

July 29, 2024
33259-24

786 Group Inc.

**Re: Salt Management Management Plan [DRAFT]
Proposed Truck Parking Lot
265 Woolwich Street South, Township of Woolwich**

1.0 Introduction

Van Harten Surveying Inc. was retained to prepare a Salt Management Plan in support of the Zoning By-Law Application for the property located at 265 Woolwich Street South in the Township of Woolwich. The purpose of this Salt Management Plan is to provide guidelines for the salt management procedures for the site. It should be noted that this Salt Management Plan is a guideline for salt application procedures and that public safety supersedes this plan. It is the responsibility of the Winter Maintenance Contractor and Site Owner to assess the site conditions and ensure appropriate salt application and snow removal for public safety.

2.0 Existing and Proposed Site Conditions

The site encompasses an area of approximately 3.52 ha and is currently comprised of meadow and natural hazard lands. The site is bounded by an existing residential property to the north, natural hazard lands to the east, Woolwich Street South to the west, and a residential/commercial property to the south.

According to the Site Plan prepared by Harper Dell & Associates Inc. (July 2024) the proposed development will be comprised of the following:

- A gravel truck parking lot with a total of 96 spaces.
- Landscaped areas and natural hazard lands.

Access to the proposed development will be provided by a 10.6 m entrance from Woolwich Street South.

3.0 Methodology

The Salt Management Plan for the site will outline the following:

- Identify high traffic, sensitive features, and snow storage areas.
- Recommend and help establish effective salt application rates.
- Recommend/establish effective engineering measures, operating measures, and monitoring.

- Create an adaptive benchmark system to aid the Site Owner and Winter Maintenance Contractor with winter maintenance practices while imparting minimal impact on the environment.

It is recommended that this plan be read in conjunction with the Transportation Association of Canada (TAC) – Syntheses of Best Management Practices Road Salt Management.

3.1 Identification of Traffic Areas and Sensitive Features

The proposed development will be comprised of a gravel truck parking lot with a total of 96 parking spaces. Access to the proposed development will be provided by a 10.6 m entrance from Woolwich Street South. The high traffic areas identified on the site includes the site entrance only. The site entrance may use chloride salt to ensure safe pedestrian and vehicle access to the property. All high traffic areas can be referenced on the Salt Management Plan, attached.

According to the Ministry of Environment, Conservation, and Parks Source Protection Information Atlas (accessed July 18, 2024) the site is located in a Wellhead Protection Area (C) with a vulnerability score of 4. In addition to the above, the site is located in a WHPA-E area with a vulnerability score of 4-7.9, a well intake protection zone 3 with a vulnerability score of 0-3.9, and there is a highly vulnerable aquifer located at the entrance of the site.

Due to the site being located in a well head protection area and a well intake protection zone salt application should be minimized wherever possible and only clean water should be infiltrated.

3.2 Identification of Snow Storage/Disposal Areas

As previously mentioned, the majority of the snowfall that will require storage on-site is from the gravel parking lot (i.e. approximately 8,590 m² of surface area). Snow storage will be provided on-site at the east end of the parking lot. Should the property become inundated with snow due to consecutive snowfall events or a major storm event it will be the responsibility of the Site Owner and Winter Maintenance Contractor to determine if snow should be removed and disposed off-site.

3.3 Use of Alternative Products

There are several proprietary ice control/winter maintenance products currently available that do not utilize chloride dissolution to melt ice. The main principle that these products utilize to inhibit ice and snow bonding to asphalt is ionization. Unfortunately, these products can be considerably more costly to purchase and apply than traditional chloride salts. Additionally, the effectiveness of these products is currently limited. It is recommended the Site Owner and Winter Maintenance Contractor employ several different products and monitor their effectiveness overtime to establish the most appropriate product for the site given the weather conditions.

The use of salt alternatives will be subject to review by the Site Owner and Winter Maintenance Contractor due to the additional costs and limited effectiveness.

3.4 Engineered Measures

Referring to the grading plan, the site has been graded to direct all runoff/snow melt to the depression storage area. Effective site grading will ensure snow melt is directed to the depression storage area which will aid in the reduction of ice formation.

All snow should be stored in an area such that snow melt is directed to the depression storage area for polishing prior to discharging to the GRCA regulatory watercourse.

3.5 Operation Measures and Monitoring

In order to avoid excessive chloride salt usage on the property, the primary winter maintenance method will be timely removal of snow and ice from the parking lot and entrance. Ice control products permitted for use on-site should be limited to alternative ice melting products that do not contain chloride salts whenever possible. However, the entrance to the site may use chloride salt to ensure safe accessibility and vehicle access to the property.

Chloride salt is understood to have an effective temperature range for ice melting between +4°C and -1°C. Chloride salt application should be avoided outside of these temperature ranges to avoid excessive chloride concentrations. Chloride salt application machinery should be used to apply salt to sensitive areas and the machinery should be calibrated such that salts are evenly and properly applied in a non-excessive manner at a specified rate. The typical application rate for salt in parking lots is 100 grams per square metre (temperature dependent) and this rate should not be exceeded.

It is understood that private developments are a significant source of chloride runoff during winter and spring months due to the over-application of chloride salts. In order to mitigate excessive salt usage, the Site Owner and Winter Maintenance Contractor should observe the recommendations noted in this plan and the Transportation Association of Canada (TAC) – Syntheses of Best Management Practices Road Salt Management. The Site Owner should hire a Winter Maintenance Contractor who is familiar with this plan, salt management reduction practices, and various salt management best practices.

4.0 Conclusion

In conclusion, this Salt Management Plan will aim to reduce the chloride salt use on the site. It is noted that public safety is the number one priority for winter maintenance, and should extreme cases occur the Site Owner and Winter Maintenance Contractor may use their best judgement when completing winter maintenance.

The Site Owner and Winter Maintenance Contractor should be aware of this report and should be aware of various salt management best practices for winter maintenance. This plan is adaptive and best management practices should be undertaken by the Site Owner and Winter Maintenance Contractor to ensure long term chloride reduction for the site.



The completed Salt Management Plan is specific to the subject property based on our knowledge of the proposed development. Please contact our office if you have any questions or require further consultation.

Van Harten Surveying Inc.

[DRAFT]

**Brett Pond, E.I.T.
Engineering Intern**

Encl. Figure 1 – Salt Management Plan

Van Harten Surveying Inc.

[DRAFT]

**Kristine Campbell, P. Eng.
Professional Engineer**

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