

SUBJECT

Construction Water Management and Monitoring Plan – City of Iqaluit Long Term Water Program

TO

Kevin Kerr, P.Eng.
Director of Engineering and Capital Projects
City of Iqaluit

DATE

29 July 2026

OUR REF

30192375

DEPARTMENT

Environmental

SERVICE CONTRACT NO.

SC001318

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1. INTRODUCTION

This technical memorandum was prepared by Arcadis to outline the proposed Construction Water Management and Monitoring Plan for the City of Iqaluit Long Term Water Supply Program (LTWP) – Raw Water Supply and Storage (RWSS) project (hereafter called the Project). This version of the Construction Water Management and Monitoring Plan was prepared for review by the Nunavut Water Board (Board), the City of Iqaluit (City), and their Representatives.

2. INITIAL DEWATERING

Five ponds (Pond A to E shown in **Figure 1**, appended) are located within the footprint of the proposed new reservoir and access road associated with the Project. These ponds are to be dewatered in preparation of construction activities. Water in Ponds A and B, located within the footprint of the proposed new reservoir, is to be discharged to existing drainage channels at Discharge Point 1 or 2, shown on **Figure 1**. Discharge Point 1 is favoured as this location aligns with the existing drainage direction of Ponds A and B and provides water to Lake Geraldine (the City's existing reservoir).

Water in Ponds C, D and E, located within the footprint of the proposed new reservoir and along the access road, is to be discharged to the existing drainage channel at Discharge Point 3, shown on **Figure 1**. Discharge Point 3 is located within the existing drainage path of the three ponds and water discharged at this point would ultimately drain to the Apex River.

All pond water is to be treated as necessary to meet the water quality objectives outlined in **Section 4** before being discharged to ground. Discharge points must conform to the requirements in **Section 5**. Anticipated pond water volumes and sample requirements are presented in **Table A1**, at the rear of this memo.

3. WATER MANAGEMENT DURING CONSTRUCTION

Contact water management is to adhere to the following plan once construction activities commence:

1. No onsite contact water is to be allowed to enter Lake Geraldine;
2. All contact water is to be directed to an approved sump location (proposed sump locations near the new reservoir are shown on **Figure 1**, appended);

- 3. All contact water is to be treated as necessary to meet the water quality objectives outlined in **Section 4** before being discharged to ground.
 - a. Grab samples are to be collected in combination with *in-situ* field readings of pH, temperature and turbidity.
 - b. Grab samples to confirm contact water quality are to be collected and tested no more than five days prior to discharge and are to be representative of the water conditions at the time of discharge.
- 4. All contact water is to be released to an approved discharge point that conforms to the requirements in **Section 5**

Discharge Points 2 to 4 on **Figure 1** are proposed for contact water to be discharged near the proposed reservoir, as these points drain towards Apex River (not Lake Geraldine). Dewatering of any construction related areas (including but not limited to excavations, laydown areas, quarries, and borrow pits), must meet the requirements outlined in this memorandum. In-water work is proposed at Lake Geraldine, Apex River and Lake Qikiqtaalik as part of the Project and may require silt curtains; however, any contact water associated with in-water work is to be directed towards an approved sump.

4. WATER QUALITY OBJECTIVES

All grab samples are to be tested for the parameters listed in **Table 1**. No water is to be discharged to ground until water quality results meet the criteria listed and applicable City and Board approvals are obtained.

Table 1: Water Quality Objectives

Parameter	Criteria
pH	between 6 and 9
Total Suspended Solids (TSS)	< 30 mg/L
Ammonia (NH3-N):	< 4.0 mg/L

Note: mg/L = milligrams per litre

Since TSS is determined by laboratory gravimetric analysis and is not available in real time, turbidity is proposed as a surrogate monitoring parameter for active construction water management. This is to be accomplished by collecting paired turbidity measurements and laboratory TSS samples during representative discharge events, developing a site-specific correlation between turbidity and TSS, and then using the corresponding turbidity value as an operational trigger to demonstrate or maintain compliance with the applicable TSS-based effluent limit. The City proposes to file the TSS-turbidity correlation testing with the Board at the onset of monitoring.

5. DISCHARGE POINT REQUIREMENTS

All discharge points are to meet the following requirements:

- 1. All discharge points are to be approved and inspected prior to their initial use by the City or their Representative;
- 2. All discharge points must be located at least 30 metres from the high-water mark of any receiving waterbody or watercourse;
- 3. All discharged water must be run through a diffuser (e.g., approved rock bed);

4. Erosion and Sediment (E&S) controls are to be installed to prevent discharged water from adversely impacting Apex River (including its tributaries), Lake Geraldine and Lake Qikiqtalik; and,
5. All construction contact water must be discharged and directed away from Lake Geraldine.

6. MEANS AND METHODS

Means and methods of dewatering, treatment and E&C control are to be determined by the Contractor and are to adhere to the related Project Specification.

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Table A1 Estimated Pond Water Volumes and Sampling Requirements

Figure 1 Water Management Plan

Table A1: Estimated Pond Water Volumes and Sampling Requirements

Pond ID	Water Elevation at Time of Volume Estimation (masl)	Estimated Water Volume (m ³)	Sampling Requirements
Pond A	120.8	45,000	Two grab samples (minimum 150 metres apart) Sample analysis to include parameters outlined in Section 4 In-situ field readings of pH, temperature and turbidity to be recorded at the time of sample collection
Pond B	119.1	32,000	Two grab samples (minimum 150 metres apart) Sample analysis to include parameters outlined in Section 4 In-situ field readings of pH, temperature and turbidity to be recorded at the time of sample collection
Pond C	121.5	4,000	One grab sample Sample analysis to include parameters outlined in Section 4 In-situ field readings of pH, temperature and turbidity to be recorded at the time of sample collection.
Pond D	119.0	4,500	One grab sample Sample analysis to include parameters outlined in Section 4 In-situ field readings of pH, temperature and turbidity to be recorded at the time of sample collection.
Pond E	118.8	6,000	One grab sample Sample analysis to include parameters outlined in Section 4 In-situ field readings of pH, temperature and turbidity to be recorded at the time of sample collection.

Note: Grab samples to confirm pond water quality are to be collected and tested no more than five days prior to discharge and are to be representative of the water conditions at the time of discharge.



NOTES:

- PROPOSED NEW RESERVOIR FOOTPRINT
- PROPOSED ACCESS ROAD
- - - APPROX. PATH OF EXISTING DRAINAGE

- ▭ PROPOSED CONTACT WATER SUMP
- ▲ PROPOSED DISCHARGE POINT
- ➔ EXISTING DRAINAGE DIRECTION

1 METRE TOPOGRAPHIC CONTOUR INTERVALS | IMAGE SOURCE: GOOGLE EARTH © 2026 AIRBUS

CONSTRUCTION WATER MANAGEMENT AND
MONITORING PLAN – LTWP RWSS
IQALUIT, NUNAVUT

WATER MANAGEMENT PLAN

REV	DATE	DESCRIPTION	PREPARED BY	REVIEWED BY
1	29 July 2026	ISSUED WITH 2026 TECH MEMO	JEH	



FIGURE
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