

## **1.0 THE PROPONENT**

### **(i) Name of Proponent:**

Saint John Airport Inc. (SJAI)

### **(ii) Address of Proponent:**

4180 Loch Lomond Road  
Saint John, New Brunswick  
E2N 1L7

### **(iii) Chief Executive Officer:**

Derrick Stanford, President and CEO

### **(iv) Principal Contact Person for purposes of Environmental Impact Assessment:**

Brian Wiggins, P. Eng., Director of Operations and Maintenance

### **(v) Property Ownership:**

The overall project involves the drilling of three or four exploratory water supply wells to meet the demand for the Saint John Airport (herein SJAI). This phase of the project involves drilling at one target area, identified as 'Area 2', with specific locations within the target area as identified in Figure 11 of the attached report (BGC 2017). The site is owned by SJAI on PID 00354415. Crown land is not involved.

## **2.0 THE UNDERTAKING**

### **(i) Name of the Undertaking:**

Groundwater Exploration in the vicinity of the Saint John Airport to augment or fully replace their current water supply.

### **(ii) Project Overview:**

This phase of the project involves the drilling of three or four exploratory pilot holes (150 mm diameter) and one production-scale water supply well (400 mm diameter) within the green polygon identified in the attached report as Figure 11, repeated below.

It is not expected that tree cutting or road building will be required to access the drill targets, but some (minimal) drill pad building may be needed to provide secure drill sites. Placement of some fill may be required at the specific drilling locations. The test wells will be drilled by air-rotary means at a diameter of 150 mm. One larger diameter well (400 mm) will be drilled and test pumped. The discharge of pumped water to the environment will be carried out in such a manner that local recharge is not encouraged and all potential environmental effects (such as siltation, local flooding etc.) are mitigated.

To the extent feasible, the drill sites will be restored to pre-existing conditions after the testing period.

### **(iii) Purpose/Rationale/Need for the Undertaking:**

The Saint John Airport is considering groundwater options to augment or fully replace its potable supply. The current water supply is obtained as raw (untreated) water from the City of Saint John's Loch Lomond surface water supply, with a small dedicated on-site treatment plant. In order to make necessary upgrades to the surface water treatment plant, SJAI has received estimates on the order of \$3 million. A groundwater-based water supply is expected to significantly reduce treatment costs.

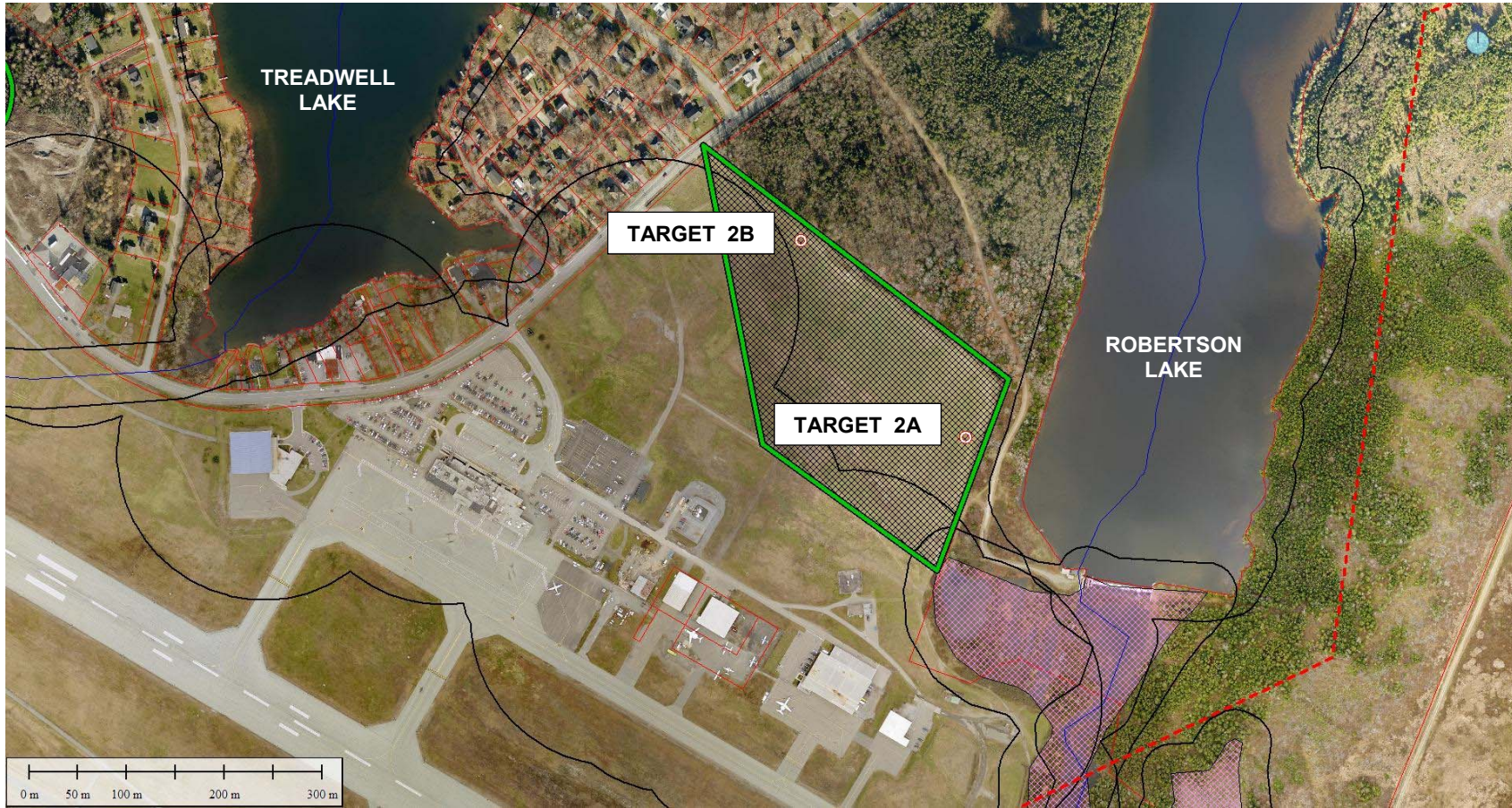


Figure 1. Selected Drill Targets in Area 2. (BGC 2017)

**(iv) Project Location:**

The location of the project is shown in Figures 1 and 11 in the attached report (BGC 2017), and on the above reproduced Figure 11. The associated parcel identification number (PID) is 00354415.

Wetlands are located within the study area, as shown in Figure 6 of BGC (2017). Test wells will be located more than 60 metres from these wetlands and watercourses. Access to drill sites will be made in such a manner so as to have no adverse impact on the wetlands or associated watercourses.

**(vi) Physical Components and Dimensions of the Project:**

Each of the drill sites would be approximately 100 square metres in area (10 metres by 10 metres), to accommodate a safe working area and equipment staging.

If the subject area was later developed as a water supply wellfield the project might include one or more wellhouse buildings, but such work would be beyond the scope of the exploratory phase for which this registration would apply.

The key physical components of the project include:

- Provision of temporary access to each of three drill sites for an air rotary drill. This could involve placement of a small amount of fill at each drill pad.
- The drilling of test wells by air-rotary means, with subsequent pumping tests.
- The drilling and test pumping of one larger diameter well.
- The discharge of pumped water to the environment in such a manner that local recharge is not encouraged and all potential environmental effects (such as siltation, local flooding, etc.) are mitigated.
- The restoration of drill sites to pre-existing conditions.

The duration of the total construction period is estimated to be three months.

**(vii) Construction Details (if applicable):**

Up to three conventional 150 mm diameter water wells plus one larger diameter screened well.

**(viii) Operation and Maintenance Details:**

The key features of the operation would be as per (vi) above.

**(ix) Future Modifications, Extensions, or Abandonment:**

An extension to this registration will be sought or the submission of a new registration will be made in the event that SJAI decides to explore one or more additional wellfield areas. This application, however, refers to the 'Area 2' site only.

**(x) Project-Related Documents:**

Two documents are attached:

- WSSA Initial Application (formerly Step One WSSA)
- Groundwater Supply Investigation Report for Task 1 – Drill Target Selection, Saint John Airport (BGC 2017)

### 3.0 DESCRIPTION OF THE EXISTING ENVIRONMENT

#### (i) Physical and Natural Features:

The bedrock geology mapping of the Airport and the specific target area reveals a complex sequence of rock which is generally Late Neoproterozoic, Cambrian and Late Carboniferous in age. The structural contacts and faulting in the bedrock follow a general northeast-southwest orientation within the study area. The mapped bedrock information is shown in Figure 4 of BGC (2017), attached.

Based on the surficial mapping, two separate infilled channel deposits have been identified and mapped within the outlined study area in Figure 3 of BGC (2017), attached, as follows:

- One situated between Loch Lomond and Latimer Lake, trending roughly in a general north-south orientation
- A second situated at the western end of the study area, along Loch Lomond Road, trending in an east-northeast to west-southwest orientation.

#### (ii) Cultural Features:

No recognized recreational sites or features, tourism features or attractions, cultural activities, hunting, fishing, gathering, reserves, traditional uses by First Nations, etc. are known for either the subject property or adjacent lands.

No recognized heritage and/or built heritage resources/areas (e.g. historic sites, historic buildings or structures, national or provincial parks, fossils, archaeological sites, etc.) are known for the subject property or adjacent lands.

#### (iii) Existing and Historic Land Uses:

The property is currently home to the Saint John Airport, and has been since its original development and construction in 1952. There have been expansions to the airport infrastructure during that time.

### 4.0 SUMMARY OF ENVIRONMENTAL IMPACTS

Possible environmental impacts include:

- Damage to vegetation during construction of site access;
- Contamination due to a chemical release;
- Noise from construction and well drilling equipment and from electrical generation if used;
- Siltation from surface water or pumped water due to the erosion of disturbed ground; and
- Flooding of subject or adjacent properties during completion of pumping test(s).

Impacts to future land uses and activities in the event that the evaluated area were to be developed as a water supply wellfield are not considered here since this project is one of exploration only.

### 5.0 SUMMARY OF PROPOSED MITIGATION

**Damage to vegetation during construction of site access:** Efforts will be taken to minimize tree cutting and vegetation removal, and later, to revegetate disturbed areas. Monitoring and inspection will take place.

**Contamination due to a chemical release:** An environmental protection plan and protocol for refueling and waste disposal activities will be instituted. Leak and spill prevention plans addressing equipment maintenance, materials storage and handling will be in place. A contingency plan for spill notification and clean-up will be developed. Monitoring and inspection will take place.

**Noise from construction and well drilling equipment and from electrical generation if used:** Timing restrictions will be in place. No grading, trucking or drilling will take place before 7 am or after 7 pm.

**Siltation from surface water or pumped water due to the erosion of disturbed ground:** The works will not be located near (within 30 metres of) identified watercourses or wetlands. Erosion and sediment control plans will be instituted. Monitoring and inspection will take place.

**Flooding of subject or adjacent properties during completion of pumping test(s):** A stormwater management plan will be in place. Pumped water will be piped away if required. Monitoring and inspection will take place.

**6.0 PUBLIC INVOLVEMENT**

Public consultation will be included in the project for if and when, following exploration, it becomes clear that the target area could become a viable water supply wellfield for the Airport.

**7.0 APPROVAL OF THE UNDERTAKING**

A submission has been made for Water Supply Source Assessment approval by DELG under the *Water Quality Regulation* of the *Clean Environment Act* (506) 453-7945;


**8.0 FUNDING**

No applications for a grant or loan of capital funds from a government agency have been or will be submitted.

**9.0 SIGNATURE**

Brian Wiggins, Director of Operations and Maintenance for:

July 24, 2107  
Date

  
Signature of Chief Executive Officer  
(Derrick Stanford, President and CEO)

## Water Supply Source Assessment Initial Application

Please provide the following information:

- 1) Name of proponent.

*Saint John Airport Inc. (herein "SJA")*

- 2) Location of drill targets (including property PID) and purpose of the proposed watersupply.

*Drill targets are located in a vacant field along the north edge of the Airport's property (PID 00354415), between Treadwell Lake and Robertson Lake and east of Loch Lomond Road. The targets are located close to the City of Saint John's Protected Watershed Area, and the exploratory drilling will be undertaken outside of the delineated Zone 'C' boundary.*

*The drill target areas are identified on the attached report (BGC 2017), labeled 'Area 1', 'Area 2' and 'Area 3'. The initial focus is intended to be on 'Area 2'.*

- 3) Required water quantity (in m<sup>3</sup>/day) and/or required pumping rate.

*SJA has yet to determine their required pumping rate. The estimate provided to BGC by SJA, from several years ago, was 85 m<sup>3</sup>/day. This is currently under review at SJA.*

- 4) List alternate water supply sources in area (including municipal systems).

*The most viable alternate supply would be the 'status quo' of tapping into the City's raw water pipe from Robertson Lake to Latimer Lake, with upgraded on-site treatment. The estimate provided to SJA to upgrade their existing water treatment plant (by others) is approximately \$3 million. A groundwater supply with less on-site treatment seems attractive.*

*Treated municipal drinking water is not available for the Airport, as the City's existing infrastructure for treated drinking water distribution does not extend that far along Loch Lomond Road. Conversations between SJA and the City indicate that there are no plans to extend the infrastructure to the Airport any time soon.*

- 5) Discuss area hydrogeology as it relates to the project requirements.

*Environment Canada (1979) identified that "nearly half of ... the Saint John Airport is located on a glaciofluvial terrace adjacent to the floodplain of the Mispec River", including portions of the runways, the terminal building and support buildings, suggesting that productive sands and gravels might be expected in this area from which to derive a viable groundwater supply. This information has been supported by more recent findings, as*

*discussed in the attached report (BGC 2017).*

**6)** Outline the proposed hydrogeological testing and work schedule.

*The proposed testing would include drilling between two and four 152 mm (6-inch) diameter test wells screened in the overburden, followed by hydraulic pumping tests; likely at the most promising test well location. If a suitable groundwater supply appears viable, then a larger diameter “production-scale” well could be constructed and tested in a similar manner.*

*The work schedule is to initiate the utility clearances ASAP, and begin drilling as soon as approval is received from the TRC. It is anticipated that the intrusive work (drilling and hydrogeological testing) would be completed by late summer or early fall.*

**7)** Identify any existing pollution or contamination hazards within a minimum radius of 500m from the proposed drill targets. Historical land use that might pose a contamination hazard (i.e. tannery, industrial, waste disposal, etc.) should also be discussed.

*The attached BGC (2017) report identifies and discusses constraints around the proposed drill target areas, including potential contamination sources. A tighter radius of 150 m was selected for known and/or suspected petroleum storage areas, both current and former.*

**8)** Identify any groundwater use problems (quantity or quality) that have occurred in the area.

*To our knowledge, the area supports quite a few privately-owned domestic wells with high reported yields during (or immediately following) drilling. With the combination of findings from prior BGC investigations in the Little River watershed, discussions with local drillers, and an evaluation of the OWLS database, it appears that the overburden aquifer within the infilled bedrock channel should be capable of providing a viable water supply.*

**9)** Identify any watercourse(s) (stream, brook, river, wetland, etc.) within 60 m of the proposed drill targets.

*The drill targets are located greater than 60 m from the nearest watercourses.*

**10)** Identify site supervisory personnel involved in the source development (municipal officials, consultants and drillers).

*SJAI: Brian Wiggins, P.Eng. – Director of Operations and Maintenance  
BGC: Kent Wiesel, M.A.Sc., P.Eng. – Senior Hydrogeological Engineer  
Drillers: E.R. Steeves*

**11)** Attach a 1:10,000 map and/or recent air photo clearly identifying the following:  
- proposed location of drill targets and property PID

- domestic or production wells within a 500 m radius from the drill target(s)
- any potential hazards identified in question 7.

*Refer to the figures in the attached BGC (2017) report.*

- 12)** Attach a land use/ zoning map of the area (if any). Superimpose drill targets on this map.

*Refer to the figures in the attached BGC (2017) report.*

- 13)** Contingency plan for open loop earth energy systems (see Section 2.3).

*Not applicable.*

Submit WSSA Initial Application:

c/o Manager

Department of Environment and Local Government

Environmental Assessment Section

Tel: (506) 444-5382

Fax: (506) 453-2627

Mailing Address:

P.O. Box 6000

Fredericton, New Brunswick

E3B 5H1

Physical Address:

20 McGloin Street, Marysville Place

Fredericton, New Brunswick

E3A 5T8