



CROZIER

55 Wyndham Street, North, Suite 215
Guelph, ON
N1H 7T8

T. 548.708.0022
cfcrozier.ca

MEMO: SALT & RISK MANAGEMENT PLAN

DATE	June 25, 2025	PROJECT NO.	2514-6796
RE	Salt & Risk Management Plan 271 Main Street East, Dundalk		
TO	Township of Southgate Planning Department		
FROM	Evan Finbow, P.Geo., Project Manager (Hydrogeology) C.F. Crozier & Associates Inc.		
CC	Cale Barnes 271 Main Street East Inc.		

1.0 Introduction

C.F. Crozier & Associates Inc. (Crozier) has been retained by 271 Main Street East Inc. (Owner) to prepare a Salt and Risk Management Plan in support of the Zoning By-Law Amendment and Site Plan Application for the proposed residential development located at 271 Main Street East, in Dundalk of the Township of Southgate.

The Subject Property currently consists of vacant land, sparse coniferous trees, and overgrown vegetation. A large open excavation also exists in the central portion of the Subject Property, presumed to be a remnant from the demolition of the previous structural feature. The property is designated as a Residential Area Type 3 per the Township of Southgate Official Plan, located in a fully serviced urban settlement area. It is bounded by Main Street (County Road 9) to the north, a funeral home to the east, and single-family homes to the west and south.

The Subject Property is approximately 0.26 ha (0.65 ac) in size and is legally described as Plan 480 Block of Part of Lot 50, Registered Plan 16R11367 Part 3. The proposed development is comprised of twenty (20) 3-storey townhouse units with a 6m drive aisle.

This Salt & Risk Management Plan has been prepared to address the potential impacts of road salt application on the local environment. This plan also outlines source protection considerations that pertain to the property. This plan suggests practical methods of winter maintenance that will help limit sodium and chloride concentrations from entering the shallow groundwater system.

The material in this memo reflects best judgment in light of the information available at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. C.F. Crozier & Associates Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

2.0 Background

Per the peer review conducted on behalf of the Township of Southgate by Dustin Lyttle of Triton Engineering Services Limited (October 2, 2024), the following comment provides the basis for this Salt & Risk Management Plan:

The subject lands are located within a 'Wellhead Protection Area-D,' per Appendix A of the County's Official Plan. Generally, further detailed comments should be received from the Risk Management Official to determine if further considerations with the use or design should be addressed to protect municipal water reserves. Furthermore, the hydrogeological study indicates that the site should consider winter deicing methods that reduce the quantities of salt that enter into municipal water reserves. In that respect, the County would support the completion of a Salt Management Plan at a Site Plan Application stage as part of this development.

3.0 Source Water Protection Conditions

The Subject Property is located with the Grand River Source Protection Area which is authorized to act under the legislated powers of Ontario's Clean Water Act (2006). The Grand River Source Protection Plan (GRSPP) is a document that sets out policies to protect sources of municipal drinking water against existing and future drinking water threats.

The Source Protection Plan applies a Vulnerability Score / Threats-Based Approach in which the product of two crucial pieces of information (vulnerability and circumstance) are combined to determine if a specific area and incorporated activity will be considered a Low, Moderate, or Significant Drinking Water Threat (LDWT, MDWT, and SDWT).

Related to the Drinking Water Threat classification, the Clean Water Act (2006) employs various levels of policy tools ranging from "Softer" tools such as Education and Outreach to "Part IV Powers" such as Restrictive Land Uses (S. 59), Risk Management Plans (S. 58), and Prohibition (S. 57). In general, only SDWTs incur the application of "Part IV Powers."

Based on review of the Ministry of the Environment, Conservation, and Parks (MECP) Source Protection Information Atlas online mapping tool, the Subject Property does not overlie an HVA or an EBA, but the entirety of the Site Area is located within a Wellhead Protection Area C (WHPA-C) with a score of 2. The Subject Property is also located within an SGRA and an Intake Protection Zone 3 (IPZ-3), with corresponding scores of 4.

It should be noted that areas under WHPA-C with a score of 2 incur SDWTs if the following activities are conducted on-site.

- The handling and storage of a dense non-aqueous phase liquid.

This is considered a threat under the following circumstances in any quantity:

- The below grade handling of a DNAPL in relation to its storage.
- The handling of a DNAPL at or above grade, in relation to its storage.

In general, residential uses do not typically pose SDWTs which trigger Source Protection Policies. Through a review of the proposed land uses, the circumstances noted above are not predicted to occur through the development of 271 Main Street. Therefore, while potential SDWTs were considered, no mandated policies are required to mitigate potential issues.

Additionally, though the Subject Property are inclusive of an SGRA and IPZ-3, the associated vulnerability scores did not classify either zone as having Low, Moderate, or Significant Risks. However, Best Management Practices (BMPs) should be employed on site.

Source Protection considerations that should be noted and mitigated where possible include:

- The application of road salt.
- The handling and storage of road salt.
- The storage of snow.

Potential mitigation strategies shall explore reducing the amount of contaminated runoff from infiltrating back into the soil. This could include using groundwater friendly road treatments in lieu of road salt, or providing a near impervious surface for the snow storage in which melted runoff is directed into the storm water infrastructure. Source Protection Mapping for the property has been appended as an attachment.

4.0 Identification of Traffic Areas and Sensitive Features

The proposed development is comprised of twenty (20) 3-storey townhouse units making up four (4) separate buildings, with a 6.0 m drive aisle, 6.0 m wide internal roadways, twenty one (21) designated parking spaces including one (1) accessible parking space, and landscaped areas. Formal access from the site to Main Street East will be accommodated by crossing the private driveway via an access easement. The internal roadway is proposed to be paved surfaces with adequate storm drainage infrastructure. The entrance and all sidewalks on the site are anticipated to experience low pedestrian and vehicles usage, respectively.

A single private fire hydrant has been proposed to ensure adequate fire protection. The hydrant should remain free of obstructions (i.e., snow) for a minimum of 1-meter radius. The condominium corporation shall be responsible for the clearing of all snow around the fire hydrant.

Special snow removal considerations will be applied to the sensitive areas described above to ensure snow removal and salt management are complete in accordance with this plan. Refer to the attached General Servicing Plan for the proposed site layout.

5.0 Identification of Snow-Storage/Disposal Areas

Based on the Site Plan prepared by Orchard Design Studio Inc. (June 25, 2025) snow management operations are proposed such that snow will be aggregated on site and removed following snow events.

Temporary snow storage will primarily take place in the landscaped areas adjacent to the four townhouse blocks where meltwater will drain to the storm drainage infrastructure within the proposed development. Meltwater will be directed away from the parking areas to reduce additional icing that could take place and in turn, reduce the overall required salt application on the site.

Snowfall events up to and over the 10 cm event will require some snow to be collected and disposed off-site. All snow removal will be complete and paid for by the condominium corporation. Should any residents within the condominium development have concerns regarding snow removal they will be directed to reach out to the condominium corporation as all snow removal operations are the responsibility of the condominium corporation and not the Township of Southgate.

Please refer to the attached Site Plan which outlines salt application areas which are limited to paved surfaces with positive drainage to stormwater catchbasins. Final details of the on-site temporary snow storage and salt application areas can be refined in consultation with the Town of Orangeville.

6.0 Use of Alternative Products

Numerous ice control/winter maintenance products are currently available as alternatives to road salt. These do not utilize chloride dissolution to melt ice and therefore, minimize the potential release of sodium and chloride in meltwater.

These alternative products are manufactured from bio-degradable sources and use ionization principles to inhibit ice and snow bonding to asphalt. However, since these technologies are relatively new, they are more expensive than rock salt. It is also difficult to compare product performance since some of these products have not been used consistently for long periods of time.

A winter maintenance contractor that is "Smart about Salt" certified could help compare and assess the effectiveness of each alternative product available. This individual would be familiar with the various options as well as the maintenance measures required for each of them. The Owner will be able to decide if the use of an alternative product is feasible within the project budget. Recommendations for a maintenance contractor will be made available to the Owner upon request.

7.0 Engineered Measures

Site grading has been designed to ensure all site runoff is collected by the storm sewer network and directed towards the proposed stormwater management chambers, prior to discharging to the natural environment. Effective drainage collection will reduce ice formation and subsequent salt application. All catchbasins shall be inspected and maintained regularly to ensure that runoff is effectively captured.

8.0 Operational Measures

Snow Removal/Disposal

As indicated on the Site Plan, there are available landscaped areas for temporary snow storage during snowfall events. The primary snow control method to be implemented is the timely removal of snow and ice from the internal roadway and pedestrian walkways. This snow is to be temporarily stored during snowfall events and trucked off-site following the snowfall events. The entrance to the site will be permitted for road salt use to ensure safe vehicle access. It is imperative that the snow be removed from the site in a timely manner to prevent uncontrolled snow melt from occurring to reduce the need for emergency salt application. Timing for snow removal/disposal should be discussed with the certified salt maintenance contractor prior to implementation.

As individual driveways and front door entrance walkways are almost completely covered by the building, snow removal from private property will be the ultimate responsibility of the homeowner and can be pushed to collection areas adjacent the internal roadway. All meltwater from the snow piles will be directed to catchbasins where it will be collected and conveyed to the on-site stormwater management chambers. All individual homeowners are encouraged to remove snow in a timely manner to eliminate the need for salt application.

De-icing Agents

Private site developments are significant sources of increased chloride levels in runoff during the winter and spring due to the overuse of road salts. Road salt, or sodium chloride, has an effective temperature range for melting ice between +4°C and -1°C. Application of road salt outside this temperature range should be avoided. Salt application rates usually range from 15 to 39 grams per square meter. This application rate will not be exceeded in areas that require salting. Proper road salt application machinery will be required and calibrated to apply the ice control products at a specified, controlled application rate. Application tracking worksheets should be used to track the overall de-icing agent usage on site particularly for those products that may release sodium and chloride.

Road salt will be limited on the site's internal roadways and sidewalks except for the roadway entrance located off the Main Street East to the north of the site. Shoveling walkways, ploughing roadways, and the use of salt alternatives are the suggested methods for ice control within the internal roadway, parking areas, and walkways on site. It is recommended to hire a winter maintenance contractor who is familiar with various application methods, rates, and salt management reduction practices. Contractors should be aware of the appropriate guidelines and the potential impacts of excessive salt application.

Monitoring Program

Implementing a winter operation monitoring program is essential to ensure the effectiveness of this Salt Management Plan. It is recommended that both the condominium corporation and maintenance contractor review winter operations annually to maintain efforts to reduce salt application on site and demonstrate adherence to the operations plan. The condominium corporation and maintenance contractor should also monitor and evaluate the usage of road salt and alternative products during the winter season.

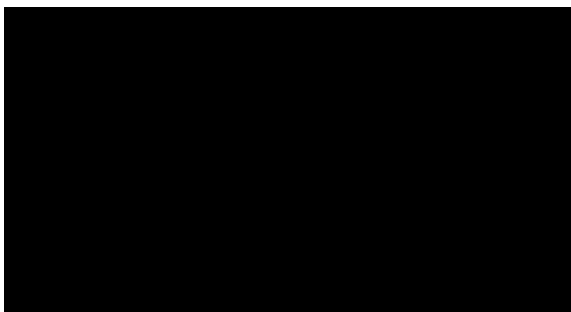
Monitoring results should be reviewed after each season to identify deficiencies with current operations and opportunities to make improvements for more effective winter operations.

9.0 Summary

The proposed Salt & Risk Management Plan aims to provide adequate snow removal and reduce the use of road salt on the site to minimize infiltration of the sodium and chloride to the subsurface. The site has been designed to drain all runoff, including snow melt, into the internal storm sewer system and outlet to the stormwater management chambers on the property. Snow removal/disposal methods shall be implemented accordingly. De-icing agents should be used at appropriate application rates and tracked on a regular basis during the winter season. Although this plan is an attempt to limit the application of road salt, it should be noted that individual safety is the overall priority. During extreme weather events, the winter maintenance contractor should use their best judgement to ensure that sufficient ice/snow control is provided for the safety of all individuals within the site.

The condominium corporation and maintenance contractor should be aware of this report and of the various salt management practices for winter maintenance. The implementation of this plan will help prevent the environmental impacts of excessive salt application and identify opportunities for more effective winter maintenance to ensure long term chlorine reduction for this site.

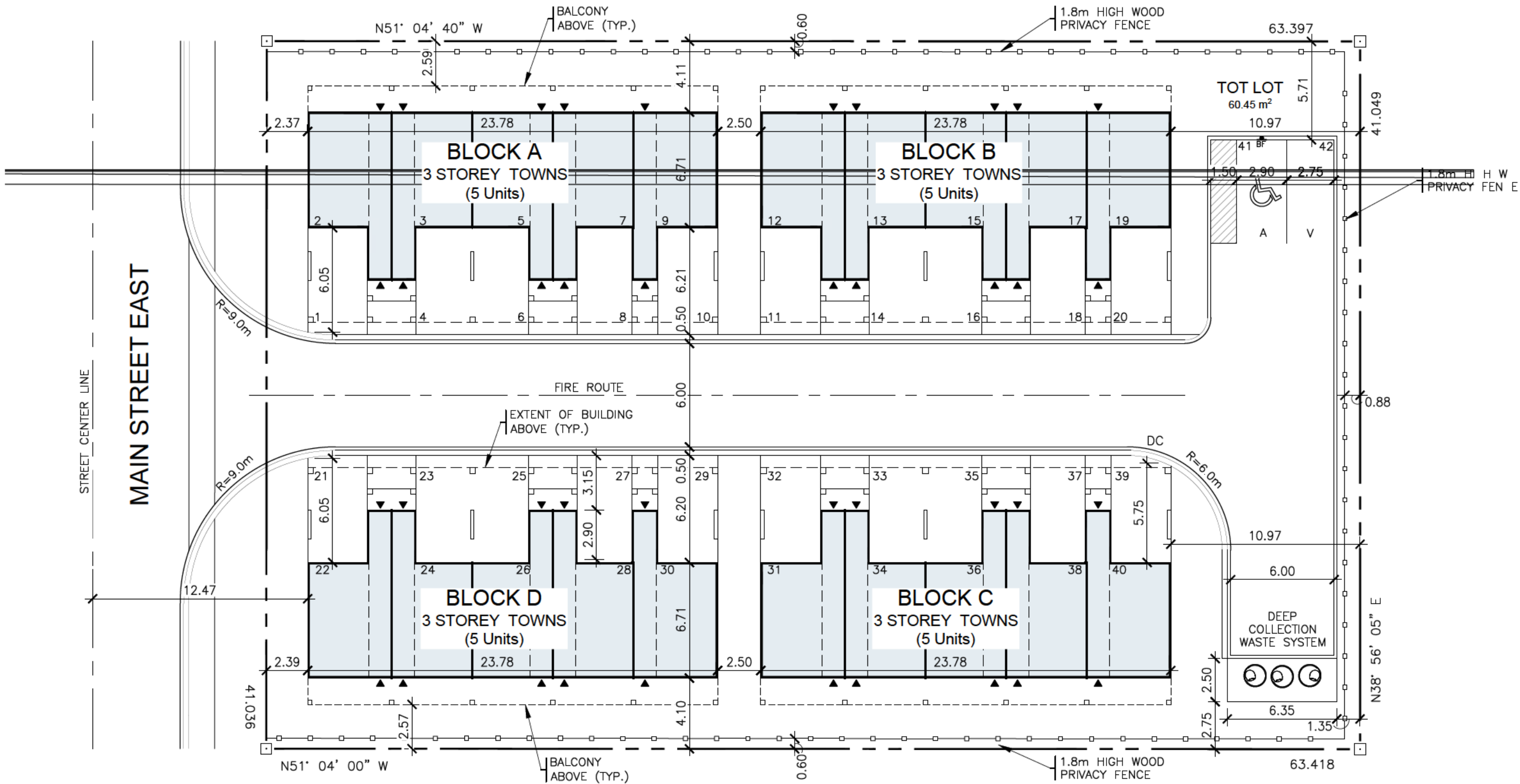
Sincerely,



Project Manager, Hydrogeology

EF

Encl. Site Plan (Orchard Design Studio Inc., June 2025)
Source Protection Mapping



North Arrow

True North:

ORCHARD
DESIGN STUDIO INC.
marketingmeetsarchitecture

CALE BARNES

MAIN ST. EAST TOWNS
271 MAIN STREET EAST, DUNDALK, ON

Set Issuance

No.	Date	Description
4	2024-07-30	REVISED AS PER CITY
5	2024-11-07	REVISED AS PER CLIENT
6	2024-12-20	REVISED FOOTPRINTS
7	2025-03-12	CURB REVISIONS
8	2025-06-25	ISSUED FOR SPA

Sheet Information

SITE PLAN

Project No. 15572
Project Start Date: 2024-01-25
File: 271 Main Street - Site Plan.dwg
Drawn by: J.P.
Scale: 1:250

SPA

A1.01

Plot Date | Time - 2025-07-02 8:32:14 AM

UNITS BREAKDOWN

NUMBER OF BEDROOMS	AREA	NUMBER OF UNITS
3 BEDROOM UNIT	126.6 sq. m (1,356 sq. ft.)	20

PARKING

NUMBER OF PARKING SPACES	REQUIRED	PROPOSED
	2.0 PER UNIT = 40 SPACES	20 WITHIN GARAGE 20 DRIVEWAYS + 1 VISITOR + 1 B.F. SPACE = 42 SPACES

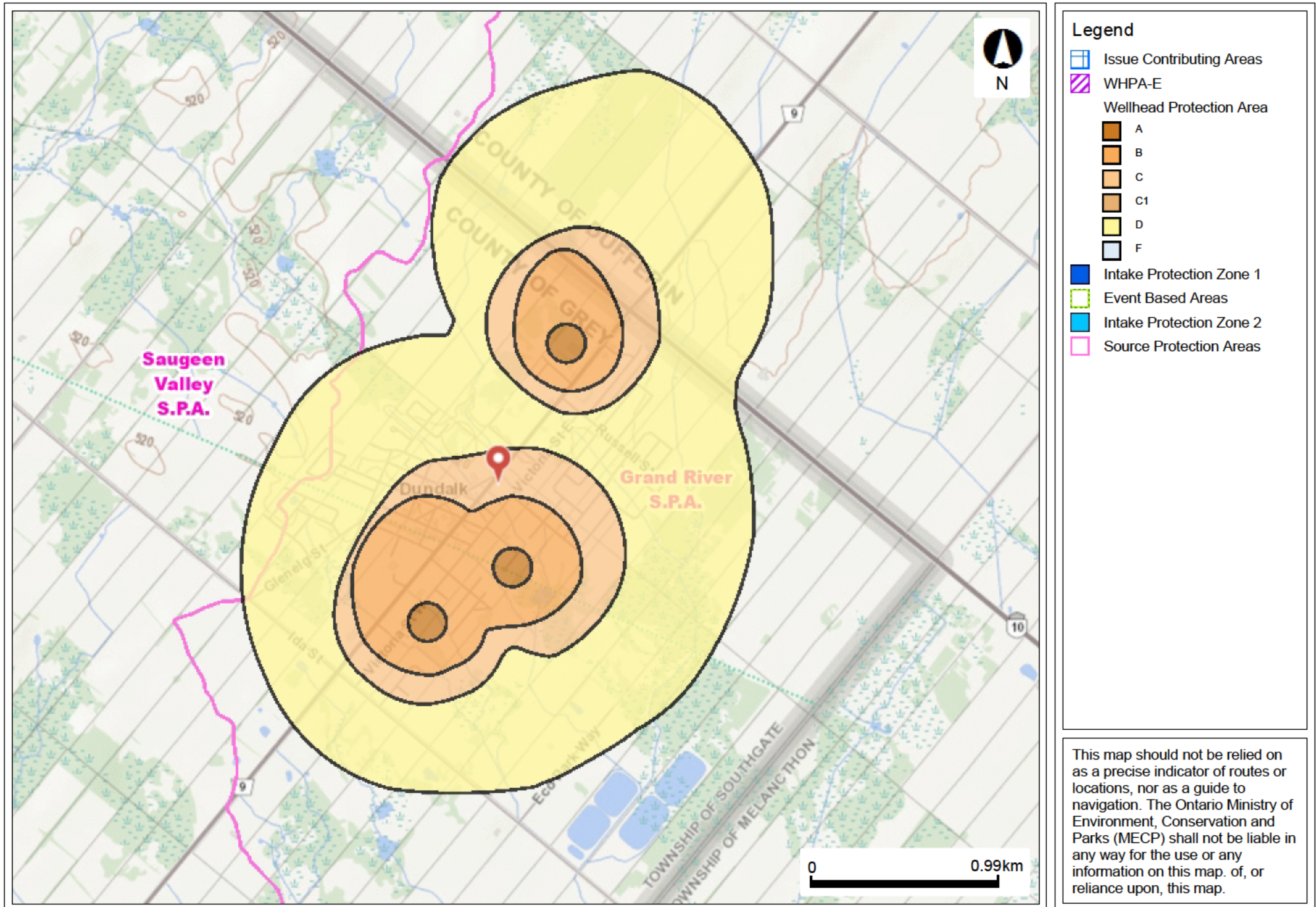
SNOW STORAGE

SNOW TO BE SHIPPED OFF SITE.

EXISTING ZONING R3 - 10.1 (e)
PROPOSED SITE SPECIFIC ZONING

REGULATION	REQUIRED	PROPOSED
LOT FRONTAGE	40 m	41.036 m
LOT AREA	1,200 sq.m	2,602.3 sq.m
UNITS ALLOWED (MAXIMUM)	LOT AREA (2,602.3 sq.m) / 300 = 8 UNITS	* 20 UNIT
LOT COVERAGE (MAXIMUM)	910.8 sq.m (35%)	*1,159.52 sq.m 44. %
FRONT YARD (MINIMUM)	7.5 m	*2.7 m
INTERIOR SIDE YARD (MINIMUM)	4.0 m	4.1 m
REAR YARD (MINIMUM)	10.0 m	10.7 m
FLOOR AREA (MINIMUM)	3 BEDROOM: 65 sq.m	3 BEDROOM: 114.3 sq.m
BUILDING HEIGHT (MAXIMUM)	3 STOREYS	3 STOREYS
PLAY SPACE (MINIMUM)	104.0 sq.m	*60.4 sq.m
AMENITY SPACE (MINIMUM)	1120.0 sq.m	*596.7 sq.m
		391.0 sq.m BACK YARD
		145.3 sq.m BALCONY
		60.45 sq.m AMENITY

Source Protection Mapping - 271 Main Street East, Dundalk



This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Environment, Conservation and Parks (MECP) shall not be liable in any way for the use or any information on this map. of, or reliance upon, this map.