS. This report cannot be used for any other purpose for by any other person or entity without the express written consent of earth-water Concepts inc., and Vision 7 Development Ltd.

The work and interpretations in this report are based solely on desktop evaluations and and other data available at the time work was carried out. The data and interpretations presented in this report are based solely on the conditions present and data available when the work was performed. There are levels of uncertainty adherent to any desktop assessment of this sort which are subject to change as different information becomes available. Data obtained for this assessment represent conditions about a limited area surrounding the subject site and as such, the information obtained can be expected to be variable with respect to location and time. This work is specific to the site, conditions and land use considerations described herein, and cannot be used or applied under any circumstances to a location and situation that has not been specifically outlined.

The information presented in this report is based upon work undertaken according to sound geoscience practices by trained professional and technical staff under a set scope of work and budget. Should future investigations provide information which supplements or differs from the information presented in this report, we request to be notified and permitted to reassess the results and interpretations provided herein.

Original Signed

Richard P. Gagné, P.Geo., FGC
Sr. Hydrogeologist/Hydrologist
earth-water Concepts inc.

1. Introduction

Vision 7 Developments Ltd. has contracted the services of earth-water Concepts inc. to assess the net phosphorus (P) loading and export potential for the proposed Carr Farm development located off the Fall River Road in Fall River, Nova Scotia.

1.1 Purpose and scope of work

The Halifax Regional Municipality (HRM) has implemented phosphorus control measures within the HRM Regional Plan's River-lakes Secondary Planning Strategy (ref. The Shubenacadie Lake system) to minimize phosphorus export during new development.

The goal of the Planning Strategy is to achieve no net-increase of phosphorus export as a result of new development within the plan area. If there is a potential that a development will increase the net phosphorus load exported from an area, then mitigation measures are to be implemented to reduce phosphorus loads by treating wastewater from on-site septic systems (where such exist) and/or stormwater via natural stormwater management.

To this end, HRM requires a Phosphorus Net Loading Study to determine if the proposed Carr Farm development will export any greater amount of phosphorus into Lake Thomas from the site during or after the construction than the amount determined to be leaving the subject property area as shown shown on Schedule O of the HRM Case 20594 documentation prior to the development taking place.

The scope of work for this assessment was to estimate the potential land-based phosphorus exports from the Carr Farm development directly into Lake Thomas before, during, and after construction.

2. Project description

The proposed development will be a 55+ community of independent style housing units. The site, known locally as the Old Carr Farm property, has frontage on and access from Fall River Road. The centroid for the construction area of the development is approximately at UTM 450550E/4961580N[1].

The development will included five 4-storey multiple unit buildings, visitor-only outdoor parking, and a multipurpose building for social gathering and health promotion. The buildings will each comprise two wings with connecting walkway colonnades and indoor tenant parking, which goal is to reduce total footprint, environmental impact, and phosphorus loading export from the site.

The development will be serviced by central water from Halifax Water, on-site stormwater systems, and an on-site sewage treatment plant with piped discharge into Lake Thomas that will meet all regulatory requirements.

The site design will incorporate non-disturbance buffer zones (proposed parkland) at the down-gradient parts of the property to mitigate against the off-site transport of phosphorus, and advanced stormwater

1. Unless noted otherwise, all coordinates and elevations and all maps presented in this report are in reference to UTM datum NAD 83 CSRS Zone 20 and vertical datum CGVD28.

treatment technologies will be incorporated into the design to further satisfy the net no phosphorus increase from the site.

To further reduce phosphorus loading export, all underground parking and building pads, buried services, and roads will be constructed at one time so soils are disturbed only once. Then the above-ground parts of the buildings will be constructed in phases on a site that has in large part been stabilized.

3. Phosphorus concerns

The concern with phosphorus is as a nutrient in aquatic systems which, along with nitrogen, can result in the eutrophication of lakes. Man made eutrophication, in the absence of control measures, can proceed at an accelerated rate compared to the natural phenomenon and is one of the main forms of urban water pollution.

The resultant increase in fertility in affected lakes, reservoirs, and slow-flowing rivers causes symptoms such as algal blooms, heavy growth of rooted aquatic plants, algal mats, reduced water oxygenation, and unpleasant odour, which can affect most of the vital uses of the water, such as water supply, recreation, fisheries, and aesthetics.

Phosphorus may enter a water body through inflows, precipitation, dry fallout, and from lake-bottom sediments. It may be removed by sedimentation and through outflow.

Total phosphorus (TP), and not other phosphorus species, is considered the key variable for practical rather than theoretical reasons. TP includes some or all of the following fractions: crystalline, occluded, absorbed, particulate organic, soluble organic, and soluble inorganic phosphorus (Vokey, 1998). Of these fractions, the three biologically available forms in order of deceasing availability are soluble reactive phosphorus (a mixture of dissolved inorganic and organic species), soluble unreactive phosphorus, and labile phosphorus (associated with soil particles).

However, the term biologically available phosphorus remains somewhat vague because it describes a mixture of phosphorus fractions of different availability. The sources that should be considered as priorities in nutrient control measures, in order of decreasing biological availability, are:

Highest	**to**	***Lowest***
Urban sewage plus certain industrial effluents	→	***Erosional runoff and leaching from forests and agricultural areas***

The largest terrestrial source of phosphorus is the weathering of exposed bedrock (Poltarowicz, 2017). Physical weathering produces particulate phosphorus bound to minerals that can erode directly into rivers or become part of the soil phosphorus reservoir, the second largest phosphorus reservoir (defined as soil < 60 cm deep).

Chemical weathering produces dissolved phosphorus, which can directly flow into river systems or enter the soil reservoir to be taken up by land plants. This land biota reservoir phosphorus can then eventually make its way into river systems as detritus, or it can internally cycle between the soil and

land plant reservoirs as organisms die, decompose, and the resulting nutrients get taken up again by new plants.

Impervious surfaces, which dominate urban landscapes, can contribute to phosphorus flux to aquatic systems from the accumulation of anthropogenically-sourced phosphorus-containing matter between rainfall events. Examples include construction sediment, lawn fertilizer, solid waste, and animal fecal matter. Studies (Riemersma et al, 2006) have reported that dustfall and precipitation may also accounted for 3.1 to 4.5% of phosphorus loading to lake systems.

3.1 Phosphorus loading models

Researchers in Ontario developed the first reliable and easily applicable phosphorus loading model in the early 1970's (Scott et al, 2003) that used such data as watershed size, lake surface area, rainfall depth, land use (forestry, farming, wetlands, etc.), and the number of households or institutions that use fertilizers or discharge sewage into the soils and water of the watershed.

These models typically employ phosphorus export coefficients (usually expressed as g/m^2/yr or kg/ha/yr), which is the amount of phosphorus carried off-site or into a lake by surface water runoff from the various natural environments and/or land use situations being modelled. However, export coefficients can vary depending on a number of factors unless they have been measured in the watershed being modelled. So the choice of the most appropriate coefficient(s) to use remains somewhat subjective (Brylinsky, 2004), and it is very important to attempt to match climate, geology, soil and vegetation type as closely as possible when estimates are based on studies that have been carried out in other watershed areas.

3.2 Factors that can affect phosphorus export coefficients

The following are but a few of the many factors that must be considered when selecting phosphorus export coefficients for any given area (Brylinsky (2004), Riemersma et al (2006):

Climate:

- Warm climates with high rainfall have higher export coefficients than those with colder, dryer climates.
- The amount, intensity and duration of precipitation have a large influence on phosphorus export coefficients.

Geology and Soil Types:

- Sandy soils overlying granitic igneous formations tend to have high nutrient export.
- Loamy soils contain more nutrients and are more subject to erosion than sandy and gravely soils and tend to have higher export coefficients.
- Clay soils are highly erosive, have poor water infiltration and a high capacity to adsorb phosphorus which results in high export.
- Organic soils have high nutrient contents, poor infiltration capacity, limited phosphorus retention capacity and high export.

Forestry:

- Relative to other land uses, phosphorus export from forests is generally low, on the order of 0.001 to 0.015 gm/m^2/yr.
- Forested watersheds with sandy soils overlying granitic igneous formations export about one-half the phosphorus than do forested watersheds with loamy soils overlying sedimentary formations.
- Deforested watersheds have high export of phosphorus.
- Young (<5 years old) forests have relatively high phosphorus export.

Cultivated Lands:

- Phosphorus export from cultivated lands tends to be very high and variable.
- Heavily fertilized or manured lands, particularly if over-fertilized, have high phosphorus export, but this is reduced considerably if the fertilizer or manure is worked into the soil shortly after application.
- Pasture and grazing land, if overgrazed or fertilized, export high amounts of nutrients.
- Unimproved grassland areas tend to have low export values, compared to cultivated land, with the majority of losses occurring during snow-melt runoff.
- Feedlots, especially if uncovered and exposed to precipitation, have high phosphorus export

Urbanization:

- Urban run off tends to export high amounts of phosphorus and, since it is often channelled into storm drains, may contain discharges originating from more than one watershed

4. Site characterization

As was noted earlier, the Carr Farm property is located at about the 1100 civic address block of Fall River Road, in Fall River, Nova Scotia. The centroid of the area where buildings are proposed to be constructed is approximately at UTM 450550E/4961580N. The following is a description of the physical characteristics of the development property.

4.1 Site size and topography

The map in Figure 1 shows the regional topography, area roads, major water bodies, and location of the proposed development.

The development site, which boundaries are shown as red lines in Figure 1, encompass an area of approximately 200,890 m^2. However, most of that area will be left as natural, undisturbed forest. So except for a small sewage treatment plant building, which is proposed to be built near Waterview Drive, only about 32.8% of the property, or approximately 65,860 m^2, is proposed to be cleared for development.

Of that cleared construction area, only about 50,335 m^2 (roughly 76.4% of the cleared area which encompasses buildings B, D, E and ¾ of C), or about 25% of the total property) falls within sub-watershed 1DG-1-DD that

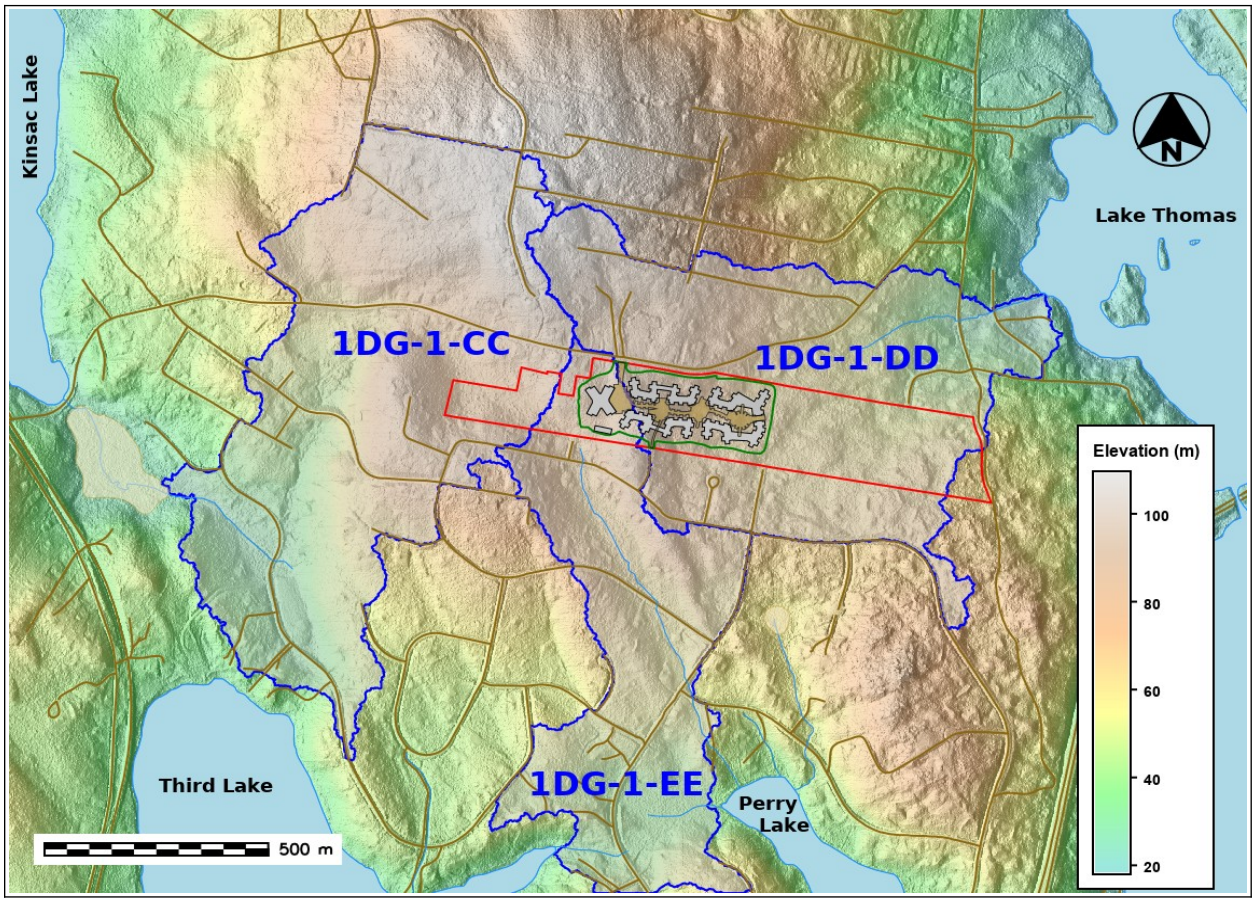

Figure 1. Location map showing the regional topography, geographic features, local sub-watersheds, the property boundaries (red line), the area that is proposed to be cleared for development (green line), and the location of the sewage line proposed to discharge treated effluent into Lake Thomas (orange line).The culverts incorporated into the DEM to hydraulically correct it are shown as short red lines beneath roadways.

drains directly into Lake Thomas[2]. The rest of the area to be cleared (which includes ¼ of building C and all of building A) is in sub-watershed 1DG-1-EE, which drains south into Third Lake. The rest of the property west of building A, which will not be disturbed, is in sub-watershed 1DG-1-CC, which drains west via a wetland into Kinsac Lake.

Ground surface elevations within the overall development boundaries (red line in Figure 1) range from 49.03 m to 86.75 m, and average 68.74 m. Within the cleared area (green line in Figure 1), existing ground surface elevations range from 65.53 m to 86.75 m, and average 76.31. These elevation values were taken from the 1-m horizontal resolution LiDAR-based digital elevation model (DEM) provided by HRM.

2. The mapping area in Figure 1 was carefully scrutinized to confirm that site drainage is indeed into Third Lake, and not into Perry Lake, which discharges directly into Lake Thomas. Even though published maps show a small stream that appears to drain into Perry Lake, there is a narrow ridge of high land just west of the lake that defines a watershed divide, with Perry Lake receiving water from perhaps only approximately 30 m of stream west of the lake.

4.2 Land use and vegetation

The NS Forest Inventory database (NSDNR, 2006) classifies the land in the western part of the development property as urban, and the land-use in the eastern third as forest comprised of about 9% red and black spruce and 1% other softwood mixed forest. However, recent air photos and Google road-view images show the site to be nearly all covered by mixed hardwood/softwood forest, with only a couple of rural-urban type land-use areas located within the area (green line in Figure 1) that is slated to be cleared.

Based on air photos, approximately 7,466 m^2 (or roughly 12%) of the area that is slated to be cleared is rural-urban, consisting of a church, what appears to be the former Carr Farm home, plus a few other farm buildings.

4.3 Soil cover

4.3.1 A and B soil horizons

The A and B soil horizons across the whole site are shown by MacDougall et al (1963) as soil map unit NSNSD125Bw/C-2, identified as the Bridgewater soil series. It is a brown shaly loam over yellowigh-brown shaly loam that is typically less than 45 cm thick (5 cm for A horizon, and 40 cm for the B horizon).

MacDougall et al (1963) state that it has good drainage, its parent material consists of slates and related tills, and is well suited for forest production, with low levels of fertility.

4.3.2 C soil horizon

Figure 2 shows the local distribution of the mineral soil horizon, its legend showing only the horizons of relevance to the site. No test pits were advanced from which to identify or confirm the types, distribution, or thickness of the C horizon facies on-site, although bedrock was encountered in water line trenches and is exposed locally in ditches.

Utting (2011) shows exposed bedrock and/or thin soil cover in the north half of Figure 2, hummocky till in the south part of the map area, and a drumlin forming the surface water divide on-site between sub-watersheds 1DG-1-DD and 1DG-1-EE. He suggests a core for the drumlin of Hartlen Till that is overlain by Lawrencetown Till or Beaver River Till (likely Lawrencetown Till), but does not specify whether the Lawrencetown Till or the Beaver River Till facies are present in the south part of Figure 2.

Stea and Fowler (1981) show that the thin bedrock cover in the north part of Figure 2 is comprised of Slate Till facies, and they show the south part of the map area as being comprised of Quartzite Till. Stea et al (2006) identify the south part of the map area as consisting of Stony Till Plain (Ground Moraine), which is a stony, sandy matrix material derived from local bedrock sources – it is likely also Lawrencetown Till.

Utting (2011) does not give any indications of till depth locally, but Stea and Fowler (1981) suggest that regionally the above tills may range in thickness from 1-10 m (average 3 m), with the drumlin facies ranging from 2-20 m in thickness.

The following paragraphs describe the above-noted four tills in stratigraphic order from oldest to youngest.

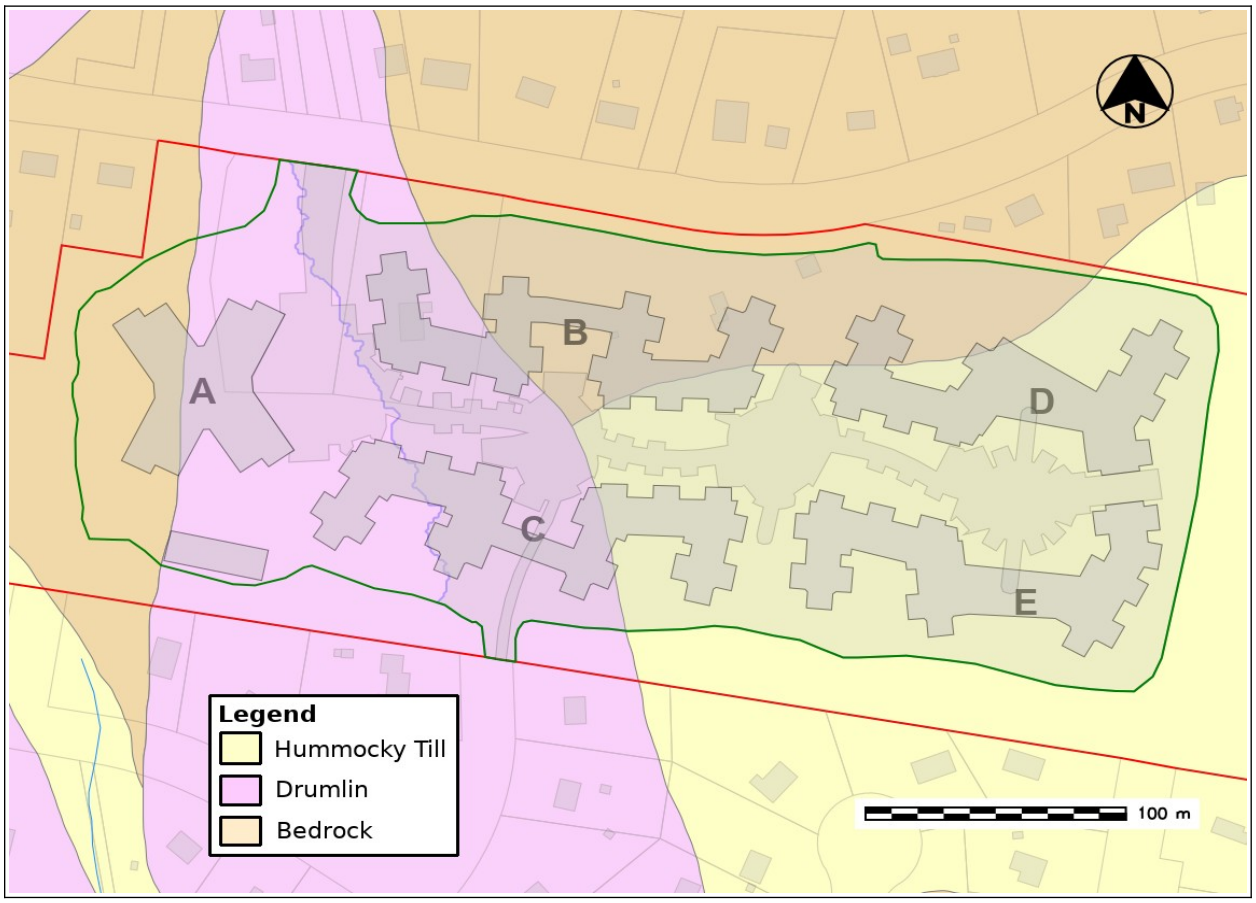

Figure 2. Surcial geology (Utting, 2011). Proposed building/road footprints shaded grey.

The Hartlen Till is described by Stea and Fowler (1981) and Utting (2011) as a medium bluish grey to greyish brown, to dark grey, noncalcareous, fissile and massive diamicton with compact clayey silt matrix, sometimes with fluvial inclusions. The clay fractions are dominated by illite. It contains predominantly locally derived clasts (Meguma slates and greywacke), with a smaller component of allochthonous clasts (6-15%) than in the Lawrencetown Till.

Stea and Fowler (1981) and Finck and Graves (1987) describe the Lawrencetown Till as a moderately compact, noncalcareous, cohesive, moderate brown till, which matrix may be massive, though horizontal fluvial inclusions and fissility are common. This till may include facies gradation from brown, compact silt-sand till to reddish, moderately compact mud till. The sandy till matrix is generally comprised of 50% sand, 35% silt, and 15% clay. The mud till matrix is usually comprised of 25% sand, 50% silt, and 25% clay, with the matrix to clast ratio being high (clasts are often less than 5% of the till). This till may contain up to 80% locally derived clasts, although it (particularly the drumlin facies) may contain 10-30% allochthonous components (10-70 km transport) that range in size form pebbles to boulders.

The Beaver River Till is described by Utting (2011) as a diamicton with sandy matrix and

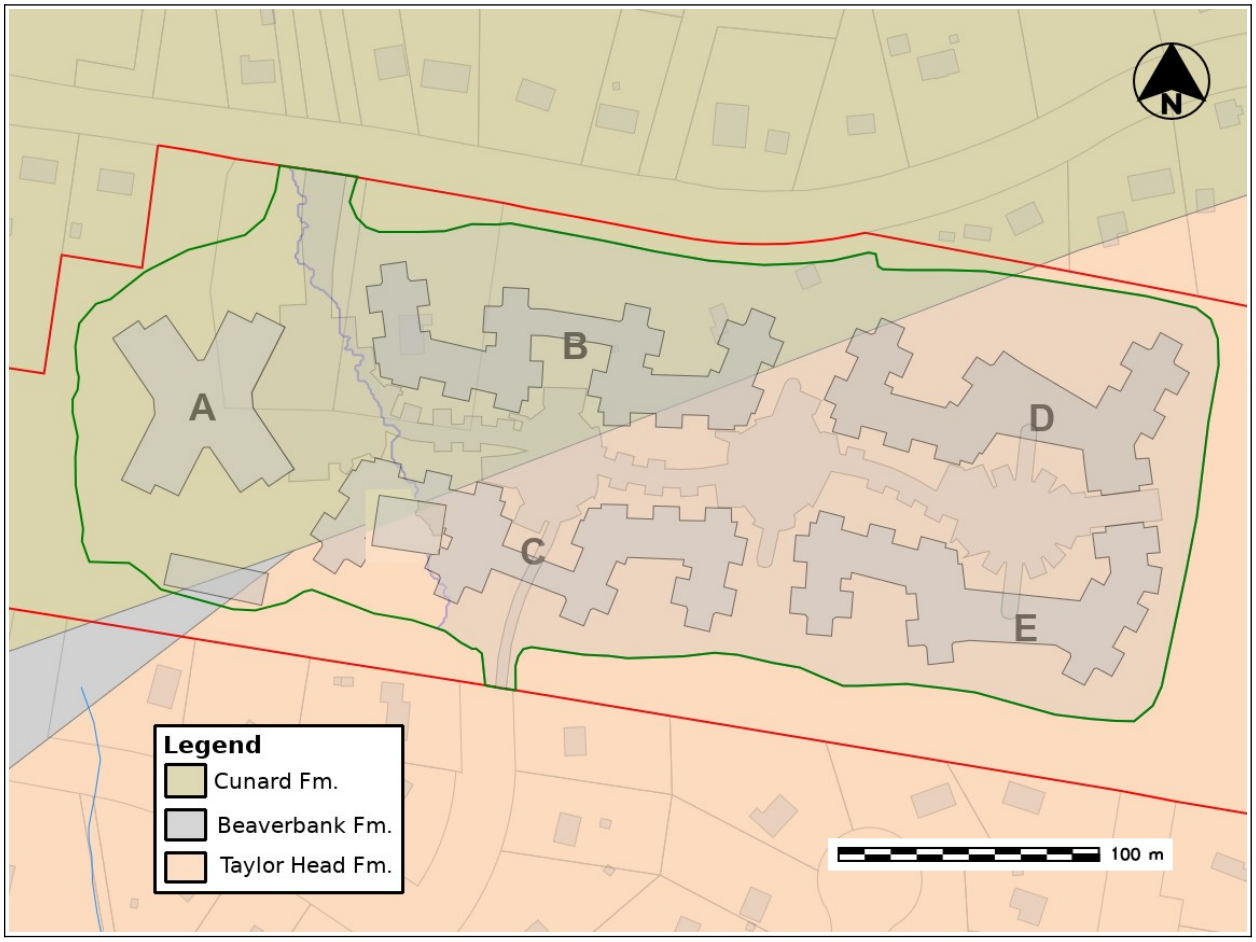

Figure 3. Bedrock geology (Horne et al, 2009). Proposed building/road footprints shaded grey.

locally derived clasts. It is a hybrid till (Stea and Finck, 2001) that surrounds and occasionally covers Lawrencetown Till drumlins. The older Lawrencetown Till (or any other older till) has acted as a source for material reworked into the hydbrid facies of the Beaver River Till, which has inherited some red silt and clay (as inclusions or spread through the matrix) and foreign lithologies from the parent Lawrencetown Till covers.

The Slate Till, which may be of similar age to the Beaver River Till, is described by Stea and Fowler (1981) as an olive brown diamicton with a clay matrix and loose angular pebble-size clasts. The materials are derived from the underlying slate bedrock.

4.4 Bedrock

Figure 3 shows the bedrock geology that underlies the construction portion of the Carr Farm development site.

4.4.1 Bedrock stratigraphy and origin

The Carr Farm property and environs are underlain by the Meguma, the most outboard terrane of the Canadian Appalachians, and has no clear correlative elsewhere in the Appalachian-Caledonian orogen Waldron et al, 2009). Its origin has been controversial,

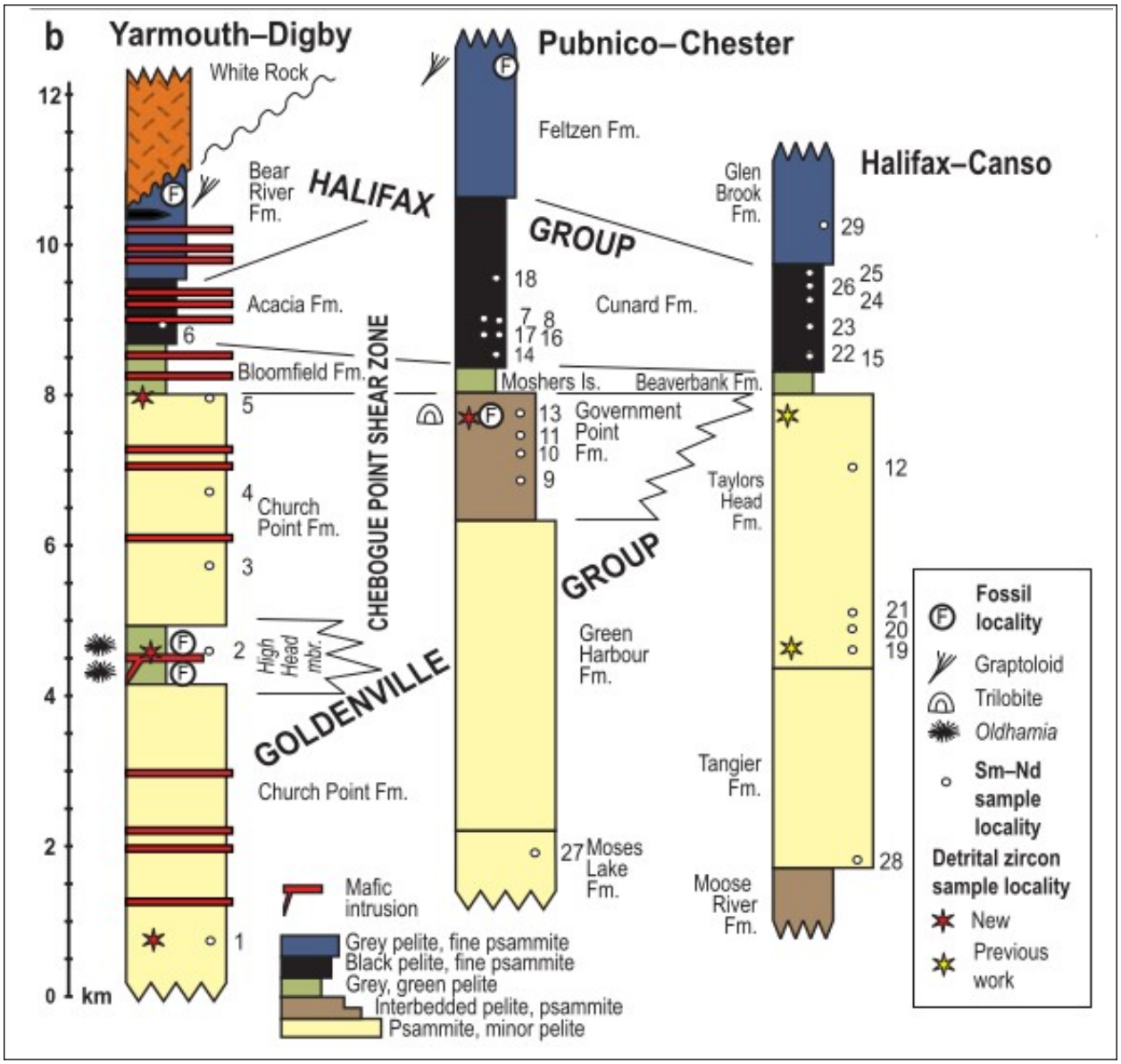

Figure 4. Schematic stratigraphic columns for the Meguma Supergroup (Waldron et al, 2009).

but the Meguma is now generally understood to have originated as submarine continental shelf clastic deposits adjacent to northwest Africa at were transferred to Laurentia during the Acadian orogeny.

The Meguma is characterized by unique stratigraphy, including a thick (>10 km) Cambrian (~540 Ma, and possibly older) to Early Ordovician (~480 Ma) turbiditic clastic succession, which were historically assigned to the Meguma Group – divided into a lower, coarser grained Goldenville Formation and an upper, dominantly fine-grained Halifax Formation. Stratigraphic work and recent mapping by White (2007) resulted in the subdivision of these thick formations and their elevation to group status – the entire package is now termed the Meguma Supergroup (White, 2008). Figure 4 shows

the schematic stratigraphic columns for the Meguma Supergroup.

During and late in the Acadian orogeny (Middle to Late Devonian, 380 to 360 Ma), the rocks of the Meguma Supergroup, then consisting of a significant mountain chain, were intruded by numerous granite plutons, it was metamorphosed both regionally and locally, and subsequently eroded into the landscape we see today along Nova Scotia's Eastern and South Shores.

Present at the Carr Farm development site, from oldest to youngest, are the Goldenville Group's Taylor Head Formation, and the Halifax Group's Beaverbank Formation and Cunard Formation.

4.4.2 Bedrock lithology

The slate-metasiltstone and metasandstone of the Meguma Supergroup are interpreted as low- and high-concentration turbidites. The abundance of graphite and sulphide minerals suggest deposition under anaerobic sea-floor conditions during a period of basin-wide stagnation.

The Taylors Head Formation consists of grey, thickly bedded and weakly cleaved metasandstone (comprised dominantly of feldspathic wacke with subordinate quartz and lithic wacke and rare feldspathic arenite (White, 2010)), interbedded with minor green to grey, cleaved metasiltstone, and rare black to rusty slate. Calc-silicate nodules and pyrite cubes are locally common (White and Goodwin, 2011).

The contact with the Taylor's Head Formation and the overlying Beaverbank Formation is conformable and marked by a decrease in thickly bedded metasandstone over tens of meters. The Beaverbank formation consists of grey to black, cleaved metasilt-stone interbedded with minor thin, light grey metasandstone and black graphitic slate. Thin brown to black manganese-rich limestone beds and nodules are common.

The Cunard Formation conformably overlies the Beaver-bank formation and is characterized by black to rust-brown slate, commonly rusty on weathered surfaces, graphitic slate, and metasiltstone interbedded with 10 to 30 cm thick cross-laminated fine-grained metasandstone (White and Goodwin, 2011). The Cunard formation typically contains abundant pyrrhotite and pyrite, with lesser amounts of chalcopyrite, galena, sphalerite, and arsenopyrite.

4.4.3 Structural geology

The Goldenville and Halifax Groups were regionally metamorphosed (greenschist facies) and deformed into northeast-striking, upright, tight to open folds with a well developed axial planar cleavage during the Early to Middle Devonian (406–388 Ma) Neoacadian Orogeny (White and Goodwin, 2011).

The bedding for the Taylor's Head and Cunard Formations in the area strikes northeast-southwest and within the Figure 3 map area dips are 78º to 86º northwest. The Carr Farm site is located on the northwest leg of a fold – the Waverley Anticline axis is located about 2 km south of the site, and the Wyses Corner Syncline axis is located roughly as far north.

The major faults in the area strike north-northwest, with the Lake Williams Fault and other parallel faults having been mapped in the Waverley Gold District 2 km to the south, with Lake Thomas and Fletcher's Lake to the north likely defining the northerly extension of the Williams Lake Fault.

Kinsac Lake and Third Lake and several other smaller lakes south of it, likely define a major parallel fault located about 2 km west of the site. The Soldier Lake Fault, which connects with a lineament east of Lake Fletcher, define another major parallel fault located about 3 km east of the site.

4.4.4 Bedrock phosphorus content

White and Goodwin (2011) have done a chemical analysis of the metals and major oxides present in a few rock samples from the Meguma Supergroup. Table 1 summarizes the values they obtained for Diphosphorus Dioxide (P_2O_2).

Table 1. P_2O_2 concentrations (wt%) in the bedrock underlying the site.

Formation	Range	Mean	n
Cunard Fm.	0.03 to 0.19	0.08	10
Beaverbank Fm.	0.10 to 0.27	0.17	6
Taylors Head Fm.	0.08 to 0.11	0.09	4

In their statistical analysis of 263,539 rock samples, Porder and Ramachandra (2012) found a 30 fold difference in the median phosphorus concentration among rock types, with the median values for slate and quartzite being 600 and 393 ppm (0.60 and 0.40 g/kg), respectively. These values are relatively close to the values in Table 1 after their conversion to total elemental phosphorus.

4.4.5 Depth to bedrock

A review of well data from the NSE (2016) well log database for wells with known UTM locations drilled immediately around the Carr Farm property reveals depths to bedrock (and based on casing lengths, competent bedrock), to be as follows:

- ***north of the property:*** 2 m to 4.5 m range (up to 28 m), with competent rock present generally below about 6 m.
- ***south of the property:*** 2 m to 4.5 m range (up to 8 and 14 m range at the drumlin), with competent rock present generally below about 6 m.

4.5 Precipitation

Figure 5 and Table 2 summarize the climate normals (1981 to 2010) as obtained from the Halifax Stanfield International Airport climate station, which is located approximately 11 km northeast of the proposed Carr Farm development area.

Historically, the highest average rainfall occurs in the fall, with a total average annual rainfall of 1,196 mm (1,396 mm total precipitation including snowfall).

4.6 Site slopes and drainage

An 11 x 11 cell moving-window (used to remove insignificant knolls) modal analysis of the 1 m resolution LiDAR-based DEM available for this study was done to evaluate the slopes within the area that is proposed to be cleared. The map in Figure 6 and histogram in the legend show the outcome. Slopes within the area proposed to be cleared range from 0.02 to 17.48%, with a mean of 2.10% standard deviation of 2.29%.

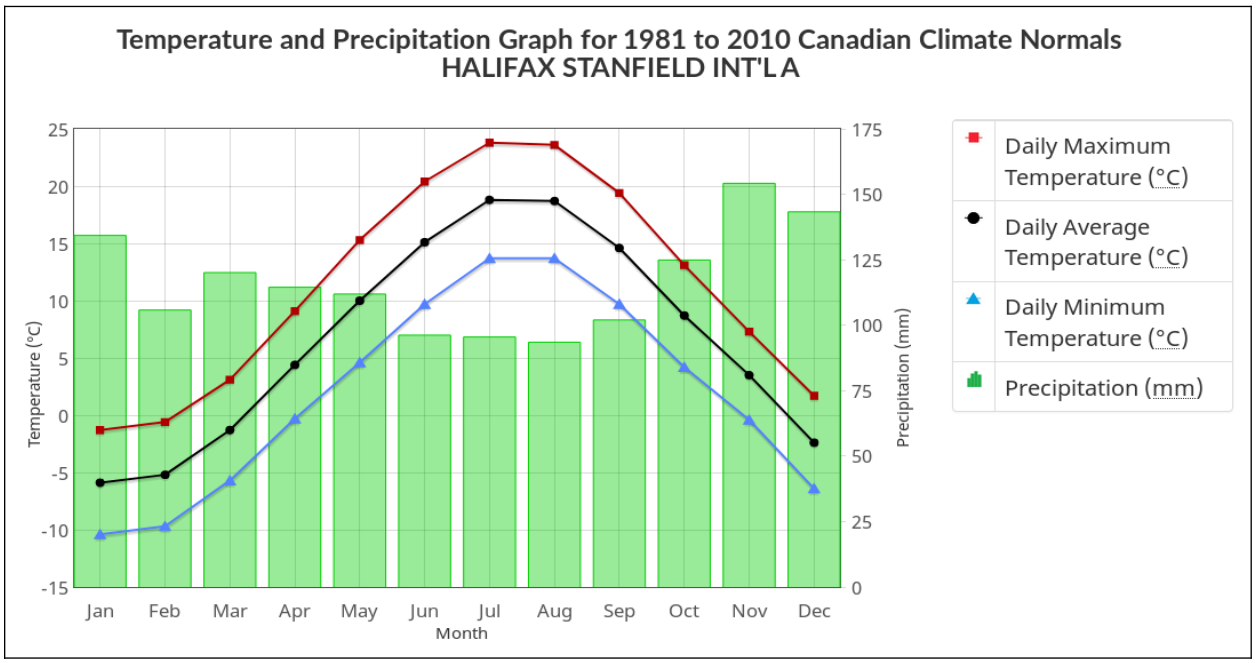

Figure 5. Total precipitation and temperature.

Table 2. 30-year mean (1981 to 2010) precipitation, Halifax Stanfield International Airport.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Rainfall (mm)	83.5	65	86.9	98.2	109.8	96.2	95.5	93.5	102	124.6	139.1	101.8	1196.1
Snowfall (cm)	58.5	45.4	37.1	15.9	2	0	0	0	0	0.4	16.6	45.4	221.2
Total Precip. (mm)	134.3	105.8	120.1	114.5	111.9	96.2	95.5	93.5	102	124.9	154.2	143.3	1396.2
Average Snow Depth (cm)	11	13	6	1	0	0	0	0	0	0	1	4	3
Median Snow Depth (cm)	9	11	5	0	0	0	0	0	0	0	0	2	2
Snow Depth at Month-end (cm)	13	10	1	0	0	0	0	0	0	0	1	9	3
Extreme Daily Rainfall (mm)	94.1	84.9	89.2	76.7	79.5	64	71.1	**218.2**	84.3	66.8	87.8	98.8	
Date (yyyy/dd)	1978/ 14	1996/ 17	1972/ 23	1962/ 08	2005/ 22	1972/ 10	1981/ 21	**1971/ 15**	2002/ 11	1967/ 10	2004/ 25	1975/ 10	
Extreme Daily Snowfall (cm)	43.7	**66**	28.6	28.4	26.9	0	0	0	0	38.6	28.2	47.5	
Date (yyyy/dd)	1961/ 04	**2004/ 19**	1984/ 09	1963/ 11	1972/ 10	1953/ 01	1953/ 01	1953/ 01	1953/ 01	1974/ 20	1986/ 19	1970/ 24	
Extreme Daily Precip. (mm)	100.1	84.9	90.2	76.7	79.5	64	71.1	**218.2**	84.3	66.8	87.8	98.8	
Date (yyyy/dd)	1978/ 14	1996/ 17	1972/ 23	1962/ 08	2005/ 22	1972/ 10	1981/ 21	**1971/ 15**	2002/ 11	1967/ 10	2004/ 25	1975/ 10	
Extreme Snow Depth (cm)	**94**	81	53	38	18	0	0	0	0	25	33	71	
Date (yyyy/dd)	**1971/ 24**	2004/ 23	1967/ 25	1972/ 10	1972/ 11	1961/ 01	1960/ 01	1960/ 01	1960/ 01	1974/ 21	2004/ 15	1970/ 27	

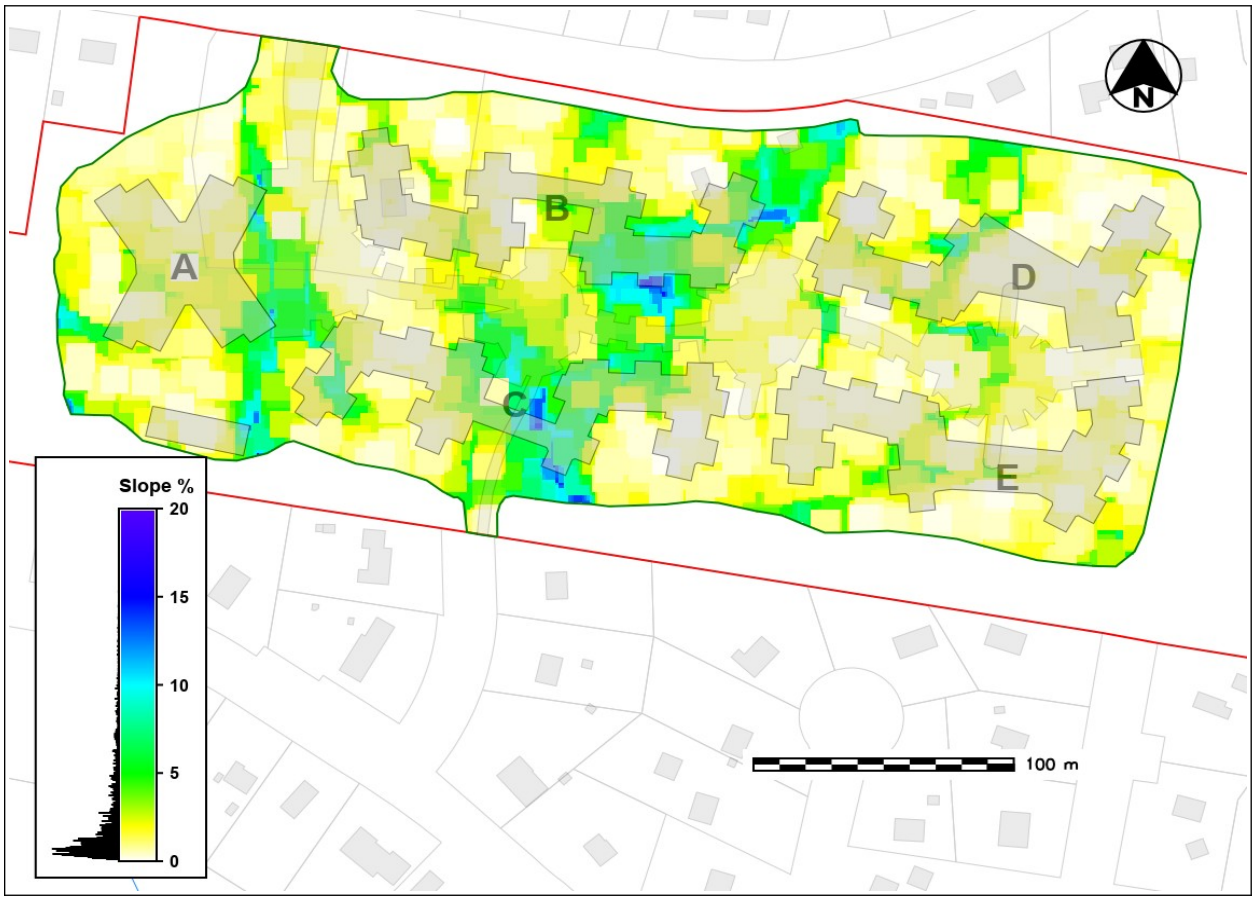

Figure 6. Slopes (percent) within the area proposed to be cleared.

The local surface drainage was analyzed using 1 m LiDAR DEM and the hydrologic modelling modules in GRASS GIS (2019).

After "carving" culverts into the DEM to hydraulically correct it, flow directions were defined and stream locations were identified topographically using a 10 m^2 threshold to initiate surface flow. This allowed defining most channelized flow (to seven orders) that drains the proposed development site into Lake Thomas, Third Lake, and Kinsac Lake.

With channelized flow locations and orders identified, it was then possible to define and locate the boundaries for basins draining all channelized flows (from 7th to 1st order, using the Strahler streams order classification).

Figure 7 shows the sub-basins that drain the site and surrounding area via forth and third order "streams" (using the above-noted classification) within sub-watershed 1DG-1-DD (which discharges into Lake Thomas via a 7th order stream). Figure 8 shows those same forth and third order drainage basin boundaries within the area that is proposed to be cleared for development.

4.7 Groundwater

The proposed development will be serviced by municipal drinking water from Halifax Water and will not require the use of wells. However, to help characterize groundwater

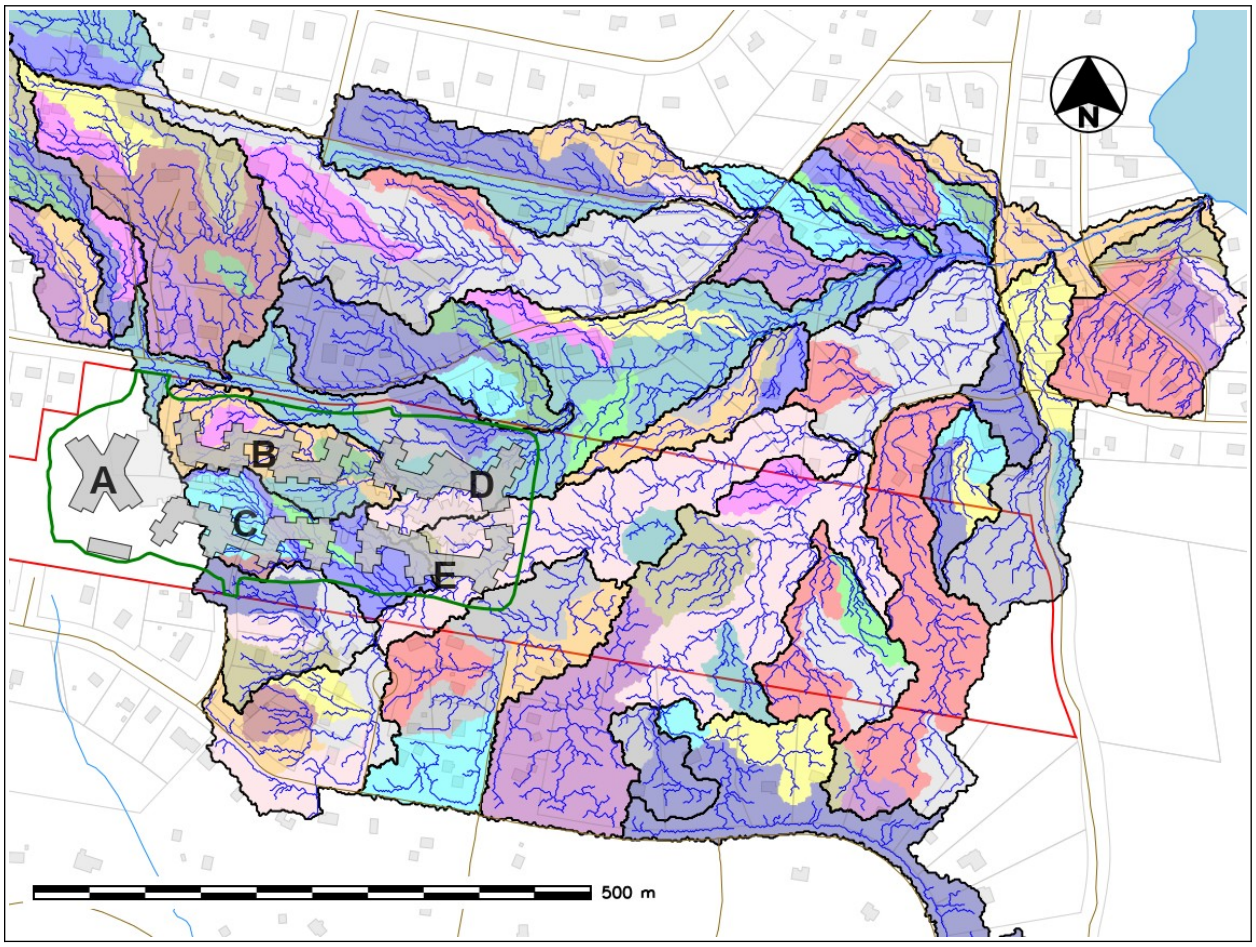

Figure 7. Basins draining 4th order streams (black basin borders) and 3rd order streams (variably coloured) within sub-watershed 1DG-1-DD via the 7th order stream into Lake Thomas.

conditions at the site, information from the NSE (2016) well log database was assessed for wells drilled within the Figure 1 map area after 2006[3]. That data is summarized in Table 3. The locations for wells drilled before 2006 were not defined by UTM coordinates from global positioning satellite (GPS) devices; only those wells with known GPS locations were used for analysis.

Based on the regional topographic relief, the Carr Farm development site (area proposed to be cleared) appears to be located within a groundwater recharge area (net vertical flow downwards through soil and into bedrock.

The depths to groundwater (static water levels, usually topographically controlled) summarized in Table 3 have a broad range, but average around 8 m to 9 m below ground surface for wells drilled into the Taylors Head and Cunard Formations.

Since ground surface elevations on-site are within the intermediate to upper range of the

3. Drillers did not start to us GPS devices to locate wells until after mid-2006. Before that, well locations were identified within about 1 km using map books; their locations in the database are defined as the UTM centroid or centroid for the community in which the wells are reported to have been drilled.

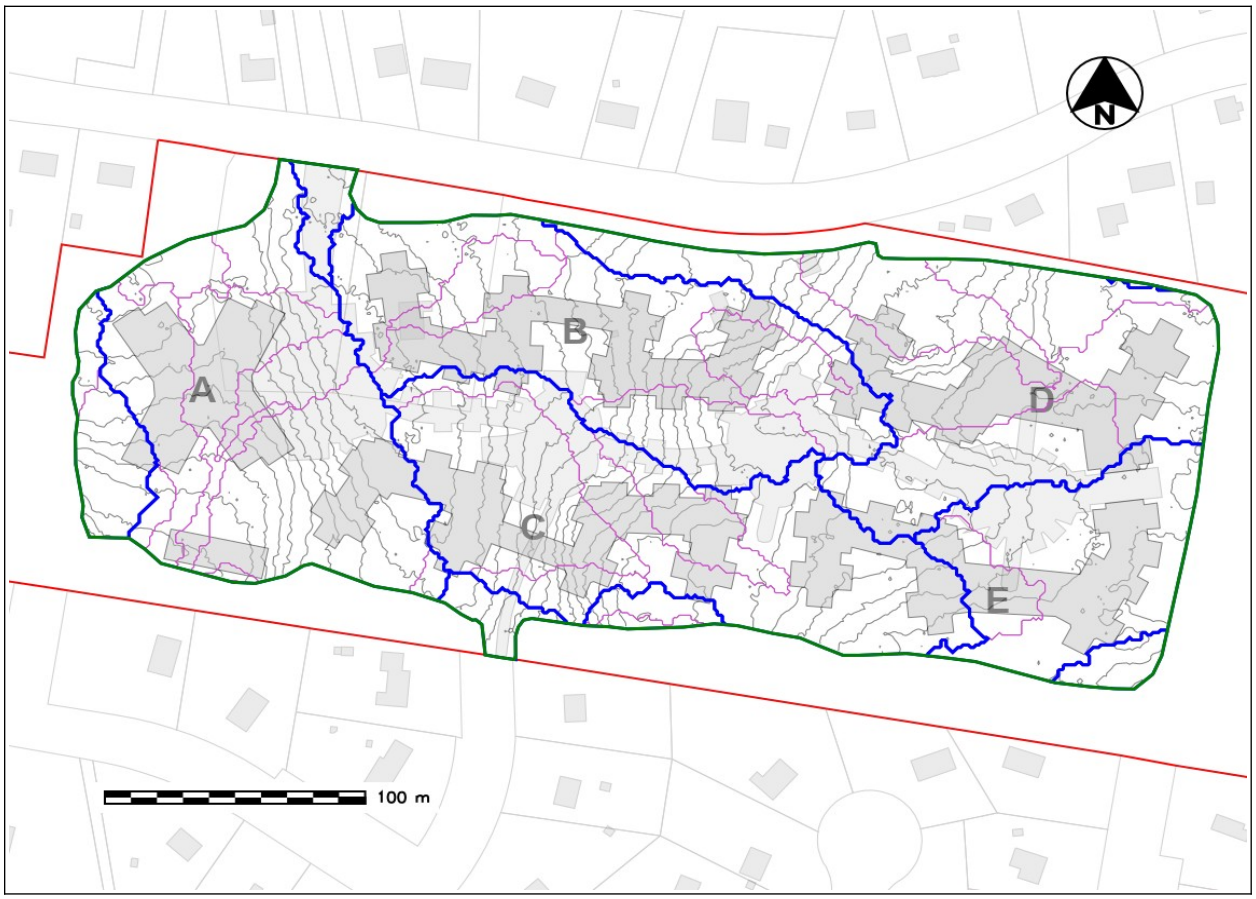

Figure 8. Water divide boundaries for basins draining 4th order (blue) and 3rd order (purple) streams, with 1 m elevation contours in grey, within the area proposed to be cleared.

Table 3. Summary of aquifer hydraulic properties (NSE, 2016).

	Taylors Head Formation (n1=191, n2=135)			Beaverbank Formation (n1=10, n2=10)			Cunard Formation (n1=205, n2=197)		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
Yield (L/min)	6.6	0.0	0.9	1.8	0.0	0.4	8.8	0.1	0.8
Aquifer capacity (L/m)	1.01	0.00	0.07	0.96	0.00	0.10	0.48	0.00	0.02
Static water level (m)	45.7	0.6	8.0	36.6	3.1	22.9	97.6	0.6	9.2
Bedrock depth (m)	110.4	0.0	17.0	56.4	9.8	32.4	36.6	0.0	5.5
Total well depth (m)	152.4	10.7	72.3	122.0	18.3	91.7	128.1	15.2	61.3
Fracture 1 depth (m)	119.2	2.1	45.4	89.9	16.8	69.6	115.9	5.5	37.9
Fracture 2 depth (m)	122.0	24.4	60.2	122.0	54.9	88.4	115.9	12.5	50.1
Bottom of casing (m)	111.3	1.8	20.3	61.0	16.5	36.0	47.0	4.6	10.8

n1 = Tot. number of wells in NSE database that plot within the geologic unit, not all UTM locations confirmed.
n2 = Number of wells with UTM locations obtained by drillers using GPS.

elevations within the Figure 1 (area for which well data has been summarized), then the groundwater surface at the proposed development site may also be expected to be around 8 m below the ground surface.

Due to their levels of metamorphism, the bedrock units present at and around the Carr Farm development site are expected to have low primary (interstitial) permeability, so groundwater flow through them into wells is expected to be entirely through secondary permeability, or fracture flow.

The aquifer capability and fracture depths summarized in Table 3 suggest that the Taylors Head Formation may have a deeper and better developed fracture system (which would be related to local faults) overall than the Beaverbank Formation, with the fracture development within the Cunard Formation falling between these two. As such, greater groundwater flow should be expected within the Taylors Head Formation than the other two bedrock units present beneath the site.

The significance of this, notwithstanding surface flows, is that natural removal rates for phosphorus from within the area proposed to be cleared for development by infiltration into the soil and removal via bedrock may be greater than elsewhere outside of the Carr Farm property, particularly for the parts of the site downstream of buildings B and C and where buildings D and E are proposed.

5. Phosphorus export assessment

The following sub-sections describe the approach, methodology, and calculations used to assess the phosphorus export loading at the proposed Carr Farm development site before, during, and after construction.

5.1 Assessment approach

Other phosphorus export loading studies (Vokey, 1998; Scott et al, 2003; Brylinsky, 2004; White and Hammond, 2006; Gartner Lee, 2007; Berger, 2010; Donnelly et al, 2011; Hutchinson et al, 2012; Hutchinson, 2014; Marvel, 2015; Poltarowicz, 2017) have used a lake-centred approach in which the natural/urban affects of entire watersheds on receiving waters were addressed. But Lake Thomas has already been affected by huge amounts of urban growth both around and upstream of it, so employing the approach used in these other studies would not be reasonable for the Carr Farm development.

The approach used here was to limit the assessment of phosphorus export loading potential to within the boundaries of the proposed area to be cleared for the Carr Farm development, using appropriate phosphorus export coefficients obtained from literature, to assess and compare on-site estimates of phosphorus export loading before, during, and after site construction, with inclusion of of the effects of best management practices (BMP) to mitigate phosphorus exports both during and after construction.

The use of phosphorus export coefficients for estimating phosphorus loading is based on the knowledge that specific land forms and land uses yield or export known quantities of phosphorus over an annual cycle.

5.1.1 Phosphorus export coefficients

A broad literature search was done to find the phosphorus export coefficients appropriate to the Carr Farm development site.

In total, 15 possible data sources were found. However, some were specific to certain watersheds and reported phosphorus export coefficients for sub-basins that included certain percentages of specific types of soil and/or land cover or land use that did not fit the Carr Farm site scenario. Others were for places like California or the western Canadian prairies, where the phosphorus export coefficient values reported were deemed inappropriate for the Carr Farm site due to the huge climate differences.

Of the literature sources reviewed, eight were found to contain data that was thought to adequately reflect the bedrock, soil, land cover, land use, and climate at the Carr Farm site. Table 4 summarizes the key values obtained (some are unique, others represent means of several values) from those sources.

Not all of the values presented in Table 4 were used for this assessment – but they are presented here so the reader can compare those used for assessment to other closely matching values. For example, the value of 0.26 kg/ha/yr for open water (Hutchinson et al, 2012) represents atmospheric deposition of phosphorus within the Lake Simcoe watershed. Similar or slightly lower (due to there being less local industrialization) values may be expected over the site and at Lake Thomas.

The values from Table 4 that were applied to this assessment and their locations and rationale for use are summarized below:

- In light of the mixed nature of the forest cover on-site, the mean of the values for softwood, hardwood and mixed forests of 0.245 kg/ha/yr was used for the undeveloped parts of the property.
- The urban value of 0.473 kg/ha/yr, which appears to be be conservative (high), was used to represent the existing developed areas within the property boundaries (i.e. church, old farm house and property, etc.),
- The apartment roof value of 0.320 kg/ha/yr was used for all of the proposed on-site buildings.
- The green urban areas value of 0.481 kg/ha/yr was used for all areas between buildings within the proposed area to be cleared.
- The paved area value of 0.500 kg/ha/yr was used for all roads and surface parking areas (considered conservative (high) based on the understanding that most will be permeable paving stone or brick surfaces).

While an institutional value of 0.420 kg/ha/yr could have been used for the area proposed to be cleared, the more conservative values of 0.320 and 0.481 were used for building roofs and on-site grass areas to allow for those to be assess separately both during and after construction.

Table 4. Phosphorus export coefficient values (kg/ha/yr) obtained from literature that are deemed to approximate conditions at the Carr Farm development site.

Land use/cover	average	Source reference							
		1	2	3	4	5	6	7	8
Forest – softwood	0.253	0.360			0.145				
Forest – hardwood	0.238	0.260			0.215				
Forest – mixed	0.126	0.260	0.069	0.083	0.175	0.061	0.024	0.191	0.145
Transitional woodland/scrub	0.154	0.260			0.190	0.083		0.083	
Forest – cleared	0.078		0.078						
Forest over coarse soil	0.327						0.327		
Forest over fine soil	0.191						0.191		
Urban	0.473		0.473						
Urban – low density	0.131			0.130		0.131			
Urban – medium density	0.520			0.520				0.520	
Urban – high density	1.320			1.320		1.320			
Urban – open space	0.130			0.130					
Residential lots	0.300								0.300
Apartments (roof)	0.320								0.320
Apartments (landscaped areas)	1.320								1.320
Roadway	1.425			2.020		0.830			
Paved area	0.500								0.500
Commercial	1.050		1.580	0.400		1.820		0.400	
Industrial	1.380		0.740	2.020					
Institutional	0.420		0.420	0.420				0.420	
Green urban areas	0.481	0.830	0.132						
Natural grassland	0.370	0.650			0.090				
Improved grassland	0.470				0.470				
Wetland	0.076			0.083	0.085	0.060			
Atmospheric	0.173			0.173					
Open water	0.189			0.173	0.135	0.260			
recently plowed land	0.760				0.760				

Sources: 1 - White and Hammond, date unknown (later than 2006); 2 - Marvel, 2015; 3 – Poltarowicz, 2017; 4 - Gartner Lee, 2007; 5 – Hutchinson et al, 2012; 6 - Brylinsky, 2004; 7 - Scott et al, 2003; 8 - Donnelly et al, 2011.

5.2 Pre- and post-development

Knowing the areas for the different types of land cover and land use across the area that is proposed to be cleared, annual phosphorus loading for that area was calculated as:

$$L = \Sigma E_i A_i$$

where L is the total phosphorus load from a given area of land, E_i is the export coefficient

selected for a specific land use, and A_i is the area of that land use.

Precipitation effects were not included in the above formula since it was assumed that total annual rainfall would not change over time before, during and right after construction. But different phosphorus export coefficients were applied according to land cover and land use changes before, during and after construction.

5.3 Construction stages

It is understood that construction will be carried out in two stages. Stage 1 will involve land clearing, construction of all underground parking and building pads, and construction of the road and surface parking areas. Stage 2 will involve construction of the above-ground parts of the buildings and will require no additional land clearing.

For Stage 1 only as much clearing will take place as is required. For this assessment this was assumed to involve a 10 m buffer construction zone around each underground parking area (building pad), and a 3 m buffer zone for road, driveway and surface parking area construction.

Assessment of the phosphorus export potential from the Stage 1 construction areas was done by estimating the total amount of phosphorus export likely due to soil erosion from each building pad footprint and 10 m buffer zone assuming fully exposed and loose excavated soil within the entirety of all construction. So for Stage 1 construction, the total amount of phosphorus export within the area proposed to be cleared was estimated as the total potential phosphorus export from the Stage 1 construction buffer zones due to soil erosion, plus all remaining existing urban land use and forest cover within the proposed area to be cleared.

5.3.1 Calculating soil erosion

Estimating soil erosion was done using the module available in GRASS GIS (2019) to model soil detachment with RUSLE 3D. RUSLE is a modified version of the Universal Soil Loss Equation (USLE) developed for GIS by Mitasova and Mitas (1999) at the US Army Corps of Engineers.

The USLE is an empirical equation designed to compute average soil loss in agricultural fields that has the following form:

$$S_L = R \cdot K \cdot LS \cdot C \cdot P \qquad (1)$$

where:

- S_L (tons/acre · year) is the average soil loss,
- R is the rainfall intensity factor,
- K (tons per acre per unit R) is the soil erodibility factor based on soil textural class and organic matter content of exposed soil,
- LS (dimensionless) is the topographic (length-slope) factor,
- C (dimensionless) is the cover factor (months during construction phase that soil is exposed/12) / (duration of construction in months/12), and
- P (dimensionless) is the prevention practices factor (source reduction and capture reduction).

This equation was developed for detachment capacity that was limited to erosion in fields

with negligible curvature and no deposition, and represents soil loss averaged over time and total area. The revised USLE - RUSLE uses the same empirical principles as USLE, however it includes numerous improvements, such as monthly factors, incorporation of the influence of profile convexity/concavity using segmentation of irregular slopes, and improved empirical equations for the computation of the *LS* factor

To incorporate the impact of flow convergence, the hill-slope length factor was replaced by upslope contributing area *A*. The modified equation for computation of the *LS* factor in GIS in finite difference form for erosion in a grid cell representing a hillslope segment was derived by Desmet and Govers (1996) (in Mitasova and Mitas (1999)). A simpler, continuous form of equation for computation of the *LS* factor at a point **r** (*x,y*) on a hill-slope, (Mitasova et al, 1996) is:

$$LS(\mathbf{r}) = (m+1)\,[A(\mathbf{r})/a_0]^m\,[\,\sin b(\mathbf{r})/b_0]^n \quad (2)$$

where:

- *A* (metres) is up-slope contributing area per unit contour width,
- *b* (degrees) is the slope,
- *m* and *n* are parameters,
- a_0 (= 22.1 m) is the length, and
- b_0 (= 0.09 = 9% = 5.16 deg) is the slope of the standard USLE plot.

Values of *m=0.6, n=1.3* give results consistent with the RUSLE *LS* factor for slope lengths <100m and slope angles <14 degrees for slopes with negligible tangential curvature. Exponents *m* and *n* can be calibrated if the data are available for a specific prevailing type of flow and soil conditions. Values or 0.4 and 1.3 were used for this assessment to reflect a higher (1 m) resolution DEM and shorter slopes on-site.

Both the standard and modified equations can be properly applied only to areas experiencing net erosion**.** Depositional areas should be excluded from the study area because the model assumes that transport capacity exceeds detachment capacity everywhere and erosion and sediment transport is detachment capacity limited. As such, the of this model module in GRASS GIS for the Carr Farm development site has provided results that are conservative (high).

For use of the RUSLE modelling module, GRASS GIS converts all values to metric, and expects metric input values.

GRASS GIS includes separate modules for calculating the required grid-based values for *R* and *K* for equation (1), which need as input an annual rainfall raster map, and soil sand fraction, soil clay fraction, soil silt fraction, and soil organic matter raster maps, respectively. The rainfall map value used is from Table 2. Information from Section 4.3.2 of this report was used to construct the three C horizon soil texture maps; for the C horizon organic matter map, values of 1% and 0.5% were assumed for the existing forested and urban areas, respectively.

5.3.2 Eroded soil phosphorus loading

The phosphorus load (P_L) from a construction site area is the product of the soil loss (S_L), the sub-watershed soil phosphorus concentration ($Soil_P$) and the duration of construction phase in years (D_{yrs}), where:

$$P_L = S_L * Soil_P * D_{yrs} \qquad (3)$$

Due to variability between sub-watersheds in their study, Hutchinson (2012) decided to use a single soil phosphorus value of 0.0004 kg-TP/kg (0.40 g/kg) soil, which they derived from the mean of the sub-watershed aggregate values used in Berger (2010).

Table 5 summarizes the results of a literature search for total phosphorus concentration in soils from various locations in the northeast US, in Germany, Saskatchewan, the Ozark Highlands, and New York state, for which the mean value is 0.31 g/kg soil.

Table 5. Total phosphorus concentration in soil obtained from various literature sources.

Mean (g/kg)	Range (g/kg)	Notes and source reference
0.33	0.20-0.44	2mm to 250 um soil fraction, Rodkey et al, 1995
0.25	0.11-0.32	75-250 um fraction, Rodkey et al, 1995
0.48	± 0.35	Neiderberger et al, 2019
0.59	--	Frossard et al, 1989
0.116	± 0.007	Singh et al, 2015
0.101	0.048-0.192	Bueno-Lopez et al, 2012

In their review of the phosphorus analysis results for 263,539 rock samples, Porder and Ramachandra (2012) found that in clastic rocks phosphorus concentration decreased with increasing grain size, and concentrations in soil were close to those of the underlying parent rock. Their mean values for slate and quartzite (which make up the Cunnard and Taylors Head Formations on-site) averaged 0.60 g/kg and 0.40 g/kg, respectively, which is in the range of the mean from Table 5.

In light of the above, a value of 0.40 g/kg soil was used for the Carr Farm development site.

5.4 Phosphorus mitigation

In the staged construction approach used here, undisturbed parts of the site are assumed to contribute their pre-development loading rates of sediment and phosphorus, and after clearing the RUSLE 3D estimates are applicable during construction until the ground reaches its post-development state.

A number of best management practice (BMP) efforts may be applied during construction to mitigate the effects of soil erosion and associated phosphorus export, and after construction to help reduce phosphorus export loading.

5.4.1 During construction

The following are some of the key elements necessary to achieve an effective erosion and sediment control plan for construction sites; all are intended to be employed as needed during construction at the Carr Farm site:

- minimize unnecessary clearing and grading,
- protect water courses and stabilize stream banks,
- use construction phasing to limit soil exposure,
- immediately stabilize exposed soils,
- protect steep slopes and cuts,
- install perimeter controls to filter sediments,
- use contractors trained in the use of sediment control techniques,

- adjust planning on-site to ensure the appropriateness of measures taken,
- re-assess the effectiveness of sediment management following storms, and
- include maintenance planning and implementation for sediment control.

5.4.2 Post-construction

A goal in mitigating post-construction phosphorus exports is to maintain status quo, or make improvements where possible, with respect to surface drainage and infiltration of surface waters into the ground. Such post-construction BMP's may include:

- maximizing vegetative cover – 99% reductions are possible,
- mulch, fibre or geotextile blankets and mats – 90% reductions are possible for areas where mulch coverage is thick and maintained, or areas that are completely covered with a fibre or geotextile blanket that is secured and maintained,
- minimizing the number of hard surfaces,
- keeping or making hard surfaces permeable,
- maximizing the use soak-aways and wetlands to intercept, retain and remove stormwater,
- the use of infiltration systems to dispose of roof water and other runoff.

5.4.3 Phosphorus reduction BMP effectiveness

Table 6 lists a number of phosphorus removal BMP's and their levels of effectiveness (from Hutchinson, 2012; Stantec, 2016).

Table 6. Reported phosphorus removal efficiency (percent).

BMP class	Min	Max	Mean
Bioretention systems	-1552	80	none
Constructed wetlands	72	87	77
Dry detention ponds	0	10	10
Dry swales	-216	94	none
Flow Balancing systems	77	77	77
Green Roofs	-248	-248	none
Hydrodynamic Devices	-8	-8	none
Perforated Pipe infiltration/ exfiltration systems	81	93	87
Sand or Media Filters	30	59	45
Soakaways – infiltration trenches	50	70	60
Sorbtive media interceptors	78	90	79
Underground Storage	25	25	25
Vegetated Filter Strips/ Stream Buffers	60	70	65
Wet Detention Ponds	42	85	63
Infiltration trench	--	--	33
Infiltration basin	--	--	33
Wet detention ponds	30	60	45
Gravel wetland	--	--	31
Grass swale	--	--	31
Establishing vegetative cover	--	--	99
Tarps, mulch, geotextile mats	90	100	95
Silt fence	--	--	70
Silt fence plus vegetated filter strips	--	--	90
Filter tubes, bags	--	--	45
Anionic polymer runoff treatment	--	--	91

5.5 Assessment results

The following sections present/discuss the phosphorus export assessment results for pre-construction, Stage 1 construction, and post-construction at the proposed Carr Farm development. They include implementation of appropriate BMP's from Table 6, using the lower levels of effectiveness shown to ensure more conservative results.

5.5.1 Pre- and post-development

Tables 7 and 8 summarize the total pre- and post-constuction phosphorus exports from within the area proposed to be cleared, respectively, classed by land use and cover.

For the pre-construction scenario, the area proposed to be cleared within sub-watershed 1DG-1-DD, which drains directly into Lake Thomas, is estimated to contribute to 78.33% of the total phosphorus export from the site, and 21.67% is expected to leave the site via sub-watershed 1DG-1-CC into Third Lake.

For the post-construction scenario, buildings were assessed with footprints sized to account for roofs and verandas. Roads were assumed to be built of permeable paving stone. Also, assuming proper use of BMP's to mitigate phosphorus exports after construction and using the minimum values from Table 6 to obtain the values in Table 8, then total estimated phosphorus export from the site is

Table 7. Pre-construction phosphorus export from the total area proposed to be cleared.

Watershed	Land use/cover	Area (m^2)	Phosphorus export coefficient (kg/ha/yr)	Total phosphorus export (kg/yr)
1DG-1-DD	Forest	42,600	0.245	1.04
	Rural urban	7,735	0.473	0.37
	Subtotals:	**50,335**		**1.41**
1DG-1-CC	Forest	15,491	0.245	0.38
	Rural urban	33	0.473	0.01
	Subtotals:	**15,524**		**0.39**
	Totals:	**65,859**		**1.80**

Table 8. Post-construction phosphorus export from the total area proposed to be cleared.

Land use or cover	Area (m^2)	Phosphorus export coefficient (kg/ha/yr)	Phosphorus export (kg/yr)		BMP class for mitigation
			Without mitigation	With mitigation	
Grass area	32,857	0.481	1.05	0.20	Veg. filter strips/stream buffers
Buildings	23,165	0.320	0.74	0.14	Perforated pipe infiltration
Roads	9,837	1.425	1.40	0.56	Soakaways – infiltration trenches
Totals:	**65,859**		**3.19**	**0.90**	

reduced by 50% after construction relative pre-construction conditions. Approximately 76% of that total export (about 0.68 kg/yr) is via sub-watershed 1DG-1-DD, which drains into Lake Thomas, and about 24% is via sub-watershed 1DG-1-CC into Third Lake, thus representing reductions of 51.42% and 43.11 to each sub-watershed, respectively.

5.5.2 Stage 1 construction

Table 9 summarizes the modelled phosphorus export by soil erosion for all underground parking and building pads and roads assuming four months of excavation and potential soil exposure. Rows 2, 3 and 4 in Table 9 show Row 1 values with three mitigation BMP's utilized incrementally.

Table 9. Total phosphorus export (kg/yr) by soil erosion for Stage 1 of construction

		From sub-watershed		
		1DG-1-DD	1DG-1-CC	Both
Without BMP's applied		72.95	23.58	96.53
With mitigation BMP's	Mulch[1] (90%)	7.30	2.36	9.65
	Silt fence[2] (70%)	2.19	0.71	2.90
	Veg. filter strips[2] (65%)	**0.77**	**0.25**	**1.01**

Notes: 1. Prevention BMP
2. Capture BMP's

The Table 9 suggest that all three BMP's (or similar) may be needed to achieve no-net phosphorus export increase during Stage 1 construction. Values similar to those in Table 8 would apply for stage 2 construction since it will be done on stabilized building pads.

6. Conclusions

The intent of the HRM Regional Plan River-lakes Secondary Planning Strategy is to reduce phosphorus loading during new development so there are no net increases in phosphorus exports resulting from the new development.

Table 10. Summary of total progressive phosphorus exports, by development stage, from the area proposed to be cleared.

Development stage	Total phosphorus export (kg/yr)
Pre-construction	**1.80**
Stage 1 construction	**1.01**
Post-construction	**0.90**

Table 10 summarizes the data from Tables 7, 9, and 8, by showing the progressive decreases in the estimated total phosphorus export from the area proposed to be cleared for the Carr Farm development from pre-construction, through stage 1 and stage 2 construction to final completion of the development.

Based on the modelling done and resulting estimates presented in this report, with proper erosion control and mitigation measures in place, the goal of achieving no-net increase in phosphorus exports due to development is feasible, and may even be exceeded, for the proposed Carr Farm site development.

7. References cited

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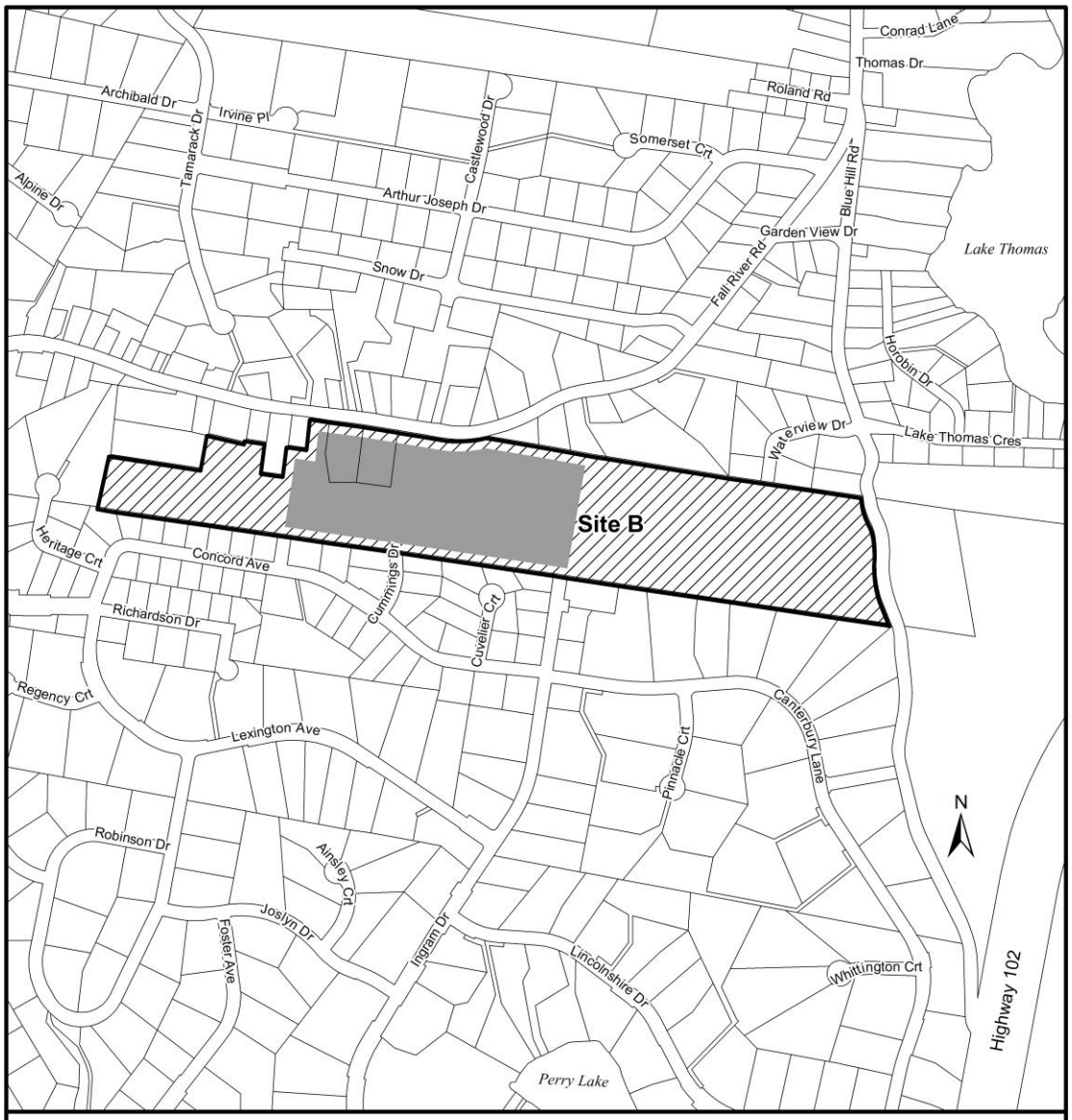
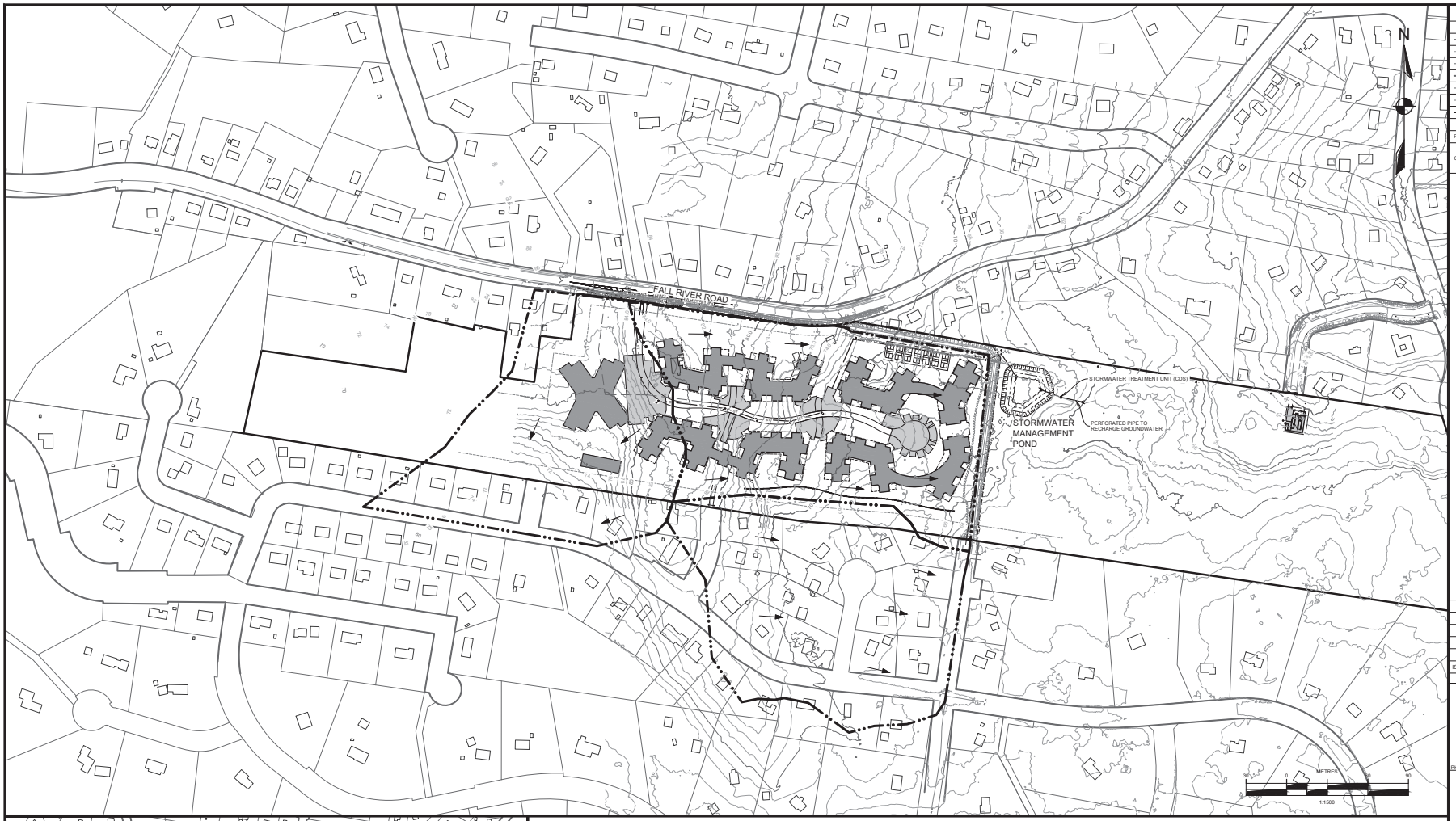
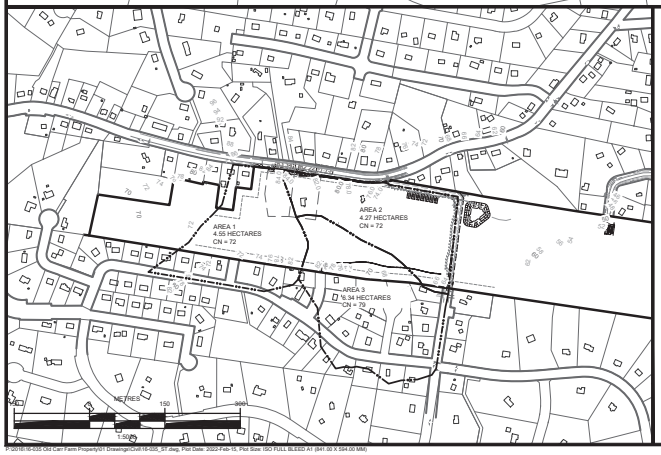
SCHEDULE O: SITE B (RC-Mar 5/19;E-Apr 6/19



Attachment I- Storm Drainage Schematic





	AREA (ha)	RUNOFF COEFFICIENT	
		PRE-DEVELOPMENT	POST-DEVELOPMENT
AREA 1	4.55	72	90
AREA 2	4.27	72	90
AREA 3	0.34	79	90

STORMWATER MANAGEMENT NOTES:

1. STORMWATER TO BE DIRECTED TO STORMWATER MANAGEMENT POND (SWMP). WATER FLOWING FROM SWMP TO GO INTO STORMWATER TREATMENT UNIT SIZED TO REMOVE 80% OF SUSPENDED SOLIDS.
2. LOW IMPACT DEVELOPMENT MEASURES TO BE UTILIZED TO IMPROVE STORMWATER QUALITY INCLUDING, RAIN GARDENS, BIO-SWALES, INFILTRATION TRENCHES.

LEGEND

EXISTING		PROPOSED
10	MAJOR CONTOUR	10
10	MINOR CONTOUR	10
	EASEMENT	
	RIGHT OF WAY	
	LOT LINE	
ST	STORM PIPE	ST
	SUBCATCHMENT AREA	

	EXISTING	PROPOSED		EXISTING	PROPOSED
PRECAST HEADWALL			CATCHBASIN		
CATCHMENT ID		A	SUBCATCHMENT ID		A1

PRELIMINARY
FEB. 2022

ISSUE	DATE	DESCRIPTION
2	FEB. 15, 2022	REVISED BUILDING FOOTPRINT
1	MAY 14, 2021	ISSUED FOR REVIEW

CONSULTANT

DESIGN POINT ENGINEERING & SURVEYING
PHONE: 902.832.5597
www.designpoint.ca

REGISTERED PROFESSIONAL ENGINEER PROVINCE OF NOVA SCOTIA
DATE Feb. 15, 2022
Original Re
6078

CLIENT

VISION 7 DEVELOPMENTS LTD

PROJECT DESCRIPTION

CARR FARM PROPERTY

FALL RIVER, NOVA SCOTIA

SHEET DESCRIPTION

STORM DRAINAGE SCHEMATIC

Drawn	Engineer	Project No.	Drawing No.
A.LEAHY	G.WOODFORD	16-035	CSK-103
Scale	Filename		4 OF 4
VARIES	16-035_ST.dwg		

P:\2016\16-035 Old Carr Farm Property\01 Drawings\Civil\16-035_ST.dwg, Plot Date: 2022-Feb-15, Plot Size: ISO FULL BLEED A1 (841.00 X 594.00 MM)