

# **The Township of North Glengarry**

## **Alexandria Drinking Water System**

### **2023 Annual and Summary Report**

In compliance with O. Reg 170/03, section 11 and O. Reg 170/03 schedule 22

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## Section 1: Introduction

This report is an annual summary of water quantity, quality system information, system operations and major expenditures for the Alexandria water treatment plant and distribution system during the reporting period of January 1, 2023 to December 31, 2023. It was prepared in accordance with section 11 and schedule 22 of the of Ontario's Drinking Water Systems Regulation O. Regulation 170/03.

## Section 2: System Description

The Alexandria Drinking Water System is categorized as a large municipal residential system and is made up of the following components: Alexandria Water Treatment plant, 2 elevated storage towers, and 2 separate distribution systems connected via a transmission main and booster station.

The water treatment plant is located on Gernish St West within the town of Alexandria and is rated as a class 3 facility. The raw source water for the treatment plant is taken from The Alexandria Mill Pond, which is characterized as surface water. The treatment facility has a rated capacity to produce 8,014m<sup>3</sup>/day of treated water, but is only permitted to intake 5,616m<sup>3</sup>/day from the Mill Pond.

The distribution system is comprised of 58.8kms of water pipes of varying sizes, isolation valves, pressure reducing valves, service connections and fire hydrants. The distribution system is located within the town boundaries of Alexandria and within the village limits of Maxville, with a transmission main that runs 20.4kms to connect the two systems together.

The treatment and distribution systems will be further discussed in section 3.

## Section 3: Process and Equipment Description

### Raw Water Intake

Located in Mill Pond, approximately 425m southwest of the water treatment plant, the intake is comprised of a precast concrete pipe, placed on top of a concrete slab housed in timber crib with screening.

A 350mm concrete pipe runs from the intake, east through the Island Park, then heads north on Park Avenue, before turning east again to enter the water plant in the low lift chamber.

The water flow from Mill Pond to the water plant is gravity based, and therefore is heavily influenced by water depth in the Mill Pond. The Mill Pond is part of a dam system controlled by the Raisin Region Conservation Authority, and as such the levels are monitored to ensure levels will be sufficient to supply the raw water demands.

### Low Lift Chamber/Raw Water Well

The chamber/well is located in the southwest corner of the water treatment plant. There are two coarse screens, located between the raw well entry and the low lift chamber to provide a coarse screening prior to pumping.

The low lift pumps consist of two vertical turbine pumps, rated at 6,200m<sup>3</sup>/day at 14.6m total dynamic head (TDH). Each pump is equipped with auto, manual and stop capability through the SCADA control system and at the electrical panel. A flow meter and electric valve are used to control flows from the low lift pumps, as the valve will modulate based on flocculation tank levels. At any time if the flows are near the Permit to Take Water (PTTW) restrictions, alarms will notify operational staff, the valve can be manually operated to ensure the limits are not exceeded.

Potassium permanganate is typically added to the raw well during winter and spring months, in order to oxidize manganese, which generally only increases when the Mill Pond under ice cover. Chemical addition ceases when the water temperature reaches 13°C or higher, to avoid the potential of oxidation of harmful algae and the release of microcystins and other cyanobacterial toxins. The chemical dosing is only applied as needed, based on raw/treated monitoring as compared to the aesthetic guideline limit.

### Coagulation/Flocculation/Sedimentation

Coagulant and polymer feed systems are in place at the water treatment plant to aid in the sediment removal from the raw water. The coagulant feed enters the process just before the in-line static mixer, which ensure the required flash-mixing is achieved. The polymer feed enters the process between the in-line mixer and the raw water meter, which is used to monitor the raw flow taken into the water treatment plant. The raw meter is also followed by an isolation valve, which is used to control the flows as described below.

The water is pumped from the raw well into flocculation tank 4, after which all flows through the treatment processes are based on elevation and gravity. The water travels through all four tanks, currently in series, finishing in tank 2 before being directed into the next process. The water velocity is reduced during this step, and constant gentle mixing is achieved through in-line agitators in each tank, which promotes floc development and stability. Level monitoring equipment is located at the outlet of tanks 2 and 4, which are also used to control flow from the low lift pumps and monitor settling basin levels.

Process water from the flocculation tank is directed into a common header and then into one of four settling basins, which are run in parallel. These basins are utilized to reduce the flow velocity even further in order to allow sediment and floc to fall out of suspension. Each settling basin is comprised of a concrete tank contain a baffle wall, a carriage mounted sludge collection system, tube settlers, collection pipe for effluent water and drain valves. The sludge removal program is run through the SCADA system and is based on amount of water treated through the filters, which can be adjusted to optimize the process.

### Filtration

The filtration system consists of four filters operating in parallel, each having a surface area of 11.3m<sup>2</sup> and the capability of filtering a maximum flow of 2003m<sup>3</sup>/day. The filters contain a surface wash system mounted above the filter media, which is composed of GAC and silicate sand. All filters are so equipped with loss or head monitoring, turbidity monitoring and water level monitoring. Below the media a stainless-steel underdrain system collects all filtrate effluent water and directs it towards the process piping. The effluent flow from all the filters is directed to the clearwell for disinfection through a main header pipe.

The backwash system is comprised of 2 pumps, duty and standby, controlled by variable frequency drives, a SCADA program for process control, valves, surface wash systems and all associated piping. The SCADA program monitors for various trigger points which would initiate an automatic backwash process, including time in operation, turbidity, and filter loss of head. Although the system is mainly run automatically, manual operations can be completed, or process points can be adjusted if required. All backwash effluent water is directed to the sludge holding tank, and then directed to the sanitary sewer system, of which flows are controlled by a manual gate valve.

### Disinfection

Chlorine gas is used as the only disinfectant in the water treatment process and is injected into the header pipe from the filters prior to entering the clearwell. The actual chlorination system consists of two vacuum regulated chlorinators, chemical lines, water piping, isolation valves, weight scales, cylinder selection switch, and four 68lbs chlorine cylinders, with two in service at a time. Chlorine cylinders are manually switched over by operational staff using all PPE and safety processes required.

The clearwell is divided into two wells (east and west) and each well is divided into smaller sections, which are labelled 1-4. The wells are interconnected through piping or sluice gate opening, controlled through manual valve operations. Influent water enters clearwell 4 and travels towards clearwell 1 before, which allows for the appropriate contact time for disinfection requirements.

After disinfection as the water is headed to the distribution ammonia sulfate is added to the chlorinated water to create a combined chlorine residual, which is a more stable and longer lasting disinfectant with reduced potential for disinfect by-product. The treated water is then metered, and chlorine residual are verified as it enters the distribution.

### High Lift Pumps

Three vertical turbine pumps are used to move the water from the clearwell to the distribution. The pumps are operated as duty and standby, with No. 1 and No. 3 located in clearwell 1; and No. 2 located in clearwell 4. Pump No. 2 is not to be run unless under an emergency scenario or if all the disinfection requirements are met, as per the Procedure for Disinfection of Drinking Water in Ontario as released by the Ministry of Environment.

### Distribution

The Alexandria distribution system is categorized as a class 2 distribution system. It is comprised of distribution piping in within Alexandria and Maxville.

The section within Alexandria contains 28.2kms of water mains of varying sizes, a 3,000m<sup>3</sup> capacity elevated storage tank, located in the northwest section of Alexandria, 145 fire hydrants and approximately 1,500 service connections. The Maxville distribution system is made up of 10.2kms of water mains, a 1,500m<sup>3</sup> capacity elevated storage tank, located on the southern boundary of Maxville, 82 fire hydrants and approximately 450 service connections. The two elevated storage are utilized for pressure monitoring, water storage, water supply and are both equipped with flow metering and residual monitoring equipment.

A 20.4 kms transmission main ties the 2 distribution systems together. The transmission main contains 17 fires hydrants, 32 air relief valves and a booster station, which is used to supply water to the Maxville Water Tower and to boost chloramine residuals.

### Automated Monitoring and Control

A fully automated SCADA system was installed in 2011 and in 2020 it the system was upgraded and expanded to include the Maxville Booster Station and Maxville Water Tower. This system is capable of monitoring, controlling, and recording all the plant processes and data, such as flows, filter backwash, chemical dosing and parameter monitoring. The system is also fully alarmed with multiple alarm set points, so that if any parameter is exceeded an alarm will be triggered on the SCADA desktop and through the auto dialer system. The on-call operator is then notified by the monitoring centre, which operates 24 hours a day, 365 days a year.

### Emergency Power

Multiple generators are in place at key locations throughout the drinking water system to ensure operations are always sustained and treatment is provided. An 175kW diesel powered generator is located at the Alexandria water treatment plant and is equipped with automatic transfer switch, for transition during the event of utility power fail. This generator is also utilized to power 90 Main St South, through manual transfer procedures if needed. An 85kW propane generator is in place at the Maxville Booster Station and is equipped with automatic transfer switch to ensure water delivery and secondary disinfection is provided to Maxville Water Distribution. An 18kW propane generator is in place at each water tower and both are

equipped with automatic transfer switch to ensure key water monitoring points and storage are always available.

**Additional Equipment.**

All piping, valves, controls, and appurtenances along with associated mechanical and electrical equipment not mentioned in the description but are utilized to make up the system.

**Section 4: Flow Summary**

In accordance with License #181-101, the Alexandria Drinking Water System was not operated to exceed the rated capacities of the treatment system. The permit to take water allows for a maximum daily raw flow of 5,616 m<sup>3</sup>/day and the water works license allows for a maximum treated water flow of 8,014m<sup>3</sup>.

In order to assess the rated capacity of the WTP in terms of meeting existing and planned uses of the system, a summary of the treated flow rates of water supplied during this period covered by this report was prepared and is presented in the chart below. The 2023 average daily treated flow was calculated to be 1,687m<sup>3</sup> and the maximum treated daily flow for the year was reported to be 2,960m<sup>3</sup>. This represents 21.1% of the total plant rated capacity. Refer to the appendices for full 2023 data summary.

2023 Treated Flow Summary	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Maximum Daily Flow (m <sup>3</sup> )	1,841	2,067	2,029	2,057	2,398	2,663	2,844	2,119	2,142	1,888	2,960	1,915
Monthly Average Flow (m <sup>3</sup> )	1,590	1,640	1,653	1,686	1,795	2,146	1,839	1,579	1,589	1,555	1,575	1,602
Monthly Average Daily Maximum Instantaneous Flow (m <sup>3</sup> /sec)	0.041	0.041	0.041	0.041	0.041	0.042	0.041	0.042	0.041	0.041	0.042	0.042
Rated Maximum Daily Flow for the approved system										8014 m <sup>3</sup> /day		
Rated Maximum Instantaneous Flow										0.093 L/s		

**Section 5: Sampling and Laboratory Analysis Summary**

The Township of North Glengarry uses Caduceon Laboratories as the primary provider for all sample analysis. Caduceon Laboratories is an accredited laboratory under the Ministry of the Environment, Conservation and Parks requirements. Refer to table below for all results as required.

2023 Microbiological Testing Completed as per Schedule 10, 11 and/or 12 of O. Reg 170/03					
Location	Number of Bacti Samples	Range of E. Coli or Fecal Results (#-#)	Range of Total Coliform Results (#-#)	Number of HPC Samples	Range of HPC Results (#-#)
Raw Water	52	1 - 100	10 - 2400	0	
Treated Water	52	0 - 0	0 - 0	51	< 2 - 2
Distribution Water	209	0 - 0	0 - 0	209	< 2 - 224

2023 Operational Testing as per Schedule 7, 8 and or 9 of O. Reg 170/03		
Parameter	Number of Samples	Range of Results (#-#)
Raw Turbidity	248	0.46 - 5.83
Free Chlorine	Continuous	0.76 - 3.57
Distribution Free Chlorine	Continuous	1.17 - 2.78
Fluoride (If the DWS provides fluoridation)	n/a	

Additional Sampling or Testing in Accordance with System Approval Requirement or Order				
Date of Order or Approval Amendment	Parameter	Date Sampled	Result	Unit of Measure
March 16, 2021	NDMA	16-Jan-2023	0.0030	µg/L
		17-Apr-2023	0.0028	µg/L
		17-Jul-2023	0.0063	µg/L
		16-Oct-2023	0.0046	µg/L

Summary of 2023 Inorganic Sampling Results (1ppm = 1mg/L)					
Parameter	Sample Date	Standard (maximum concentration)	Result Value	Unit of Measure	Exceedance
<i>Antimony</i>	26-Sep-2023	0.006 mg/L	< 0.0001	mg/L	No
<i>Arsenic</i>	26-Sep-2023	0.01 mg/L	0.0003	mg/L	No
<i>Barium</i>	26-Sep-2023	1.0 mg/L	0.014	mg/L	No
<i>Boron</i>	26-Sep-2023	5.0 mg/L	0.012	mg/L	No
<i>Cadmium</i>	26-Sep-2023	0.005 mg/L	< 0.000015	mg/L	No
<i>Chromium</i>	26-Sep-2023	0.05 mg/L	< 0.0010	mg/L	No
<i>Lead</i>	12-Sep-2023	0.01mg/L	0.00550	mg/L	No
<i>Mercury</i>	26-Sep-2023	0.001mg/L	< 0.00002	mg/L	No
<i>Selenium</i>	26-Sep-2023	0.01 mg/L	< 0.001	mg/L	No
<i>Sodium</i>	12-Jan-2022	20 mg/L	12.9	mg/L	No
<i>Uranium</i>	26-Sep-2023	0.02 mg/L	< 0.00005	mg/L	No
<i>Fluoride</i>	26-Sep-2022	1.5 mg/L	< 0.1	mg/L	No
<i>Nitrite</i>	15-Jan-2024	1.0 mg/L	< 0.05	mg/L	No
<i>Nitrate</i>	15-Jan-2024	10.0 mg/L	0.07	mg/L	No

Summary of 2023 Lead Sampling results (1ppm = 1mg/L)							
Location & Type	Number of Samples	Lead Range (#-#)	Unit of Measure	Alkalinity Range (#-#)	Unit of Measure	Average pH	Exceedance
Residential Plumbing	0						



Summary of 2023 Lead Sampling results (1ppm = 1mg/L)							
Location & Type	Number of Samples	Lead Range (#-#)	Unit of Measure	Alkalinity Range (#-#)	Unit of Measure	Average pH	Exceedance
Non-Residential Plumbing	0						
Distribution	8	< 0.00002 - 0.00550	mg/L	53 - 89	mg/L (as CaCO <sub>3</sub> )	6.62	No

Summary of 2023 Organic Sampling Results (1µg/L = 0.001mg/L)					
Parameter	Sample Date	Standard (maximum concentration)	Result Value	Unit of Measure	Exceedance
<i>Alachlor</i>	26-Sep-2023	0.005 mg/L	< 0.3	µg/L	No
<i>Atrazine + N-dealkylated metabolites</i>	26-Sep-2023	0.005 mg/L	< 0.5	µg/L	No
<i>Azinphos-methyl</i>	26-Sep-2023	0.02 mg/L	< 1	µg/L	No
<i>Benzene</i>	26-Sep-2023	0.001 mg/L	< 0.5	µg/L	No
<i>Benzo(a)pyrene</i>	26-Sep-2023	0.00001 mg/L	< 0.006	µg/L	No
<i>Bromoxynil</i>	26-Sep-2023	0.005 mg/L	< 0.5	µg/L	No
<i>Carbaryl</i>	26-Sep-2023	0.09 mg/L	< 3	µg/L	No
<i>Carbofuran</i>	26-Sep-2023	0.09 mg/L	< 1	µg/L	No
<i>Carbon Tetrachloride</i>	26-Sep-2023	0.002 mg/L	< 0.2	µg/L	No
<i>Chlorpyrifos</i>	26-Sep-2023	0.09 mg/L	< 0.5	µg/L	No
<i>Diazinon</i>	26-Sep-2023	0.02 mg/L	< 1	µg/L	No
<i>Dicamba</i>	26-Sep-2023	0.12 mg/L	< 1	µg/L	No
<i>1,2-Dichlorobenzene</i>	26-Sep-2023	0.2 mg/L	< 0.5	µg/L	No
<i>1,4-Dichlorobenzene</i>	26-Sep-2023	0.005 mg/L	< 0.5	µg/L	No
<i>1,2-Dichloroethane</i>	26-Sep-2023	0.005 mg/L	< 0.5	µg/L	No
<i>1,1-Dichloroethylene (vinylidene chloride)</i>	26-Sep-2023	0.014 mg/L	< 0.5	µg/L	No
<i>Dichloromethane</i>	26-Sep-2023	0.05 mg/L	< 5	µg/L	No
<i>2-4 Dichlorophenol</i>	26-Sep-2023	0.9 mg/L	< 0.2	µg/L	No
<i>2,4-Dichlorophenoxy acetic acid (2,4-D)</i>	26-Sep-2023	0.1 mg/L	< 1	µg/L	No
<i>Diclofop-methyl</i>	26-Sep-2023	0.009 mg/L	< 0.9	µg/L	No
<i>Dimethoate</i>	26-Sep-2023	0.02 mg/L	< 1	µg/L	No
<i>Diquat</i>	26-Sep-2023	0.07 mg/L	< 5	µg/L	No
<i>Diuron</i>	26-Sep-2023	0.15 mg/L	< 5	µg/L	No
<i>Glyphosate</i>	26-Sep-2023	0.28 mg/L	< 25	ug/L	No
<i>Haloacetic Acid (Rolling Average)</i>	15-Jan-2024	0.08 mg/L	35.2	ug/L	No
<i>Malathion</i>	26-Sep-2023	0.19 mg/L	< 5	ug/L	No

Summary of 2023 Organic Sampling Results (1µg/L = 0.001mg/L)					
Parameter	Sample Date	Standard (maximum concentration)	Result Value	Unit of Measure	Exceedance
2 Methyl-4 Chlorophenoxyacetic (MCPA)	26-Sep-2023	0.1 mg/L	< 10	ug/L	No
Metolachlor	26-Sep-2023	0.05 mg/L	< 3	ug/L	No
Metribuzin	26-Sep-2023	0.08 mg/L	< 3	ug/L	No
Monochlorobenzene	26-Sep-2023	0.08 mg/L	< 0.5	ug/L	No
Paraquat	26-Sep-2023	0.01 mg/L	< 1	ug/L	No
Pentachlorophenol	26-Sep-2023	0.06mg/L	< 0.2	ug/L	No
Phorate	26-Sep-2023	0.002 mg/L	< 0.3	ug/L	No
Picloram	26-Sep-2023	0.19 mg/L	< 5	ug/L	No
Polychlorinated Biphenyls (PCB)	26-Sep-2023	0.003 mg/L	< 0.05	ug/L	No
Prometryne	26-Sep-2023	0.001 mg/L	< 0.1	ug/L	No
Simazine	26-Sep-2023	0.01 mg/L	< 0.5	ug/L	No
THM (Rolling Average)	15-Jan-2024	0.100 mg/L	50.13	ug/L	No
Terbufos	26-Sep-2023	0.001 mg/L	< 0.5	ug/L	No
Tetrachloroethylene	26-Sep-2023	0.03 mg/L	< 0.5	ug/L	No
2,3,4,6-Tetrachlorophenol	26-Sep-2023	0.1 mg/L	< 0.2	ug/L	No
Triallate	26-Sep-2023	0.23 mg/L	< 10	ug/L	No
Trichloroethylene	26-Sep-2023	0.005 mg/L	< 0.5	ug/L	No
2,4,6-Trichlorophenol	26-Sep-2023	0.005 mg/L	< 0.2	ug/L	No
Trifluralin	26-Sep-2023	0.045 mg/L	< 0.5	ug/L	No
Vinyl Chloride	26-Sep-2023	0.002 mg/L	< 0.2	ug/L	No

Inorganic or Organic Parameters that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards			
Parameter	Result Value	Unit of Measure	Date of Sample
n/a			



**Section 6: Significant Expenses Incurred**

Significant expenses included,

- Install required equipment.
- Repair required equipment.
- Replace required equipment.
- None during this period.

Briefly Describe Incident and/or Expenses Incurred:

No.	Project Name	Description	Cost
1	North Glengarry Master Plan	<ul style="list-style-type: none"> <li>• Engineering report for infrastructure maintenance and planned refurbishments</li> </ul>	\$35,585
2	VFD Replacement	<ul style="list-style-type: none"> <li>• Multiple communication issues with SCADA</li> <li>• Various repairs completed, opted to change unit due to age and on-going issues</li> </ul>	\$21,000
3	WTP Intake Refurbishment	<ul style="list-style-type: none"> <li>• Installation of dyke around intake crib to divert sedimentation due to on-going issues with deposit build-up on and around intake crib</li> </ul>	\$39,000
4	Proactive Valve Replacement	<ul style="list-style-type: none"> <li>• 8 valves replaced along Dominion St in preparation for future watermain replacement</li> </ul>	\$12,000
5	Water Audit	<ul style="list-style-type: none"> <li>• Due to high estimated water loss, hires third party contractor to complete a water audit and on-sight distribution step testing</li> </ul>	\$4,000

**Section 7: Compliance with Licenses, Permits, Approvals and Orders**

The operating authority strives to remain compliant with the Drinking Water Quality Management Standard 2.0, the Safe Drinking Water Act and all associated regulations, procedures, and guidelines. This approach is utilized to maintain a multi-barrier water treatment and distribution approach to ensure safeguarding of the drinking water.

The following table is a listing of all permits and or licenses that apply to this system:

Description	Number	Issue	Issue Date	Expiry Date
Municipal Drinking Water License	181-101	3	March 16, 2021	March 16, 2026
Water Works Permit	181-201	4	March 16, 2021	March 16, 2026
Permit to Take Water	2285-CEDRDN		May 26, 2022	May 14, 2032

The Township of North Glengarry and the Operating Authority upholds the accreditation certification by maintaining and promoting the current Quality Management currently in place. The Operational Staff actively participates in all system auditing requirements, and the annual system inspections as conducted through the Ministry of the Environment. All conformance and compliance issues identified throughout these systems reviews have been addressed and are in the process of being corrected.

During this period, all raw water flows were compliant with all permits to take water and are currently at 33.3% of the allowable limit, which is a 5% decrease from the previous year. All treated flows were well within the rated capacity for the system and as previously stated the system is currently only at 21.1% of the rated capacity.

All disinfection equipment was operated in such a manner that all license requirements were met at all times. The treatment system was operated at all times to ensure compliance with the Procedure for Disinfection of Drinking Water in Ontario.

All equipment was maintained as per operations manuals and/or calibrated annually by a certified technician.

**Section 8: Non-Compliance with Licenses, Permits, Approvals and Orders**

There was 1 instances of minor non-conformances identified during the annual external surveillance audit during this report period, and once reported, the compliance coordinator reviewed all documentation and completed updates as required.

Parameter	Regulatory Document	Requirement	Date of Correction
Documentation Currency and not adhering to the Ministry's Director Direction.	-The Operational Plan shall document a procedure for document and records control  - Director's Directions, Safe Drinking Water Act, 2002: Minimum Requirements for Operational Plans Municipal Drinking Water Systems, May 2021.	-(a) documents required by the QMS are (i) kept current  -(3.3) all plans shall contain the following: (3) a completed copy of the subject system description form.	06-Dec-2023

There were 1 instances of non-compliance in association to regulatory requirements, municipal license requirements and sampling during this period.

2023 Reported Incident in accordance to subsection 18(1) of the Safe Drinking Water Act or Schedule 16 of O. Reg 170/03					
Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
22-Dec-2023	Combined Cl <sub>2</sub>	0.19	mg/L	• Flushing to restore residual.	22-Dec-2023

**Section 9: Township of North Glengarry Endorsement of Summary Report**

A copy of the report was presented to all members of the municipal council through the Public Council meeting held on February 26, 2024, see appendix D for motion. The report was also made available to the public through the Township of North Glengarry website or upon individual request at the Main office, located at 3720 County Road 34, south of Alexandria.

This report has been endorsed by Tim Wright, Director of Public Works on behalf of Township of North Glengarry Council.

**Section 10: Contact**

All efforts have been made to provide accurate and up to date information in a relevant format. In the event that additional information is required please submit all verbal requests by phone at 613-525-3087; in writing by mail to 3720 County Road 34, RR2, Alexandria Ontario, K0C 1A0; or in writing by email to [enviro@northglengarry.ca](mailto:enviro@northglengarry.ca)

## Appendix A: Alexandria DWS 2023 Daily Treated Flows (m<sup>3</sup>/day)

	January	February	March	April	May	June	July	August	September	October	November	December
1	1,570	1,891	1,601	1,436	1,459	2,333	2,163	1,311	1,735	1,798	1,532	1,503
2	1,404	1,656	1,656	1,636	1,670	2,476	2,250	2,119	1,318	1,337	1,554	1,542
3	1,620	1,495	1,709	2,002	1,671	1,670	2,536	1,477	1,383	1,865	1,494	1,885
4	1,599	1,921	1,680	1,831	1,685	1,866	2,508	1,577	1,997	1,557	1,653	1,006
5	1,533	1,402	1,665	1,664	1,802	2,579	2,844	1,749	1,370	1,724	1,466	1,558
6	1,748	1,519	1,507	1,659	1,846	1,764	2,176	1,456	2,142	1,497	1,339	1,467
7	1,541	1,601	1,625	1,703	1,532	2,264	2,191	1,507	1,576	1,319	1,481	1,801
8	1,528	1,598	1,926	1,614	1,822	2,351	2,628	1,744	1,558	1,756	1,602	1,523
9	1,533	2,067	1,318	1,661	1,950	1,581	2,198	1,653	1,624	1,475	1,553	1,669
10	1,605	1,288	1,624	1,792	1,428	2,138	1,528	1,506	1,574	1,358	1,331	1,607
11	1,573	1,766	1,733	1,852	1,966	1,749	1,511	1,169	1,385	1,888	1,556	1,379
12	1,791	1,700	1,620	1,515	1,711	2,372	1,527	1,763	1,696	1,578	1,622	1,625
13	1,361	1,597	1,498	1,657	1,839	1,917	1,420	1,343	1,469	1,344	2,960	1,417
14	1,601	1,587	1,908	1,704	2,067	2,173	1,614	1,974	1,715	1,544	1,655	1,671
15	1,659	1,910	1,459	1,754	1,502	2,663	2,031	1,463	1,514	1,540	1,583	1,674
16	1,841	1,546	1,700	1,722	2,025	1,458	1,310	1,717	1,356	1,524	1,208	1,807
17	1,631	1,507	1,661	1,727	1,753	1,622	1,895	1,134	1,739	1,855	1,578	1,587
18	1,410	1,619	1,566	1,641	1,618	2,013	1,550	1,938	1,472	1,188	1,514	1,339
19	1,471	1,783	1,715	1,849	161	2,527	1,561	1,306	1,834	1,858	1,812	1,914
20	1,824	1,597	1,549	1,498	1,600	2,289	1,863	1,478	1,670	1,832	1,153	1,548
21	1,555	1,409	1,520	1,592	1,711	2,389	1,282	1,678	1,562	1,286	1,451	1,568
22	1,673	1,761	1,532	2,057	2,031	2,085	1,897	1,919	1,229	1,504	1,682	1,877
23	1,481	1,418	1,836	1,374	1,823	2,049	1,733	1,834	1,499	1,430	1,704	1,877
24	1,721	1,806	1,818	1,883	2,280	2,045	1,659	1,252	1,621	1,747	1,327	1,608
25	1,667	1,678	1,454	1,515	1,711	2,239	1,863	1,776	1,963	1,525	1,637	1,367
26	1,629	1,665	1,556	1,547	2,279	2,182	1,667	1,627	1,293	1,461	1,574	1,718
27	1,351	1,489	1,424	1,746	1,648	2,448	1,271	1,223	1,782	1,594	1,550	1,310
28	1,662	1,633	1,635	1,804	2,281	2,084	1,830	1,998	1,308	1,507	1,428	1,823
29	1,640		1,986	1,561	2,104	2,486	1,193	1,181	1,912	1,540	1,451	1,915
30	1,483		1,725	1,586	2,270	2,565	1,669	1,685	1,364	1,282	1,793	1,350
31	1,597		2,029		2,398		1,653	1,396		1,503		1,721
Minimum	1,351	1,288	1,318	1,374	161	1,458	1,193	1,134	1,229	1,188	1,153	1,006
Average	1,590	1,640	1,653	1,686	1,795	2,146	1,839	1,579	1,589	1,555	1,575	1,602
Maximum	1,841	2,067	2,029	2,057	2,398	2,663	2,844	2,119	2,142	1,888	2,960	1,915
Total	49,304	45,908	51,234	50,583	55,643	64,375	57,023	48,952	47,662	48,220	47,244	49,658

Annual Flows Summary	
	161
	1,687
	2,960
615,806	

## Appendix B: Alexandria DWS 2023 Maximum Instantaneous Treated Flows (m<sup>3</sup>/sec)

	January	February	March	April	May	June	July	August	September	October	November	December	
1	0.041	0.041	0.041	0.041	0.041	0.041	0.042	0.042	0.041	0.042	0.041	0.042	
2	0.041	0.042	0.040	0.041	0.041	0.041	0.041	0.040	0.041	0.042	0.041	0.041	
3	0.041	0.041	0.041	0.041	0.042	0.041	0.042	0.040	0.041	0.041	0.041	0.042	
4	0.040	0.041	0.040	0.045	0.041	0.041	0.041	0.040	0.041	0.041	0.041	0.042	
5	0.041	0.041	0.040	0.042	0.042	0.042	0.042	0.041	0.044	0.041	0.042	0.041	
6	0.041	0.041	0.041	0.041	0.041	0.042	0.041	0.041	0.041	0.041	0.041	0.041	
7	0.041	0.041	0.041	0.041	0.042	0.042	0.041	0.041	0.041	0.041	0.041	0.042	
8	0.042	0.041	0.040	0.041	0.041	0.042	0.041	0.040	0.041	0.041	0.041	0.041	
9	0.042	0.041	0.040	0.042	0.041	0.041	0.041	0.041	0.041	0.041	0.041	0.041	
10	0.041	0.041	0.041	0.042	0.042	0.041	0.041	0.041	0.041	0.041	0.060	0.042	
11	0.041	0.041	0.041	0.041	0.041	0.041	0.045	0.041	0.041	0.042	0.041	0.042	
12	0.042	0.040	0.041	0.041	0.042	0.042	0.040	0.041	0.042	0.044	0.041	0.042	
13	0.041	0.040	0.042	0.041	0.041	0.052	0.040	0.041	0.041	0.042	0.041	0.041	
14	0.041	0.040	0.042	0.042	0.041	0.042	0.040	0.041	0.042	0.041	0.041	0.041	
15	0.041	0.040	0.041	0.042	0.042	0.044	0.040	0.041	0.041	0.041	0.041	0.041	
16	0.042	0.041	0.040	0.041	0.041	0.041	0.041	0.041	0.042	0.041	0.041	0.042	
17	0.042	0.041	0.041	0.041	0.042	0.042	0.041	0.041	0.041	0.042	0.041	0.042	
18	0.041	0.041	0.041	0.041	0.041	0.041	0.041	0.043	0.041	0.042	0.041	0.041	
19	0.041	0.041	0.041	0.040	0.041	0.041	0.042	0.041	0.041	0.042	0.041	0.042	
20	0.041	0.041	0.040	0.041	0.042	0.041	0.042	0.042	0.041	0.041	0.041	0.042	
21	0.041	0.040	0.041	0.041	0.041	0.041	0.041	0.041	0.042	0.041	0.041	0.041	
22	0.041	0.041	0.041	0.040	0.041	0.041	0.041	0.043	0.041	0.042	0.042	0.041	
23	0.041	0.041	0.041	0.041	0.044	0.041	0.043	0.055	0.041	0.041	0.042	0.041	
24	0.043	0.041	0.040	0.040	0.042	0.041	0.042	0.044	0.041	0.043	0.041	0.041	
25	0.042	0.040	0.041	0.040	0.041	0.043	0.042	0.041	0.041	0.041	0.041	0.041	
26	0.041	0.044	0.041	0.041	0.042	0.043	0.044	0.041	0.041	0.041	0.041	0.041	
27	0.042	0.041	0.040	0.043	0.042	0.042	0.041	0.042	0.041	0.041	0.041	0.041	
28	0.041	0.040	0.041	0.040	0.041	0.042	0.042	0.041	0.041	0.041	0.041	0.041	
29	0.041		0.041	0.041	0.040	0.042	0.042	0.044	0.042	0.041	0.041	0.049	
30	0.041		0.041	0.040	0.041	0.041	0.042	0.041	0.042	0.041	0.041	0.041	
31	0.041		0.042		0.041		0.041	0.041		0.041		0.041	
Minimum	0.040	0.040	0.040	0.040	0.040	0.041	0.040	0.040	0.041	0.041	0.041	0.041	0.040
Average	0.041	0.041	0.041	0.041	0.041	0.042	0.041	0.042	0.041	0.041	0.042	0.042	0.041
Maximum	0.043	0.044	0.042	0.045	0.044	0.052	0.045	0.055	0.044	0.044	0.060	0.049	0.060

Annual Flows Summary
0.040
0.041
0.060



# Appendix D: Council Meeting Staff Report

**CORPORATION OF THE  
TOWNSHIP OF NORTH GLENGARRY  
Council Meeting**

**Resolution #** 11

**Date:** Monday, February 26, 2024

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**Moved by:** Jacques Massie

**Seconded by:** Jeff Manley

**THAT** the Council of the Township of North Glengarry receives Staff Report No. PW 2024-07 for information purposes only.

**Carried**

**Deferred**

**Defeated**

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Mayor / Deputy Mayor