2024 Annual Drinking Water System Summary Report

Paris Drinking Water System

1. General Information

The County of Brant (the County) prepares a report summarizing system operation and water quality for every municipal drinking water system annually. The reports detail the latest water quality testing results, water quantity statistics and any adverse conditions that may have occurred for the previous year, January 1 through December 31. They are available on March 31 on the County website at www.brant.ca/en/water-services/water-services.aspx or by contacting the County of Brant Operations Department.

All efforts have been made to ensure the information presented in this report is accurate. If you have any questions or comments concerning the report, please contact the County at the address and phone number listed below or by email at operations@brant.ca.

Drinking Water System:	**Paris Drinking Water System**
Drinking Water System Number:	**220002752**
Reporting Period:	**January 1, 2024 – December 31, 2024**

Drinking Water System Owner & Contact Information:
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1.1 System Description

The Paris Drinking Water System is a Large Municipal Water System as defined by Ontario Regulation (O.Reg.) 170/03. The Paris Drinking Water System consists of three (3) wellfields referred to as Gilbert Water Treatment Facility (located at 319 Grand River Street North), Telfer Water Treatment Facility (located at 166 West River Road), and Bethel Water Treatment Facility (located at 97 Bethel Road). The Paris drinking water system is made of four (4) pressure zones and approximately 116 kilometers of watermain. In 2024 1.3 km of watermain was added to the Paris Drinking Water System through Development and assumed by the County of Brant for ownership and operation. This drinking water system has 6,754 residential service connections, 333 commercial service connections and serves a population of approximately 18,979 people.

The Gilbert Water Treatment Facility is the primary water supply for Paris. The Telfer Water Treatment Facility is used as a back-up during periods of high demand or system maintenance and the Bethel Water Treatment Facility primarily supplies water to the Brant 403 Business Park and the south end of Paris. The Gilbert Water Treatment Facility has 2,266 m^3 of storage in an on-site reservoir. Additional storage in the Paris water distribution system is provided by the North Paris elevated storage tank (2,000 m^3) located at 67 Woodslee Ave, the Sharpe Reservoir (2,700 m^3) located at 11 Chapel St, the Oak Park elevated storage tank (3,700m^3) located at 557 Paris Road and the South Paris elevated storage tank (2,400 m^3) located at 978 Powerline Road.

1.1.1 Gilbert Water Treatment Facility

The Gilbert Water Treatment Facility consists of eight (8) drilled wells. Two (2) wells are completed in the bedrock and are equipped with submersible pumps capable of pumping 37.9 L/s each. The other six (6) wells are completed in the overburden and are equipped with submersible pumps with a total overburden well capacity of 50 L/s. Primary disinfection of the overburden wells is supplied through two (2) ultraviolet reactors. A sodium hypochlorite dosing system provides both primary and secondary disinfection via chlorination and a hydrofluorosilicic acid dosing system provides fluoridation. Onsite storage is provided by two (2) in-ground baffled storage reservoirs (880 m^3 and a 1,386 m^3, respectively) and two (2) 124 m^3 clear wells. The Gilbert Water Treatment Facility has three (3) high lift booster pumps that pump water to the distribution system at a rate of 85.4 L/s and have a maximum rated capacity of 10,870 m^3/day. This facility also has emergency standby power capable of powering full capacity through a 600kw diesel motor generator.

1.1.2 Telfer Water Treatment Facility

The Telfer Water Treatment Facility consists of two (2) drilled wells, one (1) well completed in the overburden and one (1) well completed in the bedrock. Both wells are equipped with submersible pumps, one (1) capable of pumping 39.4 L/s and one (1) which is capable of pumping 37.5 L/s. A sodium hypochlorite dosing system provides primary and secondary disinfection via chlorination and a hydrofluorosilicic acid dosing system provides fluoridation. The Telfer Water Treatment Facility has two (2) 52.11 m^3 chlorine contact tanks and a maximum rated capacity of 6,550 m^3/day. This facility also has emergency standby power capable of powering full capacity through a 350kw diesel motor generator.

1.1.3 Bethel Water Treatment Facility

The Bethel Water Treatment Facility consists of four (4) drilled wells completed in the overburden, each equipped with submersible pumps, three (3) of which are capable of pumping 15 L/s and the last is capable of pumping 11 L/s. Primary disinfection is achieved through two (2) ultraviolet reactors. A sodium hypochlorite dosing system also provides primary and secondary disinfection via chlorination and a hydrofluorosilicic acid dosing system provides fluoridation. The Bethel Water Treatment Facility has two (2) chlorine contact tanks with a total volume of 293m^3 and three (3) 25L/s high lift booster pumps that pump water to the distribution system. This facility also has emergency standby power capable of powering full capacity through a 250kw diesel motor generator.

1.2 Major Expenses

In 2024 the Paris Drinking Water System had operating and maintenance expenditures of approximately $1,750,000, which included the following major operating expenses:

- $50,000 for well maintenance and rehabilitation at the Bethel WTP
- $20,000 for facility maintenance
- $43,000 for the decommissioning of monitoring wells
- $5,000 for a new communication link at the South Paris Elevated Tank

In addition to the regular maintenance and operation expenditures, the County of Brant incurred Capital expenses of $2,600,000 for approximately 2.2 km of watermain upgrade and replacement. The Paris Drinking Water System also incurred capital costs for SCADA maintenance and upgrades. These upgrades totalled $115,000 and were cost shared amongst all five (5) Municipal Drinking Water Systems.

2. Aquifer Monitoring

This section documents the key aspects of the Paris Drinking Water Systems (DWS) groundwater system including details about the source aquifer monitoring, groundwater quantity and groundwater quality. Groundwater monitoring is completed in accordance with Ministry of the Environment, Conservation and Parks (MECP) approvals and to meet all applicable provincial regulations. In addition to the regulatory monitoring the County implements a due diligence monitoring program in support of the groundwater management strategy and source water protection initiatives.

The Paris DWS consists of three (3) groundwater wellfields, Gilbert, Telfer and Bethel. The due diligence monitoring program consists of monthly water level measurements and the collection of semi-annual groundwater samples for analysis of nitrates, nitrite, chloride and sulphate. This program monitors both the water quantity and quality of the groundwater resource as delineated by the wellhead protection areas outlined in the Source Protection Plan. The purpose of the due diligence monitoring is to detect potential water quality and quantity threats to the groundwater resource as it is occurring in an effort to mitigate the risk before it becomes an irreversible threat. In addition to the due diligence monitoring program, the Paris DWS has regulatory monitoring requirements that are outlined in the Permit To Take Water and the Municipal Drinking Water License for the Gilbert Wellfield.

2.1 Gilbert Wellfield

2.1.1 Wellfield and Monitoring Program

The Gilbert Wellfield consists of two (2) bedrock wells and six (6) overburden wells. The due diligence water monitoring program consists of a total of 61 active monitoring wells. There were 22 additional monitoring wells in this system that were decommissioned in 2024.

2.1.2 Groundwater Quantity

Based on the water level, precipitation and pumping data, pumping from the production wells at the Gilbert Water Treatment Facility has not resulted in long-term changes to groundwater levels or hydraulic gradients measured at the monitoring wells nor has it had a measurable effect on base flow to Gilbert Creek.

No complaints have been received by the County regarding the operation of the wells interfering with neighbouring wells or surface water features. Overall, the Gilbert Water Treatment Facility has not had a negative impact on the groundwater resource.

2.1.3 Groundwater Quality

The 2024 groundwater quality data at production wells were below the Ontario Drinking Water Quality Standards (ODWQS). Nitrate is commonly elevated in groundwater within rural areas with agricultural land usage due to the application of nitrogen-based fertilizers to the ground. Per the Source Protection Plan (LER SPC, 2024) an Issue Contributing Area has been delineated around the Gilbert Wellfield to limit further nitrate impacts to the aquifer. Nitrate (as N) concentrations were below ODWQS of ten (10.0) mg/L for both the overburden and bedrock wells. Nitrate concentrations at the Gilbert Wellfield overburden wells generally declined from 2006 to 2015, increased between 2015 and 2018 and have remained stable, or have marginally decreased, since 2018.

Chloride concentrations at the Gilbert Wellfield are generally stable or decreasing at concentrations. below the ODWQS of 250 mg/L. Sulphate concentrations are low within the overburden and elevated in the bedrock, exceeding the ODWQS of 500 mg/L at times. Elevated concentrations in the bedrock are attributed to the presence of gypsum in the Salina Formation bedrock.

2.2 Telfer Wellfield

2.2.1 Wellfield and Monitoring Program

The Telfer Wellfield consists of one (1) bedrock well and one (1) active overburden well, the system also includes an additional overburden well which is not currently connected to the water supply system. The due diligence water monitoring program consists of a total of 27 active monitoring wells. There were 11 additional monitoring wells in this system that were decommissioned in 2024.

2.2.2 Groundwater Quantity

Based on the water level, precipitation and pumping data, pumping from the production wells at the Telfer Wellfield has not resulted in long-term changes to groundwater levels or hydraulic gradients measured at the monitoring wells. Seasonal water level fluctuations are observed in the overburden wells whereas the bedrock wells remain steady over time.

No complaints have been received by the County regarding the operation of the wells interfering with neighbouring wells or surface water features. Overall, the Telfer Water Treatment Facility has not had a negative impact on the groundwater resource.

2.2.3 Groundwater Quality

Nitrate is commonly elevated in groundwater within rural areas with agricultural land usage due to the application of nitrogen-based fertilizers to the ground and private sewage septic systems. Per the Source Protection Plan (LER SPC, 2024) an Issue Contributing Area has been delineated around the Telfer Wellfield to limit further nitrate impacts to the aquifer.

The 2024 groundwater quality data for nitrate, chloride, sodium and sulphate in the monitoring wells were consistent with historical results and were below Ontario Drinking Water Quality Standards (ODWQS).

2.3 Bethel Wellfield

2.3.1 Wellfield and Monitoring Program

The Bethel Wellfield consists of four (4) wells in the upper and intermediate aquifers. The due diligence water monitoring program consists of a total of 10 active monitoring wells.

2.3.2 Groundwater Quantity

A WHPA-Q was established at the Bethel Wellfield to protect the groundwater quantity of the aquifer. Activities that take water from the aquifer without returning the water to the aquifer and activities that reduce the recharge of the aquifer were identified as threats to the available water quantity. Source Water Protection Policies have been created to mitigate the impact. (LER SPC, 2022).

Based on the water level, precipitation and pumping data, pumping from the production wells at the Bethel Wellfield has not resulted in long-term changes to groundwater levels or hydraulic gradients measured at the monitoring wells. Static water levels at the four (4) production wells have remained

stable over the long-term. Long-term and seasonal trends in the overburden monitoring wells are generally consistent with those in the intermediate and deep overburden wells.

No complaints have been received by the County regarding the operation of the wells interfering with neighbouring wells or surface water features. Overall, the Bethel Water Treatment Facility has not had a negative impact on the groundwater resource.

2.3.3 Groundwater Quality

The 2024 groundwater quality data at production wells were below the Ontario Drinking Water Quality Standards (ODWQS). An Issue Contributing Area (ICA) for nitrate was initially delineated for the Bethel Wellfield in 2015. This nitrate ICA has since then been removed as nitrate concentrations have been steadily decreasing since production began and are now stable at concentrations below the Ontario Drinking Water Quality Standards (ODWQS) of 10 mg/L.

The monitoring well concentrations for both chloride and sodium are trending upwards. The chloride concentrations remain below the ODWQS of 250 mg/L and sodium concentrations are under the ODWQS aesthetic objective of 200 mg/L. An ICA for both Chloride and Sodium have been delineated for the Bethel Wellfield and has been part of a Section 34 Amendment to the County of Brant Source Protection Plan (2024).

The 2024 concentrations for sulphate in the monitoring wells were consistent with historic results, have remained stable since 2020, and are well below the ODWQS of 500 mg/L.

3. Microbiological Testing

3.1 E. coli, Total Coliform, Background (BKG)

Bacteriological tests for E. coli and total coliforms are required weekly from the raw and treated water at the facility and from the distribution system. Extra samples are taken after major repairs or maintenance work. Any E. coli or total coliform results above zero in treated water samples must be reported to the Ministry of Environment, Conservation and Parks (MECP) and Medical Officer of Health (MOH). Resamples and any other required actions are taken as quickly as possible.

Bacteriological tests for BKG bacteria are not regulatory but are done as a due diligence action. Background tests are an indicator of the general bacteria population in a water sample. Background bacteria should be less than 200 colonies per 1 mL. Results over 200 colonies per 1 mL may indicate a change in water quality but it is not considered an indicator of unsafe water.

The results from the 2024 sampling program are shown in the table below. There were no adverse test results from the 490 treated water samples in this reporting period.

Sample Location	# of Samples	Range of E.coli Results (cfu/100ml)	Range of Total Coliform Results (cfu/100ml)	Range of BKG Results (cfu/100ml)
Gilbert Well P28	53	0-0	0-0	0-0
Gilbert Well P29	53	0-0	0-0	0-1
Gilbert Well P210	53	0-0	0-1	0-20
Gilbert Well P211	53	0-0	0-1	0-4
Gilbert Well P212	52	0-NDOGT*	0-NDOGT*	0-NDOGT*
Gilbert Well P213	53	0-0	0-1	0-3

Sample Location	# of Samples	Range of E.coli Results (cfu/100ml)	Range of Total Coliform Results (cfu/100ml)	Range of BKG Results (cfu/100ml)
Gilbert Well P214	53	0-1	0-6	0-140
Gilbert Well P215	53	0-0	0-1	0-115
Telfer Well P31	53	0-0	0-0	0-380
Telfer Well P32	53	0-0	0-0	0-1
Bethel Well P51	52	0-0	0-4	0-16
Bethel Well P52	52	0-0	0-4	0-187
Bethel Well P53	52	0-0	0-3	0-184
Bethel Well P54	51	0-0	0-0	0-52
Gilbert Treated	53	0-0	0-0	0-0
Telfer Treated	53	0-0	0-0	0-40
Bethel Treated	53	0-0	0-0	0-3
Distribution	331	0-0	0-0	0-280

**Non-determinate Overgrowth (NDOGT*) refers to an bacteria result that has overgrown on the test plate and bacteria colonies cannot be read. This can occur from outside sample contamination. The next bacteria sample taken from that sample point had acceptable bacterial results confirming that the overgrowth result was not indicative of the water quality.*

3.2 Heterotrophic Plate Count (HPC)

HPC analyses are required from the treated and distribution water. The tests are required weekly for treated water and for 25% of the required distribution system bacteriological samples. HPC tests are conducted on all raw, treated and distribution samples for due diligence. HPC should be less than 500 colonies per 1 mL. Results over 500 colonies per 1 mL may indicate a change in water quality but it is not considered an indicator of unsafe water.

Sample Location	# of Samples	Range of HPC Results (cfu/100ml)
Gilbert P28	53	0-20
Gilbert P29	53	0->2000
Gilbert Well P210	53	0-30
Gilbert Well P211	53	0-80
Gilbert Well P212	52	0-120
Gilbert Well P213	53	0-30
Gilbert Well P214	53	0-30
Gilbert Well P215	53	0-20
Telfer Well P31	53	0-1010
Telfer Well P32	53	0-20
Bethel Well P51	52	0-20
Bethel Well P52	52	0-90
Bethel Well P53	52	0-40
Bethel Well P54	51	0-630
Gilbert Treated	53	0-90
Telfer Treated	53	0-60
Bethel Treated	53	0-10
Distribution	331	0-NDOGHPC**

***Non-determinate Overgrowth Heterotrophic Plate Count (NDOGHPC**) refers to an HPC result that has overgrown on the test plate and bacteria colonies cannot be read. This can occur from outside sample contamination. The next HPC sample taken from that sample point had zero HPC confirming that the overgrowth result was not indicative of the water quality.*

4. Chemical Testing

The *Safe Drinking Water Act* requires periodic testing of the water for approximately 60 different chemical parameters. The latest results for all parameters are provided in Appendix A. The sampling frequency varies for different types and sizes of water systems and chemical parameters. If the concentration of a parameter is above half of the Maximum Allowable Concentration (MAC) under the Ontario Drinking Water Quality Standards, an increased testing frequency of once every three (3) months is required by the Regulation. Where concerns regarding a parameter exist, the MECP can also require additional sampling be undertaken.

Information on the health effects and allowable limits of components in drinking water may be found on the MECP web page through the link provided in Appendix A. Additional information on common chemical parameters specific to the Paris Drinking Water System is provided below.

4.1 Sodium

Sodium levels in drinking water are tested once every five (5) years. The aesthetic objective is 200 mg/L meaning at levels less than this the sodium will not impair the taste of the water. When sodium levels are above 20 mg/L the MECP and MOH are notified.

The following lists the latest sodium samples taken from the Paris Water Distribution System:

- 2024 – Gilbert Water Treatment Facility – 20 mg/L
- 2024 – Telfer Water Treatment Facility – 9.8 mg/L
- 2024 – Bethel Water Treatment Facility – 110 mg/L

Since sodium levels at the Bethel Water Treatment Facility are above 20 mg/L, the MECP and MOH have been notified, and impacted residents in Zone three (3) received an annual communication of this result.

4.2 Hardness

Hardness is an aesthetic parameter that may affect the appearance of the water but is not related to health. Groundwater commonly has high levels of hardness and other minerals from being in contact with geological substrate. Many households have water softeners to help reduce white calcium deposits and improve the efficiency of soaps. This information is included here to help set the water softener at the level recommended by the manufacturer. Samples for hardness are collected at a minimum every three (3) years from raw water.

The hardness of the wells was tested in 2024 and ranged from 160 - 990 mg/L (9.4 – 57.9 grains/gallon), with an average hardness of 427.0 mg/L (25.0 grains/gallon).

4.3 Additional Testing Required by MECP

No additional testing is required by the latest Municipal Drinking Water License for this system.

5. Operational Monitoring

5.1 Chlorine Residual

Free chlorine levels of the treated water are monitored continuously at the discharge point of the Water Treatment Facility. In the distribution system, free chlorine is measured daily at various locations. As a critical control limit, free chlorine residual within the distribution system should be above 0.3 mg/L. A free chlorine level lower than 0.05 mg/L must be reported and corrective action taken. There were no reportable incidents in 2024. A summary of the chlorine residual readings is provided in the table below.

Sample Location	Number of Samples or Monitoring Frequency	Range of Results (mg/L)
Treated – Gilbert Discharge Point	Continuous	0.60-1.23
Treated – Telfer Discharge Point	Continuous	0.69-1.26
Treated – Bethel Discharge Point	Continuous	0.8-1.27
Distribution	1,476	0.51-1.17

5.2 Fluoride

Fluoride is required to be added to Gilbert, Telfer and Bethel water treatment plants as mandated by the Brant County Medical Officer of Health. Fluoride levels of the treated water are monitored continuously at the discharge point of the Water Treatment Facilities. The target range for the addition of Fluoride is 0.55 mg/L – 0.8 mg/L

Sample Location	Number of Samples or Monitoring Frequency	Range of Results (mg/L)
Treated – Gilbert Discharge Point	Continuous	0.53-0.79
Treated – Telfer Discharge Point	Continuous	0.38-0.86
Treated – Bethel Discharge Point	Continuous	0.50-0.82

5.3 Turbidity

Turbidity of treated water is continuously monitored at the treatment facilities as a change in turbidity can indicate an operational problem. As a minimum, turbidity for each well is required to be tested monthly. Turbidity is measured in nephelometric turbidity units (NTU). Under O.Reg. 170/03 turbidity in groundwater from a secure well or a well with effective in-situ filtration is not reportable however turbidity should be < 1 NTU at the treatment plant and < 5 NTU in the distribution system. A summary of the monitoring results for 2024 is provided in the table below.

Sample Location	# of Samples	Range of Turbidity Results (NTU)
Gilbert P28	12	0.06-0.16
Gilbert P29	12	0.07-0.16
Gilbert Well P210	12	0.05-0.15
Gilbert Well P211	12	0.06-0.17
Gilbert Well P212	12	0.07-0.15
Gilbert Well P213	12	0.06-0.16
Gilbert Well P214	12	0.06-0.18
Gilbert Well P215	12	0.06-0.14

Sample Location	# of Samples	Range of Turbidity Results (NTU)
Telfer Well P31	14	0.05-0.17
Telfer Well P32	14	0.08-0.22
Bethel Well P51	13	0.06-0.16
Bethel Well P52	13	0.08-0.27
Bethel Well P53	13	0.06-0.17
Bethel Well P54	14	0.06-0.20

6. Water Quantity

Continuous monitoring of flow rates from supply wells into the treatment system and from the Water Treatment Facility into the distribution system is required by O.Reg. 170/03.

The Municipal Drinking Water License and Permit to Take Water (PTTW) issued by the MECP regulate the amount of water that can be taken and treated over a given time period. A summary of the 2024 flows is provided in the tables below and presented graphically in Appendices B, C and D.

6.1 Gilbert Water Treatment Facility

Source	Permit to Take Water (m^3/day)	2024 Max Daily Taking (m^3/day)	2024 Average Daily Taking (m^3/day)	2024 Total Yearly Taking (m^3/year)
Overburden Wells	4,320	2,396	1,843	674,498
Bedrock Well P28	3,338	2,259	2,468	903,119
Bedrock Well P29	3,338	1,271		

Pumping from the Gilbert Water Treatment Facility was conducted in compliance with the maximum daily taking volumes permitted by the Permits to Take Water (PTTWs) of 4,320 for overburden wells and 6,676 for bedrock wells. A total of 674, 498 m^3 from overburden wells and 903,119m^3 from bedrock wells of groundwater was pumped from production wells in 2024 which represents 61% and 43% of the allowable annual water taking respectively. The maximum daily taking was 2,396 m^3 from the overburden wells, 2259 m^3 from bedrock well P28, and 1271 m^3 from the bedrock well P29, which represents 55%, 68% and 38% of the allowable daily water taking respectively.

Municipal Drinking Water Licence (m^3/day)	2024 Max Daily Flow (m^3/day)	2024 Average Daily Flow (m^3/day)	2024 Total Yearly Flow (m^3/year)
10,870	5,487	4,222	1,544,428

The Municipal Drinking Water License (MDWL) Rated Capacity for the Gilbert Drinking Water System is 10,870 m^3/day. A total of 1,544,428 m^3 was supplied by the Gilbert Water Treatment Facility in 2024, which represents nearly 39% of the MDWL Rated Capacity. The maximum daily flow in 2024 was 5,487 m^3/day, which represents 50% of the MDWL Rated Capacity.

6.2 Telfer Water Treatment Facility

Permit to Take Water (m^3/day)	2024 Max Daily Taking (m^3/day)	2024 Average Daily Taking (m^3/day)	2024 Total Yearly Taking (m^3/year)
13,897	2,840	534	195,439

Pumping from the Telfer Well System was conducted in compliance with the maximum daily pumped volumes permitted by the PTTW. A total of 195,439 m^3 of water was pumped from the Telfer Well field in 2024, which represents nearly 4% of the allowable annual taking, and the maximum daily taking was 2,840 m^3, which represents 20% of the allowable daily water taking.

Municipal Drinking Water Licence (m^3/day)	2024 Max Daily Flow (m^3/day)	2024 Average Daily Flow (m^3/day)	2024 Total Yearly Flow (m^3/year)
6,550	2,840	531	194,510

The Municipal Drinking Water License (MDWL) Rated Capacity for the Telfer Drinking Water System is 6,550 m^3/day. A total of 194,510 m^3 of water was supplied by the Telfer Water Treatment Facility in 2024, which represents 8% of the MDWL Rated Capacity. The maximum daily flow in 2024 was 2,840 m^3/day, which represents 43% of the MDWL Rated Capacity.

6.3 Bethel Water Treatment Facility

Permit to Take Water (m^3/day)	2024 Max Daily Taking (m^3/day)	2024 Average Daily Taking (m^3/day)	2024 Total Yearly Taking (m^3/year)
3,240	1,231	523	191,579

Pumping from the Bethel Water Treatment Facility was conducted in compliance with the maximum daily taking volumes permitted by the PTTW. A total of 191,579 m^3 of water was pumped from production wells in 2024, which represents 16% of the allowable annual water taking and the maximum daily taking was 1,231 m^3, which represents nearly 38% of the allowable daily water taking.

Municipal Drinking Water Licence (m^3/day)	2024 Max Daily Flow (m^3/day)	2024 Average Daily Flow (m^3/day)	2024 Total Yearly Flow (m^3/year)
4,320	974	220	81,796

The Municipal Drinking Water License (MDWL) Rated Capacity for the Bethel Drinking Water System is 4,320 m^3/day. A total of 81,796 m^3 of water was supplied by the Bethel Water Treatment Facility in 2024, which represents 5% of the MDWL Rated Capacity. The maximum daily flow in 2024 was 974 m^3/day, which represents 23% of the MDWL Rated Capacity.

6.4 Paris Drinking Water System Summary

2024 Max Daily Taking (m^3/day)	2024 Average Daily Taking (m^3/day)	2024 Average Monthly Taking (m^3/month)	2024 Total Yearly Taking (m^3/year)
6,540	5,368	163,720	1,964,635

2024 Max Daily Flow (m^3/day)	2024 Average Daily Flow (m^3/day)	2024 Average Monthly Flow (m^3/month)	2024 Total Yearly Flow (m^3/year)
6,267	4,975	151,728	1,820,734

Approximately 84% of the water provided to the community of Paris comes from the Gilbert Water Treatment Facility, 11% from the Telfer Water Treatment Facility, and 5% from the Bethel Water Treatment Facility. The Paris Drinking Water System, as a whole, has capacity for future growth in the community, but is in need of increased redundancy in North Paris to support the Gilbert Water Treatment Facility.

7. Non-Compliance Findings and Adverse Results

This section documents any known incidents of non-compliance or adverse results and the associated correction actions taken to resolve the issue. Non-compliance issues are typically identified by either the Operating Authority or the MECP Drinking Water Inspectors. The issues and associated required actions are documented by the Inspectors in the system's Annual Inspection Report. All non-compliance issues are investigated, corrective actions taken and documented using the County's Drinking Water Quality Management System (DWQMS) procedures.

7.1 Non-Compliance Findings

An MECP drinking water system inspection was conducted on September 25, 2024. There was one (1) non-compliance finding associated with production well maintenance. This finding was resolved immediately and required no further follow-up action.

The County received a Final Inspection Rating from the MECP of 97.85%.

7.2 Adverse Results

Any adverse results from bacteriological, chemical samples or observations of operational conditions that indicate adverse water quality are reported as required and corrective actions are taken. There were no adverse or reportable occurrences in 2024.

Appendix A: Summary of Chemical Results

Understanding Chemical Test Results

The following tables summarize the laboratory results of the chemical testing the County is required to complete. Parameters are required to be tested at frequencies as noted below. Explanations on the health impacts of these parameters can be found in the MECP document PSIB 4449e01 titled "Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines" available at https://cvc.ca/wp-content/uploads/2011/03/std01_079707.pdf.

Results are shown as concentrations with units of either milligrams per litre (mg/L) or micrograms per litre (µg/L). 1 mg/L is equal to 1000 µg/L. The Maximum Acceptable Concentration (MAC) is the highest amount of a parameter that is acceptable in Municipal drinking water and can be found in the MECP Drinking Water Standards. The aesthetic objective (A/O) is established for parameters that may impair the taste, odour or colour of water or which may interfere with good quality control practices. For parameters that the Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines have not established either a MAC or an A/O, a "-" will indicate this. A result of "ND" stands for "Not Detected" and means that the concentration of the chemical is lower than level that the laboratory equipment is capable of measuring.

Table 1 – Nitrite and Nitrate

Nitrate and nitrite samples are required every three (3) months from the treatment system in normal operation.

Parameter	Sample Date (mm/dd/yy)	Result (mg/L)	MAC (mg/L)	Exceedance
Nitrite, Gilbert Treated (as N)	02/02/24 05/01/24 08/09/24 11/05/24	ND ND ND ND	1.0 1.0 1.0 1.0	No No No No
Nitrate, Gilbert Treated (as N)	02/02/24 05/01/24 08/09/24 11/05/24	2.47 2.86 3.07 3.38	10.0 10.0 10.0 10.0	No No No No
Nitrite, Telfer Treated (as N)	02/02/24 05/01/24 08/09/24 11/05/24	ND ND ND ND	1.0 1.0 1.0 1.0	No No No No
Nitrate, Telfer Treated (as N)	02/02/24 05/01/24 08/09/24 11/05/24	4.76 5.47 5.39 5.22	10.0 10.0 10.0 10.0	No No No No
Nitrite, Bethel Treated (as N)	02/02/24 05/01/24 08/09/24 11/05/24	ND ND ND ND	1.0 1.0 1.0 1.0	No No No No
Nitrate, Bethel Treated (as N)	02/02/24 05/01/24 08/09/24 11/05/24	0.39 0.39 0.49 0.35	10.0 10.0 10.0 10.0	No No No No

Table 2 – Trihalomethane and Haloacetic Acids

Trihalomethane (THM) and total Haloacetic Acids (HAA) are by-products of the disinfection process. The samples are required every three (3) months from the distribution system.

Parameter	Sample Location	Sample Date (mm/dd/yy)	Result (mg/L)	MAC (mg/L)	Exceedance
THM	Misner Rd Hydrant	02/02/24	5.84	100	No
	Pinehurst Sample STN	05/02/24	7.20	100	No
	HYD, Willow St. Dead End	08/09/24	7.26	100	No
	HYD 4-027 Powerline Rd	11/05/24	13.6	100	No
HAA	Misner Rd Hydrant	02/02/24	ND	80	No
	HYD 1-173 West River Rd	02/02/24	ND	80	No
	HYD at 31 Folstetter	02/02/24	ND	80	No
	Pinehurst Sample STN	05/02/24	ND	80	No
	HYD 1-173 West River Rd	05/02/24	ND	80	No
	HYD at 31 Folstetter	05/02/24	ND	80	No
	HYD, Willow St. Dead End	08/09/24	ND	80	No
	HYD 1-173 West River Rd	08/09/24	ND	80	No
	HYD at 31 Folstetter	08/09/24	ND	80	No
	HYD 4-027 Powerline Rd	11/05/24	ND	80	No
	HYD 1-173 West River Rd	11/06/24	ND	80	No
	HYD at 31 Folstetter	11/06/24	ND	80	No

Table 3 – Sodium and Fluoride

Testing of fluoride and sodium is required every five (5) years from the treatment system.

Parameter	Sample Date (mm/dd/yy)	Result (mg/L)	MAC (mg/L)	A/O (mg/L)	Exceedance
Fluoride, Gilbert Treated	01/08/24	0.48	1.5	-	No**
Fluoride, Telfer Treated	01/08/24	0.44	1.5	-	No**
Fluoride, Bethel Treated	01/03/24	0.62	1.5	-	No**
Sodium, Gilbert Treated	01/08/24	20	20	200	No
Sodium, Telfer Treated	01/08/24	9.8	20	200	No
Sodium, Bethel Treated	01/03/24	110	20	200	Yes*

**Sodium levels between 20 – 200 mg/L must be reported every five (5) years.*

***Natural levels of fluoride between 1.5 – 2.4 mg/L must be reported every five (5) years.*

Table 4 – Alkalinity, pH and Lead

The following Table summarizes the most recent results for the Lead Testing Program, having been conducted in 2024. Lead samples are taken every three (3) years from the distribution system. Levels of alkalinity and pH are monitored twice per year in the distribution system to ensure water quality is consistent and does not facilitate leaching of lead into the water.

Parameter	Number of Samples	Result Range (Min – Max)	MAC	A/O	Operational Target	Exceedance
Distribution Alkalinity (mg/L)	8	140-260	-	-	30-500	-
Distribution pH	8	7.70-8.12	-	6.5-8.5	-	-
Distribution Lead (ug/L)	8	ND-ND	10	-	-	No

Table 5 – Schedule 23 Inorganic Parameters

The following Table summarizes the most recent test results for Schedule 23. Testing is required every three (3) years for the secure, non-GUDI wells at Gilbert and Telfer and once per year for the GUDI wells at Bethel.

Parameter	Sample Date (mm/dd/yy)	Gilbert Result	Telfer Result	Bethel Result	Unit of Measure	MAC	A/O	Exceedance
Antimony	01/08/24	ND	ND	ND	mg/L	0.006	-	No
Arsenic	01/08/24	ND	ND	ND	mg/L	0.01	-	No
Barium	01/08/24	0.046	0.078	0.091	mg/L	1.0	-	No
Boron	01/08/24	0.025	0.014	ND	mg/L	5.0	-	No
Cadmium	01/08/24	ND	ND	ND	mg/L	0.005	-	No
Chromium	01/08/24	ND	ND	ND	mg/L	0.05	-	No
Mercury	01/08/24	ND	ND	ND	mg/L	0.001	-	No
Selenium	01/08/24	ND	ND	ND	mg/L	0.05	-	No
Uranium	01/08/24	0.00055	0.0010	0.00032	mg/L	0.02	-	No

Table 6 – Schedule 24 Organic Parameters

The following Table summarizes the Organic parameters in Schedule 24 sampled during this reporting period or the most recent sample results. Testing is required every three (3) years for the secure, non-GUDI wells at Gilbert and Telfer and once per year for the GUDI wells at Bethel.

Parameter	Sample Date (mm/dd/yy)	Gilbert Result	Telfer Result	Bethel Result	Unit of Measure	MAC	A/O	Exceedance
1,1-Dichloroethylene	01/08/24	ND	ND	ND	ug/L	14	-	No
1,2-Dichlorobenzene	01/08/24	ND	ND	ND	ug/L	200	-	No
1,2-Dichloroethane	01/08/24	ND	ND	ND	ug/L	5	-	No
1,4-Dichlorobenzene	01/08/24	ND	ND	ND	ug/L	5	-	No
2,3,4,6-Tetrachlorophenol	01/08/24	ND	ND	ND	ug/L	100	-	No
2,4,6-Trichlorophenol	01/08/24	ND	ND	ND	ug/L	5	-	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	01/08/24	ND	ND	ND	ug/L	100	-	No
2-4 Dichlorophenol	01/08/24	ND	ND	ND	ug/L	900	-	No
Alachlor	01/08/24	ND	ND	ND	ug/L	5	-	No
Aroclor 1016	01/08/24	ND	ND	ND	ug/L	-	-	-
Aroclor 1221	01/08/24	ND	ND	ND	ug/L	-	-	-

Parameter	Sample Date (mm/dd/yy)	Gilbert Result	Telfer Result	Bethel Result	Unit of Measure	MAC	A/O	Exceedance
Aroclor 1232	01/08/24	ND	ND	ND	ug/L	-	-	-
Aroclor 1242	01/08/24	ND	ND	ND	ug/L	-	-	-
Aroclor 1248	01/08/24	ND	ND	ND	ug/L	-	-	-
Aroclor 1254	01/08/24	ND	ND	ND	ug/L	-	-	-
Aroclor 1260	01/08/24	ND	ND	ND	ug/L	-	-	-
Atrazine	01/08/24	ND	ND	ND	ug/L	-	-	-
Atrazine + N-dealkylated metabolites (Atrazine+Desethyl-atrazine)	01/08/24	ND	ND	ND	ug/L	5	-	No
Benzene	01/08/24	ND	ND	ND	ug/L	1	-	No
Benzo(a)pyrene	01/08/24	ND	ND	ND	ug/L	0.01	-	No
Bromoxynil	01/08/24	ND	ND	ND	ug/L	5	-	No
Carbaryl	01/08/24	ND	ND	ND	ug/L	90	-	No
Carbofuran	01/08/24	ND	ND	ND	ug/L	90	-	No
Carbon Tetrachloride	01/08/24	ND	ND	ND	ug/L	2	-	No
Chlorobenzene	01/08/24	ND	ND	ND	ug/L	80	-	No
Chlorpyrifos	01/08/24	ND	ND	ND	ug/L	90	-	No
Desethyl-atrazine	01/08/24	ND	ND	ND	ug/L	-	-	No
Diazinon	01/08/24	ND	ND	ND	ug/L	20	-	No
Dicamba	01/08/24	ND	ND	ND	ug/L	120	-	No
Diclofop-methyl	01/08/24	ND	ND	ND	ug/L	9	-	No
Dimethoate	01/08/24	ND	ND	ND	ug/L	20	-	No
Diquat	01/08/24	ND	ND	ND	ug/L	70	-	No
Diuron	01/08/24	ND	ND	ND	ug/L	150	-	No
Ethylbenzene	01/08/24	ND	ND	ND	ug/L	140	2.4	No
Glyphosate	01/08/24	ND	ND	ND	ug/L	280	-	No
Guthion	01/08/24	ND	ND	ND	ug/L	20	-	No
Malathion	01/08/24	ND	ND	ND	ug/L	190	-	No
MCPA	01/08/24	ND	ND	ND	ug/L	100	-	No

Parameter	Sample Date (mm/dd/yy)	Gilbert Result	Telfer Result	Bethel Result	Unit of Measure	MAC	A/O	Exceedance
Methylene Chloride	01/08/24	ND	ND	ND	ug/L	50	-	No
Metolachlor	01/08/24	ND	ND	ND	ug/L	50	-	No
Metribuzin	01/08/24	ND	ND	ND	ug/L	80	-	No
Paraquat	01/08/24	ND	ND	ND	ug/L	10	-	No
Pentachlorophenol	01/08/24	ND	ND	ND	ug/L	60	-	No
Phorate	01/08/24	ND	ND	ND	ug/L	2	-	No
Picloram	01/08/24	ND	ND	ND	ug/L	190	-	No
Total PCB	01/08/24	ND	ND	ND	ug/L	3	-	No
Prometryne	01/08/24	ND	ND	ND	ug/L	1	-	No
Simazine	01/08/24	ND	ND	ND	ug/L	10	-	No
Terbufos	01/08/24	ND	ND	ND	ug/L	1	-	No
Tetrachloroethylene	01/08/24	ND	ND	ND	ug/L	10	-	No
Toluene	01/08/24	ND	ND	ND	ug/L	60	24	No
Triallate	01/08/24	ND	ND	ND	ug/L	230	-	No
Trichloroethylene	01/08/24	ND	ND	ND	ug/L	5	-	No
Trifluralin	01/08/24	ND	ND	ND	ug/L	45	-	No
Vinyl Chloride	01/08/24	ND	ND	ND	ug/L	1	-	No
o-Xylene	01/08/24	ND	ND	ND	ug/L	-	-	-
p+m-Xylene	01/08/24	ND	ND	ND	ug/L	-	-	-

Appendix B: Water Quantity Summary – Gilbert Water Treatment Facility

Figure 1 - 2024 Total Production by Well (m³)

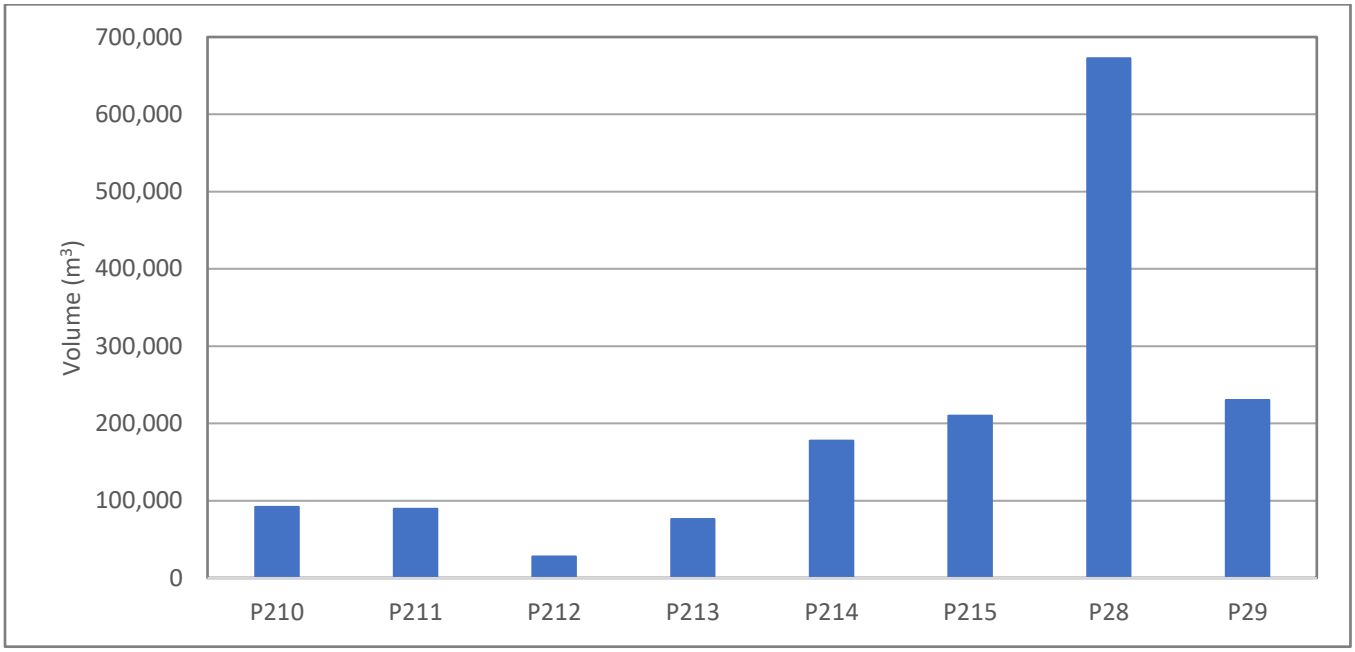


Figure 2 – 2024 Total Daily Water Taking (m³)

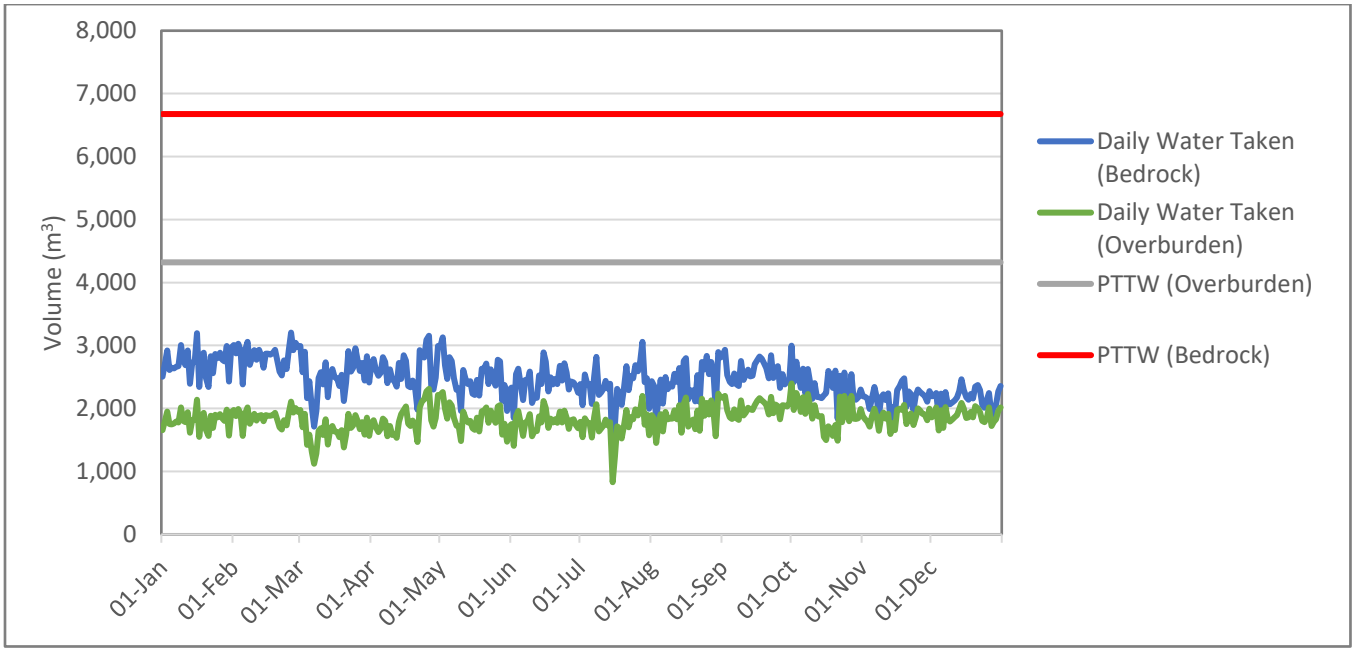


Figure 3 - 2024 Average vs Maximum Daily Flow Rates

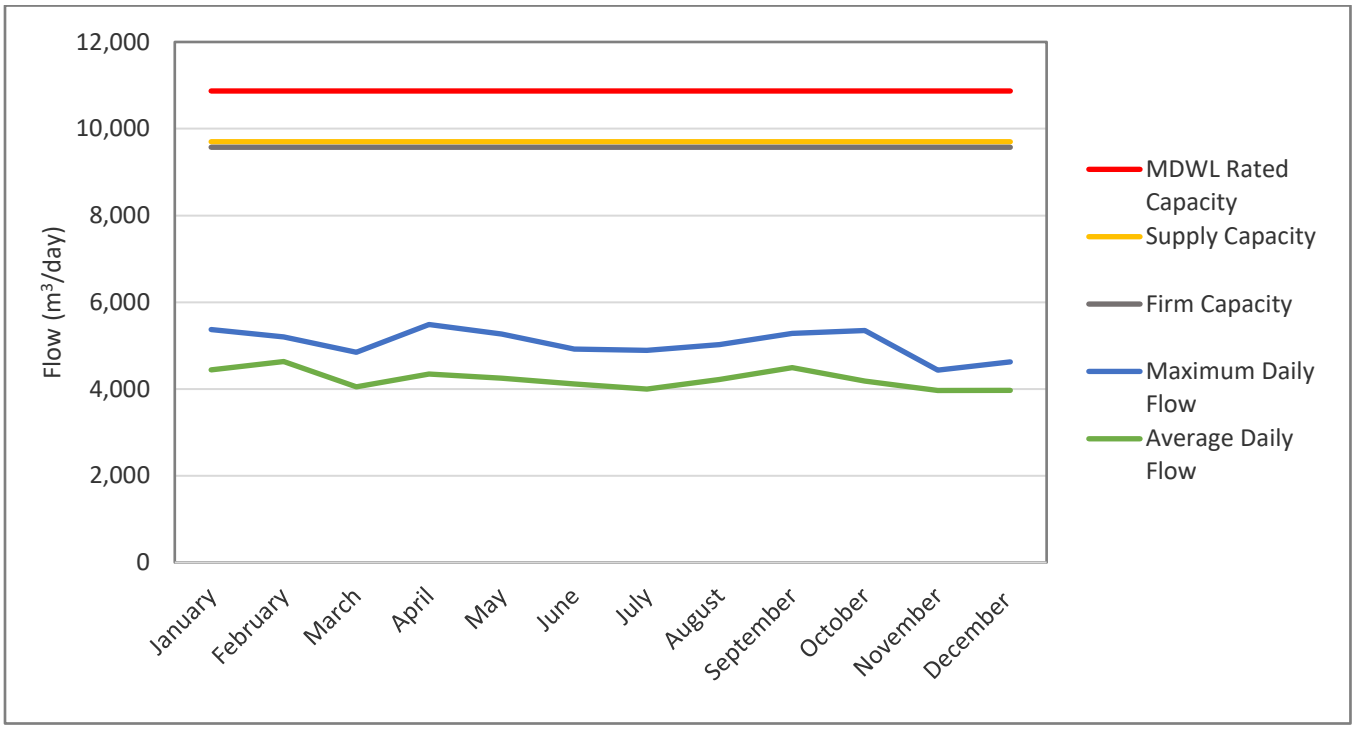
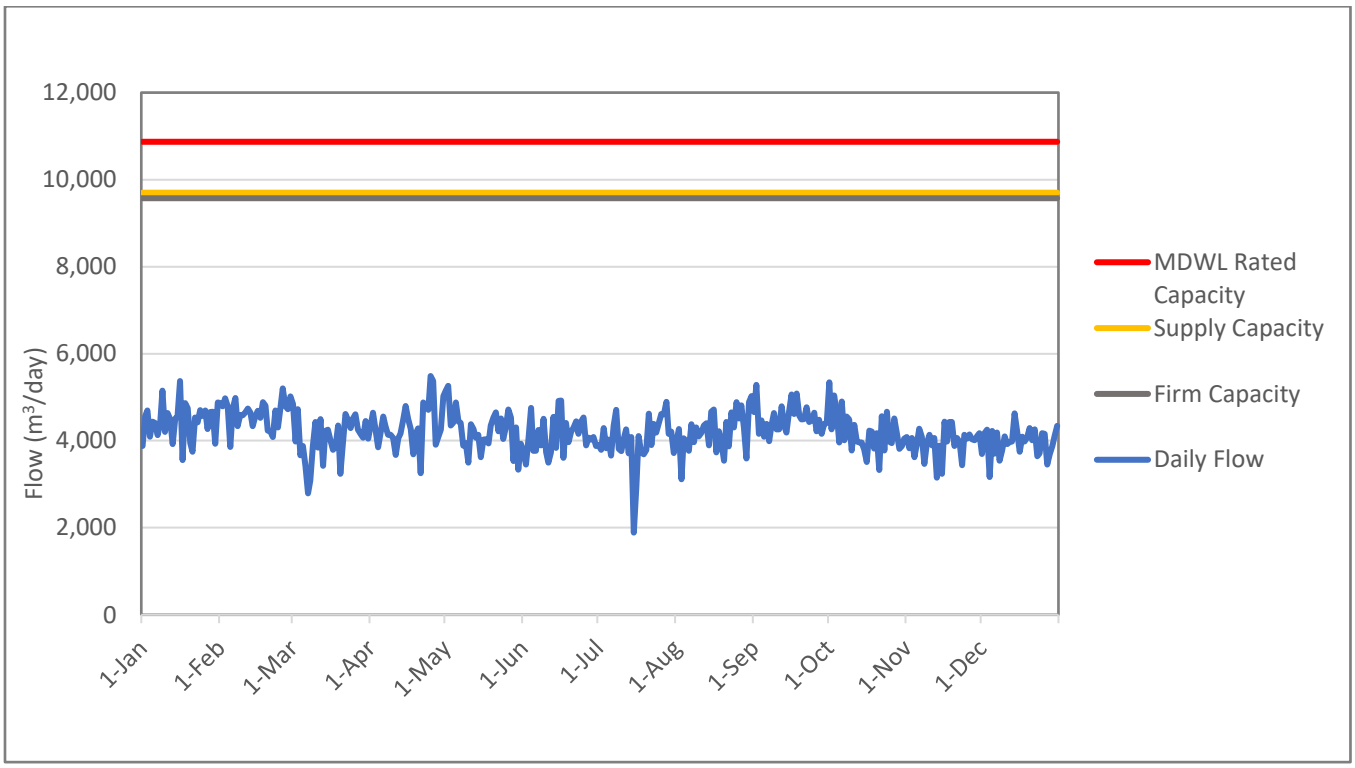


Figure 4 – 2024 Daily Flow Rates



Appendix C: Water Quantity Summary – Telfer Water Treatment Facility

Figure 5 - 2024 Total Production by Well (m³)

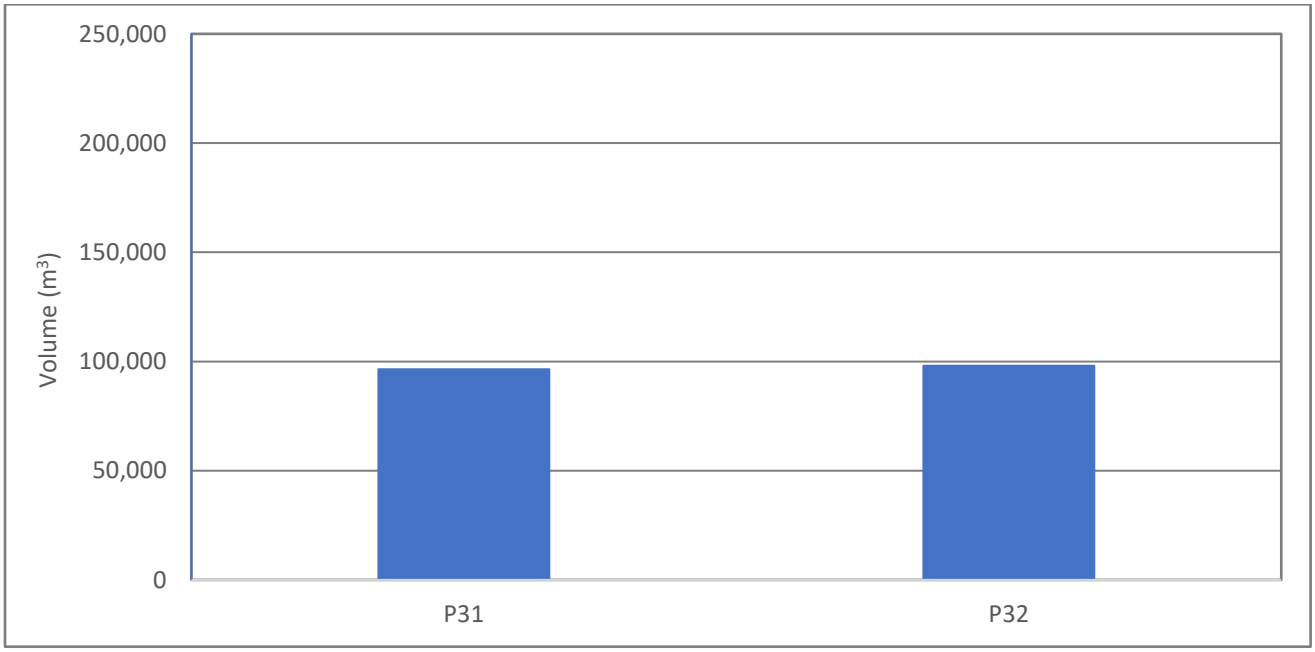


Figure 6 -Total Daily Water Taking (m³)

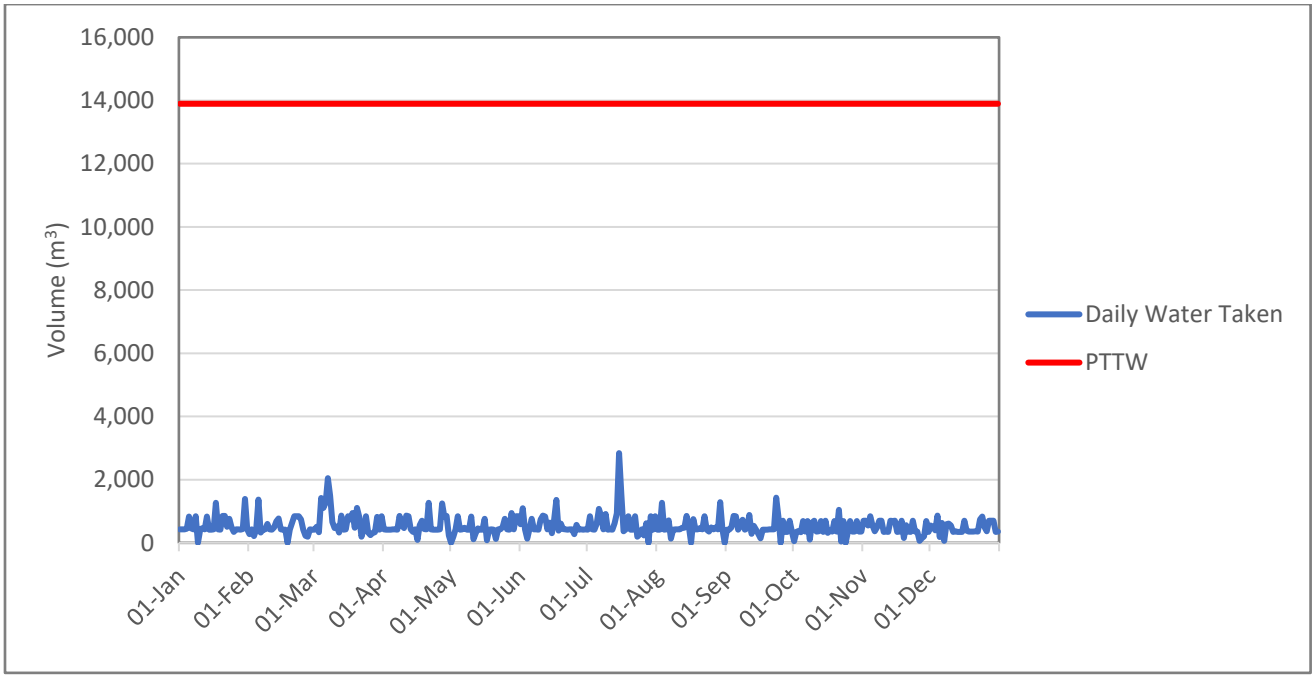


Figure 7 - 2024 Average vs Maximum Daily Flow Rates

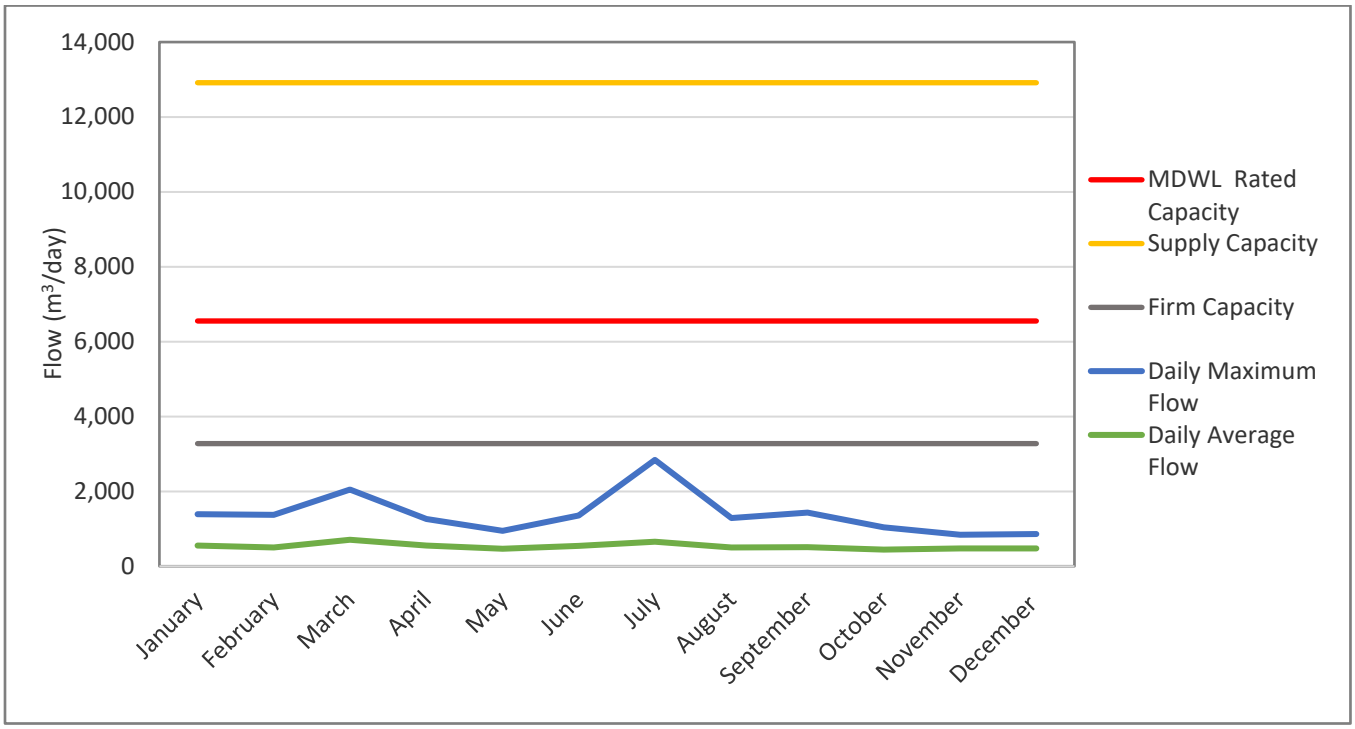
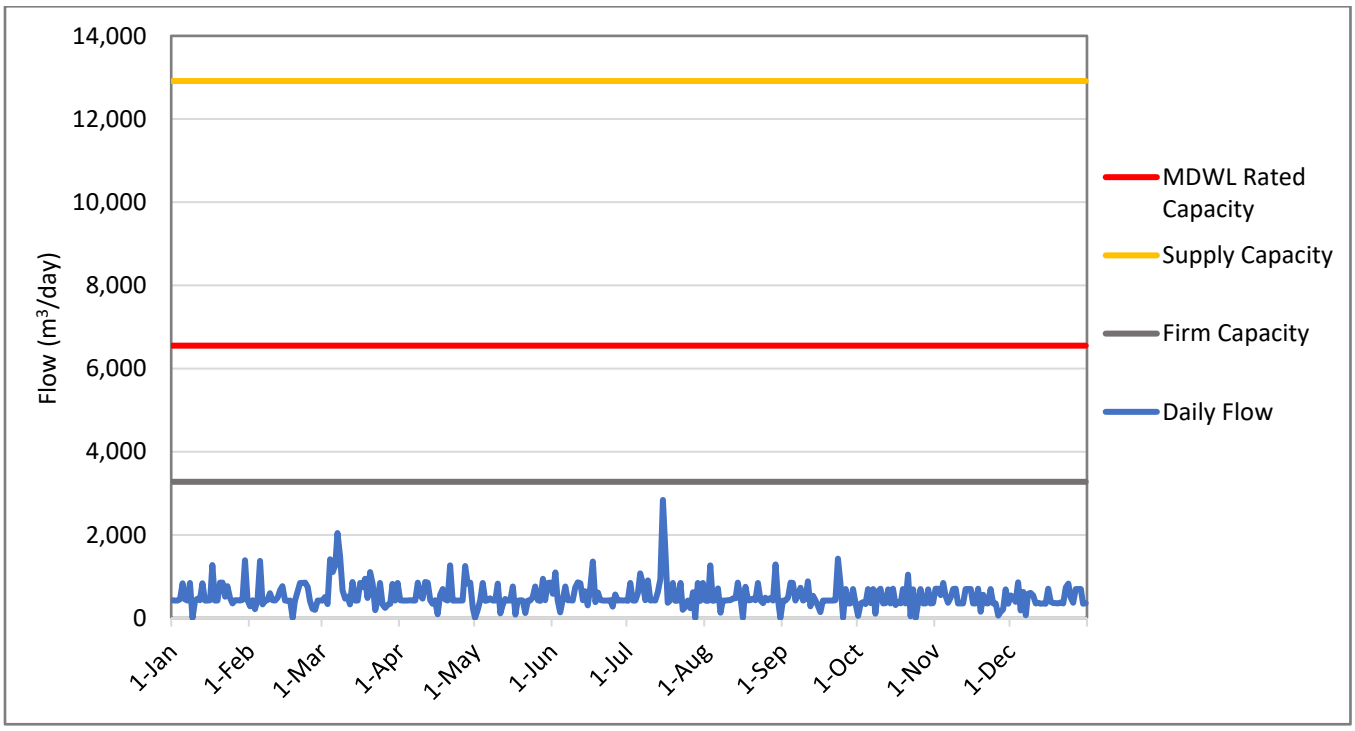


Figure 8 – 2024 Daily Flow Rates



Appendix D: Water Quantity Summary – Bethel Water Treatment Facility

Figure 9 - 2024 Total Production by Well (m³)

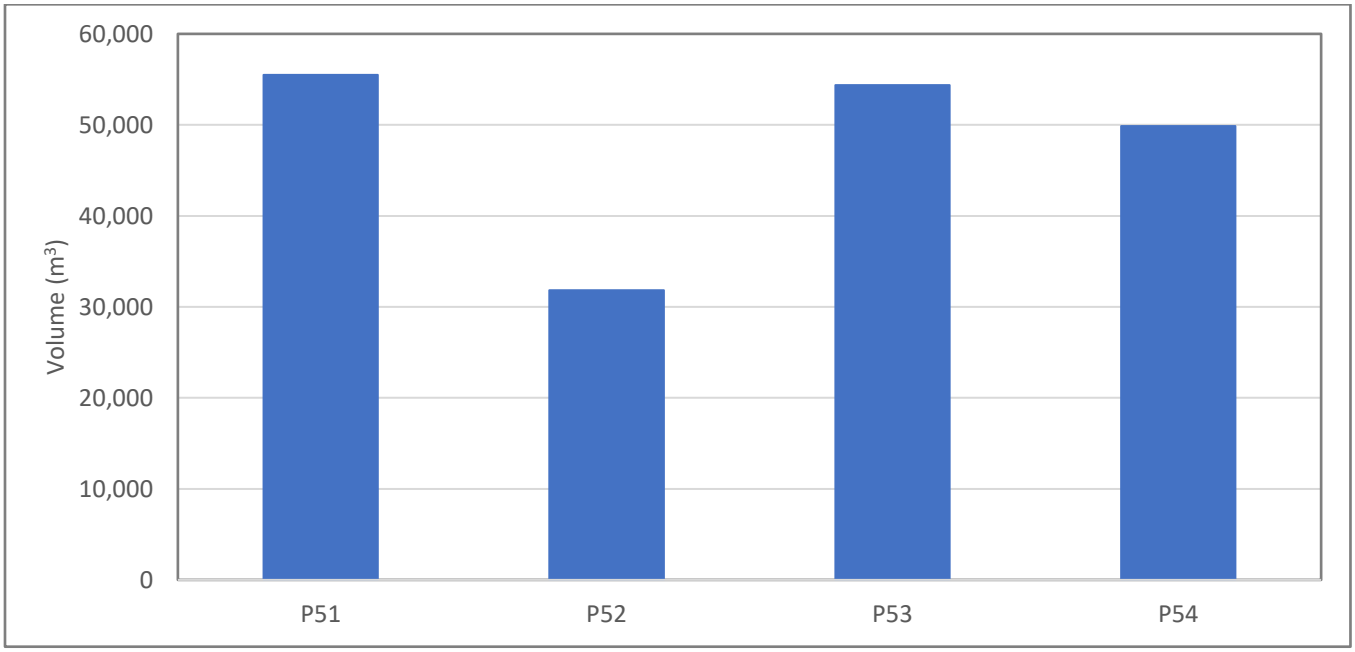


Figure 10 – Total Daily Water Taking

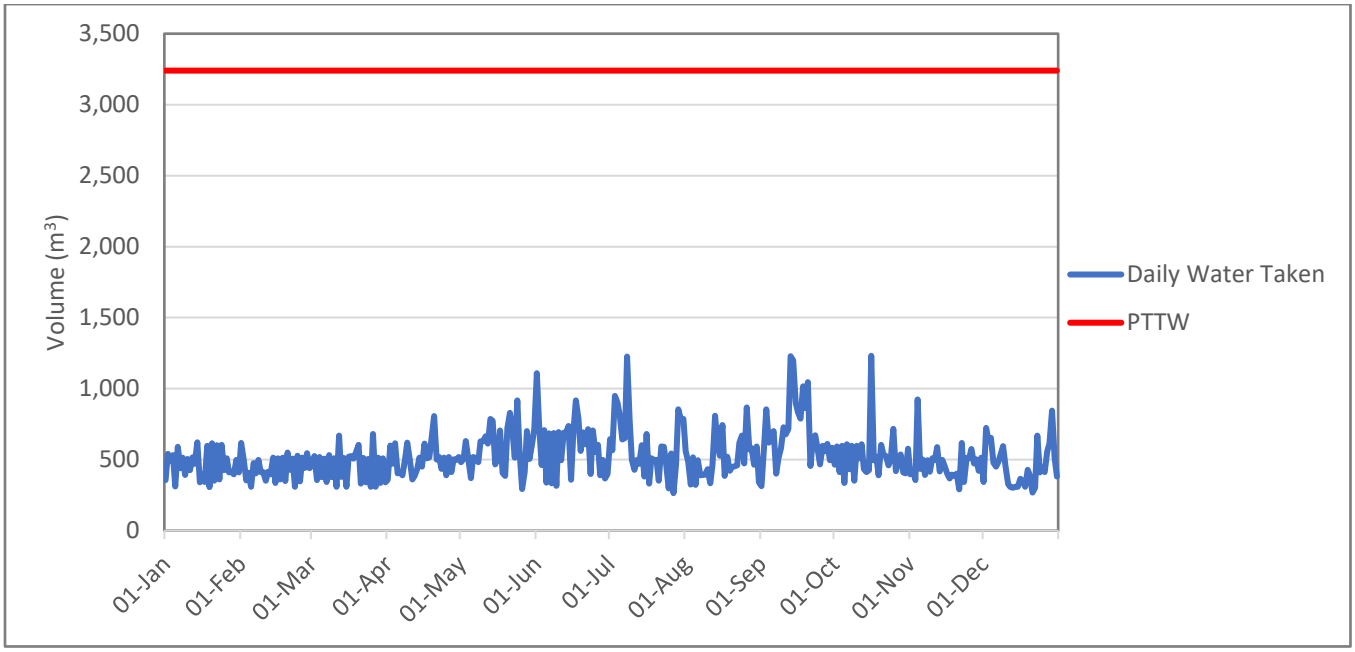


Figure 11 - 2024 Average vs Maximum Daily Flow Rates

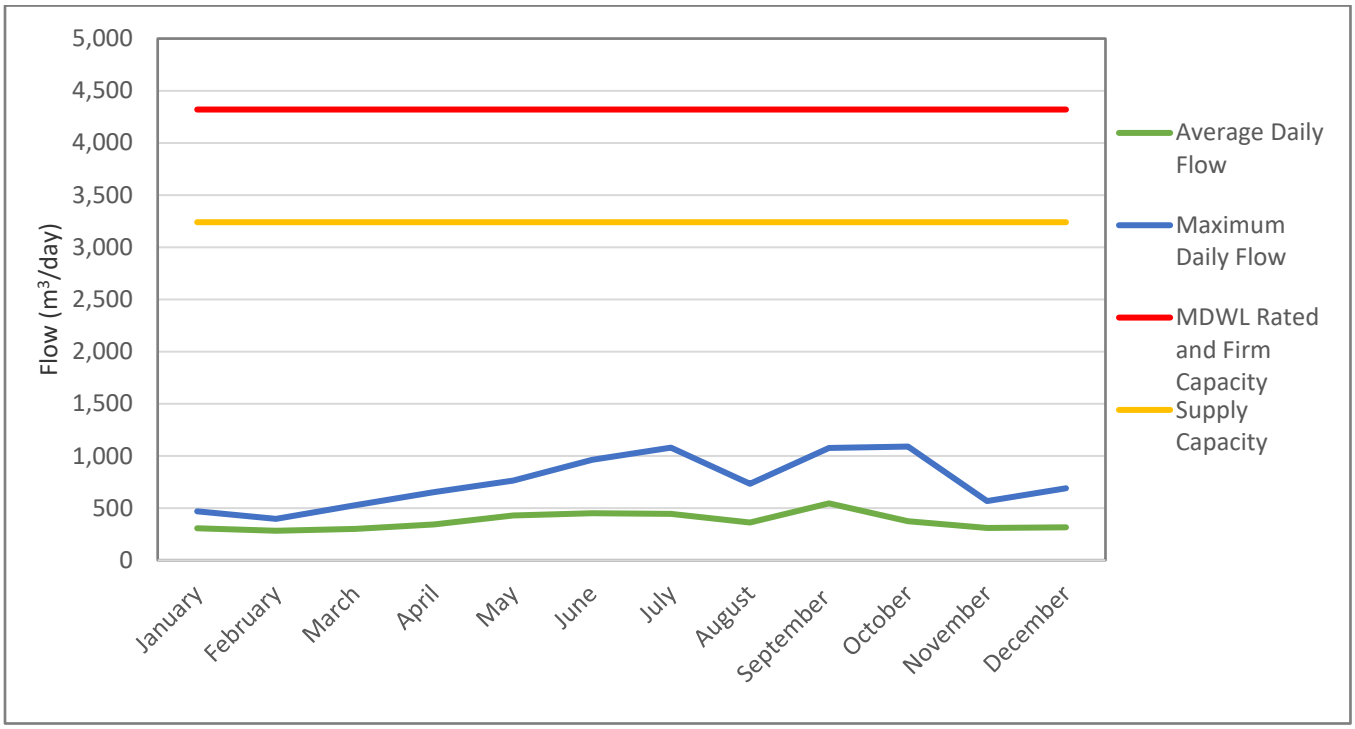


Figure 12 – 2024 Daily Flow Rates