Groundwater Management Plan

Intrusive Construction Activities
788 March Road Development
Ottawa, Ontario

Revision: 0A (Draft)

Prepared for:

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Title:	Groundwater Management Plan, Intrusive Construction Activities, 788 March Road Development, Ottawa, Ontario	
Client:	SINA	
Project Number:	23-215-2	
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Prepared by:	Glen Briscoe	
Reviewed by:	Tim Galt	
Approved by:	Glen Briscoe, P.Eng.	

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1 INTRODUCTION

Geofirma Engineering Ltd. was retained by SINA to prepare a Groundwater Management Plan (GWMP) for the proposed development at 788 March Road, Ottawa, Ontario. The GWMP is meant to satisfy the City of Ottawa requirements for groundwater management on a construction project.

Company Name: SINA

Company Contact: Mohamed El-Koury

Project Name: 788 March Road Development

Project Address: 788 March Road, Ottawa, Ontario

Timeline/Duration of the Project: July 2024 through 2025

1.1 Overview

SINA plans to construct a residential tower at 788 March Road, Ottawa, Ontario. The construction will require excavation to the bedrock surface below the water table. This GWMP was developed by Geofirma Engineering Ltd. and describes the procedures and plans associated with groundwater management during the intrusive construction activities at the 788 March Road site. The site is currently an undeveloped greenspace that is to be developed to a multi-storey residential use property; with one tiered level of underground vehicle parking. As part of the development, overburden material will be removed and shallow bedrock will be excavated to accommodate the proposed underground parking, footing foundations, building sumps, and elevator sump pit.

The GWMP describes the effects construction and excavation will have on the surrounding areas and the water table, groundwater, and water usage within the area and describes the procedures that may be used to ensure the discharged water is disposed of in accordance with City and/or Ontario Ministry of Environment, Conservation and Parks (MECP) requirements. Based on the previous environmental, geotechnical and hydrogeological studies completed by Geofirma at the site, the groundwater discharge during construction is estimated to be in the one to two cubic metres per minute (m^3/min) range. The estimated groundwater inflow is highly dependant on actual ground conditions encountered within the excavation therefore a safety factor of 10x should be applied allowing for up to 20 m^3/min discharge. Based on the existing studies there is no evidence of potential groundwater contamination on the site.

Based on the projected volume of water to be pumped, a permit to take water (PTTW) will be required from the MECP. The water will either be discharged to a City storm sewer or to ground surface depending on regulatory approvals.

1.2 Purpose and Scope

The purpose of the GWMP is to provide a breakdown of the practices to be implemented, ensuring no adverse effects occur from the groundwater taking and discharge. The plan includes an assessment of the site location, proposed methods for water treatment and disposal, an assessment of the discharge quality and quantity, the location of the discharge, monitoring plan, and contingency plan.

2 GROUNDWATER MANAGEMENT

To maintain unsaturated conditions in the excavation during construction, temporary sumps within the excavation and a perimeter drain will be used to collect groundwater inflow and any surface water entering the excavation. The water collected in the temporary sumps will be pre-treated as needed with a mobile treatment unit and discharged to the City storm sewer in accordance with Sewer Use By-Law No. 2003-514 or to ground surface.

2.1 Pre-treatment of Groundwater

Excavation and construction activities will cause an increase in soil sediment within the discharge water. This soil sediment will be settled out using settling ponds or tanks or filtered using an onsite water treatment system to meet discharge guidelines (e.g. By-Law 2003-514 Table 2: Limits for Storm Sewer Discharge) prior to discharge.

2.2 Water Quality and Discharge Monitoring

A flow meter will be employed to track the total volume of water discharged on a daily basis. The discharge and any treatment works will be monitored on a daily basis to ensure the system is operating as designed. A daily monitoring log will be maintained by the Site Supervisor or their designated monitor.

Samples for total suspended solids will be collected from the final discharge point prior release to the storm sewer or ground surface to ensure compliance with applicable discharge limits. Daily samples will be taken for the first week of operation, followed by weekly sampling provided the discharge is meeting applicable discharge guidelines. A sampling log will be maintained by the Site Supervisor or their designated monitor.

Site Supervisor:

Contact Info:

2.3 Contingency Plans

It is not expected that the dewatering activities will have an effect on the surrounding users or natural systems. There are no local users of groundwater as the site is within an urban area which is supplied potable water. The area of influence will be limited to the sediment and shallow bedrock below and adjacent to the site. If it is found that the dewatering activities are adversely affecting the surrounding areas unexpectedly, mitigation measures will be put in place to ensure no lasting effects occur.

Once the water meets discharge guidelines, it is released back into the environment on site at ground surface or through the storm sewer network therefore re-entering the water cycle.

Methods that result in water discharge to surface or into the storm sewer drain will be managed to ensure they do not cause adverse effects to the environment. Mitigations measures that will reduce environmental effects may include, but are not limited to:

- Treatment and sampling of discharge water;
- A spill prevention and response plan will be implemented during construction including best management practices for fuel storage and refueling activities.
- Use of an onsite engineered discharge swale to reduce erosion;
- Use of hoses and sewer lines to avoid surface runoff and erosion;
- Regular checks of water systems to ensure no leakage of failures; and
- Further treatment or protection methods as required.

A redundant pump system with back up power will be employed to ensure that dewatering activities can continue during pump or power failure.

If samples fail to meet the set City of Ottawa sewer discharge limits, additional treatment processes such as settling tanks and/or filtration may be added. A dewatering/treatment equipment provider will be identified prior to initiating dewatering activities to ensure that additional equipment is readily available if required. To ensure the maximum capacity of the storm sewer is not exceeded during discharge events, the discharge rate will be monitored; however, these rates are not expected to exceed the sewer capacity.

If a failure has occurred and unexpected contaminants have been discharged to the sewer system or environment, the system must be temporarily shut down until a solution can be implemented. If contamination above guidelines has entered the environment or the sewer system the appropriate authorities will be notified.

Contingency plans will be enacted by the site supervisor or their delegate if required.

Site Supervisor:

Contact Info:

3 AFFIRMATION OF UNDERSTANDING AND COMPLIANCE

All parties have read and understood the terms and conditions of this GWMP and agree to abide by these terms and conditions and ensure that discharge is compliant with the Sewer Use By-Law.

Project Manager:
Cell Number:

Site Supervisor/Foreman:
Cell Number:

Site Discharge Monitor:
Cell Number:

4 REFERENCES

City of Ottawa, 2003. Sewer Use By-Law No. 2003-514.

City of Ottawa. Groundwater Management Plan for Construction Projects reference document.

Geofirma Engineering Ltd., 2024. Hydrogeological Study, Estimation of Groundwater Inflow to the Proposed 788 March Road Development, Kanata, Ontario. Prepared for SINA. Final Report Revision: 0, February 29.

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Ontario Water Resources Act, R.S.O. 1990, Chapter O.40.

Ontario Regulation 245/11, Ontario Environmental Protection Act, Registrations Under Part II.2 of the Act – General.

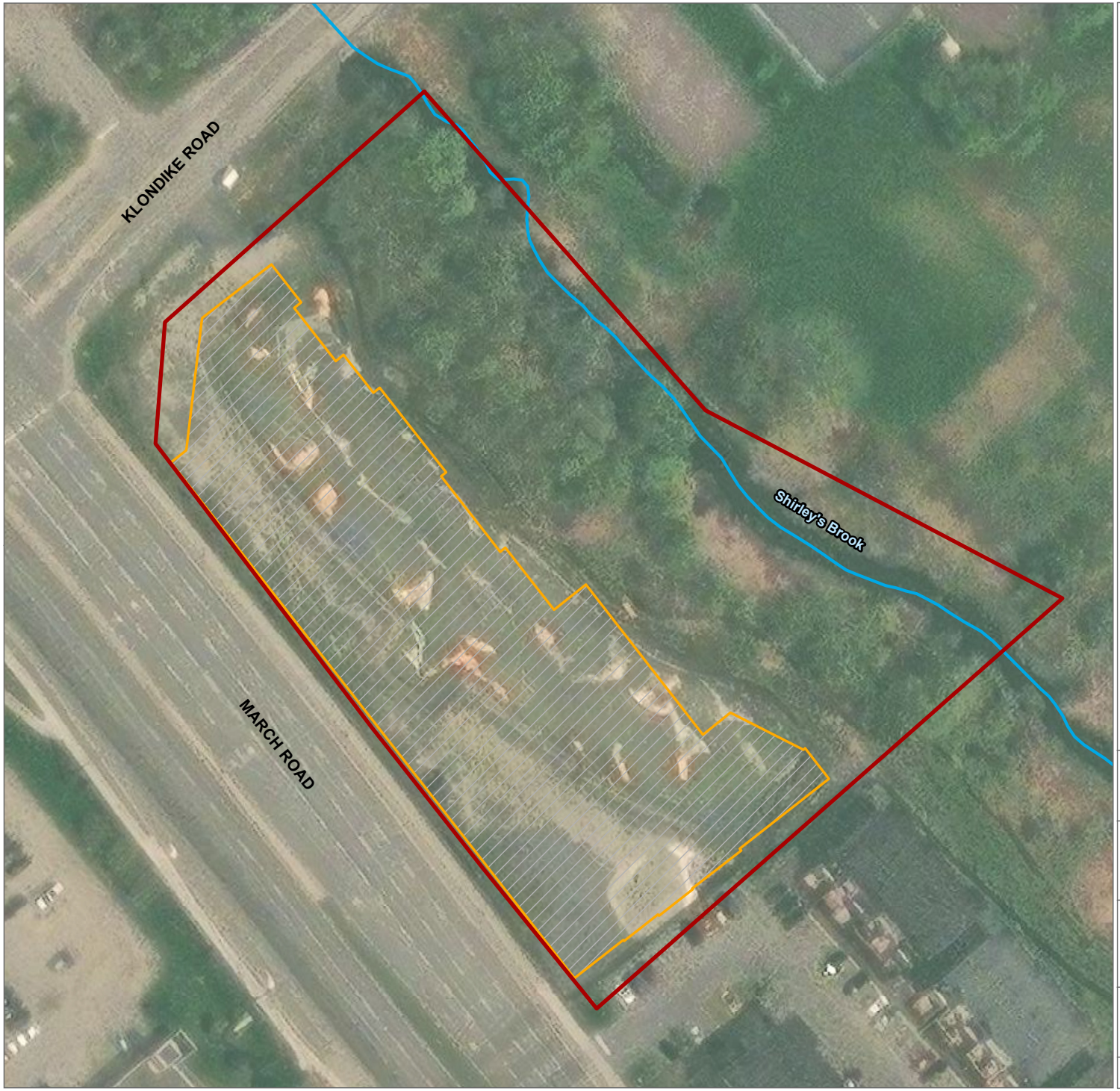
Ontario Regulation 63/16, Ontario Environmental Protection Act, Registrations Under Part II.2 of the Act – Water Taking.

Ontario Regulation 347/04, Ontario Water Resources Act, Water Taking and Transfer.

Ontario Regulation 525/98, Ontario Water Resources Act, Approval Exemptions.

Ontario Ministry of Environment, 1994. Water Management: Policies, Guidelines, Provincial Water Quality Objectives, ISBN 0-7778-8473-9, PIBS 3303E, July.

Figure 1: Site Layout



LEGEND

788 March Road - Property Boundary

Footprint of the Proposed Excavation

Figure 1
Site Layout - 788 March Road

Scale 1:1,000

0 5 10 20 30 40 50
Meters

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

PROJECT No. 23-215-2

Hydrogeological Support,
788 March Road, Ottawa, Ontario

DESIGN: ADG
CAD/GIS: ADG
CHECK: GDB
REV: 0

N

DATE: 2024-02-21

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