REPORT

Blue Triton Brands Erin Spring Site

2023 Annual Monitoring Report

Submitted to:

Blue Triton Brands

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Distribution List

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Key Facts for 2023 Operations at Erin

Key facts for the 2023 operations at Erin are summarized below.

1) Blue Triton Brands (Blue Triton) continued to operate under the terms of Permit to Take Water (PTTW) 4788-C5TJTZ for well TW1-88.

2) Blue Triton has complied with all the conditions in the PTTW for the Erin well TW1-88 in 2023.

3) A comprehensive annual monitoring report for the Erin well (TW1-88) has been prepared under the conditions of the PTTW.

4) No complaints arising from the taking of water authorized under the PTTW were received in 2023.

5) The Grand River Low Water Response Team declared a Level 2 Low Water Condition for the entire Grand River Watershed, including Mill Creek, on July 21, 2022 which remained in effect until it was reduced to a Level 1 Low Water Condition on January 12, 2024 and removed on September 13, 2023. The Grand River Low Water Response Team declared a Level 1 Low Water Condition for the entire Grand River Watershed again on December 20, 2023. The Level 1 Low Water Condition was in effect for the remainder of 2023. Blue Triton committed to limit water takings to 90% of their monthly maximum permitted volume during the Level 1 Condition and 80% of their monthly maximum permitted volume during the Level 2 Condition.

6) TW1-88 is completed in the dolostone bedrock aquifer that is overlain by a sandy silt/clay aquitard and a surficial sand and gravel aquifer.

7) The total volume of water taken in 2023 from TW1-88 was 42,618,720 L, approximately 10% of the permitted annual volume assuming continuous well operation.

8) The daily water takings at TW1-88 ranged from 0 L to 301,697 L. The average daily water taking was 116,764 L. The maximum daily taking corresponded to 27% of the permitted maximum daily taking and at all times the instantaneous pumping rate remained a relatively small fraction of the maximum permitted rate of 773 L/min.

9) 97% of the water pumped from TW1-88 was transported by tanker to the Blue Triton bottling facility at 101 Brock Road South in Puslinch, Ontario. The water was transferred into 500 mL PET bottles. The remaining 3% of the pumped water was used as flush water (from the water storage silo to a pond located at the loading station) or used for CIP (clean in place) water. Flushing was completed to prevent the water from becoming stagnant during periods of low water use.

10) The variations in water level in TW1-88 are due mainly to short-term changes in the pumping rate. There are no long-term trends in the water level trends in TW1-88. Water levels in the bedrock aquifer have been similar over the past five years with no long-term increasing or decreasing trend.

11) The water levels in the bedrock monitoring wells have varied within consistent ranges over the past five-year period.

12) The influence that pumping TW1-88 has on water levels in other wells decreases with distance from TW1-88.

13) Water levels measured within the overburden in 2023 are within the ranges measured over the past five years. Overall, the similarity in water level trends, regardless of distance from TW1-88, indicates that water level fluctuations in the overburden are not due to pumping TW1-88, but due to natural seasonal changes.

14) There is no significant interaction between the bedrock and overburden aquifers at the current rate of taking.

15) Water levels in the mini-piezometers fluctuate seasonally, with higher water levels observed in the winter/spring and lower water levels observed in the late summer. In 2023, the water levels were generally higher from mid-March to mid-August. The water levels also show a response to precipitation and melt events. Water levels measured in the mini-piezometers in 2023 are within the ranges measured over the past five years.

16) Long-term surface water levels and flows are stable and pumping at TW1-88 does not influence the water levels or flows in the surface water features. Water levels in the surface water features respond to precipitation and melt events.

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1.0 INTRODUCTION

Blue Triton Brands (Blue Triton), formerly Nestlé Waters Canada (Nestlé), has retained WSP Canada Inc. (WP) to conduct the annual monitoring program and report preparation for the Blue Triton Erin Springs Site, as required by Permit To Take Water (PTTW) Number 4788-C5TJTZ issued by the Ministry of the Environment, Conservation and Parks (MECP) on November 15, 2021. The PTTW is provided Appendix A.

The location of the Erin Springs Site (the Site) is shown on Figure 1.1. The PTTW authorizes water taking from one bedrock well located on Lot 24, Concession 7, Geographic Township of Erin, County of Wellington, Ontario. Water from well TW1-88 is taken for the purpose of bottling water.

A summary of the PTTW Conditions and where the information can be found in this report are outlined in Table 1:

Table 1: Permit To Take Water Conditions

Condition Number	Condition Description	Report Section
3.2	Identifies use, rates, time and total takings allowed.	3.1.1, 4.1, Appendix C
3.3	Low Water Response Plan	4.1
4.1, 4.2	Establish the specified groundwater and surface water monitoring programs including monitoring requirements and monitoring timing.	3.1.2, 3.1.3
4.3	Condition for plotting gradient data and assessing hydraulic connection of the groundwater with the surface water.	4.2.4, 4.3.1
4.4	Notify the Director of monitoring locations that become inaccessible or abandoned and provide a recommendation for replacement.	3.1.2.1, 3.1.3.1, 3.1.4
4.5	Maintain a daily record of all water takings including date, volume of water taken and rate at which it was taken.	Appendix C
4.6	Prepare and submit an annual monitoring report to the Director, which presents and interprets the data collected under the conditions of the PTTW.	This report
4.7	Submit details of the bottling operations to the Director.	4.1
4.8, 5.1	Notify the local District Office of any complaint arising from the taking of water and proposed action to rectify the complaint.	4.1
4.9.1, 4.9.2, 4.9.3	Establish a publicly accessible website and have select technical data available for download. [https://bluetriton.ca/long-term-monitoring]	Not reported on; updated annually prior to March 31
4.10	Host an annual stakeholder meeting.	Not reported on; completed annually prior to September 30
5.2	Supply water to anyone with a water supply (in effect prior to this taking) that has been negatively impacted.	Not applicable

Golder Associates Ltd. (now WSP) began monitoring at the Site in May 2014 on behalf of Nestlé and continues to monitor the site on behalf of Blue Triton. Prior to that time, monitoring was performed by Conestoga Rovers and Associates (CRA) and Nestlé. The MECP has requested that the reporting follow the same outline and format as previous reports.

The report is structured as follows:

- **Section 1.0**: Introduction including site location, history, and construction details for supply well TW1-88;
- **Section 2.0**: Regional setting including a description of topography, drainage, ecology, physiography, geology and hydrogeology;
- **Section 3.0**: Summary of 2023 field program including a description of field activities conducted in 2023;
- **Section 4.0**: Monitoring program results including a summary and analysis of the data collected in 2023;
- **Section 5.0**: Conclusions from the 2023 monitoring program; and
- **Section 6.0**: Recommendations from the 2023 monitoring program.

1.1 Historical Summary

TW1-88 was constructed in August 1988 for a party other than Nestlé (now Blue Triton). In 1989, water was permitted to be taken from the well for a 10-year period at a maximum withdrawal rate of 1,112,860.8 L/day. However, the well was only used one day during this initial 10-year period.

In 1999, further testing was completed at TW1-88 and the well was re-permitted by the original owner. Nestlé (now Blue Triton) purchased the property and began pumping for commercial purposes in March 2000; the well has been permitted continuously since that time. The current permit allows for water taking for bottling water purposes at a maximum pumping rate of 773 L/min and a maximum daily withdrawal rate of 1,113,000 L over the year.

The Erin property is located on a 75.5 hectare parcel approximately 4 km west of the Town of Erin (Figure 1.1), 24 km north-northeast of Guelph, and approximately 35 km north of the Blue Triton Aberfoyle bottling facility, where the water is transported for processing. The Erin property consists of a water silo, house, barns, paved access drives, ponds, and open fields with wooded areas and wetlands. TW1-88 is located in the northern portion of the property and the loading station is situated in the southern portion of the property.

When water withdrawals for bottling began at the property, tankers were filled directly from the well. Starting in 2001, water pumped from TW1-88 has been transferred via pipeline to a 227,305 L stainless steel water storage silo. The silo is used for short-term storage where highway tanker trucks are filled for transport to the Blue Triton Aberfoyle facility.

1.2 Construction Details for Supply Well TW1-88

The borehole log for TW1-88 is provided in Appendix B. TW1-88 is interpreted to be completed within the Guelph Formation limestone and dolostone. The bedrock is overlain by glacial sediments that are 19.5 m thick at TW1-88. The overburden consists of two general units: the uppermost unit consists of interlayered sand and gravel with varying amounts of silt to a depth of 12.2 m below grade, and the lower unit consists of 7.3 m of sandy silt till/clay till. A 170 mm diameter high-carbon steel casing was drilled through the overburden and into the bedrock and grouted 1.4 m into the bedrock at a depth of 20.9 m below grade. The well was completed as a 160 mm diameter open borehole in bedrock with a depth of 57.3 m.

In 2010, a downhole video survey revealed that the original high carbon steel casing had some pitting (CRA, 2014). To prevent potential casing failure in the future and to upgrade the well to Nestlé (now Blue Triton) standards, the original casing was overdrilled and removed, and a 200 mm diameter stainless steel casing was installed to a depth of 21.8 m. The new casing was cement grouted in place.

The lower portion of the well was noted to have been completed within a poor production zone (CRA, 2014). The bottom 18.3 m of the well was grouted with cement from 57.3 m to 39 m below grade in 2010. The revised water well record (Well Tag No. A095193) is included in Appendix B, and a schematic of the well is shown on Figure 1.2.

2.0 REGIONAL SETTING

The following sections provide a summary of the regional and local topography, drainage, physiography, and overburden and bedrock geology/hydrogeology for the Site.

2.1 Topography and Drainage

The topography and drainage of the property and surrounding area is shown on Figure 2.1. The regional topography is characterized by knobby hills surrounded by low-lying wetlands and/or streams, with overall ground elevations increasing to the northwest. Ground surface elevations are highest near the middle of the property (450 masl) and decline toward the northwest (430 masl) and southern (410 masl) parts of the property. The topography is relatively flat in the northern part of the property and rolling elsewhere. In general, surface water features occur within the topographic lows.

Well TW1-88 is situated in the Grand River watershed, near the surface water divide with the Credit River watershed (Figure 1.1). Specifically, well TW1-88 is located in the Eramosa River subwatershed of the Grand River. The Eramosa River and its tributaries are generally situated west of the Site.

There are two ponds on the Blue Triton property within the Grand River Watershed as shown on Figure 2.1: one pond referred to as the “On-Site Pond” is located approximately 135 m southwest of TW1-88, and one pond referred to as “Wetland Pond” is located approximately 265 m south-southeast of TW1-88. The ponds discharge to an unnamed perennial tributary of the Eramosa River that flows in a southwest direction.

Within the Credit River Watershed, the Erin Branch of the West Credit River is located east of the Site and flows in a general southeasterly direction, ultimately discharging to the Credit River. At its closest point, the Erin Branch tributary is located approximately 470 m from TW1-88. Off the property (to the north and east), there are three large on-line ponds located along the Erin Branch of the Credit River. Another large surface water body located within the Credit River Watershed, referred to as Roman Lake, is located about 1.2 km southeast of TW1-88.

2.2 Ecological Setting

The upland portions of the property comprise agricultural fields while the low-lying areas support forest and wetlands. The wetlands on the Grand River watershed portion of the property are part of the Speed Lutteral Swan Creek Wetland Complex. The wetlands on the Credit River watershed portion of the property are part of the West Credit River Wetland Complex. Both wetland complexes are designated as Provincially Significant Wetlands. The wetlands are generally undisturbed and support a diverse range of flora and fauna, including some that are ranked as locally significant. For more details on the ecological setting see the 2023 Biological Monitoring Program Report for the Erin property (Beacon Environmental, 2024).

2.3 Physiography

The area is situated between the physiographic regions described by Chapman and Putnam (1984) as the Guelph Drumlin Field (to the south) and the Hillsburgh Sandhills (to the north). Chapman and Putman (1984) characterize the Guelph Drumlin Field as drumlins fringed by gravel terraces and separated by swampy valleys in which flow sluggish tributaries of the Grand River. The drumlins are made up of glacial till. Chapman and Putnam

(1984) characterize the Hillsburgh Sandhills as a glacial spillway with knobby hills. Surficial soils are generally sandy with swampy valleys.

2.4 Geology and Hydrogeology

The geology in the area has been interpreted based on published mapping, water well records and detailed stratigraphic logging (CRA, 2014).

2.4.1 Overburden Geology

The regional Quaternary geology in the area of the Site is shown on Figure 2.2 (Cowan, 1976). The surficial overburden at the Site is characterized by the following units:

- Organic deposits;
- Glaciofluvial sandy deposits;
- Ice-contact stratified deposits; and
- Silty to sandy till.

The area to the south, southeast and east of the Site generally contains silty to sandy till at surface, with ice contact stratified drift and glaciofluvial sand and gravel deposits occurring mainly in the low-lying areas. The area west, northwest and north of the Site generally contains ice-contact stratified deposits that make up the surficial soils of the Orangeville Moraine. The Site lies between these features, with till deposits occurring through the middle of the Site where ground elevation is higher and sand and gravel deposits occurring toward the northwest and southeast parts of the property.

Three cross-sections through the Site have been developed (Figures 2.3 through 2.5) with the locations shown on Figure 2.2 (CRA, 2014). Two overburden stratigraphic units are interpreted to be present in the vicinity of the Site:

- An upper sand and gravel originating from glaciofluvial outwash or ice-contact stratified drift; and
- A lower sandy silt/clay till.

The sand and gravel unit consists of sand, gravel, or sand and gravel, and generally increases in thickness to the northwest of TW1-88, but is generally absent to the south, southeast, and east of TW1-88. The sandy silt/clay till is continuous across the Site and is present below the sand and gravel unit or at surface where the sand and gravel unit is not present. The till typically ranges in thickness from about 5 m to 35 m within 1 km of TW1-88. Based on the MECP water well records, sand and gravel deposits are present within the till or directly below the till overlying bedrock.

2.4.2 Bedrock Geology

The regional bedrock geology is shown on Figure 2.6 (Liberty, 1975). The uppermost bedrock unit consists of dolostone of the Guelph Formation below the Site, and dolostone of the Amabel Formation (the Ontario Geological Survey now identifies the rock of the Amabel Formation as comprising the Eramosa, Goat Island, Gasport or Irondequoit Formations) east of the Site. Liberty (1975) describes the Guelph Formation in this area as light brown, fine to medium crystalline sucrosic dolostone. TW1-88 is completed within the Guelph Formation.

2.4.3 Hydrogeology

There are three hydrostratigraphic units present at the Site as follows (from top to bottom):

- Surficial sand and gravel aquifer;
- Sandy silt/clay till aquitard; and
- Dolostone bedrock aquifer (Guelph Formation).

The Erin property is located in a regional recharge area of a very large and robust bedrock aquifer system. The water table generally lies within the surficial sand and gravel aquifer. The direction of groundwater flow within the water table aquifer occurs in a southerly to southwesterly direction in the vicinity of TW1-88. Water recharges regionally through the glacial overburden and into the Guelph aquifer on the Orangeville Moraine, generally north and northwest of the Erin property.

The surficial sand and gravel aquifer and bedrock aquifer are separated by a sandy silt/clay till unit. The difference in water levels between the aquifers indicates that the till is acting as an aquitard and that mean vertical groundwater flow is downward under pumping and non-pumping conditions.

The bedrock aquifer does not supply the pond network on the Erin property. The potentiometric surface of the bedrock aquifer is approximately 5 metres below the surface elevation of the On-Site pond which is part of the shallow groundwater system. The bedrock aquifer also does not discharge to the tributary of the Eramosa River that flows from the wetland to the pond network. The tributary is supplied almost exclusively by runoff from surrounding topography, precipitation on the wetlands and pond and discharge from the overburden aquifer.

The carbonate units of the Guelph Formation comprise a regional aquifer, utilized by residential, commercial, and municipal water supplies. The bedrock aquifer is the main water supply aquifer in the vicinity of the property for both the Blue Triton supply well and private wells.

The potentiometric surface prior to pumping (January 24, 2000) is shown on Figure 2.7 (CRA, 2014). Groundwater flow in the absence of pumping is to the south-southeast with a horizontal gradient of about 0.015 m/m. CRA (2014) notes that static water levels typically ranged from 6 to 16 m bgs, and the water level at TW1-88 before pumping began was about 10 m bgs (i.e., elevation of 424.3 masl).

A map showing the interpreted drawdown in the bedrock aquifer on June 15, 2001, after 18 hours of pumping at 773 L/min, is included on Figure 2.8 (CRA, 2014). The map shows that the zone of influence at this pumping rate (based on a drawdown of 0.1 m) extended approximately 1,000 m from TW1-88 to the west, north and east; and to the south and southwest. To the west the zone of influence is inferred to exceed 700 m, although there are limited available data in that direction. At TW1-88, the drawdown was approximately 8.1 m.

It is noted that Golder Associates Ltd. (now WSP) previously developed a groundwater flow model for Wellington County in 2005, which indicated that pumping from TW1-88 at 1,113,000 L/day does not interfere with the Wellhead Protection Area designated for the two Hillsburgh municipal wells (Golder, 2006). The closest Hillsburgh municipal well is located approximately 1.5 km north-northeast of TW1-88 and is beyond the 0.1 m drawdown contour (Figure 2.8) located approximately 1 km from TW1-88.

2.5 Source Water Protection

Since the passing of the Clean Water Act (2006), municipalities in Ontario have been required to develop source protection plans to protect their municipal sources of drinking water. These plans identify both water quality and water quantity risks to local drinking water sources and develop strategies to reduce or eliminate these risks. Potential and existing risks for a municipal source are identified within wellhead protection areas (WHPA). A WHPA is an area projected to ground surface that delineates the zone in an aquifer where groundwater is flowing to a municipal drinking water source (pumping well). These are defined to protect water quality (except WHPA-Q which is delineated to protect water quantity). The Blue Triton Erin property and well TW1-88 is located more than 1.4 km from the closest WHPAs, which include the Hillsburgh WHPA to the north and the Erin WHPA to the east (CTC Source Protection Committee, 2015).

In addition to protecting water quality, water quantity is also a concern and is considered under Water Quantity Protection Plans. A Water Quantity Risk Assessment is completed to ensure that future water needs of a community can be met. It identifies existing and potential water quantity threats and future activities that may limit municipal water supplies. This is important because when more water is taken from an area than can be naturally replenished, water supplies are threatened, and water shortages are possible. The Erin property falls within the upper end of a Water Quantity Intake Protection Zone (IPZ-Q) for the City of Guelph Eramosa Intake on the Eramosa River, which has been assigned a significant risk level (Matrix Solutions 2017). The IPZ-Q was assigned a significant risk level because of interconnection through the City of Guelph Arkell Water System. As a result, each of the consumptive water uses within the IPZ-Q are categorized as significant; however, the net consumptive water use within the IPZ-Q is small compared to the natural variability in flow of the Eramosa River at the intake (Matrix Solutions 2018a). Therefore, on an average basis, consumptive water taking threats are not expected to affect the municipal surface water intake's ability to obtain water. Further assessment of the threats was carried out as part of the climate changes assessment (Matrix Solutions 2018b). The municipal and non-municipal threats were ranked as follows: 1) Arkell Wells, 2) Glen Collector, 3) Non-Municipal PTTWs, and 4) Rockwood Wells. The Blue Triton water taking is one of twelve water takings that fall within the third-ranked threat of four threats. The study indicates that the total potential influence of municipal and non-municipal takings on streamflow in the Eramosa River at Gauge 02GA029 is a reduction in flow of 0.287 m^3/s; the amount represents approximately 12% of the mean annual flow (2.3 m^3/s) (Matrix Solutions 2018b). Within this total, the impact of permitted municipal pumping rates represents 85% of the total potential impact of permitted water takings on the Eramosa River intake. The Arkell Wells/Glen Collector are located approximately 24 km south of TW1-88.

3.0 SUMMARY OF 2023 FIELD PROGRAM

This section describes the field activities performed in 2023 associated with PTTW 4788-C5TJTZ for TW1-88.

3.1 Groundwater and Surface Water Monitoring Program

Groundwater and surface water monitoring was initiated in 2000 and has evolved over the years with the objectives to 1) characterize the existing hydrogeologic setting, and 2) document potential long-term changes to the groundwater and surface water resources in the area. The monitoring program includes measurement and record-keeping of water takings, groundwater levels, mini-piezometer levels, surface water levels and surface water flow. The monitoring program for PTTW 4788-C5TJTZ includes the following instrumentation, with the locations shown on Figures 3.1 through 3.3:

- Groundwater levels and water takings in the production well (TW1-88);
- Groundwater levels in 16 monitors at 8 locations;
- Shallow groundwater levels in 7 piezometer nests with a total of 14 monitors (shallow and deep pair);
- Surface water levels at 7 stations;
- Surface water flow at 4 stations; and
- Water levels at 1 private well.

3.1.1 Water Taking

Water taking from TW1-88 in 2023 was measured using an Endress+Hauser Promag magnetic flow meter connected to an Allen-Bradley industrial Programmable Logic Controller. The instantaneous flow and cumulative volume pumped are recorded every minute. The flow meter was most recently calibrated on November 11, 2023 by Endress+Hauser.

The daily volumes taken from supply well TW1-88 in 2023 are provided in Appendix C.

3.1.2 Groundwater Monitoring Program

Groundwater levels have been measured at various locations for varying periods of time since a monthly water level monitoring program was initiated in January 2000. Modifications to the monitoring program have been made over time as wells have become inaccessible. During the 2023 monitoring period, none of the wells required as part of the monitoring program became inaccessible. All the existing monitoring locations and the decommissioned or unused wells are shown on Figure 3.4.

The monitoring locations for the 2023 groundwater monitoring program are shown on Figures 3.1 and 3.2 for the bedrock and overburden wells, respectively, and are summarized below.

Overburden Monitors

- MW3A/B-00, MW5B-05, MW6B-05, MW11B-08, MW12B-08, MW13B-20-07, MW14B-20-06.

Bedrock Monitors

- TW1-88, MW5A-05, MW6A-05, MW11A-08, MW12A-08, MW1-18A/B, MW13A-20-7, MW14A-20-7, D3.

Water levels were measured at all locations quarterly under PTTW 4788-C5TJTZ. Where required by the PTTW, dataloggers are used to record water levels at 60-minute intervals and downloaded quarterly. The groundwater levels measured in 2023 are presented in Appendix D.

3.1.2.1 Missing Data

The following table provides a list and description of missing data from the 2023 monitoring. In July, the transducer failed at MW5B-05 for six days. At the beginning of the year the water level at MW12B-08 was below the screen (i.e., the well was dry). The condition is considered temporary, as water levels rose in the spring to within the screened interval. In the past there were also instances when manual water levels could not be measured due to frozen conditions, however no frozen conditions were observed during the quarterly monitoring events in 2023.

Table 2: Missing Groundwater Data from the 2023 Monitoring

Monitoring Location	Missing Data	Comment
MW5B-05	Transducer data for six days in July	Transducer failure
MW12B-08	Manual water levels and transducer data from January to mid-March	Not an issue but monitoring well is dry

3.1.3 Surface Water Monitoring Program

The monitoring locations for the 2023 surface water monitoring program are shown on Figure 3.3 and are summarized below.

Surface Water Levels

- SW1-08, SW1A-20, SW3-08, SW4-08, SW5-08, SW7-08, SW7B-20.

Water levels are measured at all locations during the third week of each month using a water level meter. Dataloggers are used to record water levels at 60-minute intervals, which are also downloaded once a month. The surface water levels for 2023 are presented in Appendix E.

A new station (SW7A-16) was established in the Erin Branch of the Credit River by D7B in May 2016. The site was chosen at a location with more favourable hydraulics (i.e., single channel, stable conditions and no backwater). However, due to changes in the stream, SW7A-16 was replaced with SW7B-20 approximately 100 m upstream. This station will eventually replace SW7-08, which is located in an area with changing stream hydraulic conditions and flooding.

Stream Flows

- SW1-08, SW3-08, SW7-08, SW7B-20.

Stream flow was measured at four locations during the third week of each month. Stream flow velocities were measured using a Hach electromagnetic flow meter and the surface water flows were calculated using the cross-sectional area-velocity method. The surface water flow measurements for 2023 are presented in Appendix F.

The monthly surface water elevations (“stage”) and stream flow measurements (“discharge”) collected in 2023 were used to update the stage-discharge relationships (rating curves) at SW1-08, SW7-08 and SW7B-20. The rating curves were used to calculate stream flow from the continuous water level measurements at these stations. A stage-discharge curve was not developed for SW3-08 as flow at SW3-08, which is the outlet from the On-site Pond, is measured on a continuous basis using a Stingray Flow Meter.

Mini-Piezometers

- P01A/B-07, P03A/B-05, P06A/B-07, P10A/B-05, P11A/B-05, P12A/B-07, P13A/B-07.
- In 2023, water levels were measured in mini-piezometers at seven locations, each containing a shallow and a deep monitor installed beneath the stream to assess water levels in the shallow sediments. Dataloggers are used to record water levels at 60-minute intervals. Water levels were measured and dataloggers downloaded at all locations during the third week of each month. The water levels measured in 2023 are presented in Appendix E.

3.1.3.1 Missing Data

The following table provides descriptions of missing data from the 2023 monitoring, which are technically not missing but rather are due to winter conditions (i.e., stations were frozen). The water levels in the mini-piezometers are close to surface and can become frozen in the winter. Slow moving water can also become frozen in the winter. The water level is not necessarily representative of the actual water level under these frozen winter conditions. The issues were temporary and have been resolved.

Table 3: Missing Surface Water Data from the 2023 Monitoring

Monitoring Location	Missing Data	Comment
SW3-08	Frozen	Frozen in January
SW5-08	Frozen	Frozen in January, February, March and December
P06A-07	Frozen	Frozen in December

Monitoring Location	Missing Data	Comment
P10A-05	Frozen	Frozen in December
P12A-07	Frozen	Frozen in December

3.1.4 Notification Regarding Locations Which Become Inaccessible

None of the monitoring locations required in PTTW 4788-C5TJTZ have become inaccessible or removed from the monitoring program.

3.2 Surveying

No surveying was required in 2023.

3.3 Precipitation

A record of precipitation in 2023 was compiled from the Fergus Shand Dam meteorological station with missing data filled in from the Elora RCS meteorological station. Missing data were previously filled in from the Fergus MOE meteorological station, but the data were not available after 2020. Prior to 2016, the record of precipitation was compiled from the Orangeville meteorological station, with missing data obtained from the Fergus Shand Dam Station; however, data are no longer available from the Orangeville station. The following table provides a summary of the annual precipitation. The annual average (1981-2010) precipitation at the Fergus Shand Dam Station is 945.7 mm and it is 901.5 mm at the Orangeville Station. The total precipitation measured in 2023 was 992.8 mm, which is approximately 5% above the 1981-2010 average. The total annual precipitation was close to the long-term average in 2023 after being below the long-term average for the previous two years. Annual precipitation is also shown graphically on Figure 3.5 along with the 30-year average (or normal as reported by Environment Canada).

Table 4: Annual Precipitation

Year	Precipitation (mm)	% Difference from Average
2008	1444.8 (Orangeville)	60.3
2009	1044.9 (Orangeville)	15.9
2010	1113 (Orangeville)	23.5
2011	1077.7 (Orangeville)	19.5
2012	803 (Orangeville)	-10.5
2013	1035.7 (Orangeville)	14.9
2014	954.5 (Orangeville)	5.9
2015	783.1 (Orangeville)	-13.1
2016	1032 (Shand Dam)	9.1
2017	1109.6 (Shand Dam)	17.3
2018	953.3 (Shand Dam)	0.8
2019	1053.4 (Shand Dam)	11.4
2020	1014.1 (Shand Dam)	7.2

Year	Precipitation (mm)	% Difference from Average
2021	890.6 (Shand Dam)	-5.8
2022	812.9 (Shand Dam)	-14.0
2023	992.8 (Shand Dam)	5.0
Average (1981-2010)	901.5 (Orangeville), 945.7 (Fergus Shand Dam)	

The monthly precipitation for 2023 and the average monthly precipitation for the period 1981-2010 are presented in the following table. Above average precipitation was recorded during nine months of the year including significant amounts in March and July. Below average precipitation was recorded in May, September and November with the lowest amount of precipitation coming in September.

Table 5: Monthly Precipitation in 2022

Month	Precipitation (mm)	Average 1981-2010 (mm)	% Difference from Average
January	76.8	67.9	13.1
February	73.8	55.9	32.0
March	128.3	59.6	115.3
April	78.3	74.1	5.7
May	38.2	86.9	-56.0
June	105.9	83.8	26.4
July	140.9	89.2	58.0
August	108.6	96.6	12.4
September	23.4	93.1	-74.9
October	77.8	77.2	0.8
November	71.3	93.0	-23.3
December	69.5	68.6	1.3

4.0 MONITORING PROGRAM RESULTS

4.1 Water Taking for TW1-88

Water taking at the Blue Triton Erin Springs Site in 2023 is governed by PTTW 4788-C5TJTZ, which permits water to be taken from one well as outlined in the table below.

Table 6: Permitted Water Takings at Erin Springs

Source	Maximum Rate	Maximum Number of Hours of Water Taking per Day	Maximum Daily Water Taking	Maximum Number of Days of Water Taking per Year
TW1-88	773 L/min	24	1,113,000 L	365

The daily water takings for 2023 are tabulated in Table C1 in Appendix C. The daily water takings ranged from 0 L to 301,697 L; the latter is 27% of the permitted taking. The average daily water taking was 116,764 L. During 2023, the daily takings and instantaneous flow rates were below the limits of the PTTW (i.e., less than 1,113,000 L/day and 773 L/min).

The total volume of water taken each year from 2000 to 2023 is presented on Figure 4.1. The total volume of water taken in 2023 from TW1-88 was 42,618,720 L. In 2023, the total volume taken was approximately 10% of the permitted volume. This is a slight increase to the water taking over the past four years. Since 2000, the groundwater taking has ranged from approximately 6% to 70% of the permitted taking.

The monthly water takings for the past five years are presented on Figure 4.2. The monthly water takings in 2023 ranged from 2,261,177 L in December to 5,120,486 L in July. In 2023, the monthly water takings generally increased from January to July and then decreased to the end of the year (with a lower water taking in August).

The Grand River Low Water Response Team declared a Level 2 Low Water Condition for the entire Grand River Watershed, including the Eramosa River, on July 21, 2022 which remained in effect until it was reduced to a Level 1 Low Water Condition on January 12, 2023 and removed on September 13, 2023. The Grand River Low Water Response Team declared a Level 1 Low Water Condition for the entire Grand River Watershed again on December 20, 2023. The Level 1 Low Water Condition was in effect for the remainder of 2023. Blue Triton committed to limit water takings to 90% of their monthly maximum permitted volume during the Level 1 Condition and 80% of their monthly maximum permitted volume during the Level 2 Condition. Blue Triton's monthly water takings were below 15% of the permitted monthly amount during the entire year and the daily water takings were below 28% of the permitted daily amount. In addition, as per Condition 3.3, Blue Triton's Low Water Response Program was implemented, which included an increase in monitoring and review of data from MW5-05 from quarterly to monthly.

Condition 4.7 of the PTTW requires details of the bottling operations such as location and name of facilities where water is delivered in bulk containers, if bulk water is containerized at the receiving location, the size of the containers into which the water is transferred, and total volume of water transported in bulk to each remote facility. The groundwater pumped from Erin Springs in 2023 was distributed as follows:

- 41,363,705 L (or 97.1 percent) was transported by tanker to the Blue Triton bottling facility at 101 Brock Road South in Puslinch, Ontario. The water was transferred into 500 mL PET bottles; and
- The remaining 1,255,015 L (or 2.9 percent) was used as flush water (from the water storage silo to a pond located at the loading station) or used for CIP (clean in place) water. Flushing was completed to prevent the water from becoming stagnant during periods of low water use.

As per Conditions 4.8, 5.1 and 5.2, Blue Triton has indicated that no well interference complaints arising from the taking of water authorized under this PTTW were received in 2023.

4.2 Groundwater Monitoring Program

The groundwater levels measured manually in 2023 at the monitoring wells are tabulated in Table D1 in Appendix D. Hydrographs of the manual or transducer water level data are also included in Appendix D. In addition to the water levels, the hydrographs also include the daily pumping volumes at TW1-88 and daily precipitation as recorded at the Shand Dam meteorological station.

4.2.1 TW1-88

Water levels and average daily pumping rates for TW1-88, along with daily precipitation, from 2019 through 2023 are shown on Figure D1.

The estimated non-pumping water levels (partially recovered conditions following temporary cessation of pumping) observed in 2023 were generally between 422.6 masl to 423.3 masl. It should be noted that non-pumping water levels do not represent “true” water level conditions that would be observed if there were no pumping at TW1-88. Instead, they represent partially recovered conditions, with the amount of recovery depending on the average pumping rate before the pumping stopped, how much time has elapsed before pumping resumes and whether there is a background (seasonal) trend in the water levels. CRA (2014) indicated that, based on historical data, static water levels are in the range of 423.5 masl to 424.5 masl. In 2023, water levels in TW1-88 were relatively constant until mid-March, rose until the beginning of April and stabilized, declined from mid-May to the end of June and then were relatively constant to the end of the year.

The water levels have been similar over the past five-year period. The seasonal trend has also been similar over the same period.

During 2023, water levels were generally between 417.6 masl and 418.5 masl under pumping conditions (equivalent to a drawdown of 5.5 m to 6.4 m based on a static water level of 424 masl).

The 2023 water levels, along with the historical water levels, shown on Figure D1 appear to be relatively stable under both pumping and non-pumping conditions. The groundwater taking at TW1-88 has not caused a long-term declining trend in water levels at TW1-88. The upper and lower bound on the water level in TW1-88 (423.3 masl and 422.6 masl as shown on Figure D1) is within the ranges of historic static water levels, which suggests that water levels recover almost completely following temporary stoppages of pumping.

4.2.2 Bedrock Aquifer

Hydrographs for the other wells completed in the bedrock aquifer are included on Figures D2 through D9 in Appendix D. A review of the hydrographs of wells completed in the bedrock aquifer indicates the following.

- Water levels measured within this aquifer in 2023 are similar to those measured over the past five years with any subtle differences noted below. There is no long-term increasing or decreasing trend in the water levels;
- In 2023, the water levels in the bedrock aquifer were relatively constant until mid-March, rose until the beginning of April and stabilized, declined from mid-May to the beginning of June, continued on a slower decline until the end of October and then were relatively constant to the end of the year. The seasonal trends are similar over the past five years with higher water levels observed in late winter/early spring and lower water levels in the summer and fall. The seasonal fluctuation in 2023 was approximately 0.4 m to 0.6 m. Low groundwater levels during the summer months were similar to the previous four years. Similar to the water levels in 2019 and 2022, the water levels in 2023 continued to be low through the summer and did not rise through the fall. These changes are not attributed to pumping at TW1-88 as pumping decreased through fall and has been relatively consistent over the past four years;
- As shown on Figure 2.8 (from CRA, 2014), the drawdown in MW12A-08 on June 15, 2001, after pumping at 773 L/min for 18 hours, was less than 0.3 m. For the purpose of this study, water levels in this well are interpreted to represent background conditions (although minor fluctuations due to pumping are observed). The measurements show only small water level fluctuations over the past five years (Figure D6). In 2023, the water levels fluctuated less than 0.1 m when TW1-88 was in operation. The water levels in MW12A-08

followed a typical seasonal trend as noted above with a total fluctuation of approximately 0.5 m. There is no long-term increasing or decreasing trend in the water levels;

- The amount of influence that pumping TW1-88 has on water levels in other wells varies based on distance away from TW1-88 (e.g., more pronounced in MW5A-05 compared to MW12A-08). The drawdown cone from pumping TW1-88 is localized, especially with the reduced intermittent pumping that is currently occurring;
- The closest monitoring well in the same aquifer as TW1-88 is MW5A-05, located approximately 70 m southwest of TW1-88. MW5A-05 is interpreted to be downgradient of TW1-88. In 2023, the high-water levels (partially recovered condition following stoppages in pumping) ranged from approximately 423.5 masl to 424.1 masl (see Figure D3). The difference between the high and low water levels (influence of pumping in the aquifer) at MW5A-05 was approximately 3.1 m in 2023. The water levels fluctuate but there is no long-term increasing or decreasing trend;
- The influence of pumping TW1-88 is also evident at monitoring wells MW6A-05 (Figure D4), MW13A-20-7 (Figure D7) and MW14A-20-7 (Figure D8). The difference between high and low water levels (influence of pumping in the aquifer) at MW6A-05, located approximately 450 m southeast of TW1-88, was approximately 0.6 m in 2023 (see Figure D4). The difference between high and low water levels (influence of pumping in the aquifer) at MW13A-20-7, located approximately 420 m west-northwest of TW1-88, was approximately 1.0 m in 2023 (see Figure D7). The difference between high and low water levels (influence of pumping in the aquifer) at MW14A-20-7, located approximately 380 m south of TW1-88, was approximately 0.8 m in 2023 (see Figure D10). The water levels fluctuate but there is no long-term increasing or decreasing trend;
- Other on-Site monitoring wells, MW11A-08 (Figure D5) and MW1-18A/B (Figure D2), located approximately 470 m and 750 m, respectively, east-northeast of TW1-88. Water levels in the monitoring wells generally follow the same patterns as the water levels in the background well MW12A-08 (see Figure D6). The water levels indicate that the daily influence of pumping results in a fluctuation of less than 0.2 m at the wells. The minimal response to pumping suggests that groundwater taking from TW1-88 does not affect water levels in the Hillsburgh municipal wells, located further north-northeast of TW1-88; and
- Water levels are also monitored in one private well (D3) located approximately 220 m west-northwest of TW1-88. At D3, the water levels respond to pumping at both TW1-88 and D3. The well (D3) is used as part of a heat pump system during the winter months. Due to the combination of pumping at this location, the water level response is different than that observed in the surrounding monitoring wells. Overall, the water levels are similar to those observed over the past five years (see Figure D7).

A potentiometric surface of the bedrock aquifer is presented on Figure 4.3 during early fall conditions. This was a time with above-average pumping during the year and below-average precipitation for the month. The potentiometric surface was prepared based on the water levels measured on September 26, 2023. A review of the potentiometric surface on September 26, 2023, indicates groundwater flow is to the southeast, south and southwest with influence from pumping localized around TW1-88. The results are similar to those observed in recent years.

4.2.3 Overburden (Water Table) Aquifer

Hydrographs for wells completed in the overburden are included on Figures D10 through D14 in Appendix D. A review of the hydrographs completed in the overburden indicates the following.

- Water levels measured within the overburden in 2023 are within the ranges measured over the past five years;

- Water levels in the overburden show similar trends, with relatively constant water levels into March followed by an increase into April/May, a decline to July, and stable water levels to the end of the year. The exceptions to this trend are at wells MW12B-08 (Figure D12) and MW13B-20-7 (Figure D13), which showed water levels continuing to decline at the end of the year. The trend is similar to previous years;
- The timing of the high and low water levels can vary by a month or two from well to well. This may be due to the timing of recharge to local areas of the aquifer, which is expected to vary across the Site based on the variations in surficial geology (i.e., sand and gravel versus glacial till) and topography. In 2023, the high water levels were generally observed in March with the exception of MW12B-08 (Figure D12) and MW13B-20-7 (Figure D12) that had peak water levels in April/May (note that these are also the wells that continued with a declining trend in water levels at the end of the year). The response to hydraulic changes at these locations may be delayed compared to the other wells;
- Water levels fluctuate more in the southern part of the Site (see MW12B-08 – Figure D12) compared to the northern part of the Site (all other monitoring wells). In 2023, water levels in the wells completed in the northern part of the study area fluctuated by approximately 0.7 m or less, whereas MW12B-08, completed in the southern part of the study area fluctuated by approximately more than 1.3 m. This is in response to how quickly water moves through the different aquifers following recharge and reflects their positions in the groundwater flow system, where greater variations in water levels occur at the higher topographic elevations (i.e., recharge areas) compared to the low-lying areas (i.e., discharge areas);
- A response to precipitation or melt events (i.e., increase in water levels) is evident in the water levels measured at the wells, specifically the larger events in February and March;
- Historical monitoring has shown that there is not a significant connection between the overburden and bedrock aquifers; and
- Overall, the similarity in water level trends, regardless of distance from TW1-88, indicates that water level fluctuations are not due to pumping TW1-88 but due to natural seasonal changes and recharge.

4.2.4 Vertical Gradients

Note that a positive gradient is calculated when the water level in the upper aquifer exceeds the level in the lower aquifer. Under these conditions, the potential vertical groundwater flow direction is downwards, however the horizontal component of the Darcy flux might be primarily horizontal.

4.2.4.1 In Bedrock

Vertical gradients within the bedrock are monitored at MW1-18 and shown on Figure D15 in Appendix D. There is a small positive vertical gradient (potential downward flow) in the upper bedrock indicating that most of the flow within this zone is horizontal.

4.2.4.2 In Shallow Overburden

Vertical gradients in the shallow overburden at MW3-00 are shown on Figure D16 in Appendix D. During most of 2023 there was a negative vertical gradient (potential upward flow) in the shallow overburden at MW3-00 with potential discharge to the On-Site pond. During spring melt and/or some precipitation events, the vertical gradient is reversed to downward flow. The vertical gradients at MW3-00 are consistent with those recorded in the past and are not related to TW1-88 withdrawals.

4.2.4.3 Between Overburden and Bedrock

Vertical gradients between the overburden and bedrock at monitoring well nests (MW5-05, MW6-05, MW11-08, MW12-08, MW13-20 and MW14-20) are plotted on Figures D17 through D22 in Appendix D. A review of the vertical gradient graphs indicates the following.

- A positive vertical gradient between the overburden and the bedrock (potential downward flow) is present at all of the monitoring well nests;
- The vertical gradients fluctuate due to changes in the bedrock water levels that respond to pumping TW1-88 (i.e., a decrease in the bedrock water level) or changes in the overburden water levels that respond to recharge events (i.e., an increase in the overburden water level), but the overall trends remain stable;
- The vertical gradients have been similar over the past five years. The gradients at MW5-05, MW6-05, MW13-20 and MW14-20 vary in response to pumping TW1-88 and are due to the water level fluctuations in the bedrock aquifer at these sites. In response to pumping at TW1-88, there is also some influence on the gradient at MW11-08 but less than that observed at the other monitoring wells noted above. The gradient at MW12-08 shows a different gradient response compared to the other wells in that it increases in the spring and then decreases through the summer due to a rise in the water levels in the overburden during the spring melt;
- There does not appear to be a measurable hydraulic response in the overburden water levels from pumping the bedrock aquifer at the current rate of water taking; and
- In 2023, vertical gradients at MW5-05 (the well closest to TW1-88) range from approximately 0.4 m/m to 0.65 m/m while the vertical gradients at MW6-05, MW13-20 and MW14-20 range from approximately 0.34 m/m to 0.49 m/m. On average, the vertical gradients at the other two wells are about 0.12 to 0.15 m/m at MW11-08 and 0.24 m/m to 0.29 m/m at MW12-08.

4.3 Surface Water Monitoring Program

The surface water monitoring program includes measurement of mini-piezometer and surface water levels, and surface water flow. The surface water levels measured in 2023 are tabulated in Appendix E where hydrographs of the water levels are also presented. The surface water flow data are tabulated and graphed in Appendix F. The hydrographs also include the daily pumping volumes at TW1-88 and daily precipitation as recorded at the Shand Dam meteorological station.

4.3.1 Mini-Piezometer Water Levels and Vertical Gradients

Hydrographs for the mini-piezometer locations are presented on Figures E1 through E7 in Appendix E with the “a” figure including data for the past 5 years (2019 through 2023) and the “b” figures including data only for 2023. The graphs also include the average daily pumping at TW1-88, precipitation at the Shand Dam station and vertical hydraulic gradients. A negative gradient indicates that groundwater may be discharging to the surface water body, while a positive gradient indicates the surface water body is recharging the groundwater. A review of the hydrographs for the mini-piezometers indicates the following.

- Water levels measured in the mini-piezometers in 2023 are within the ranges measured over the past five years;
- The water levels show a response to precipitation and melt events;

- There is no effect of pumping TW1-88 on vertical gradients in the shallow overburden near surface water features; and
- The vertical gradients in 2023 are similar to those observed over the past five years with the exception of P12-07 (as described in further detail below).
- Water level fluctuations and vertical gradients in the mini-piezometers are summarized as follows for 2023:
  - **P03A/B-05 (east side of On-Site pond)** – water levels in 2022 fluctuated approximately 0.2 m (similar to water levels in the pond). The water levels fluctuate in response to precipitation events and prolonged drier periods with reduced precipitation. The water levels were generally higher from mid-March to mid-August. There was no gradient, or weak negative gradients at the site in 2023 similar to previous years (Figure E1b). The negative gradient (potential upward flow) occurred during the winter/spring and summer. Sudden changes in water levels occur sometimes due to blockages and removal of debris from the outlet of the pond;
  - **P06A/B-07 (west side of On-Site pond)** – water levels in 2023 fluctuated approximately 0.2 m (similar to water levels in the pond). The water levels fluctuate in response to precipitation events and prolonged drier periods with reduced precipitation. The water levels were generally higher from mid-March to mid-August. Over the past five years a weak positive gradient (potential downward flow) exists that has occasionally reversed to a weak negative gradient (potential upward flow). In 2023, the gradient was mainly positive with the exception of some short duration reversals (Figure E2b). Sudden changes in water levels occur sometimes due to blockages and removal of debris from the outlet of the pond;
  - **P01A/B-07 (stream channel downstream of On-Site pond)** – water levels in 2023 fluctuated approximately 0.1 m. The water levels in the stream show less fluctuation than the water levels in the pond. The water levels were generally higher from mid-March to early June. A weak negative gradient (potential upward flow) was observed until mid-March followed by no gradient to the end of 2023 (Figure E3b). Historically occasional reversals in gradient have been observed at this location;
  - **P11A/B-05 (further downstream from P01-07 at 6th Line)** – water levels in 2023 fluctuated approximately 0.1 m. The water levels in the stream show less fluctuation than the water levels in the pond. Water levels rose at the end of March and were relatively constant for the remainder of the year. A negative gradient (potential upward flow) was observed with the occasional positive gradient spikes during some precipitation events (Figure E4b);
  - **P10A/B-05 (upgradient side of the wetland pond)** – water levels fluctuated approximately 0.2 m in the deep piezometer and 0.4 m in the shallow piezometer in 2023. The water levels generally follow a seasonal trend with an increase through the winter followed by a decrease through the spring/summer and an increase through the fall (which can shift depending on precipitation/temperature conditions). The trend was less evident his year as above-average precipitation occurred over six of the first nine months of the year. The gradient varied between negative (potential upward flow) and positive (potential downward flow) during the year (Figure E5b). The vertical gradient at P10-05 shows greater fluctuation than the other sites. The changes in water level are reflective of how the water levels change seasonally within the wetland, which is the most upgradient part of this surface water feature (i.e., reflecting the natural hydrologic regime of the wetland);

- **P12A/B-07 (stream flowing into Roman Lake)** – water levels in 2023 fluctuated approximately 0.2 m. Water levels in the piezometers (more so in the shallow piezometer) have been influenced by the construction and destruction of beaver dams in the area with the most recent activity occurring in mid-2021. Following the removal of the beaver dam in mid-2022, the water levels have been relatively constant. A negative gradient (potential upward flow) exists at the site (Figure E6b); and

- **P13A/B-07 (Erin Branch of Credit River)** – water levels in 2023 fluctuated approximately 0.4 m at the deep piezometer and approximately 0.1 m at the shallow piezometer. Water levels in the shallow piezometer were similar during the year while the water levels in the deep piezometer increased until July and then were relatively constant for the remainder of the year. The water levels have recovered from the low water levels observed in 2022. The vertical gradient was positive (potential downward flow). Water levels are likely influenced by fluctuations in the water level of the Hillsburgh reservoir, which is located approximately 125 m from P13-07 and 680 m from TW1-88; however, water level data for the reservoir are not available.

4.3.2 Surface Water Levels

Hydrographs for the surface water level monitoring locations are included on Figures E8 through E11 in Appendix E with the “a” figure including data for the last 5 years (2019 to 2023) and the “b” figures including data for 2023. A review of the hydrographs for the surface water level monitoring locations indicates the following.

- Water levels measured at the surface water stations in 2023 are within the ranges measured over the past five years;
- The water levels show a response to precipitation and melt events; and
- Pumping at TW1-88 does not influence the water levels in the surface water features.
- Water levels in the surface water features are summarized as follows:
  - **SW3-08 (On-Site pond)** – water levels at SW3-08 fluctuated over 0.2 m in 2023. The water levels fluctuate in response to precipitation events and prolonged drier periods with reduced precipitation. In 2023, the water levels were higher from mid-March to mid-August. The current and historical changes in water levels are sometimes partially due to the outlet being partially obstructed and then cleared when the debris is removed;
  - **SW1-08 and SW1A-20 (creek downstream of On-Site pond)** – SW1A-20 is located closer to the On-Site Pond and SW1-08 is located further downstream. Not including some short-term increases, the water levels at surface water stations fluctuated approximately 0.1 m in 2023, with slightly more fluctuation observed at SW1-08 compared to SW1A-20 (Figure E8b). Water levels were generally higher from mid-March to mid-June. The seasonal changes in the creek are minimal compared to the seasonal changes in the pond;
  - **SW4-08 (stream flowing into Roman Lake) and SW5-08 (Roman Lake)** – the water levels in the stream flowing into Roman Lake have been influenced by the beaver activity (dam construction) in mid-2017 and mid-2021 and destruction of the dam in mid-2022. The changes in water level trends at the two stations have been different during the phases of the beaver dam present. The water levels at the two stations are closer during periods when the beaver dam is not present (i.e., since mid-2022). Not including some short-term increases, the water levels at surface water stations fluctuated approximately

0.1 m in 2023, with slightly more fluctuation observed at SW5-08 compared to SW4-08 (Figure E9b) mainly due to the lower water levels observed at SW4-08 at the beginning of the year; and

- **SW7-08 and SW7B-20 (Erin Branch of Credit River)** – SW7-08 is located in an area where multiple channels of the stream exist. As such, a new station (SW7B-20) was established further upstream where a single channel exists. Water levels at SW7-08 fluctuated approximately 0.1 m in 2023 not including some short-term increases (Figure E10b) and slightly less than 0.1 m at SW7B-20 (Figure E11b). At SW7-08, the water levels increased compared to the low water levels observed in 2022. The changing water levels over time are partially due to changing stream conditions at this location. Some changes in water levels in the past may also be due to changes in the Hillsburgh reservoir level, however no reservoir level data are available for comparison. As shown on the hydrograph for SW7B-20, more stable water levels exist.

Surface water level fluctuations are attributed to seasonal and long-term variations in precipitation and recharge and do not appear to be the result of pumping of TW1-88. There is no apparent correlation between increases in pumping and decreases in stream flow resulting from declines in groundwater discharge to streams that are sufficient to affect the ecology of the stream. The water taking does not hinder the ability of the water resource to support existing natural functions of the ecosystem. The withdrawal does not result in physical and ecological impacts to the wetlands in the Eramosa River headwaters.

4.3.3 Surface Water Flow

The monthly stream flow data collected in 2023 are summarized in Appendix F. Surface water flow is measured at four stations in accordance with the PTTW: SW1-08 (creek downgradient of On-Site pond and wetland), SW3-08 (outlet from On-Site pond) and SW7-08 and SW7B-20 (Erin Branch of Credit River). Surface water flows are also measured at SW1A-20. The surface water flows for the five stations are shown on Figure F1 through F3 in Appendix F with the “a” figure including data for the last 5 years (2019 to 2023) and the “b” figures including data for 2023.

Flow at SW3-08 is measured using a flow meter.

Stage-discharge curves were developed, which show the relationship between surface water elevation (stage) and stream flow (discharge) based on the manual measurements taken monthly. The stage-discharge curves for SW1-08, SW1A-20, SW7-08 and SW7B-20 were re-evaluated using stream characteristics (geometry, water level, flow; the same methods as in previous years), to improve evaluation of the 2023 monitoring data. The stage-discharge curves are shown on Figures F4 through F7 in Appendix F. The rating curves for SW1A-20, SW7-08 and SW7B-20 were adjusted slightly in 2023 while the rating curve for SW1-08 remained the same as in 2022. These curves have been used to estimate the flow for 2023 at these stations. Flow data from previous years were estimated using historic stage-discharge curves that best fit the historic monitoring data (as presented in previous reports).

Flow from the On-Site pond (SW3-08) is relatively low and similar to previous years. The surface water flow increased from mid-March to the end of March and then decreased to the end of May and was stable for the rest of the year. The spring flows were typically between 10 L/s and 20 L/s, while the summer low flows were generally less than 10 L/s. Manual flow measurements ranged from 3.5 L/s (June) to 8.7 L/s (April).

Surface water flow at SW1-08 (combined flow from On-Site pond and wetland) has been similar over the past five years with the exception of the extended summer low flows in 2022 and the increasing flow at the end of 2023. Historically, the flow at SW1A-20 is similar to the flow at SW1-08 but with slightly higher flows during the summer months. In 2022, the flow at SW1A-20 deviated from the flow at SW1-08 from May onward. This was due to the one of the two culverts at the road crossing becoming blocked. It should be noted that there will be some error in both estimates due to the blockage. In 2023, the flow at SW1A-20 deviated from the flow at SW1-08 from August onward. This could also be due to water backing up along the creek. During the later part of the year, the estimated flow at SW1A-20 is more in line with the manual flow measurements taken in the area. In general, flows increased from mid-March to the beginning of April and then declined to mid-June. As in the past, some of the logger recorded values are suspected to be influenced by ice conditions and are reported with a lower confidence. Stream flow during the spring was approximately 20 L/s to 60 L/s with some flows more than 90 L/s. The summer flows were generally less than 20 L/s at SW1-08 and SW1A-20 (with the exception of the SW1-08 flow data after August). The manual flow measurements ranged from 6.9 L/s (December) to 18.7 L/s (May). There is no evidence of a decline in stream flow at SW1-08.

Stream flow at SW7-08 is typically less than at the other stations, with the exception of some low flows in the summer. In the past, it has been interpreted that increases in flow may be related to changes in the Hillsburgh reservoir or potential work upstream. Surface water flow at SW7-08 is similar to flow measured historically at the station with changes typically due to changing stream conditions. Manual flow measurements ranged from 1.2 L/s (January) to 9.1 L/s (September and November). There is no evidence of a decline in stream flow at SW7-08.

Stream station SW7B-20 was established to provide more realistic flows compared to SW7-08 where the stream conditions are often changing. Stream flow at SW7B-20 ranged from approximately 20 L/s to around 50 L/s (not including some spikes in flow). During the precipitation/melt events, the flows were as high as 150 L/s. Manual flow measurements ranged from 14.1 L/s (January) to 29.2 L/s (July). Similar to SW1-08, the estimated flow deviated from the manual flow measurements during the last three months of the year. The rating curve will be reviewed again in 2024 which may require adjustments to this data. The flow at SW7B-20 is greater than the flow at SW7-08 due to the fact that SW7B-20 is located in a defined channel as opposed to multiple channels at SW7-08, where only part of the total flow is measured.

Surface water flow at all the stations is influenced by precipitation and/or melt events and does not appear to be influenced by pumping at TW1-88.

5.0 CONCLUSIONS

The following conclusions are provided based on the results of the 2023 monitoring program.

1) Blue Triton has complied with all the conditions in the existing permit for the Erin well TW1-88.

2) TW1-88 operated in accordance with the pumping limits outlined in the PTTW. The daily water taking at TW1-88 in 2023 ranged from 0 L to 301,697 L. The average daily water taking in 2023 was 116,764 L. The total volume of water taken in 2023 from TW1-88 was 42,618,720 L or 10% of the permitted volume.

3) The interpreted non-pumping water levels in TW1-88, which obtains water from the bedrock aquifer, ranged from approximately 422.6 masl to 423.3 masl in 2023. The interpreted water levels under variable pumping conditions ranged from approximately 417.6 masl to 418.5 masl. The drawdown at the well ranged from approximately 5.5 m to 6.4 m in 2023.

4) Pumping from TW1-88 causes declines in the bedrock aquifer groundwater levels in the immediate vicinity of the well, but there is no evidence of long-term declining trends and water levels return to non-pumping levels when pumping temporarily ceases.

5) Water levels measured within the overburden in 2023 are within the historical ranges and do not appear to be influenced by pumping of TW1-88. There is no apparent interaction between the bedrock and overburden aquifers at the current rates of taking.

6) Surface water level fluctuations are attributed to seasonal and long-term variations in precipitation and infiltration and are not the result of pumping of TW1-88. There is no apparent correlation between increases in pumping from TW1-88 and decreases in stream flow. Consequently, there is no apparent mechanism by which pumping from TW1-88 could affect the ecology of the streams.

7) The water taking does not interfere with the ecological functions of the terrestrial, wetland and aquatic ecosystems on or adjacent to the property.

8) The water taking does not prevent other water users from continuing their established pattern of use. The groundwater withdrawal from TW1-88 does not interfere with existing municipal uses or private uses. There have been no well interference complaints at Erin due to the water taking from TW1-88.

9) There were no complaints from neighbouring properties in 2023 regarding either groundwater quantity or quality. This suggests that no irreversible impacts have been observed due to pumping of the aquifer or deterioration of groundwater quantity or quality on neighbouring properties.

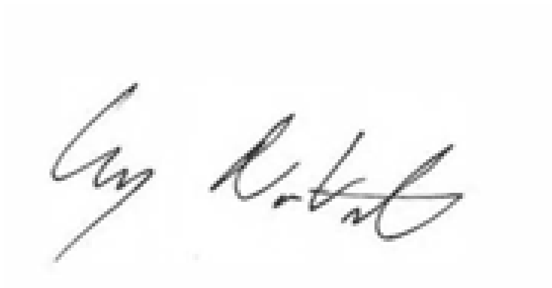
10) Based on the monitoring data collected, the 2023 water taking at TW1-88 is sustainable.

6.0 RECOMMENDATIONS

No changes to the existing monitoring program are recommended.

Signature Page

WSP Canada Inc.



Greg Padusenko, M.Sc., P.Eng., P.Geo.
Senior Hydrogeologist

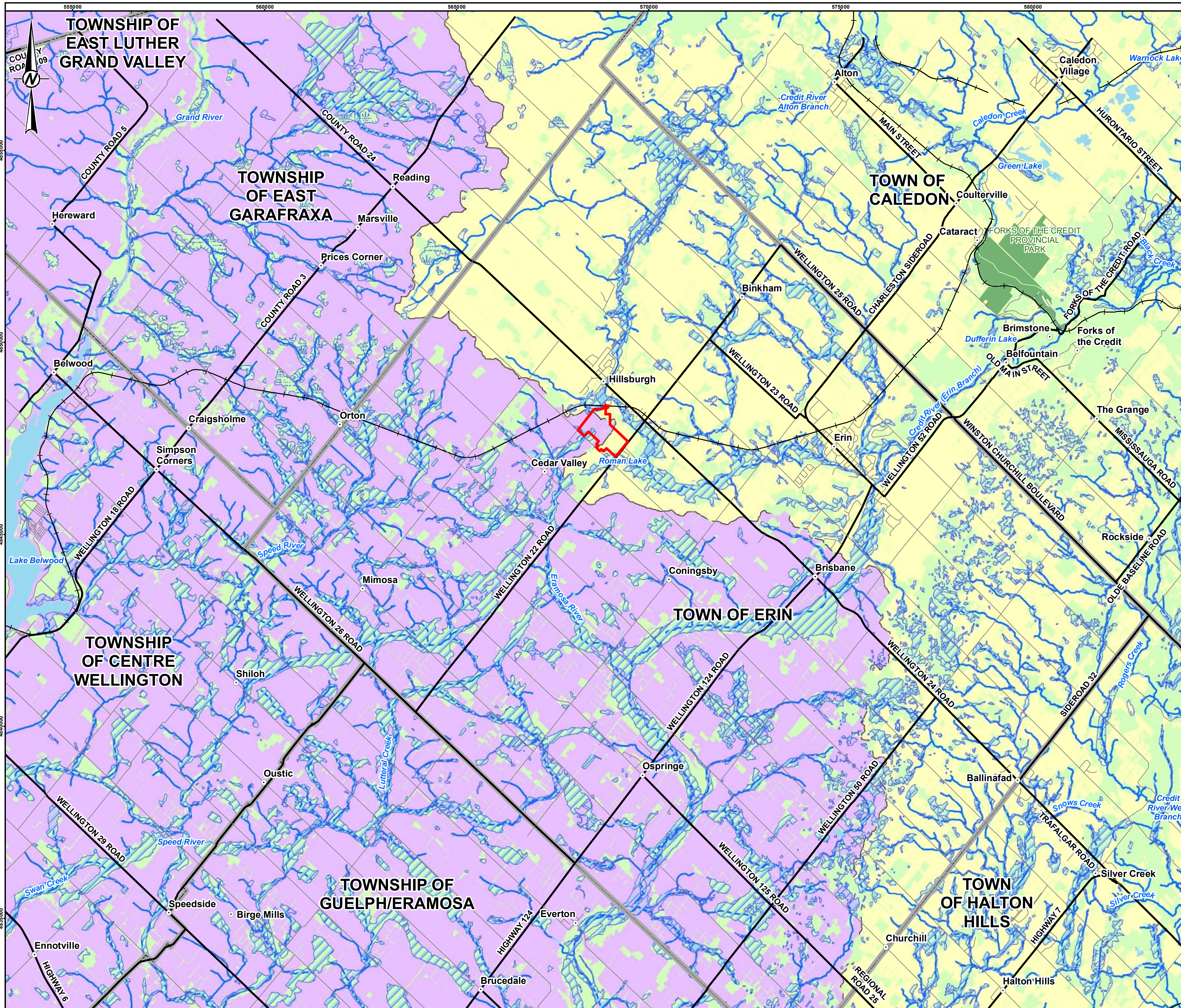
Craig DeVito, M.Sc., P.Eng.
Senior Hydrologist

John Piersol, M.Sc., P.Geo.
Senior Hydrogeologist

GRP/CDV/JAP/kj

FIGURES

Figures 1.1 to 4.3



LEGEND

- CITY/TOWN
- MAIN ROAD
- LOCAL ROAD
- RAILWAY
- WATERCOURSE
- WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND
- WATERBODY
- WOODED AREA
- PROVINCIAL PARK
- MUNICIPAL BOUNDARY
- PROPERTY BOUNDARY

WATERSHEDS

- CREDIT - 16 MILE
- UPPER GRAND

0 2 4

SCALE: 1:100,000 KILOMETERS

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2013
PROJECTION: UTM NAD83 ZONE 17
PROPERTY BOUNDARY FROM CRA FILE 13764-10(017)GN-WA002.DWG.

CLIENT
BLUE TRITON BRANDS

PROJECT
2023 ANNUAL REPORT

TITLE
SITE LOCATION

CONSULTANT

YYYY-MM-DD	2024-02-15
DESIGNED	JMC
PREPARED	AR
REVIEWED	GP
APPROVED	JAP

PROJECT NO.	CONTROL	REV.	FIGURE
20449101 (2200)	0005	1.0	1.1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM:

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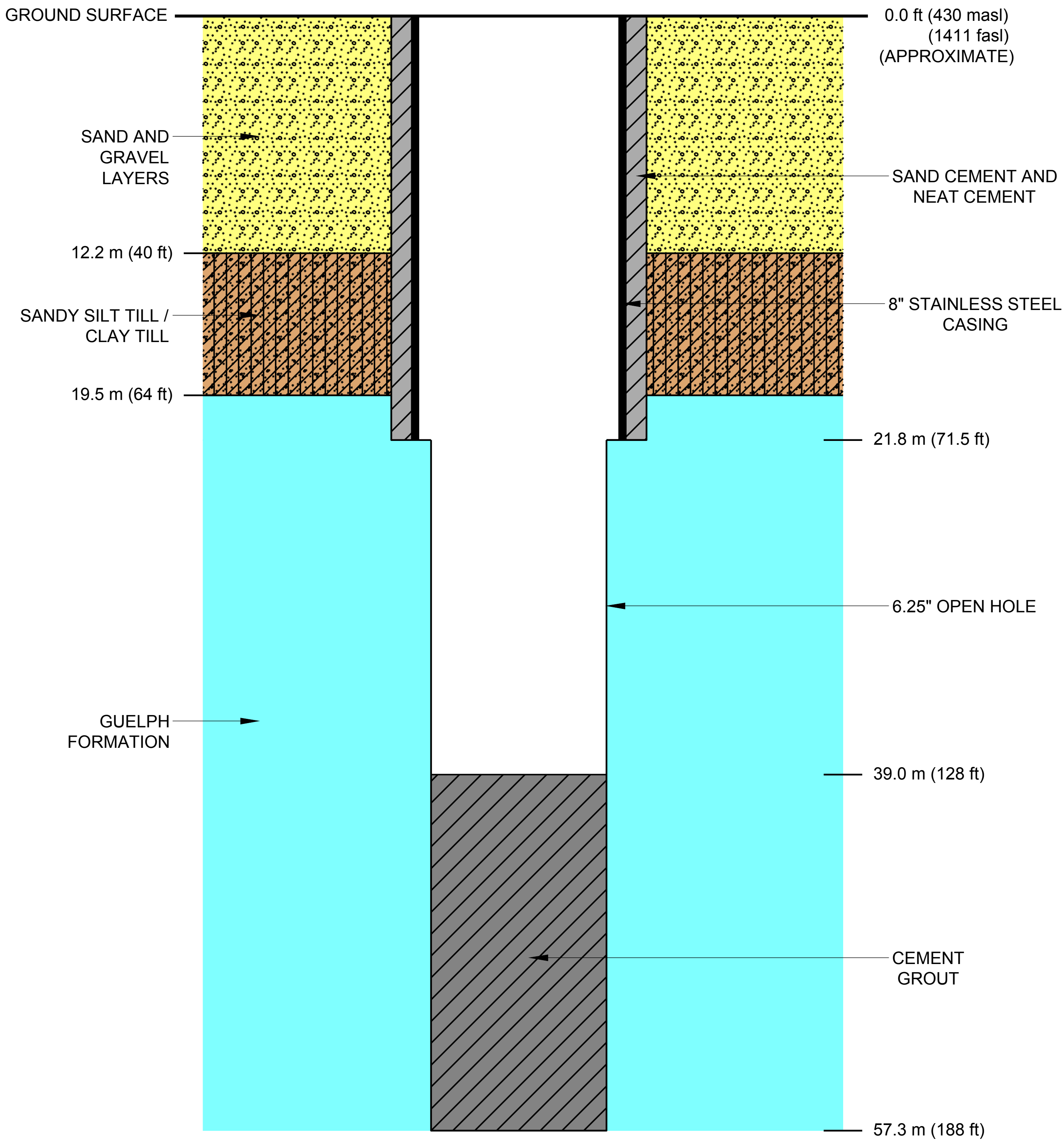


CLIENT
BLUE TRITON BRANDS

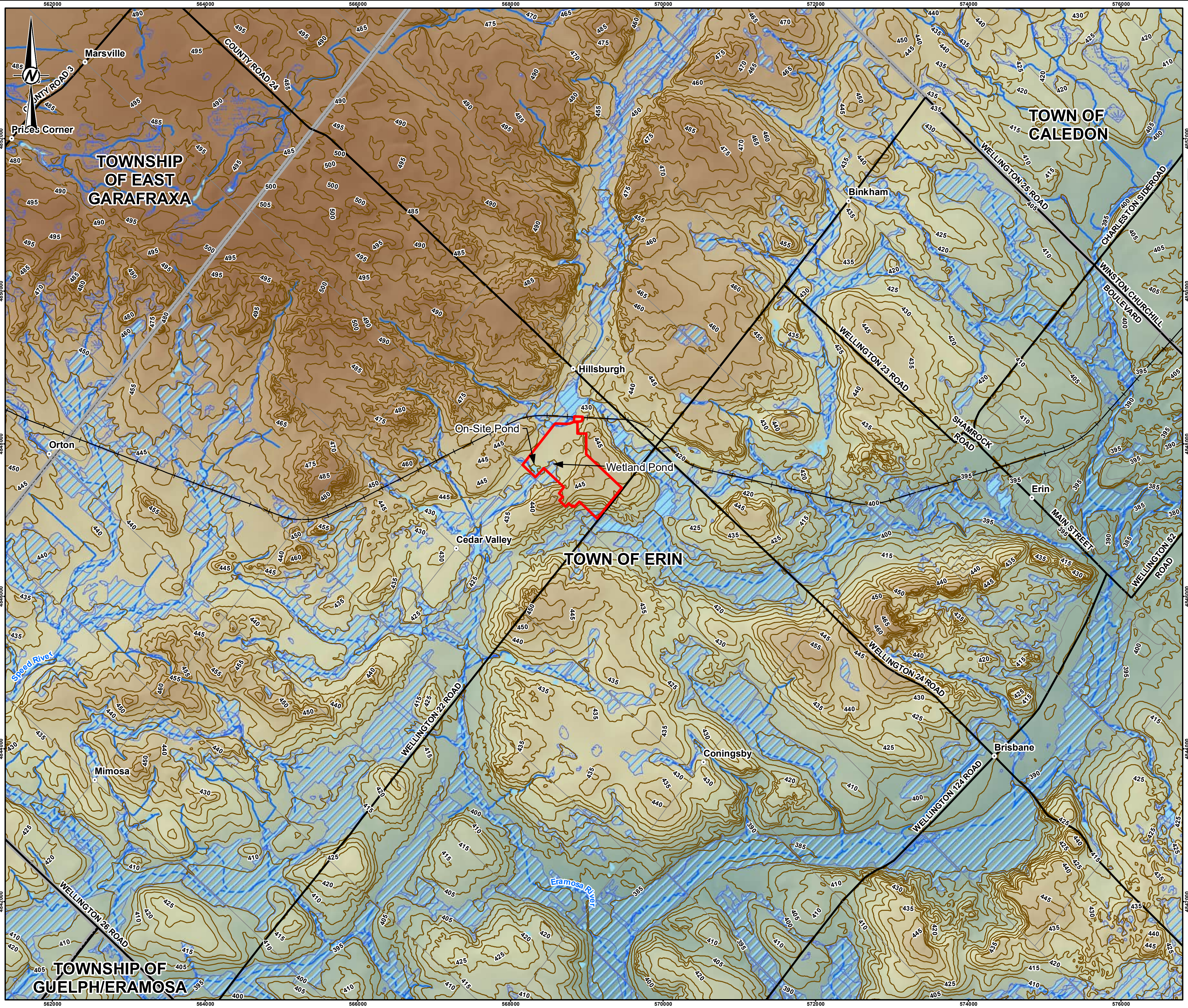
PROJECT
2023 ANNUAL REPORT

CONSULTANT

YYYY-MM-DD	2024-02-20
PREPARED	DD
DESIGN	
REVIEW	GP
APPROVED	GP

TITLE
ERIN TW1-88

PROJECT No.	PHASE	Rev.	FIGURE
20449101	(2200)	A	1.2



LEGEND

- CITY/TOWN
- MAIN ROAD
- LOCAL ROAD
- RAILWAY
- TOPOGRAPHIC ELEVATION CONTOUR (MASL)
- WATERCOURSE
- WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND
- WATERBODY
- MUNICIPAL BOUNDARY
- PROPERTY BOUNDARY

TOPOGRAPHIC ELEVATION (MASL)
HIGH : 505
LOW : 307

0 1 2
SCALE: 1:50,000 KILOMETERS

REFERENCE(S)
BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2013
PROJECTION: UTM NAD83 ZONE 17
PROPERTY BOUNDARY FROM CRA FILE 13764-10(017)GN-WA002.DWG.

CLIENT
BLUE TRITON BRANDS

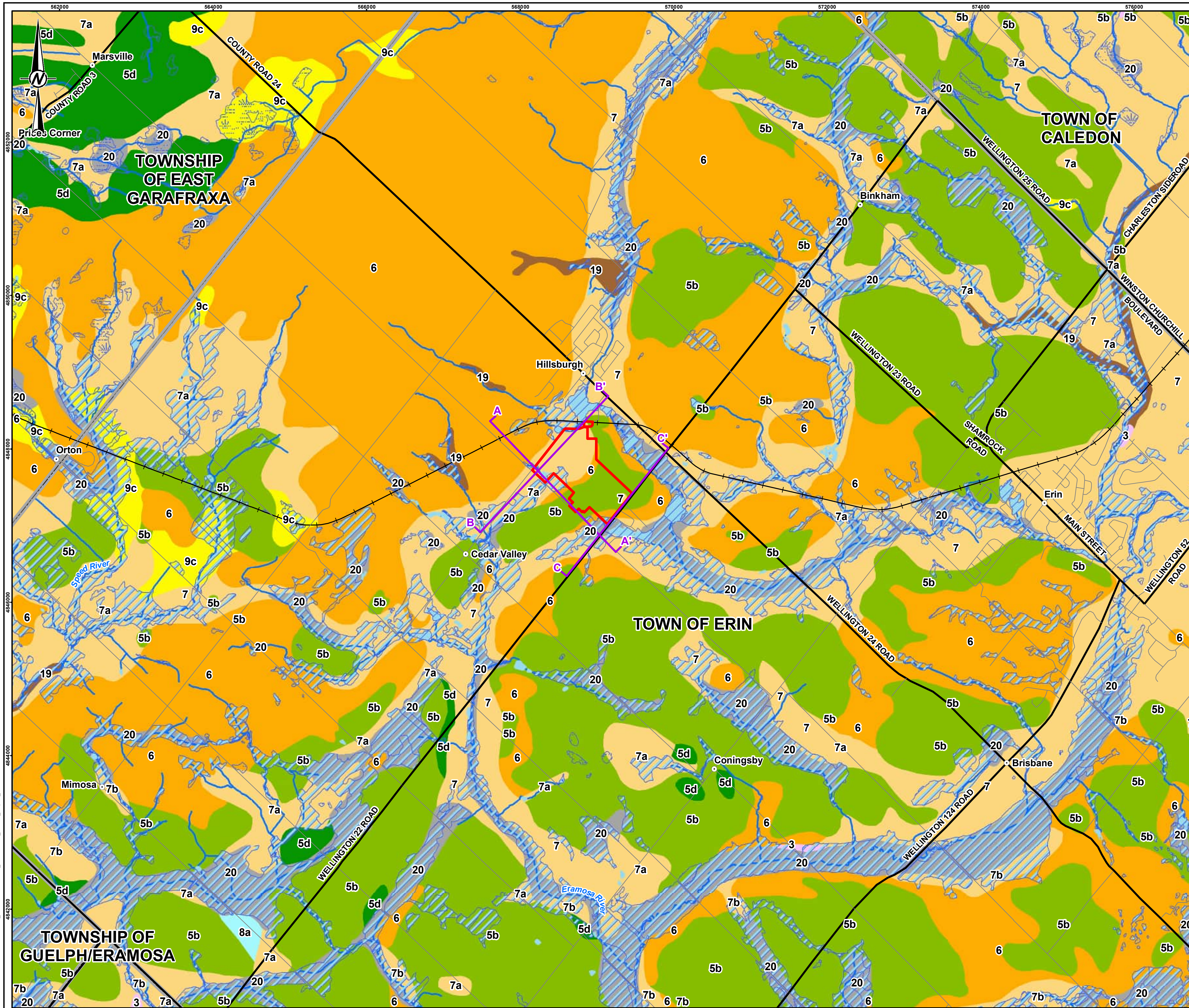
PROJECT
2023 ANNUAL REPORT

TITLE
TOPOGRAPHY AND DRAINAGE

CONSULTANT

YYYY-MM-DD	2024-02-15
DESIGNED	JMC
PREPARED	AR
REVIEWED	GP
APPROVED	JAP

PROJECT NO.	CONTROL	REV.	FIGURE
20449101 (2200)	0005	1.0	2.1



LEGEND

- CITY/TOWN
- CROSS-SECTION LOCATION
- MAIN ROAD
- LOCAL ROAD
- RAILWAY
- WATERCOURSE
- WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND
- WATERBODY
- MUNICIPAL BOUNDARY
- PROPERTY BOUNDARY
- 3: PALEOZOIC BEDROCK
- 5B: STONE-POOR, CARBONATE-DERIVED SILTY TO SANDY TILL
- 5D: GLACIOLACUSTRINE-DERIVED SILTY TO CLAYEY TILL
- 6: ICE-CONTACT STRATIFIED DEPOSITS
- 7: GLACIOFLUVIAL DEPOSITS
- 7A: SANDY DEPOSITS
- 7B: GRAVELLY DEPOSITS
- 8A: MASSIVE-WELL LAMINATED
- 9C: FORESHORE-BASINAL DEPOSITS
- 19: MODERN ALLUVIAL DEPOSITS
- 20: ORGANIC DEPOSITS

0 1 2

SCALE: 1:50,000 KILOMETERS

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2013
PROJECTION: UTM NAD83 ZONE 17
PROPERTY BOUNDARY FROM CRA FILE 13764-10(017)GN-WA002.DWG.

CLIENT
BLUE TRITON BRANDS

PROJECT
2023 ANNUAL REPORT

TITLE
REGIONAL QUATERNARY GEOLOGY

CONSULTANT

YYYY-MM-DD	2024-02-15
DESIGNED	JMC
PREPARED	AR
REVIEWED	GP
APPROVED	JAP

PROJECT NO.	CONTROL	REV.	FIGURE
20449101 (2200)	0005	1.0	2.2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm

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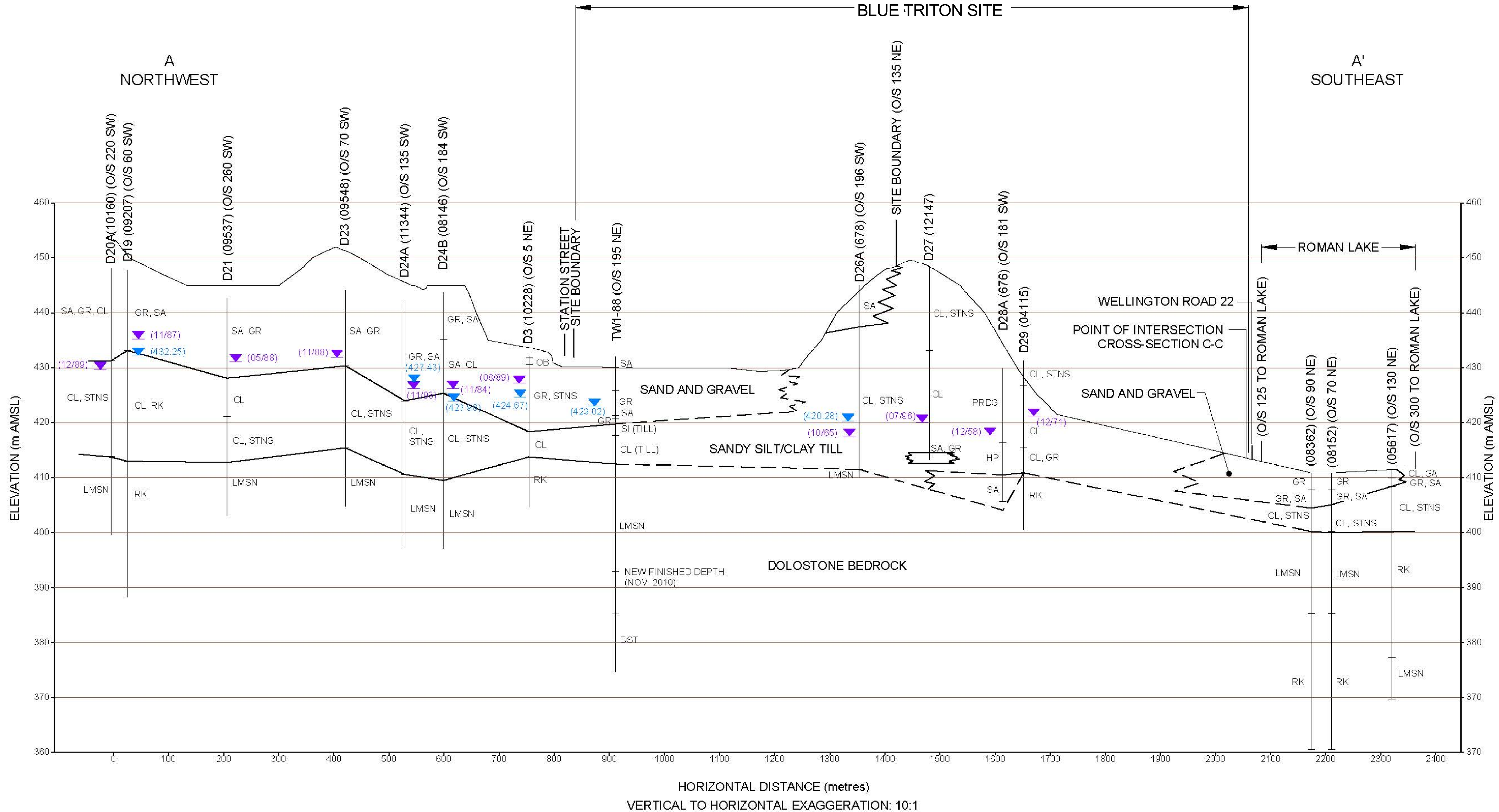


LEGEND

- D19 (9207) — WELL DESIGNATION
- GROUND SURFACE
- (11/87) — WATER LEVEL ON WELL COMPLETION (MONTH / YEAR)
- (432.25) — STATIC WATER LEVEL (NOV. 3/05)

PRDG	-	PRE DUG
OB	-	OVERBURDEN
CL	-	CLAY
SI	-	SILT
SA	-	SAND
GR	-	GRAVEL
STNS	-	STONES
HP	-	HARDPAN
RK	-	ROCK (BEDROCK)
LMSN	-	LIMESTONE (BEDROCK)
DST	-	DOLOSTONE
CL, SA	-	FIRST COMPONENT IS MOST COMMON MATERIAL

REFERENCE(S)
BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2013
PROJECTION: UTM NAD83 ZONE 17

CLIENT
BLUE TRITON BRANDS

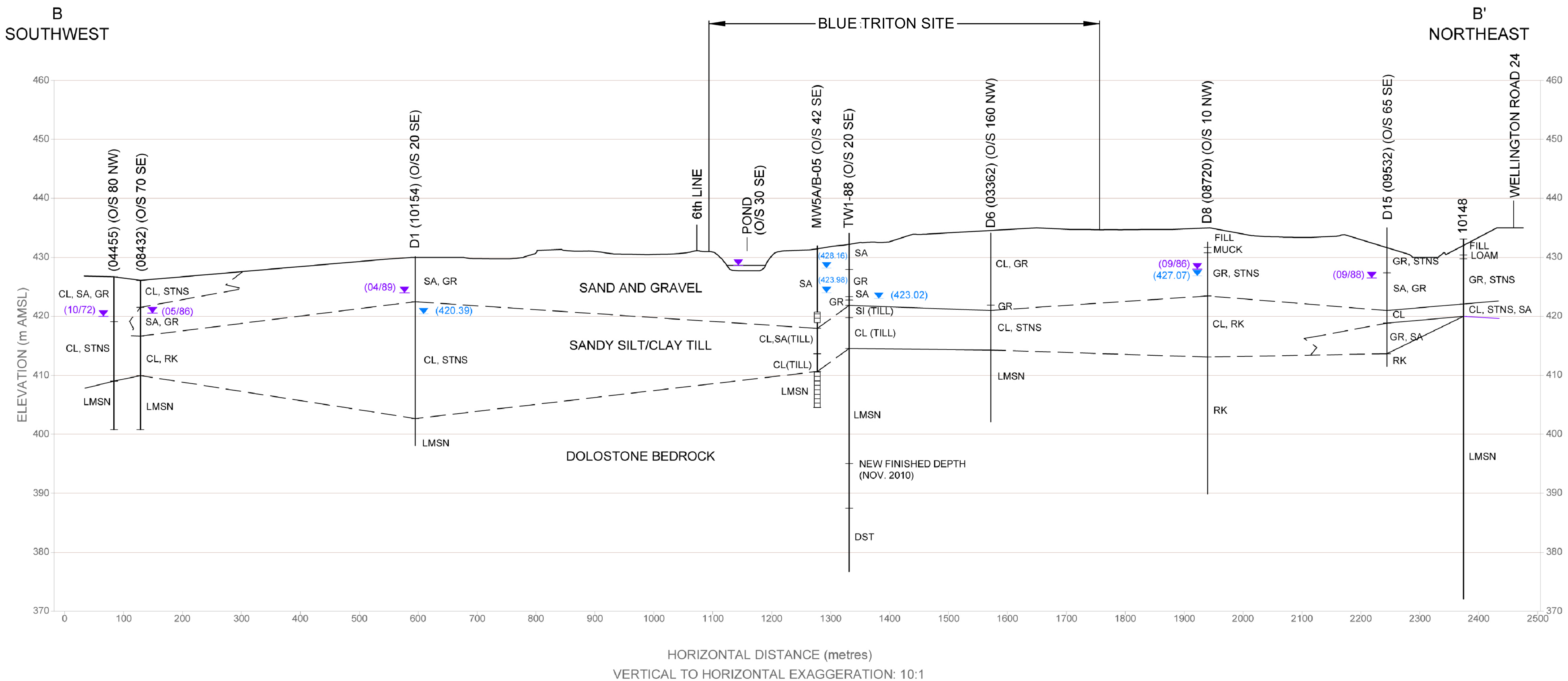
PROJECT
2023 ANNUAL REPORT

TITLE
HYDROGEOLOGIC CROSS-SECTION A-A'

CONSULTANT

YYYY-MM-DD	2024-02-21
DESIGNED	JMC
PREPARED	AR
REVIEWED	GP
APPROVED	JAP

PROJECT NO.	CONTROL	REV.	FIGURE
20449101 (2200)	0005	1.0	2.3



LEGEND

D8 — WELL DESIGNATION

GROUND SURFACE

(09/86) WATER LEVEL (m AMSL) ON WELL COMPLETION (MONTH / YEAR)

(427.07) STATIC WATER LEVEL (NOV. 3/05)

PRDG	-	PRE DUG
CL	-	CLAY
SI	-	SILT
SA	-	SAND
GR	-	GRAVEL
STNS	-	STONES
HP	-	HARDPAN
RK	-	ROCK (BEDROCK)
LMSN	-	LIMESTONE (BEDROCK)
DST	-	DOLOSTONE
CL, SA	-	FIRST COMPONENT IS MOST COMMON MATERIAL

REFERENCE(S)
BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2013
PROJECTION: UTM NAD83 ZONE 17
PROPERTY BOUNDARY FROM CRA FILE 13764-10(017)GN-WA002.DWG.

CLIENT
BLUE TRITON BRANDS

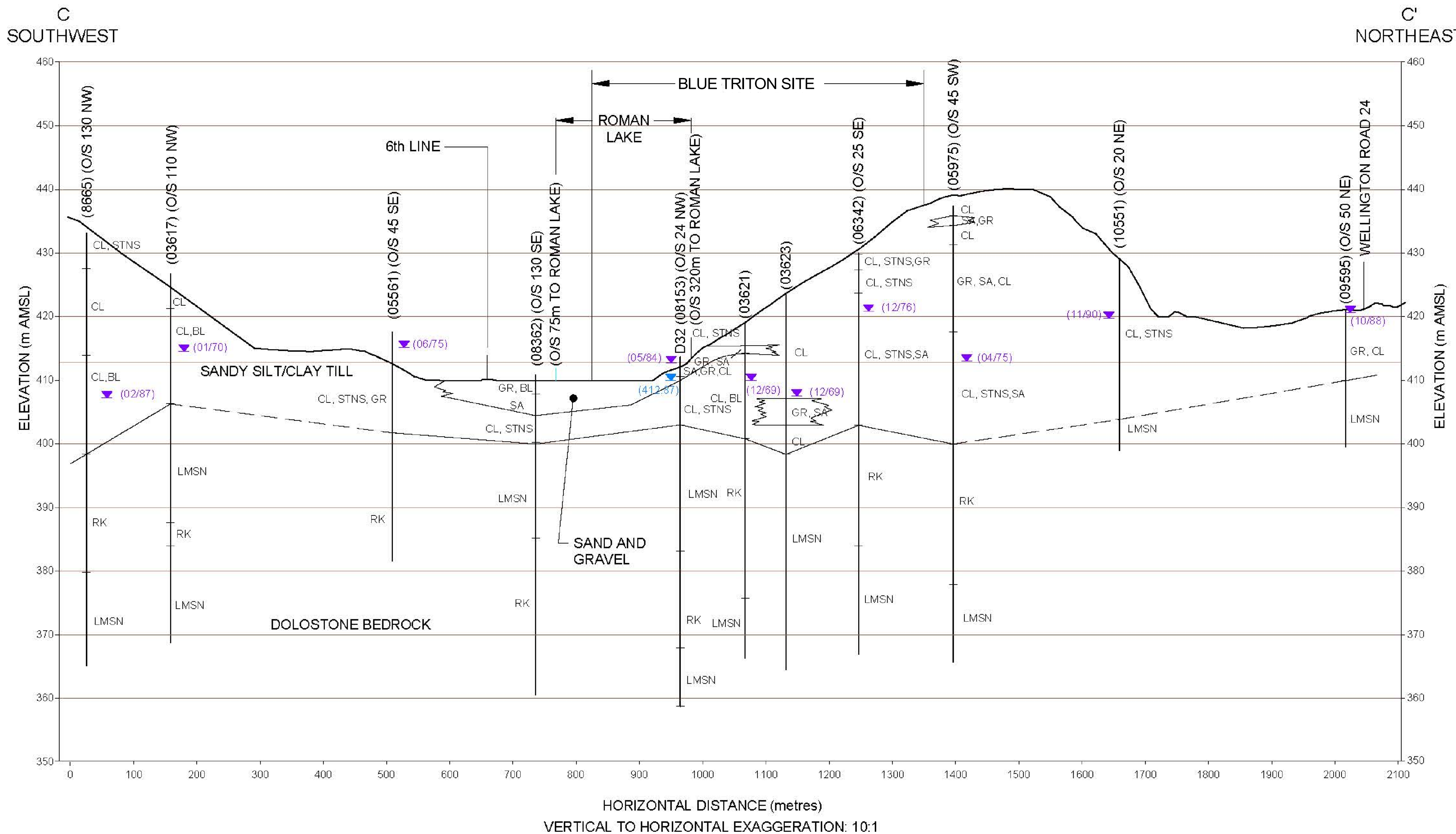
PROJECT
2023 ANNUAL REPORT

TITLE
HYDROGEOLOGIC CROSS-SECTION B-B'

CONSULTANT

YYYY-MM-DD	2024-02-21
DESIGNED	JMC
PREPARED	AR
REVIEWED	GP
APPROVED	JAP

PROJECT NO.	CONTROL	REV.	FIGURE
20449101 (2200)	0005	1.0	2.4



LEGEND

D32 — WELL DESIGNATION

GROUND SURFACE

(05/84) — WATER LEVEL ON WELL COMPLETION (MONTH / YEAR)

(412.87) — STATIC WATER LEVEL (NOV. 3/05)

PRDG	-	PRE DUG
OB	-	OVERBURDEN
CL	-	CLAY
SI	-	SILT
SA	-	SAND
GR	-	GRAVEL
BL	-	BOULDER
STNS	-	STONES
HP	-	HARDPAN
RK	-	ROCK (BEDROCK)
LMSN	-	LIMESTONE (BEDROCK)
DST	-	DOLOSTONE
CL, SA	-	FIRST COMPONENT IS MOST COMMON MATERIAL

CLIENT
BLUE TRITON BRANDS

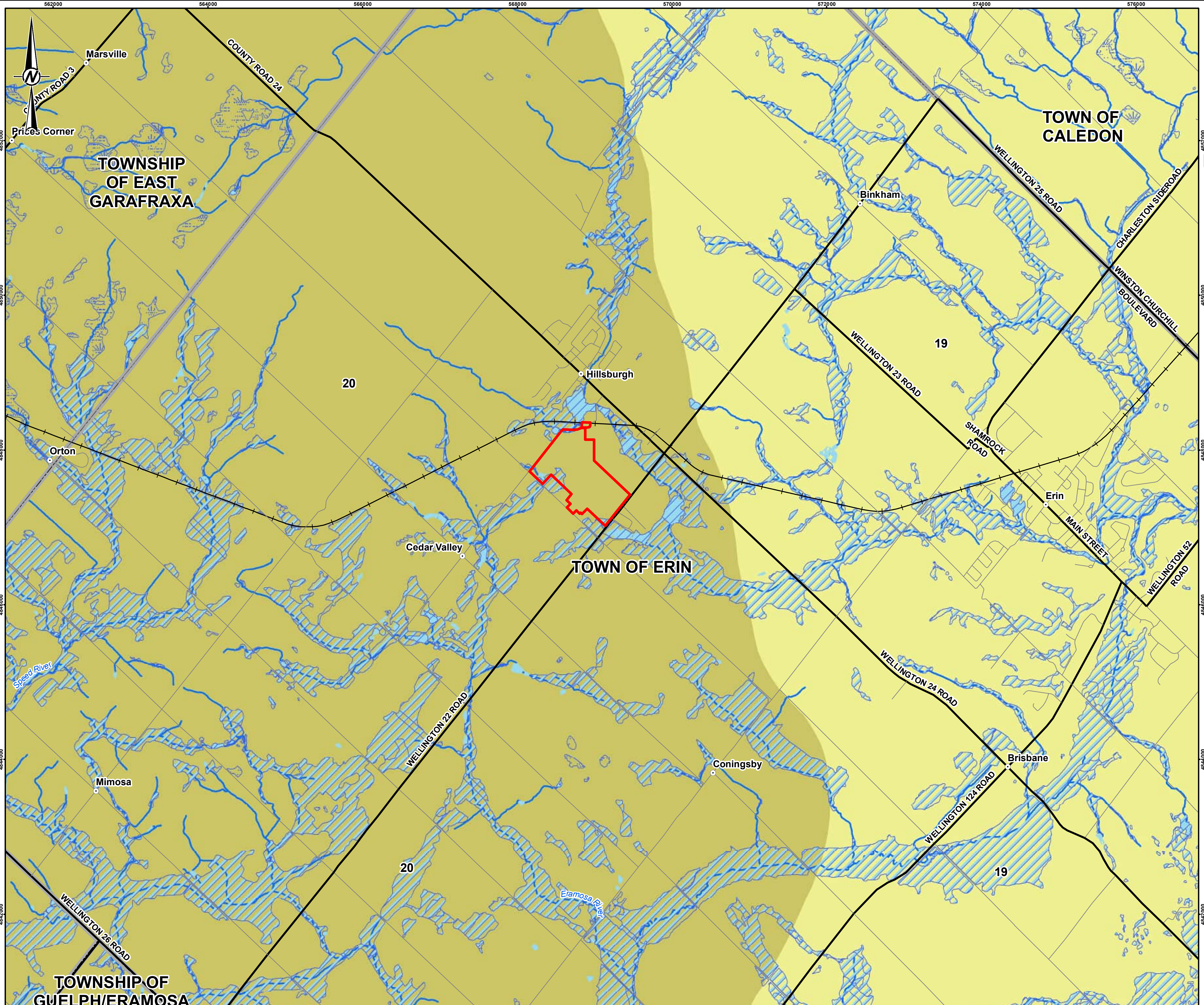
PROJECT
2023 ANNUAL REPORT

TITLE
HYDROGEOLOGIC CROSS-SECTION C-C'

CONSULTANT
wsp

YYYY-MM-DD	2024-02-21
DESIGNED	JMC
PREPARED	AR
REVIEWED	GP
APPROVED	JAP

PROJECT NO.	CONTROL	REV.	FIGURE
20449101 (2200)	0005	1.0	2.5



LEGEND

- CITY/TOWN
- MAIN ROAD
- LOCAL ROAD
- RAILWAY
- WATERCOURSE
- WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND
- WATERBODY
- MUNICIPAL BOUNDARY
- PROPERTY BOUNDARY
- 20: GUELPH
- 19: AMABEL

0 1 2

SCALE: 1:50,000 KILOMETERS

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2013
PROJECTION: UTM NAD83 ZONE 17
PROPERTY BOUNDARY FROM CRA FILE 13764-10(017)GN-WA002.DWG.

CLIENT
BLUE TRITON BRANDS

PROJECT
2023 ANNUAL REPORT

TITLE
REGIONAL BEDROCK GEOLOGY

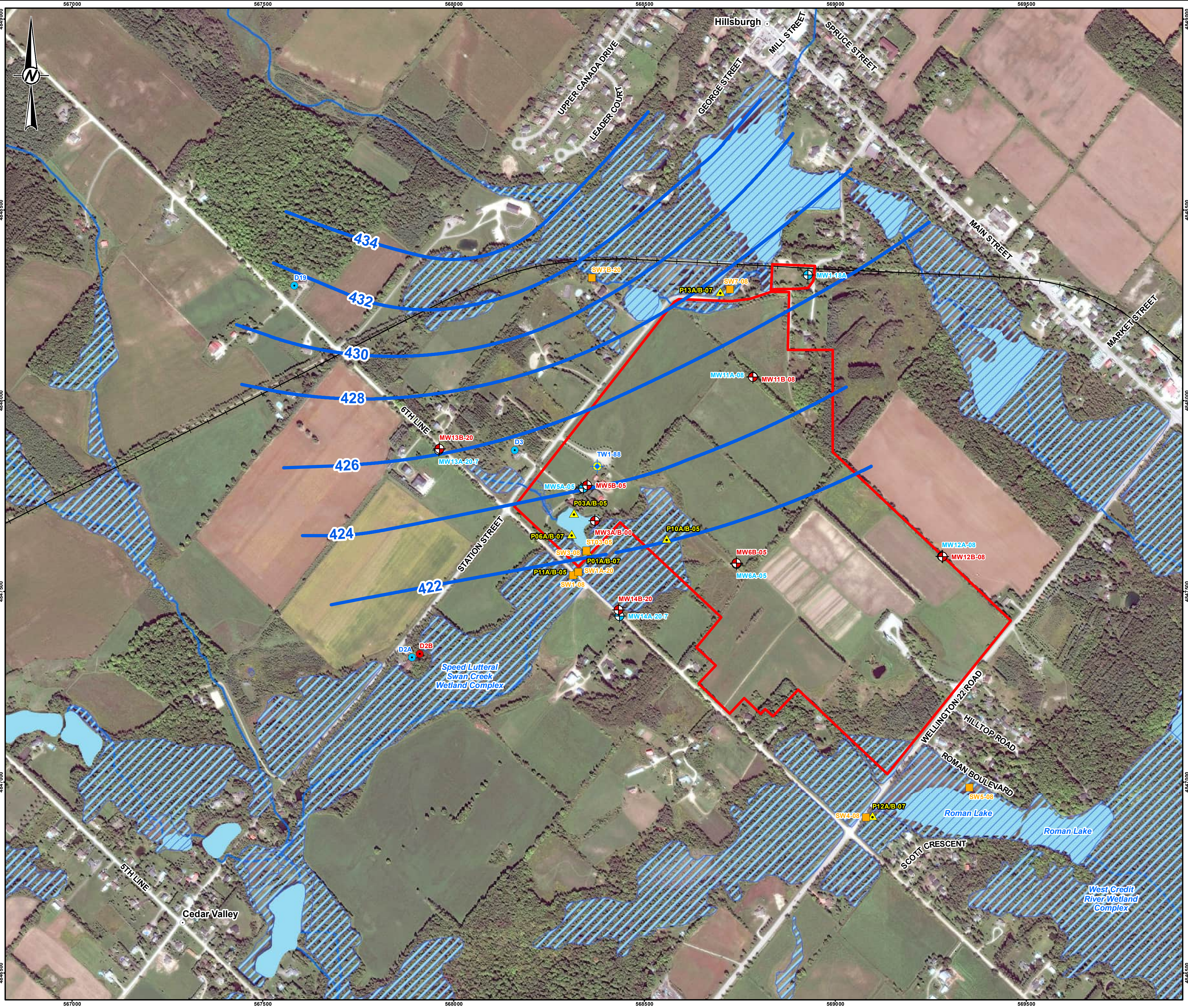
CONSULTANT

YYYY-MM-DD	2024-02-15
DESIGNED	JMC
PREPARED	AR
REVIEWED	GP
APPROVED	JAP

PROJECT NO.	CONTROL	REV.	FIGURE
20449101 (2200)	0005	1.0	2.6

25mm

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM:



LEGEND

- CITY/TOWN
- MONITORING WELL (BEDROCK)
- MONITORING WELL (OVERBURDEN)
- PRODUCTION WELL
- PRIVATE WELL (BEDROCK)
- PRIVATE WELL (OVERBURDEN)
- PIEZOMETER
- SURFACE WATER STATION
- WATER LEVEL ELEVATION CONTOUR (JAN. 24, 2000)
- MAIN ROAD
- LOCAL ROAD
- RAILWAY
- WATERCOURSE
- WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND
- WATERBODY
- PROPERTY BOUNDARY

0 250 500

SCALE: 1:10,000 METERS

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
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PROJECTION: UTM NAD83 ZONE 17
PROPERTY BOUNDARY FROM CRA FILE 13764-10(017)GN-WA002.DWG.

CLIENT
BLUE TRITON BRANDS

PROJECT
2023 ANNUAL REPORT

TITLE
POTENTIOMETRIC SURFACE OF GUELPH AQUIFER (NON-PUMPING CONDITION JANUARY 2000)

CONSULTANT

wsp

YYYY-MM-DD	2024-02-15
DESIGNED	JMC
PREPARED	AR
REVIEWED	GP
APPROVED	JAP

PROJECT NO.	CONTROL	REV.	FIGURE
20449101(2200)	0005	1.0	2.7

25mm

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM:

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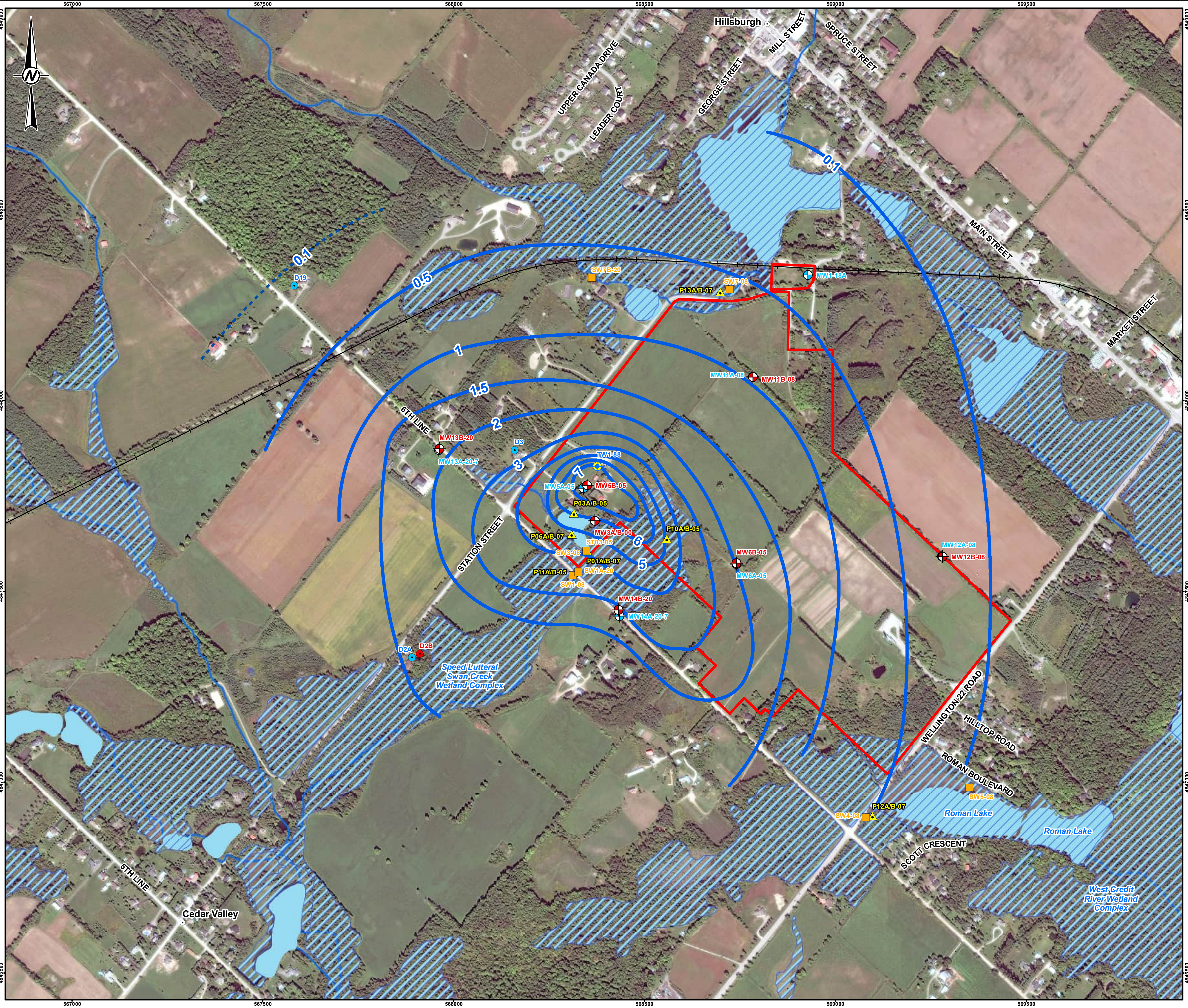

LEGEND

- CITY/TOWN
- MONITORING WELL (BEDROCK)
- MONITORING WELL (OVERBURDEN)
- PRODUCTION WELL
- PRIVATE WELL (BEDROCK)
- PRIVATE WELL (OVERBURDEN)
- PIEZOMETER
- SURFACE WATER STATION
- DRAWDOWN CONTOUR (JUNE 13/15, 2001)
- MAIN ROAD
- LOCAL ROAD
- RAILWAY
- WATERCOURSE
- WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND
- WATERBODY
- PROPERTY BOUNDARY

0 200 400

SCALE: 1:10,000 METERS

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
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PROJECTION: UTM NAD83 ZONE 17
PROPERTY BOUNDARY FROM CRA FILE 13764-10(017)GN-WA002.DWG.

CLIENT
BLUE TRITON BRANDS

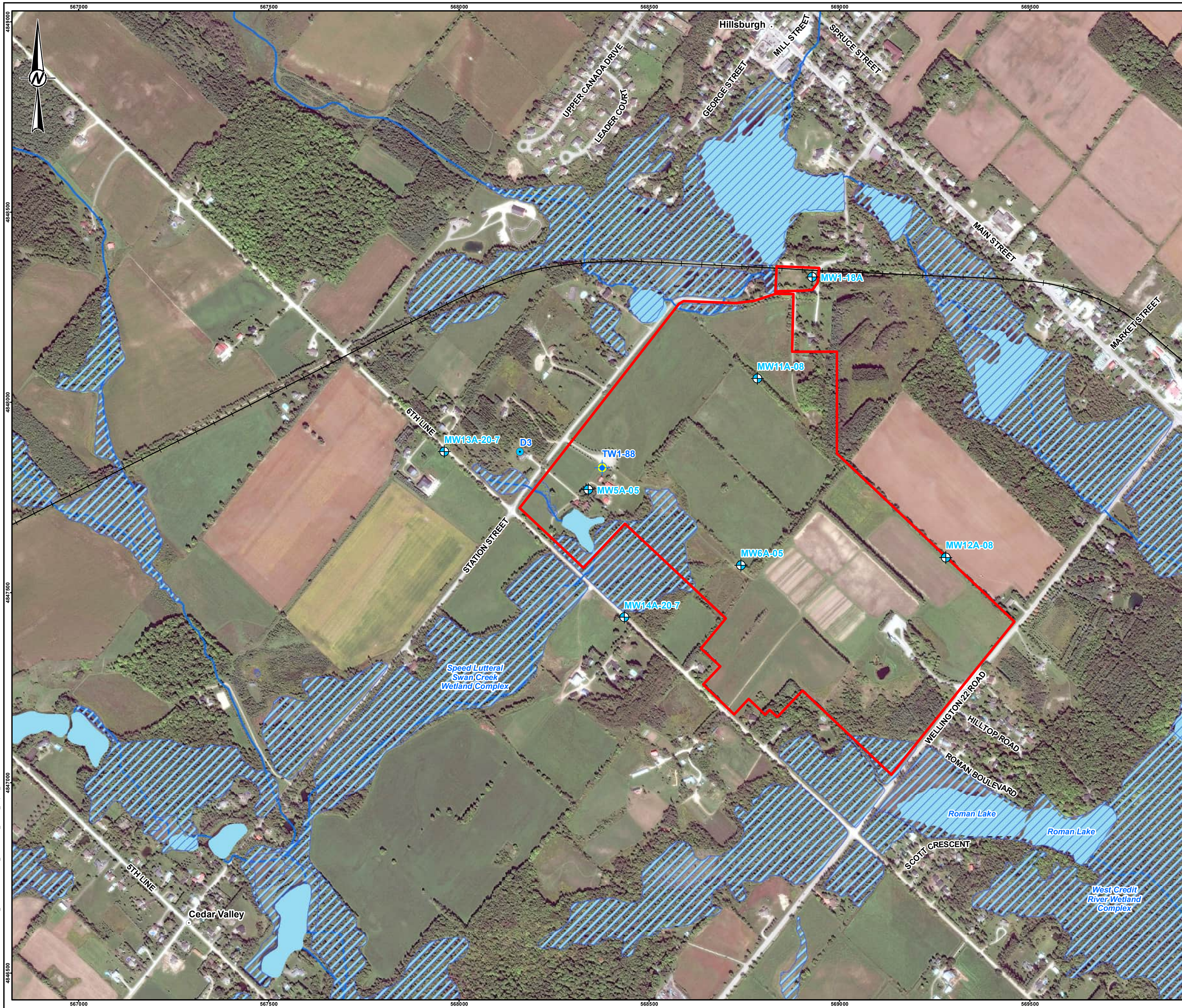
PROJECT
2023 ANNUAL REPORT

TITLE
INTERPRETED DRAWDOWN IN BEDROCK AQUIFER (JUNE 2001)

CONSULTANT

YYYY-MM-DD	2024-02-15
DESIGNED	JMC
PREPARED	AR
REVIEWED	GP
APPROVED	JAP

PROJECT NO.	CONTROL	REV.	FIGURE
20449101(2200)	0005	1.0	2.8



LEGEND

- CITY/TOWN
- PRODUCTION WELL
- MONITORING WELL (BEDROCK)
- PRIVATE WELL (BEDROCK)
- MAIN ROAD
- LOCAL ROAD
- RAILWAY
- WATERCOURSE
- WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND
- WATERBODY
- MUNICIPAL BOUNDARY
- PROPERTY BOUNDARY

0 250 500

SCALE: 1:10,000 METERS

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2013
PROJECTION: UTM NAD83 ZONE 17
PROPERTY BOUNDARY FROM CRA FILE 13764-10(017)GN-WA002.DWG.

CLIENT
BLUE TRITON BRANDS

PROJECT
2023 ANNUAL REPORT

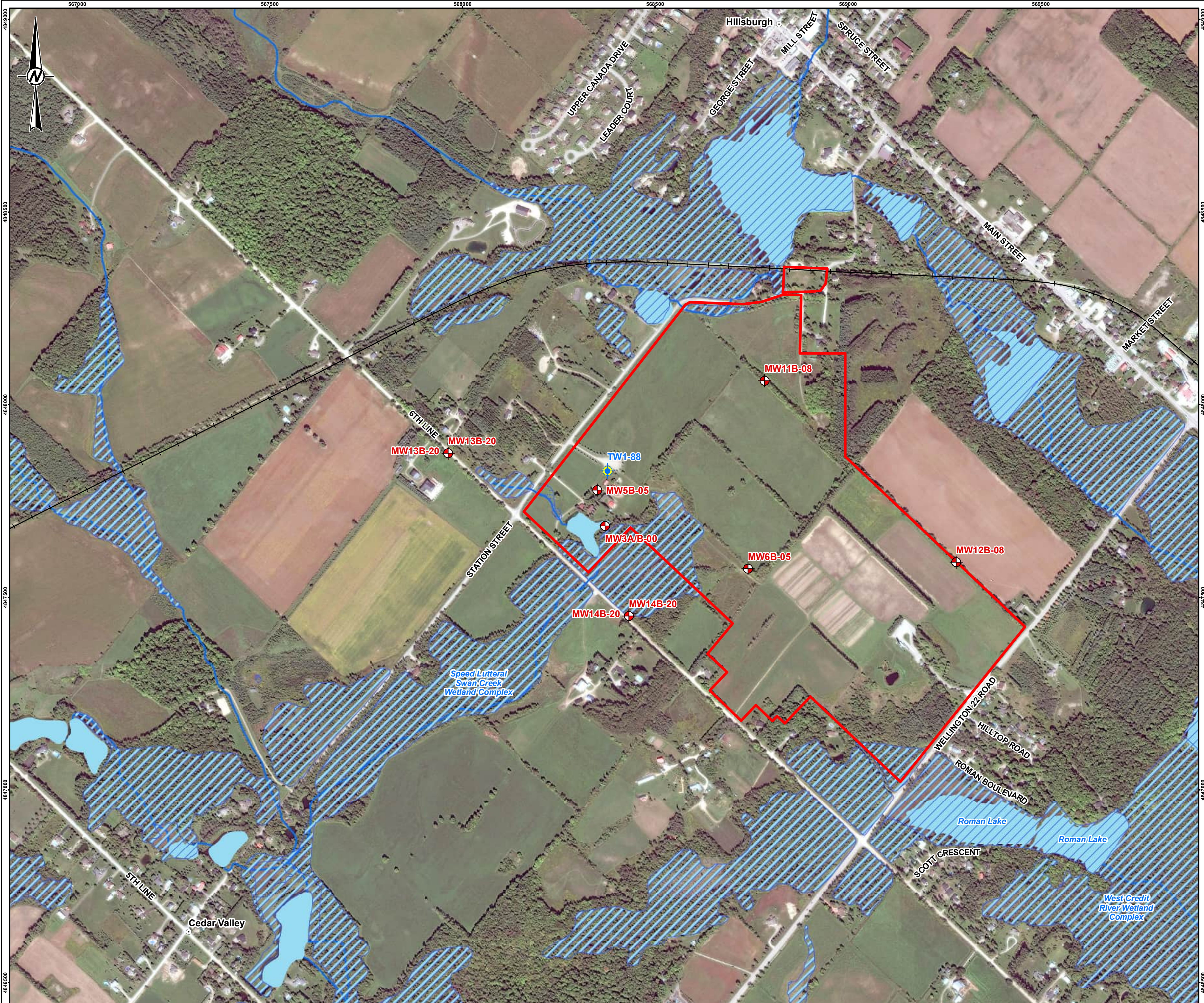
TITLE
2023 BEDROCK MONITORING LOCATIONS

CONSULTANT

wsp

YYYY-MM-DD	2024-02-15
DESIGNED	JMC
PREPARED	AR
REVIEWED	GP
APPROVED	JAP

PROJECT NO.	CONTROL	REV.	FIGURE
20449101(2200)	0005	1.0	3.1



LEGEND

- CITY/TOWN
- PRODUCTION WELL
- MONITORING WELL (OVERBURDEN)
- MAIN ROAD
- LOCAL ROAD
- RAILWAY
- WATERCOURSE
- WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND
- WATERBODY
- PROPERTY BOUNDARY

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
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PROJECTION: UTM NAD83 ZONE 17
PROPERTY BOUNDARY FROM CRA FILE 13764-10(017)GN-WA002.DWG.

CLIENT
BLUE TRITON BRANDS

PROJECT
2023 ANNUAL REPORT

TITLE
2023 OVERBURDEN MONITORING LOCATIONS

CONSULTANT
wsp

YYYY-MM-DD	2024-02-15
DESIGNED	JMC
PREPARED	AR
REVIEWED	GP
APPROVED	JAP

PROJECT NO.	CONTROL	REV.	FIGURE
20449101 (2200)	0005	1.0	3.2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm

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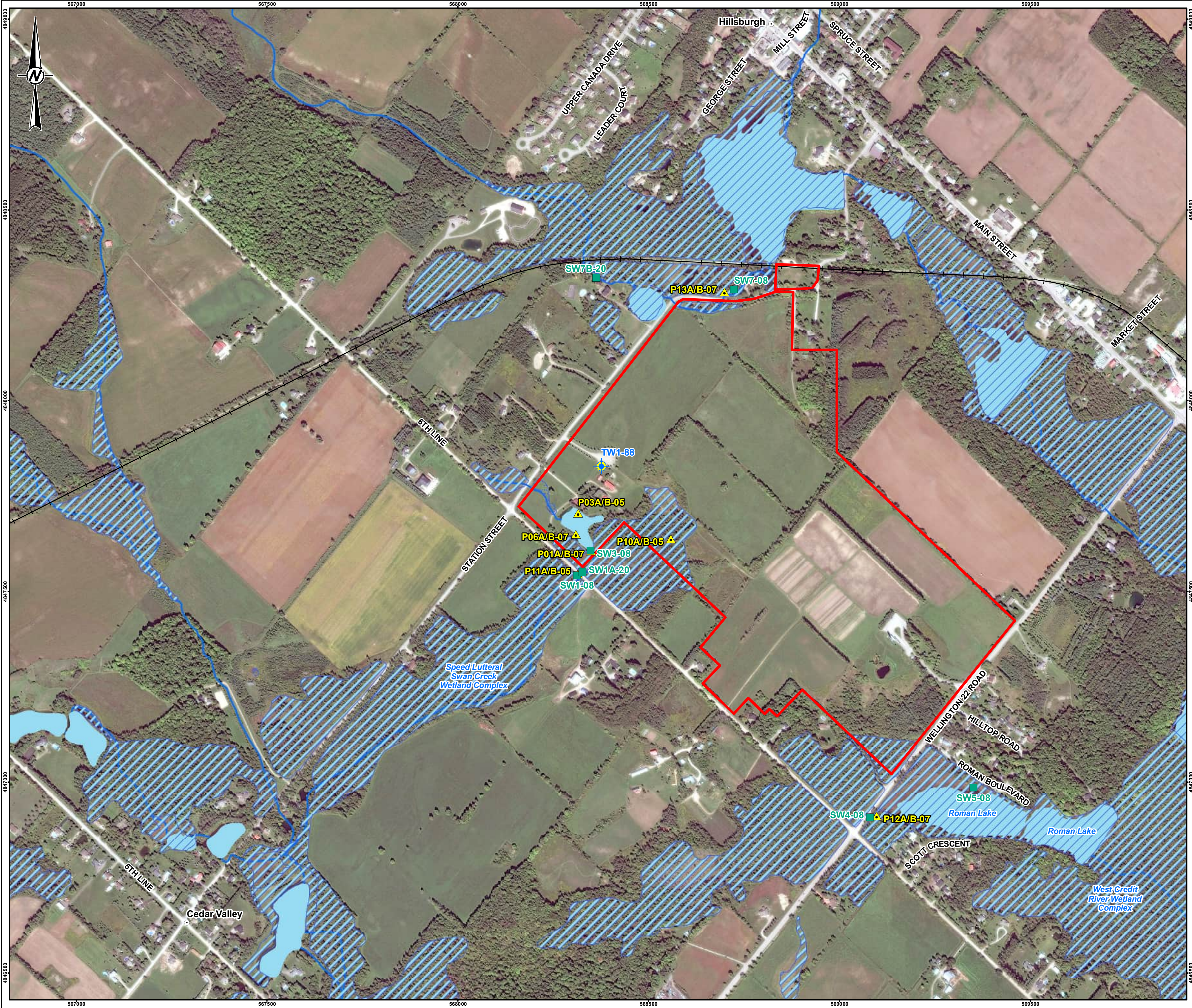

LEGEND

- CITY/TOWN
- PRODUCTION WELL
- PIEZOMETER
- SURFACE WATER STATION
- MAIN ROAD
- LOCAL ROAD
- RAILWAY
- WATERCOURSE
- WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND
- WATERBODY
- MUNICIPAL BOUNDARY
- PROPERTY BOUNDARY

0 250 500

SCALE: 1:10,000 METERS

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
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PROJECTION: UTM NAD83 ZONE 17
PROPERTY BOUNDARY FROM CRA FILE 13764-10(017)GN-WA002.DWG.

CLIENT
BLUE TRITON BRANDS

PROJECT
2023 ANNUAL REPORT

TITLE
2023 SURFACE WATER MONITORING LOCATIONS

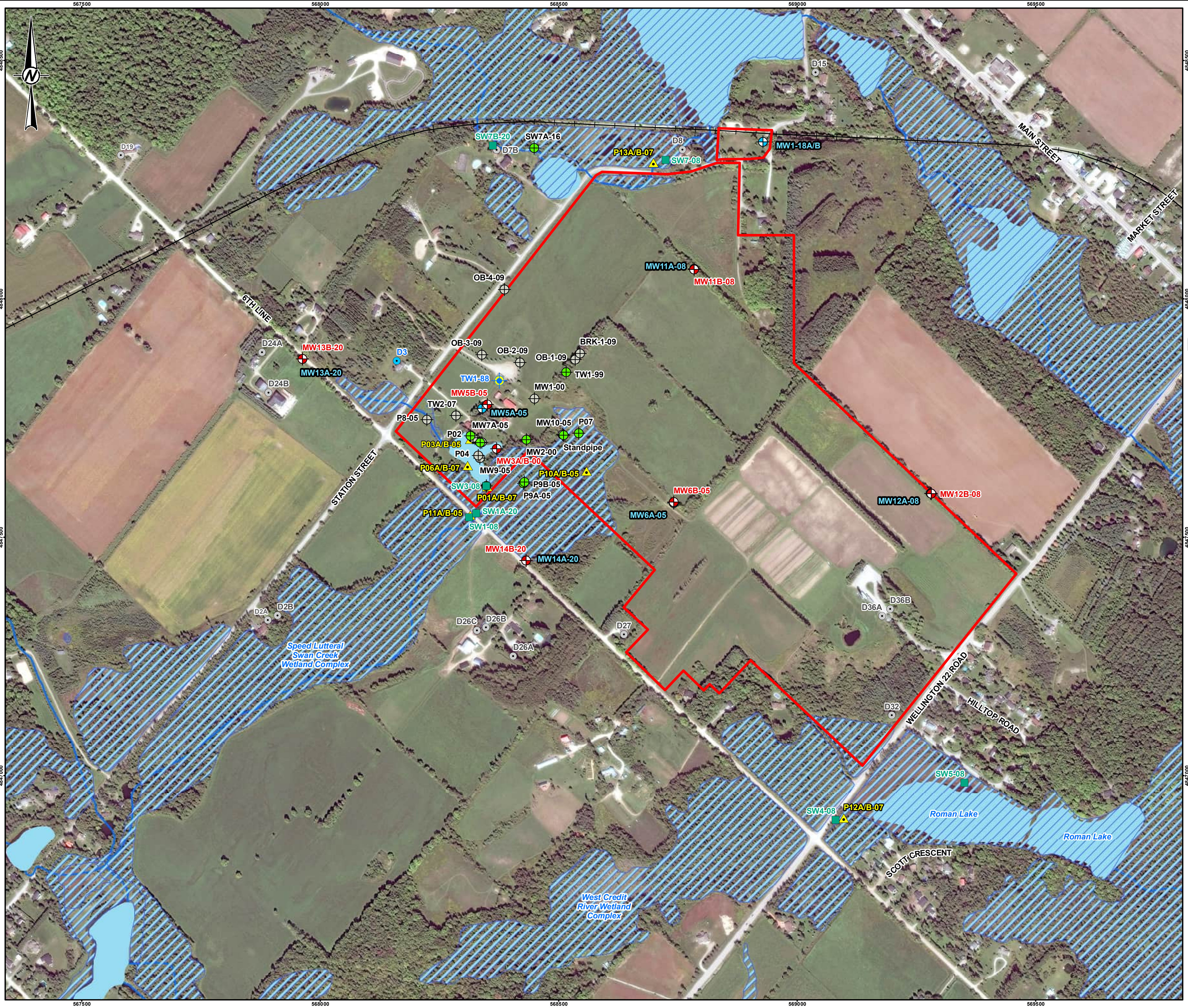
CONSULTANT

wsp

YYYY-MM-DD	2024-02-15
DESIGNED	JMC
PREPARED	AR
REVIEWED	GP
APPROVED	JAP

PROJECT NO.	CONTROL	REV.	FIGURE
20449101 (2200)	0005	1.0	3.3

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm



LEGEND

- CITY/TOWN
- DESTROYED/REMOVED/DECOMMISSIONED,
- PRODUCTION WELL
- MONITORING WELL (BEDROCK)
- MONITORING WELL (OVERBURDEN)
- PRIVATE WELL (BEDROCK)
- PIEZOMETER
- SURFACE WATER STATION
- PRIVATE WELL (BEDROCK - NOT MONITORED)
- PRIVATE WELL (OVERBURDEN - NOT MONITORED)
- UNUSED(STATUS UNKNOWN)
- MAIN ROAD
- LOCAL ROAD
- RAILWAY
- WATERCOURSE
- WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND
- WATERBODY
- MUNICIPAL BOUNDARY
- PROPERTY BOUNDARY

0 200 400

SCALE: 1:8,000 METERS

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
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PROJECTION: UTM NAD83 ZONE 17
PROPERTY BOUNDARY FROM CRA FILE 13764-10(017)GN-WA002.DWG.

CLIENT
BLUE TRITON BRANDS

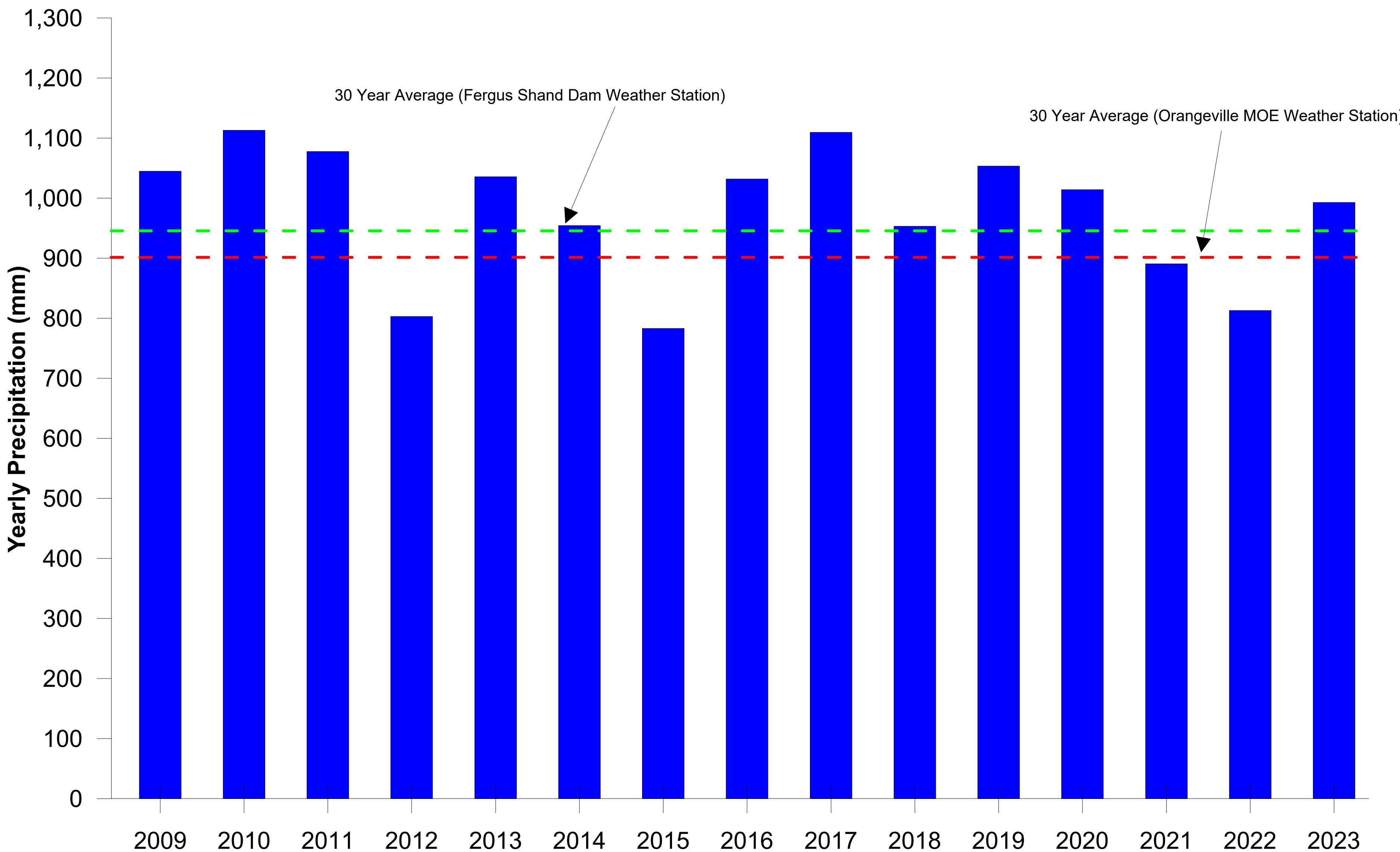
PROJECT
2023 ANNUAL REPORT

TITLE
WELL LOCATIONS

CONSULTANT

YYYY-MM-DD	2024-02-15
DESIGNED	JMC
PREPARED	AR
REVIEWED	GP
APPROVED	JAP

PROJECT NO.	CONTROL	REV.	FIGURE
20449101 (2200)	0005	1.0	3.4



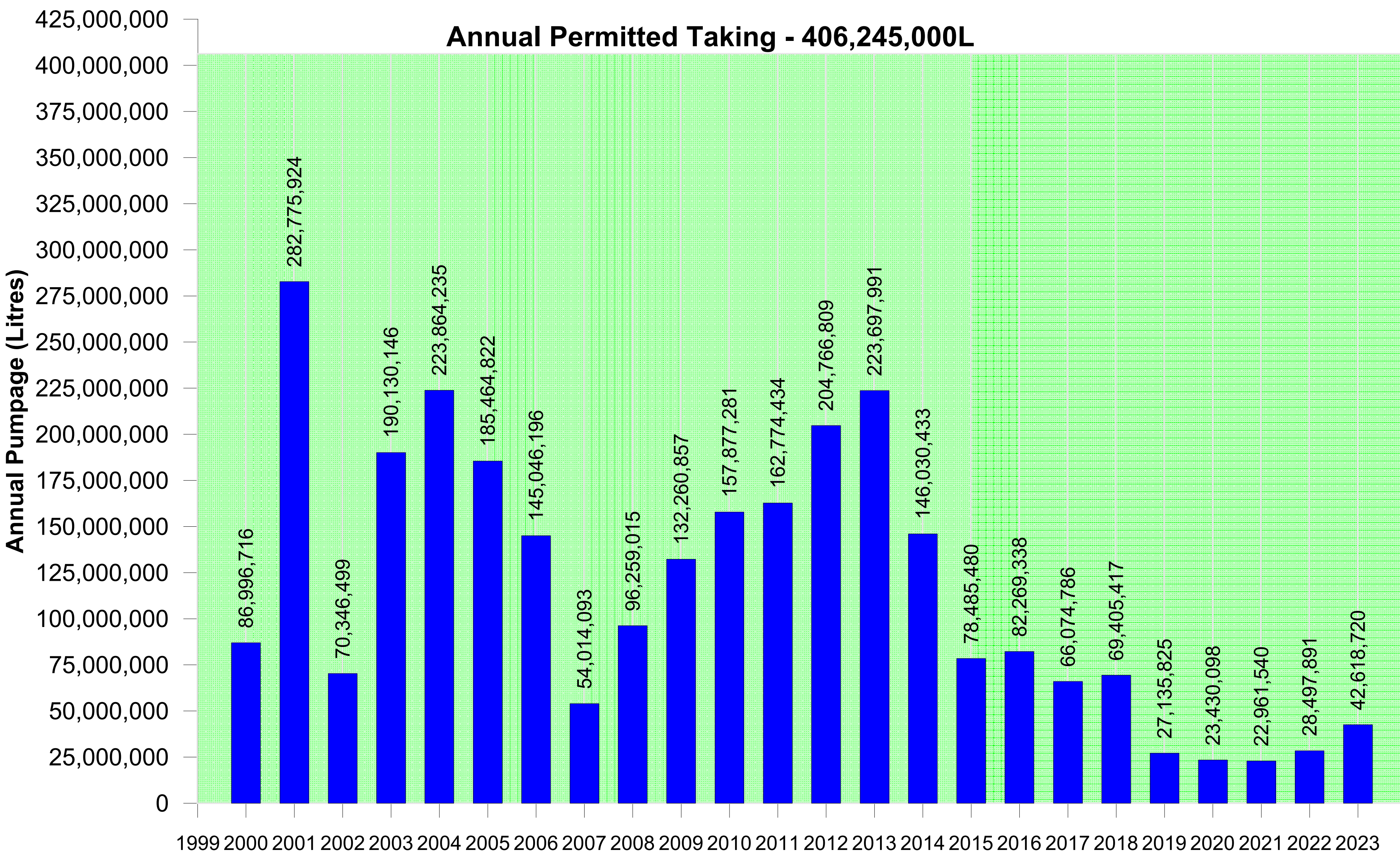
Data for Orangeville Station prior to 2016, and data for Shand Dam Station from 2016-2023

DATE	January 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

PROJECT
BLUE TRITON BRANDS
Erin, Ontario

TITLE
HISTORICAL ANNUAL PRECIPITATION (2009 TO 2023)
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	3.5

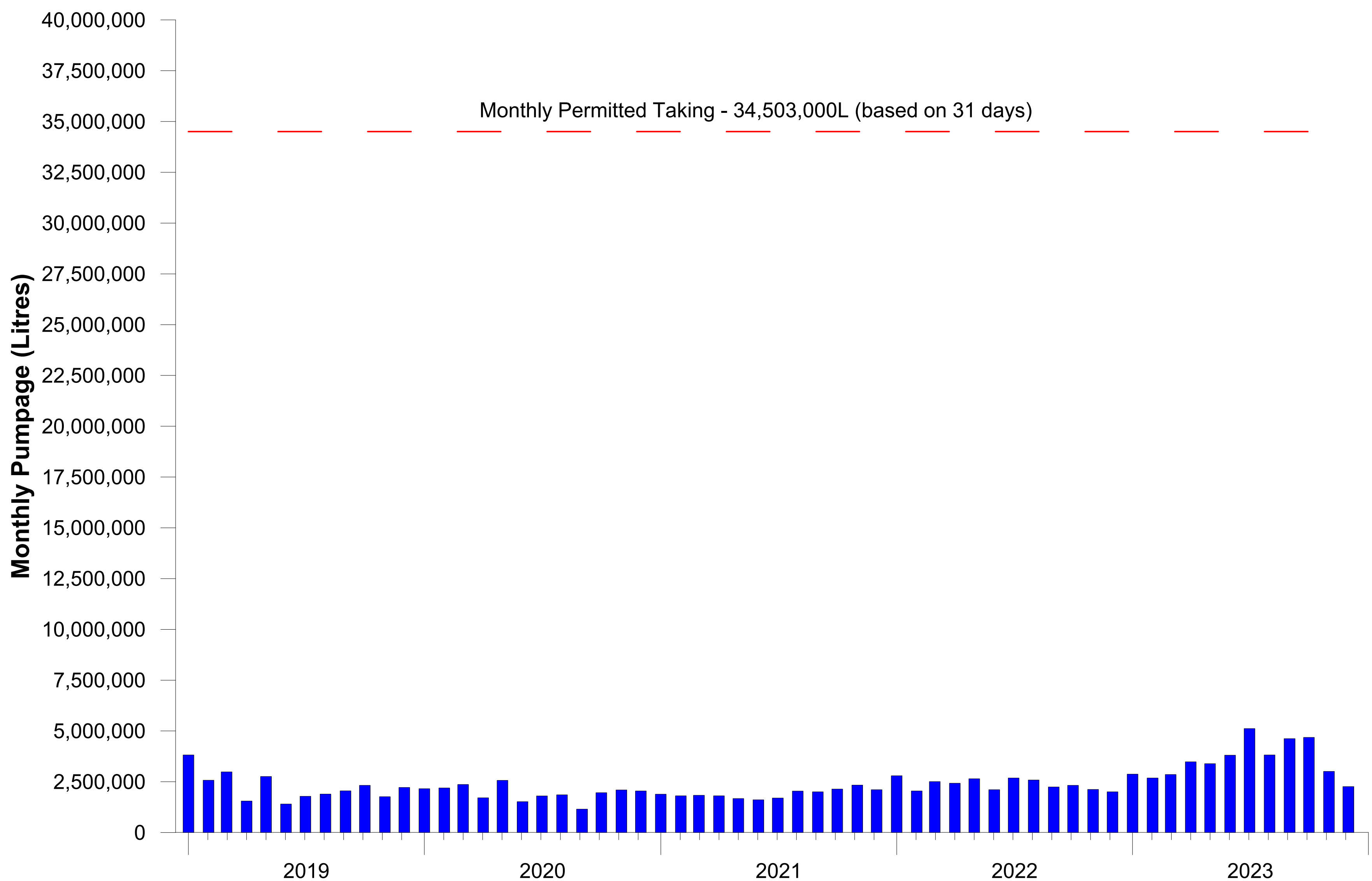


DATE	Febuary 2024
DESIGN	AB
REVIEW	GP
APPROVED	GP

PROJECT
BLUE TRITON BRANDS
Erin, Ontario

TITLE
TW1-88 ANNUAL WATER TAKING (2000 TO 2023)
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	4.1

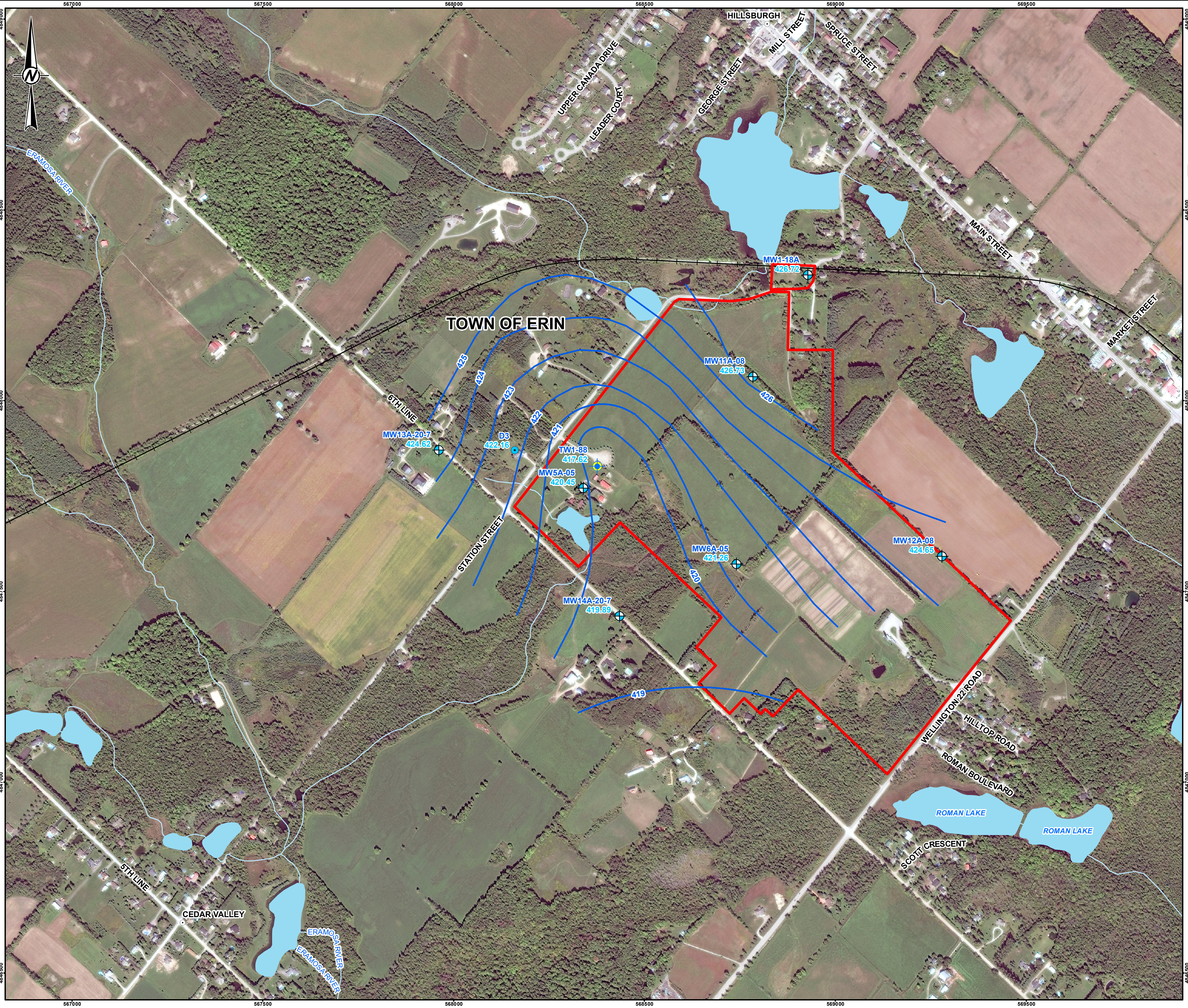


DATE January 2024
DESIGN AB
REVIEW GP
APPROVED GP

PROJECT
BLUE TRITON BRANDS
Erin, Ontario

TITLE
TW1-88 MONTHLY WATER TAKING (2019 TO 2023)
2023 ANNUAL MONITORING REPORT

PROJECT NO. 20449101 (2000) | REV A | FIGURE 4.2



LEGEND

- CITY/TOWN
- PRODUCTION WELL
- MONITORING WELL (BEDROCK)
- PRIVATE WELL (BEDROCK)
- WATER ELEVATION CONTOUR (MASL)
- RAILWAY
- WATERCOURSE
- WATERBODY
- MUNICIPAL BOUNDARY
- PROPERTY BOUNDARY
- 420.10 WATER ELEVATION (SEPTEMBER 26, 2023)

0 250 500

SCALE: 1:10,000 METERS

REFERENCE(S)

BASE DATA - MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2013
PROJECTION: UTM NAD83 ZONE 17
PROPERTY BOUNDARY FROM CRA FILE 13764-10(017)GN-WA002.DWG.

CLIENT
BLUE TRITON BRANDS

PROJECT
2023 ANNUAL REPORT

TITLE
POTENTIOMETRIC SURFACE OF BEDROCK AQUIFER (SEPTEMBER 2023)

CONSULTANT

wsp

YYYY-MM-DD	2024-03-02
DESIGNED	JMC
PREPARED	AR
REVIEWED	GP
APPROVED	JAP

PROJECT NO.	CONTROL	REV.	FIGURE
20449101 (2200)	0005	1.0	4.3

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM
25mm

APPENDIX A

Permit To Take Water Number 4788-C5TJTZ

Ministry of the Environment, Conservation and Parks
Environmental Assessment and Permissions Division
Brownfields and Permit to Take Water
Permit To Take Water Unit
Floor 1, 135 St Clair Ave W
Toronto, ON
M4V 1P5
Tel: (289) 830-5867

Ministère de l'Environnement, de la Protection de la nature et des Parcs
Division des évaluations et des permissions environnementales
Réaménagement des friches contaminées et réglementation des prélèvements d'eau
Unité de la réglementation des prélèvements d'eau
1er étage, 135 av St. Clair O
Toronto, ON
M4V 1P5
Tél:(289) 830-5867

Ontario

November 15, 2021

Triton Water Canada Holdings, Inc.
101 Brock Rd S
Puslinch, Ontario, N0B 2J0
Canada

Dear Andreanne Simard:

RE: Permit To Take Water No. 4788-C5TJTZ
Lot: 24, Concession: 7, Erin, County of Wellington
Reference Number 6476-AMMS2Q

Please find attached a Permit to Take Water which authorizes the withdrawal of water in accordance with the application for this Permit to Take Water, dated May 16, 2017 and signed by Andreanne Simard.

This Permit expires on November 15, 2026. Authorized rates and amounts are indicated on Table A. This Permit cancels and replaces Permit Number 3716-8UZMCU, issued on September 28, 2012.

Section 9(3) of Ontario Regulation 387/04 (Water Taking and Transfer) requires all holders of a permit to report daily water taking amounts annually, in a manner and form approved by the Director (https://www.lrcsde.lrc.gov.on.ca/wtrs/). For the purpose of s. 9(3), such reports shall be submitted electronically to the Water Taking Reporting System (WTRS) electronic database or via hard copy, as described in the Technical Bulletin entitled "Permit to Take Water Program Monitoring and Reporting of Water Takings", dated November 2010, PIBs 6003e (https://archive.org/details/std01079790.ome/mode/2up).

If you have questions about reporting requirements, please call the WTRS Help Desk at 416-235-6322 (toll free: 1-877-344-2011) or by email, WTRSHelpdesk@ontario.ca. It is preferred that you submit your data directly and electronically to the WTRS. Where this is impracticable, please contact the WTRS Help Desk to arrange for written submission of your data.

Condition 1.4 specifically indicates that this Permit is not transferable to another party. Any queries regarding a change in owner/operator should be made to the Permit to Take Water Evaluator at the above address.

Take notice that in issuing this Permit, terms and conditions pertaining to the taking of water and to the results of the taking have been imposed. The terms and conditions have been designed to allow for the development of water resources, while providing reasonable protection to existing water uses and users.

Yours truly,

Gregory Meek
Supervisor (Acting), Permit To Take Water
Director, Section 34.1, Ontario Water Resources Act, R.S.O. 1990
Environmental Permissions Branch

File Storage Number: -

Ontario

Ministry of the Environment, Conservation and Parks
Ministère de l'Environnement, de la Protection de la nature et des Parcs

PERMIT TO TAKE WATER
Ground Water
NUMBER 4788-C5TJTZ

Pursuant to Section 34.1 of the Ontario Water Resources Act, R.S.O. 1990 this Permit To Take Water is hereby issued to:

Triton Water Canada Holdings, Inc.
101 Brock Rd S
Puslinch, Ontario
N0B 2J0

For the water taking from: One bedrock drilled well (TW1-88) MOE Well Tag No.: A095193

Located at: Lot 24, Concession 7, Geographic Township of Erin
Erin, County of Wellington

For the purposes of this Permit, and the terms and conditions specified below, the following definitions apply:

DEFINITIONS

(a) "Director" means any person appointed in writing as a Director pursuant to section 5 of the OWRA for the purposes of section 34.1, OWRA.

(b) "Provincial Officer" means any person designated in writing by the Minister as a Provincial Officer pursuant to section 5 of the OWRA.

(c) "Ministry" means Ontario Ministry of the Environment, Conservation and Parks.

(d) "District Office" means the Guelph District Office.

(e) "Permit" means this Permit to Take Water No. 4788-C5TJTZ including its Schedules, if any, issued in accordance with Section 34.1 of the OWRA.

(f) "Permit Holder" means Triton Water Canada Holdings, Inc..

(g) "OWRA " means the *Ontario Water Resources Act,* R.S.O. 1990, c. O. 40, as amended.

You are hereby notified that this Permit is issued subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. Compliance with Permit

1.1 Except where modified by this Permit, the water taking shall be in accordance with the application for this Permit To Take Water, dated May 16, 2017 and signed by Andreanne Simard, and all Schedules included in this Permit.

1.2 The Permit Holder shall ensure that any person authorized by the Permit Holder to take water under this Permit is provided with a copy of this Permit and shall take all reasonable measures to ensure that any such person complies with the conditions of this Permit.

1.3 Any person authorized by the Permit Holder to take water under this Permit shall comply with the conditions of this Permit.

1.4 This Permit is not transferable to another person.

1.5 This Permit provides the Permit Holder with permission to take water in accordance with the conditions of this Permit, up to the date of the expiry of this Permit. This Permit does not constitute a legal right, vested or otherwise, to a water allocation, and the issuance of this Permit does not guarantee that, upon its expiry, it will be renewed.

1.6 The Permit Holder shall keep this Permit available at all times at or near the site of the taking, and shall produce this Permit immediately for inspection by a Provincial Officer upon his or her request.

1.7 The Permit Holder shall report any changes of address to the Director within thirty days of any such change. The Permit Holder shall report any change of ownership of the property for which this Permit is issued within thirty days of any such change. A change in ownership in the property shall cause this Permit to be cancelled.

2. General Conditions and Interpretation

2.1 Inspections
The Permit Holder must forthwith, upon presentation of credentials, permit a Provincial Officer to carry out any and all inspections authorized by the OWRA, the *Environmental Protection Act* , R.S.O. 1990, the *Pesticides Act* , R.S.O. 1990, or the *Safe Drinking Water Act,* S. O. 2002.

2.2 Other Approvals
The issuance of, and compliance with this Permit, does not:

(a) relieve the Permit Holder or any other person from any obligation to comply with any other applicable legal requirements, including the provisions of the *Ontario Water Resources Act* , and the *Environmental Protection Act* , and any regulations made thereunder; or

(b) limit in any way any authority of the Ministry, a Director, or a Provincial Officer, including the authority to require certain steps be taken or to require the Permit Holder to furnish any further information related to this Permit.

2.3 Information
The receipt of any information by the Ministry, the failure of the Ministry to take any action or require any person to take any action in relation to the information, or the failure of a Provincial Officer to prosecute any person in relation to the information, shall not be construed as:

(a) an approval, waiver or justification by the Ministry of any act or omission of any person that contravenes this Permit or other legal requirement; or

(b) acceptance by the Ministry of the information's completeness or accuracy.

2.4 Rights of Action
The issuance of, and compliance with this Permit shall not be construed as precluding or limiting any legal claims or rights of action that any person, including the Crown in right of Ontario or any agency thereof, has or may have against the Permit Holder, its officers, employees, agents, and contractors.

2.5 Severability
The requirements of this Permit are severable. If any requirements of this Permit, or the application of any requirements of this Permit to any circumstance, is held invalid or unenforceable, the application of such requirements to other circumstances and the remainder of this Permit shall not be affected thereby.

2.6 Conflicts
Where there is a conflict between a provision of any submitted document referred to in this Permit, including its Schedules, and the conditions of this Permit, the conditions in this Permit shall take precedence.

3. Water Takings Authorized by This Permit

3.1 **Expiry**
This Permit expires on **November 15, 2026**. No water shall be taken under authority of this Permit after the expiry date.

3.2 Amounts of Taking Permitted
The Permit Holder shall only take water from the source, during the periods and at the rates and amounts of taking specified in Table A. Water takings are authorized only for the purposes specified in Table A.

Table A

	Source Name / Description:	Source: Type:	Taking Specific Purpose:	Taking Major Category:	Max. Taken per Minute (litres):	Max. Num. of Hrs Taken per Day:	Max. Taken per Day (litres):	Max. Num. of Days Taken per Year:	Zone/ Easting/ Northing:
1	TW1-88	Well Drilled	Bottled Water	Commercial	773	24	1,113,000	365	17 568384 4847833
						Total Taking:	1,113,000		

3.3 It is the responsibility of the Permit Holder to keep advised of any Low Water Advisory within the jurisdiction of the Grand River Conservation Authority. For the purpose of this condition, Low Water Advisory means a Level 1, Level 2, or Level 3 low water condition as defined by the Ministry of Northern Development, Mines, Natural Resources and Forestry (MNDMNRF) in their Low Water Response Program, as may be amended from time to time by the MNDMNRF.

When a Low Water Advisory exists within the Grand River Conservation Authority watershed, the Permit Holder shall undertake measures outlined in the Low Water Response Plan, as described in **Item 3** of **Schedule A**.

4. Monitoring

4.1 The Permit Holder shall measure water level on a continuous basis (pressure transducers) at the following locations:

Bedrock Wells

- TW1-88
- MW5A-05
- MW6A-05
- MW1-18A/B
- D3
- MW11A-08
- MW12A-08
- MW13A-20-7
- MW14A-20-7

Overburden Wells

- MW3A/B-00
- MW5B-05
- MW6B-05
- MW11B-08
- MW12B-08

- MW13B-20-07
- MW14B-20-06

Piezometers

i) Continuous monitoring of water level and vertical hydraulic gradients at the following locations:

- P01A/B-07
- P03A/B-05
- P06A/B-07
- P10A/B-05
- P11A/B-05
- P12A/B-07
- P13A/B-07

Surface Water

(i) Continuous monitoring of surface water levels at the following locations:

- SW1-08
- SW1A-20
- SW3-08
- SW4-08
- SW5-08
- SW7-08
- SW7B-20

(ii) Monthly monitoring of flow and development of appropriate stage-discharge curves at the following locations:

- SW1-08
- SW7-08
- SW7B-20

(iii) Continuous Monitoring of stream flows at the following locations using a flow meter:

- SW3-08

4.2 Continuous monitoring shall be datalogged at 60 minute intervals and downloaded quarterly; however, daily minimum water levels may be used to evaluate the water level variation with respect to pumping to improve the data handling and presentation.

Where monthly monitoring data is datalogged, this data shall also be downloaded on a quarterly basis.

4.3 The water level data collected in piezometers or multilevel monitoring wells (two wells at one location or multiple wells in one borehole screened at different intervals) shall be plotted as gradient vs. time and interpreted to assess the potential impact of taking on vertical hydraulic gradients (upward/downward) and hydraulic connection of the ground water with the surface water, if any.

4.4 The Permit Holder shall identify to the Director in writing, within 15 days of any monthly monitoring event, any monitoring locations identified in Conditions 4.1 which become permanently inaccessible and/or abandoned along with a recommendation for replacement monitoring locations. This shall exclude wells that become temporarily inaccessible, i.e., due to frozen conditions. Upon approval of the Director the monitoring program shall be appropriately modified.

4.5 Under section 9 of O. Reg. 387/04, and as authorized by subsection 34(6) of the *Ontario Water Resources Act* , the Permit Holder shall, on each day water is taken under the authorization of this Permit, record the date, the volume of water taken on that date and the rate at which it was taken. The daily volume of water taken shall be measured by a flow meter or calculated in accordance with the method described in the application for this Permit, or as otherwise accepted by the Director. The Permit Holder shall keep all records required by this condition current and available at or near the site of the taking and shall produce the records immediately for inspection by a Provincial Officer upon his or her request. The Permit Holder, unless otherwise required by the Director, shall submit, on or before March 31st in every year, the records required by this condition to the ministry's Water Taking Reporting System.

4.6 The Permit Holder shall submit to the Director, an annual monitoring report which presents and interprets the monitoring data to be collected under the Terms and Conditions of this Permit. This report shall be prepared, signed and stamped by a licenced professional geoscientist or a licensed professional engineer specializing in hydrogeology who shall take responsibility for its accuracy. The report shall be submitted to the Director by April 30 of each calendar year or as supporting documentation to any application for renewal of this Permit, and include monitoring data for the 12 month period ending December 31 of the previous year.

4.7 The Permit Holder shall include as part of the annual monitoring report required under Condition 4.6, the following information:

(i) Location and name of the facilities to which water is delivered in bulk containers greater than 20L from this source.
(ii) Whether or not the bulk water transported is containerized at the receiving location.
(iii) The size of the container(s) into which the water is transferred.
(iv) Total volume of the water transported in bulk in each calendar year to each remote facility.

4.8 The Permit Holder shall investigate any complaints received from the public or agency with regard to this water taking in accordance with the interference complaints resolution protocol and notify the District Manager, District Office within two (2) working days of receiving the complaint. Details of any complaints and its resolution shall be outlined to the Director in the annual monitoring report required under Condition 4.6.

4.9.1 Prior to December 31, 2021, the Permit Holder shall establish a publicly accessible internet Website, with no user, access or registration fees, and shall maintain the website for the duration of this permit. Following the establishment of the Website, the Permit Holder shall notify the Director in writing, of the Website URL address.

4.9.2 By December 31, 2021, the Permit Holder shall upload and make available for download the following information:

- all technical documentation submitted to support the Permit To Take Water application, items listed in Schedule A of this Permit;
- a plain language executive summary of the water taking activity; and,
- the well interference protocol.

4.9.3 By March 31 of each calendar year (until March 31, 2027) the Permit Holder shall upload and make available for download the following information to the Website:

- the monitoring report required by Condition 4.7 for the 12-month period ending December 31 of the previous year.
- The daily water taking records collected as required by Condition 4.1, uploaded in a suitable electronic format (e.g. Microsoft Excel) for the 12-month period ending December 31 of the previous year.

4.10 By September 30 of each calendar year (until September 30, 2027), the Permit Holder shall host an annual stakeholder meeting. The meeting will provide an opportunity for the Permit Holder to inform stakeholders of the Permit and the results of the annual monitoring report (for the 12-month period ending December 31 of the previous year), to receive submissions from stakeholders and the public, and to answer questions concerning the water taking.

The Permit Holder shall also directly notify the following stakeholders:

- The Director
- The City of Guelph
- The Grand River Conservation Authority
- Credit Valley Conservation Authority
- The Town of Erin
- The Six Nations of the Grand River
- The Mississaugas of the New Credit First Nation
- The Haudenosaunee Confederacy Chiefs Council (via the Haudenosaunee Development Institute)
- The Wellington Water Watchers
- Council of Canadians

The meeting may be held virtually and/or at suitable accessible and public venue within the County of Wellington.

A copy of the meeting invitations, agenda and minutes shall be submitted to the Director within 30 days of the meeting.

5. Impacts of the Water Taking

5.1 Notification

The Permit Holder shall immediately notify the local District Office of any complaint arising from the taking of water authorized under this Permit and shall report any action which has been taken or is proposed with regard to such complaint. The Permit Holder shall immediately notify the local District Office if the taking of water is observed to have any significant impact on the surrounding waters. After hours, calls shall be directed to the Ministry's Spills Action Centre at 1-800-268-6060.

5.2 For Groundwater Takings

If the taking of water is observed to cause any negative impact to other water supplies obtained from any adequate sources that were in use prior to initial issuance of a Permit for this water taking, the Permit Holder shall take such action necessary to make available to those affected, a supply of water equivalent in quantity and quality to their normal takings, or shall compensate such persons for their reasonable costs of so doing, or shall reduce the rate and amount of taking to prevent or alleviate the observed negative impact. Pending permanent restoration of the affected supplies, the Permit Holder shall provide, to those affected, temporary water supplies adequate to meet their normal requirements, or shall compensate such persons for their reasonable costs of doing so.

If permanent interference is caused by the water taking, the Permit Holder shall restore the water supplies of those permanently affected.

6. Director May Amend Permit

The Director may amend this Permit by letter requiring the Permit Holder to suspend or reduce the taking to an amount or threshold specified by the Director in the letter. The suspension or reduction in taking shall be effective immediately and may be revoked at any time upon notification by the Director. This condition does not affect your right to appeal the suspension or reduction in taking to the Environmental Review Tribunal under the *Ontario Water Resources Act* , Section 100 (4).

6.1 Subsection 4 (4) in the Water Taking and Transfer Regulation (Ontario Regulation 387/04) ("Regulation") sets out priorities of water use that the Director will take into account as a last resort to avoid or resolve conflict among water users in the event of a shortage of water resources in an area. The four priority of use categories set out in subsection 4 (2) of the regulation, are as follows:

- Priority 1 – Environment, drinking water, and Farm animal production;
- Priority 2 – Agricultural;
- Priority 3 – Industrial and commercial and other (including water bottling); and
- Priority 4 – Aesthetic

In the event of an urgent shortage of water resources in the Erin area, the Director may amend this Permit prioritize water takings in Priority categories 1 and 2.

The Director may also require the Permit Holder to investigate and resolve interferences that occur between existing water takings, working with the affected water users to identify potential solutions.

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is included to ensure that the conditions in this Permit are complied with and can be enforced.

2. Condition 2 is included to clarify the legal interpretation of aspects of this Permit.

3. Conditions 3 through 6 are included to protect the quality of the natural environment so as to safeguard the ecosystem and human health and foster efficient use and conservation of waters. These conditions allow for the beneficial use of waters while ensuring the fair sharing, conservation and sustainable use of the waters of Ontario. The conditions also specify the water takings that are authorized by this Permit and the scope of this Permit.

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, you may by written notice served upon me, the Environmental Review Tribunal and the Minister of the Environment, Conservation and Parks, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Minister of the Environment, Conservation and Parks will place notice of your appeal on the Environmental Registry. Section 101 of the Ontario Water Resources Act, as amended provides that the Notice requiring a hearing shall state:

1. The portions of the Permit or each term or condition in the Permit in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

In addition to these legal requirements, the Notice should also include:

a. The name of the appellant;
b. The address of the appellant;
c. The Permit to Take Water number;
d. The date of the Permit to Take Water;
e. The name of the Director;
f. The municipality within which the works are located;

This notice must be served upon:

The Secretary Environmental Review Tribunal 655 Bay Street, 15th Floor Toronto ON M5G 1E5 Fax: (416) 326-5370 Email: ERTTribunalsecretary@ontario.ca	*AND*	*The Minister of the Environment, Conservation and Parks 777 Bay Street, 5th Floor Toronto, Ontario M7J 2J3*	*AND*	*The Director, Section 34.1, Ministry of the Environment, Conservation and Parks Floor 1, 135 St Clair Ave W Toronto, ON M4V 1P5*

Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal:

by Telephone at (416) 212-6349 Toll Free 1(866) 448-2248	by Fax at (416) 326-5370 Toll Free 1(844) 213-3474	by e-mail at www.ert.gov.on.ca

This instrument is subject to Section 38 of the ***Environmental Bill of Rights*** *that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek to appeal for 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry, you can determine when the leave to appeal period ends.*

This Permit cancels and replaces Permit Number 3716-8UZMCU, issued on 2012/09/28.

Dated at Toronto this 15th day of November, 2021.

Gregory Meek
Director, Section 34.1
Ontario Water Resources Act, R.S.O. 1990

Schedule A

This Schedule "A" forms part of Permit To Take Water 4788-C5TJTZ, dated November 15, 2021.

1. "Nestle Waters Canada - Erin, Technical Study for Permit to Take Water Renewal Application, signed by Greg Padusenko, P.Eng. P.Geo. and John Piersol, P.Geo. of Golder Associate Ltd., Christopher J. Neville, P.Eng. of S.S. Papadopulos & Associates Inc., Cam Portt, M.Sc. of C. Portt & Associates, and Ken Ursic, M.Sc., of Beacon Environment, dated June 2019.

2. "Nestle Waters of Canada Erin Spring Site, 2020 Annual Monitoring Report", signed by Greg Padusenko, P.Eng., P.Geo, and Kevin MacKenzie, P.Eng. and John Piersol, P.Geo. of Golder Associates Ltd., date March 2021.

3. Technical Memorandum "Low Water Response Plan For Erin TW1-80" prepared by Greg Padusenko and John Piersol of Golder Associates Ltd., dated October 19, 2021, Project No. 20449101 (2000).

APPENDIX B

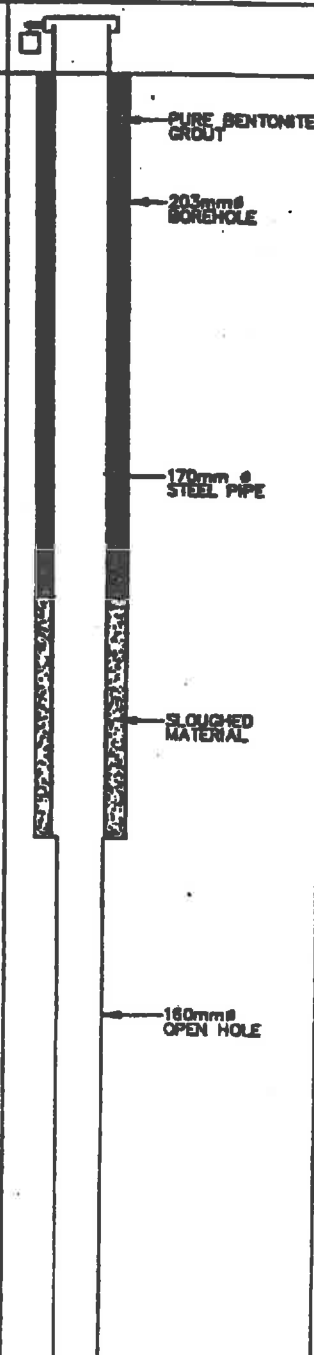
TW1-88 Borehole Log

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-1)

PROJECT NAME:	HILLSBURGH	HOLE DESIGNATION:	TW1-88 (Page 1 of 2)
PROJECT NO.:	2603	DATE COMPLETED:	AUGUST 11, 1988
CLIENT:	IHOR PASHYNSKY	DRILLING METHOD:	WET/AIR ROTARY
LOCATION:	LOT 24, CONCESSION 7, ERIN TOWNSHIP	CRA SUPERVISOR:	S. CROSSMAN

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION m AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	GROUND SURFACE (Approximate)	430.0				
	TOPSOIL—sand, some silt, little gravel, compact, rootlets, humus material, brown, moist	429.5				
2.5	SM (SAND)—some silt, trace of fine gravel, compact, medium grained, poorly graded, brown, moist					
5.0						
7.5	GW (GRAVEL)—some sand, little silt, very dense, well graded, fine to coarse grained, grey-brown water bearing	423.9				
10.0						
	SP (SAND)—trace silt, loose, uniform, medium grained, wet	419.3				
12.5	GW (GRAVEL)—some sand, little silt, dense, well graded, coarse to fine grained, water bearing	418.7				
	ML (TILL) SILT— some sand, some gravel, trace clay, stiff, low to non-plastic, light brown, wet	417.8				
15.0	CL (TILL) CLAY— some silt, little sand, little gravel, stiff, low plastic, grey-brown, moist	415.7				
17.5						
20.0	LST (LIMESTONE) BEDROCK— soft, friable, fractured, light grey — becomes sound, less fractured, hard	410.5				
22.5						
25.0	— Fracture (152mm dia); brown water in return air with lumps of brown silty clay, fracture infilled; water becomes light grey immediately after passing fracture					
27.5	— Fracture (20mm dia.), no change in water colour					
30.0	— light grey, fracture					
32.5						



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-1)

PROJECT NAME: HILLSBURCH
PROJECT NO.: 2603
CLIENT: IHOR PASHYNSKY
LOCATION: LOT 24, CONCESSION 7, ERIN TOWNSHIP

HOLE DESIGNATION: TW1-88 (Page 2 of 2)
DATE COMPLETED: AUGUST 11, 1988
DRILLING METHOD: WET/AIR ROTARY
CRA SUPERVISOR: S. CROSSMAN

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION m AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	LST (LIMESTONE) BEDROCK– hard, sound, some fracturing, massive, grey					
35.0			150mm OPEN HOLE			
37.5						
40.0						
42.5						
45.0						
	Dolostone, dark grey to black	383.4				
47.5						
	– fracture, clay filled 100 to 150mm, brown					
50.0						
52.5						
	– fracture 100 to 150mm, clay filled					
55.0	– fracture 100 to 200mm, unfilled					
57.5	– sound, unfractured, crystalline, basal to concoidal fracture, grey.	372.7				
	END OF HOLE @ 57.30m BGS.					
60.0	NOTE: 1. Casing set to 20.88m BGS and grouted into bedrock using a pure bentonite grout. 2. All elevations are approximate.					
62.5						
65.0						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

Ontario — Ministry of the Environment

Well Record

Regulation 903 Ontario Water Resources Act

Well Tag No. (Place Sticker and/or Print Below): A095193 — A095193

Measurements recorded in: ☐ Metric ☑ Imperial

Page 1 of 1

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
	NESTLE WATERS CANADA		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
101 BROCK ROAD	GUELPH	ON	N1H6H9	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
STATION STREET	ERIN	24	7

County/District/Municipality	City/Town/Village	Province	Postal Code
WELLINGTON	HILLSBURG	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	568362	4847825		

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	To
BROWN	SAND	SILT GRAVEL		0	31
BROWN	GRAVEL		COARSE	31	39
GREY	CLAY TILL	SAND, COBBLES		39	63
LT GREY	LIMESTONE		SOFT	63	83
BROWN	LIMESTONE		HARD	83	103
DK GREY	LIMESTONE			103	128
			ORIGINAL WELL DRILLED 08/11/68		
			ORIGINAL CASING OVERDRILLED &		
			REPLACED		

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0	12	SAND CEMENT	
12	71.5	NEAT CEMENT PRESSURE GROUT	

Results of Well Yield Testing

After test of well yield, water was: C ☐ Clear and sand free ☐ Other, specify

If pumping discontinued, give reason: AIRLIFT REDEVELOP

Pump intake set at (m/ft):

Pumping rate (l/min / GPM):

Duration of pumping: hrs + min

Final water level end of pumping (m/ft):

If flowing give rate (l/min / GPM):

Recommended pump depth (m/ft):

Recommended pump rate (l/min / GPM):

Well production (l/min / GPM): 150+

Disinfected? ☐ Yes N ☐ No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level	36		
1	NA	1	NA
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	
20		20	
25		25	
30		30	
40		40	
50		50	
60		60	

Method of Construction

☐ Cable Tool R☐ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Other, specify ☐ Diamond ☐ Jetting ☐ Driving ☐ Digging

Well Use

☐ Public ☐ Domestic ☐ Livestock ☐ Irrigation ☐ Industrial ☐ Other, specify C ☐ Commercial ☐ Municipal ☐ Test Hole ☐ Cooling & Air Conditioning ☐ Not used ☐ Dewatering ☐ Monitoring

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	To
8	STAINLESS 304	.322	+3	71.5

Status of Well

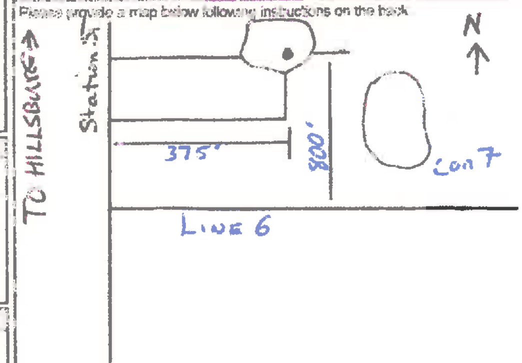
W ☐ Water Supply ☐ Replacement Well ☐ Test Hole ☐ Recharge Well ☐ Dewatering Well ☐ Observation and/or Monitoring Hole ☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality ☐ Abandoned, other, specify ☐ Other, specify

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Water Details

Water found at Depth (m/ft)	Kind of Water
63	F Fresh ☐ Untested ☐ Gas ☐ Other, specify
91	F Fresh ☐ Untested ☐ Gas ☐ Other, specify
103	F Fresh ☐ Untested ☐ Gas ☐ Other, specify

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	71.5	14.5
71.5	128	6.25

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Durl Hopper Ltd.	2844

Business Address (Street Number/Name)	Municipality
RR#7	St Marys

Province	Postal Code	Business E-mail Address
Ont	N4X1C8	hopper@cyg.net

Bus. Telephone No. (inc. area code): 5192717860

Name of Well Technician (Last Name, First Name): HOPPER, SHAWN

Well Technician's Licence No.: 2315

Signature of Technician and/or Contractor / Date Submitted: 12/8/2010

Well owner's information package delivered: ☐ Yes ☑ No

Date Package Delivered: NA

Date Work Completed: 11/22/2010

Ministry Use Only

Audit No. Z115126

Received

Ministry's Copy

APPENDIX C

TW1-88 Water Taking

TABLE C1
TW1-88 DAILY WATER TAKING
BLUE TRITON BRANDS
ERIN, ONTARIO

Date	Volume (US gpd)	Average Flow Rate Over Time Taken (US gpm)	Volume (L/day)	Average Flow Rate Over Time Taken (L/min)
01-Jan-23	10,470	7	39,633	27.5
02-Jan-23	10,500	7	39,747	27.6
03-Jan-23	31,440	22	119,013	82.6
04-Jan-23	20,430	14	77,336	53.7
05-Jan-23	29,960	21	113,411	78.8
06-Jan-23	16,640	12	62,989	43.7
07-Jan-23	27,230	19	103,077	71.6
08-Jan-23	31,460	22	119,089	82.7
09-Jan-23	30,530	21	115,569	80.3
10-Jan-23	32,380	22	122,572	85.1
11-Jan-23	20,970	15	79,380	55.1
12-Jan-23	20,990	15	79,456	55.2
13-Jan-23	31,460	22	119,089	82.7
14-Jan-23	10,490	7	39,709	27.6
15-Jan-23	41,960	29	158,836	110.3
16-Jan-23	16,060	11	60,794	42.2
17-Jan-23	32,690	23	123,745	85.9
18-Jan-23	19,360	13	73,286	50.9
19-Jan-23	31,180	22	118,029	82.0
20-Jan-23	20,980	15	79,418	55.2
21-Jan-23	31,470	22	119,127	82.7
22-Jan-23	20,990	15	79,456	55.2
23-Jan-23	12,980	9	49,135	34.1
24-Jan-23	39,430	27	149,259	103.7
25-Jan-23	10,490	7	39,709	27.6
26-Jan-23	20,980	15	79,418	55.2
27-Jan-23	30,670	21	116,099	80.6
28-Jan-23	21,780	15	82,446	57.3
29-Jan-23	31,480	22	119,165	82.8
30-Jan-23	10,490	7	39,709	27.6
31-Jan-23	41,950	29	158,798	110.3

TABLE C1
TW1-88 DAILY WATER TAKING
BLUE TRITON BRANDS
ERIN, ONTARIO

Date	Volume (US gpd)	Average Flow Rate Over Time Taken (US gpm)	Volume (L/day)	Average Flow Rate Over Time Taken (L/min)
01-Feb-23	28,210	20	106,786	74.2
02-Feb-23	24,120	17	91,304	63.4
03-Feb-23	31,470	22	119,127	82.7
04-Feb-23	20,990	15	79,456	55.2
05-Feb-23	41,980	29	158,912	110.4
06-Feb-23	24,060	17	91,077	63.2
07-Feb-23	37,240	26	140,969	97.9
08-Feb-23	22,530	16	85,285	59.2
09-Feb-23	31,440	22	119,013	82.6
10-Feb-23	31,450	22	119,051	82.7
11-Feb-23	20,980	15	79,418	55.2
12-Feb-23	41,960	29	158,836	110.3
13-Feb-23	31,470	22	119,127	82.7
14-Feb-23	10,490	7	39,709	27.6
15-Feb-23	33,870	24	128,212	89.0
16-Feb-23	18,480	13	69,954	48.6
17-Feb-23	20,960	15	79,342	55.1
18-Feb-23	20,980	15	79,418	55.2
19-Feb-23	0	0	0	0.0
20-Feb-23	10,490	7	39,709	27.6
21-Feb-23	20,970	15	79,380	55.1
22-Feb-23	31,470	22	119,127	82.7
23-Feb-23	41,960	29	158,836	110.3
24-Feb-23	20,990	15	79,456	55.2
25-Feb-23	31,480	22	119,165	82.8
26-Feb-23	41,950	29	158,798	110.3
27-Feb-23	4,930	3	18,662	13.0
28-Feb-23	12,150	8	45,993	31.9

TABLE C1
TW1-88 DAILY WATER TAKING
BLUE TRITON BRANDS
ERIN, ONTARIO

Date	Volume (US gpd)	Average Flow Rate Over Time Taken (US gpm)	Volume (L/day)	Average Flow Rate Over Time Taken (L/min)
01-Mar-23	20,970	15	79,380	55.1
02-Mar-23	31,470	22	119,127	82.7
03-Mar-23	10,490	7	39,709	27.6
04-Mar-23	21,000	15	79,494	55.2
05-Mar-23	41,930	29	158,722	110.2
06-Mar-23	20,980	15	79,418	55.2
07-Mar-23	52,420	36	198,431	137.8
08-Mar-23	31,470	22	119,127	82.7
09-Mar-23	41,950	29	158,798	110.3
10-Mar-23	10,470	7	39,633	27.5
11-Mar-23	31,470	22	119,127	82.7
12-Mar-23	41,950	29	158,798	110.3
13-Mar-23	10,480	7	39,671	27.5
14-Mar-23	41,910	29	158,647	110.2
15-Mar-23	26,640	19	100,843	70.0
16-Mar-23	25,750	18	97,474	67.7
17-Mar-23	20,970	15	79,380	55.1
18-Mar-23	0	0	0	0.0
19-Mar-23	0	0	0	0.0
20-Mar-23	10,470	7	39,633	27.5
21-Mar-23	31,460	22	119,089	82.7
22-Mar-23	31,490	22	119,203	82.8
23-Mar-23	31,440	22	119,013	82.6
24-Mar-23	41,950	29	158,798	110.3
25-Mar-23	10,480	7	39,671	27.5
26-Mar-23	31,470	22	119,127	82.7
27-Mar-23	41,970	29	158,874	110.3
28-Mar-23	10,490	7	39,709	27.6
29-Mar-23	20,390	14	77,185	53.6
30-Mar-23	10,490	7	39,709	27.6
31-Mar-23	0	0	0	0.0

TABLE C1
TW1-88 DAILY WATER TAKING
BLUE TRITON BRANDS
ERIN, ONTARIO

Date	Volume (US gpd)	Average Flow Rate Over Time Taken (US gpm)	Volume (L/day)	Average Flow Rate Over Time Taken (L/min)
01-Apr-23	0	0	0	0.0
02-Apr-23	0	0	0	0.0
03-Apr-23	24,740	17	93,651	65.0
04-Apr-23	0	0	0	0.0
05-Apr-23	34,910	24	132,149	91.8
06-Apr-23	20,990	15	79,456	55.2
07-Apr-23	41,960	29	158,836	110.3
08-Apr-23	31,500	22	119,240	82.8
09-Apr-23	31,470	22	119,127	82.7
10-Apr-23	16,560	12	62,686	43.5
11-Apr-23	56,870	39	215,276	149.5
12-Apr-23	28,400	20	107,506	74.7
13-Apr-23	34,540	24	130,748	90.8
14-Apr-23	31,500	22	119,240	82.8
15-Apr-23	21,000	15	79,494	55.2
16-Apr-23	31,470	22	119,127	82.7
17-Apr-23	20,980	15	79,418	55.2
18-Apr-23	41,990	29	158,949	110.4
19-Apr-23	31,520	22	119,316	82.9
20-Apr-23	31,480	22	119,165	82.8
21-Apr-23	31,480	22	119,165	82.8
22-Apr-23	31,500	22	119,240	82.8
23-Apr-23	41,990	29	158,949	110.4
24-Apr-23	20,990	15	79,456	55.2
25-Apr-23	52,490	36	198,696	138.0
26-Apr-23	42,010	29	159,025	110.4
27-Apr-23	52,490	36	198,696	138.0
28-Apr-23	42,000	29	158,987	110.4
29-Apr-23	20,980	15	79,418	55.2
30-Apr-23	52,480	36	198,658	138.0

TABLE C1
TW1-88 DAILY WATER TAKING
BLUE TRITON BRANDS
ERIN, ONTARIO

Date	Volume (US gpd)	Average Flow Rate Over Time Taken (US gpm)	Volume (L/day)	Average Flow Rate Over Time Taken (L/min)
01-May-23	41,980	29	158,912	110.4
02-May-23	31,480	22	119,165	82.8
03-May-23	41,980	29	158,912	110.4
04-May-23	41,990	29	158,949	110.4
05-May-23	30,080	21	113,865	79.1
06-May-23	32,860	23	124,389	86.4
07-May-23	41,990	29	158,949	110.4
08-May-23	31,470	22	119,127	82.7
09-May-23	10,500	7	39,747	27.6
10-May-23	51,880	36	196,387	136.4
11-May-23	31,500	22	119,240	82.8
12-May-23	31,480	22	119,165	82.8
13-May-23	31,490	22	119,203	82.8
14-May-23	41,950	29	158,798	110.3
15-May-23	21,000	15	79,494	55.2
16-May-23	8,580	6	32,479	22.6
17-May-23	6,820	5	25,816	17.9
18-May-23	10,500	7	39,747	27.6
19-May-23	21,000	15	79,494	55.2
20-May-23	31,470	22	119,127	82.7
21-May-23	52,400	36	198,355	137.7
22-May-23	42,020	29	159,063	110.5
23-May-23	21,010	15	79,531	55.2
24-May-23	10,480	7	39,671	27.5
25-May-23	20,430	14	77,336	53.7
26-May-23	15,930	11	60,302	41.9
27-May-23	26,040	18	98,572	68.5
28-May-23	39,860	28	150,886	104.8
29-May-23	33,440	23	126,584	87.9
30-May-23	0	0	0	0.0
31-May-23	41,980	29	158,912	110.4

TABLE C1
TW1-88 DAILY WATER TAKING
BLUE TRITON BRANDS
ERIN, ONTARIO

Date	Volume (US gpd)	Average Flow Rate Over Time Taken (US gpm)	Volume (L/day)	Average Flow Rate Over Time Taken (L/min)
01-Jun-23	20,990	15	79,456	55.2
02-Jun-23	31,480	22	119,165	82.8
03-Jun-23	20,990	15	79,456	55.2
04-Jun-23	31,460	22	119,089	82.7
05-Jun-23	20,990	15	79,456	55.2
06-Jun-23	41,970	29	158,874	110.3
07-Jun-23	41,960	29	158,836	110.3
08-Jun-23	41,970	29	158,874	110.3
09-Jun-23	23,460	16	88,806	61.7
10-Jun-23	28,920	20	109,474	76.0
11-Jun-23	31,480	22	119,165	82.8
12-Jun-23	31,470	22	119,127	82.7
13-Jun-23	11,410	8	43,192	30.0
14-Jun-23	62,000	43	234,695	163.0
15-Jun-23	32,880	23	124,464	86.4
16-Jun-23	61,510	43	232,841	161.7
17-Jun-23	41,970	29	158,874	110.3
18-Jun-23	62,940	44	238,254	165.5
19-Jun-23	31,490	22	119,203	82.8
20-Jun-23	20,990	15	79,456	55.2
21-Jun-23	20,750	14	78,547	54.5
22-Jun-23	52,110	36	197,258	137.0
23-Jun-23	31,490	22	119,203	82.8
24-Jun-23	20,970	15	79,380	55.1
25-Jun-23	41,940	29	158,760	110.3
26-Jun-23	10,490	7	39,709	27.6
27-Jun-23	51,070	35	193,321	134.3
28-Jun-23	22,150	15	83,847	58.2
29-Jun-23	30,200	21	114,319	79.4
30-Jun-23	32,600	23	123,404	85.7

TABLE C1
TW1-88 DAILY WATER TAKING
BLUE TRITON BRANDS
ERIN, ONTARIO

Date	Volume (US gpd)	Average Flow Rate Over Time Taken (US gpm)	Volume (L/day)	Average Flow Rate Over Time Taken (L/min)
01-Jul-23	31,460	22	119,089	82.7
02-Jul-23	41,630	29	157,587	109.4
03-Jul-23	21,180	15	80,175	55.7
04-Jul-23	41,970	29	158,874	110.3
05-Jul-23	31,460	22	119,089	82.7
06-Jul-23	52,430	36	198,469	137.8
07-Jul-23	52,430	36	198,469	137.8
08-Jul-23	31,470	22	119,127	82.7
09-Jul-23	41,960	29	158,836	110.3
10-Jul-23	31,460	22	119,089	82.7
11-Jul-23	31,480	22	119,165	82.8
12-Jul-23	62,910	44	238,140	165.4
13-Jul-23	52,030	36	196,955	136.8
14-Jul-23	52,790	37	199,832	138.8
15-Jul-23	41,960	29	158,836	110.3
16-Jul-23	62,920	44	238,178	165.4
17-Jul-23	52,470	36	198,620	137.9
18-Jul-23	31,470	22	119,127	82.7
19-Jul-23	62,910	44	238,140	165.4
20-Jul-23	52,440	36	198,507	137.9
21-Jul-23	52,440	36	198,507	137.9
22-Jul-23	50,500	35	191,163	132.8
23-Jul-23	54,350	38	205,737	142.9
24-Jul-23	41,950	29	158,798	110.3
25-Jul-23	62,920	44	238,178	165.4
26-Jul-23	19,480	14	73,740	51.2
27-Jul-23	64,250	45	243,213	168.9
28-Jul-23	41,960	29	158,836	110.3
29-Jul-23	20,970	15	79,380	55.1
30-Jul-23	41,970	29	158,874	110.3
31-Jul-23	21,070	15	79,759	55.4

TABLE C1
TW1-88 DAILY WATER TAKING
BLUE TRITON BRANDS
ERIN, ONTARIO

Date	Volume (US gpd)	Average Flow Rate Over Time Taken (US gpm)	Volume (L/day)	Average Flow Rate Over Time Taken (L/min)
01-Aug-23	41,730	29	157,965	109.7
02-Aug-23	31,470	22	119,127	82.7
03-Aug-23	31,460	22	119,089	82.7
04-Aug-23	20,970	15	79,380	55.1
05-Aug-23	20,980	15	79,418	55.2
06-Aug-23	42,470	29	160,766	111.6
07-Aug-23	62,300	43	235,831	163.8
08-Aug-23	41,790	29	158,192	109.9
09-Aug-23	21,340	15	80,781	56.1
10-Aug-23	41,720	29	157,927	109.7
11-Aug-23	42,810	30	162,053	112.5
12-Aug-23	31,920	22	120,830	83.9
13-Aug-23	41,950	29	158,798	110.3
14-Aug-23	3,050	2	11,546	8.0
15-Aug-23	0	0	0	0.0
16-Aug-23	61,270	43	231,932	161.1
17-Aug-23	31,480	22	119,165	82.8
18-Aug-23	10,490	7	39,709	27.6
19-Aug-23	0	0	0	0.0
20-Aug-23	8,300	6	31,419	21.8
21-Aug-23	13,040	9	49,362	34.3
22-Aug-23	19,830	14	75,065	52.1
23-Aug-23	30,220	21	114,395	79.4
24-Aug-23	21,650	15	81,954	56.9
25-Aug-23	41,970	29	158,874	110.3
26-Aug-23	41,970	29	158,874	110.3
27-Aug-23	48,890	34	185,069	128.5
28-Aug-23	48,890	34	185,069	128.5
29-Aug-23	56,280	39	213,043	147.9
30-Aug-23	56,280	39	213,043	147.9
31-Aug-23	41,980	29	158,912	110.4

TABLE C1
TW1-88 DAILY WATER TAKING
BLUE TRITON BRANDS
ERIN, ONTARIO

Date	Volume (US gpd)	Average Flow Rate Over Time Taken (US gpm)	Volume (L/day)	Average Flow Rate Over Time Taken (L/min)
01-Sep-23	41,990	29	158,949	110.4
02-Sep-23	41,990	29	158,949	110.4
03-Sep-23	41,970	29	158,874	110.3
04-Sep-23	41,970	29	158,874	110.3
05-Sep-23	41,950	29	158,798	110.3
06-Sep-23	41,950	29	158,798	110.3
07-Sep-23	31,490	22	119,203	82.8
08-Sep-23	31,460	22	119,089	82.7
09-Sep-23	34,090	24	129,045	89.6
10-Sep-23	48,970	34	185,372	128.7
11-Sep-23	48,970	34	185,372	128.7
12-Sep-23	41,970	29	158,874	110.3
13-Sep-23	51,890	36	196,425	136.4
14-Sep-23	51,890	36	196,425	136.4
15-Sep-23	31,490	22	119,203	82.8
16-Sep-23	31,490	22	119,203	82.8
17-Sep-23	41,950	29	158,798	110.3
18-Sep-23	41,960	29	158,836	110.3
19-Sep-23	41,960	29	158,836	110.3
20-Sep-23	31,480	22	119,165	82.8
21-Sep-23	40,650	28	153,877	106.9
22-Sep-23	40,650	28	153,877	106.9
23-Sep-23	31,490	22	119,203	82.8
24-Sep-23	48,030	33	181,813	126.3
25-Sep-23	48,030	33	181,813	126.3
26-Sep-23	41,980	29	158,912	110.4
27-Sep-23	41,980	29	158,912	110.4
28-Sep-23	41,970	29	158,874	110.3
29-Sep-23	41,970	29	158,874	110.3
30-Sep-23	32,010	22	121,171	84.1

TABLE C1
TW1-88 DAILY WATER TAKING
BLUE TRITON BRANDS
ERIN, ONTARIO

Date	Volume (US gpd)	Average Flow Rate Over Time Taken (US gpm)	Volume (L/day)	Average Flow Rate Over Time Taken (L/min)
01-Oct-23	32,480	23	122,950	85.4
02-Oct-23	51,790	36	196,046	136.1
03-Oct-23	51,790	36	196,046	136.1
04-Oct-23	38,560	27	145,965	101.4
05-Oct-23	39,300	27	148,767	103.3
06-Oct-23	62,920	44	238,178	165.4
07-Oct-23	62,920	44	238,178	165.4
08-Oct-23	41,950	29	158,798	110.3
09-Oct-23	41,950	29	158,798	110.3
10-Oct-23	37,450	26	141,764	98.4
11-Oct-23	41,970	29	158,874	110.3
12-Oct-23	31,480	22	119,165	82.8
13-Oct-23	73,140	51	276,865	192.3
14-Oct-23	79,700	55	301,697	209.5
15-Oct-23	43,810	30	165,839	115.2
16-Oct-23	12,440	9	47,091	32.7
17-Oct-23	9,620	7	36,416	25.3
18-Oct-23	61,150	42	231,478	160.7
19-Oct-23	61,150	42	231,478	160.7
20-Oct-23	30,900	21	116,969	81.2
21-Oct-23	30,900	21	116,969	81.2
22-Oct-23	9,920	7	37,551	26.1
23-Oct-23	10,490	7	39,709	27.6
24-Oct-23	30,060	21	113,789	79.0
25-Oct-23	30,060	21	113,789	79.0
26-Oct-23	19,770	14	74,838	52.0
27-Oct-23	42,450	29	160,691	111.6
28-Oct-23	31,910	22	120,792	83.9
29-Oct-23	51,860	36	196,311	136.3
30-Oct-23	31,490	22	119,203	82.8
31-Oct-23	42,430	29	160,615	111.5

TABLE C1
TW1-88 DAILY WATER TAKING
BLUE TRITON BRANDS
ERIN, ONTARIO

Date	Volume (US gpd)	Average Flow Rate Over Time Taken (US gpm)	Volume (L/day)	Average Flow Rate Over Time Taken (L/min)
01-Nov-23	39,010	27	147,669	102.5
02-Nov-23	44,200	31	167,315	116.2
03-Nov-23	10,490	7	39,709	27.6
04-Nov-23	31,470	22	119,127	82.7
05-Nov-23	37,960	26	143,694	99.8
06-Nov-23	24,900	17	94,257	65.5
07-Nov-23	39,970	28	151,303	105.1
08-Nov-23	12,370	9	46,826	32.5
09-Nov-23	37,340	26	141,347	98.2
10-Nov-23	28,550	20	108,073	75.1
11-Nov-23	28,780	20	108,944	75.7
12-Nov-23	22,490	16	85,134	59.1
13-Nov-23	24,340	17	92,137	64.0
14-Nov-23	26,500	18	100,313	69.7
15-Nov-23	30,930	21	117,083	81.3
16-Nov-23	21,680	15	82,068	57.0
17-Nov-23	20,280	14	76,768	53.3
18-Nov-23	20,980	15	79,418	55.2
19-Nov-23	25,530	18	96,642	67.1
20-Nov-23	30,400	21	115,076	79.9
21-Nov-23	7,040	5	26,649	18.5
22-Nov-23	41,380	29	156,640	108.8
23-Nov-23	20,990	15	79,456	55.2
24-Nov-23	20,970	15	79,380	55.1
25-Nov-23	21,010	15	79,531	55.2
26-Nov-23	19,550	14	74,005	51.4
27-Nov-23	23,590	16	89,298	62.0
28-Nov-23	9,150	6	34,637	24.1
29-Nov-23	41,970	29	158,874	110.3
30-Nov-23	31,520	22	119,316	82.9

TABLE C1
TW1-88 DAILY WATER TAKING
BLUE TRITON BRANDS
ERIN, ONTARIO

Date	Volume (US gpd)	Average Flow Rate Over Time Taken (US gpm)	Volume (L/day)	Average Flow Rate Over Time Taken (L/min)
01-Dec-23	20,980	15	79,418	55.2
02-Dec-23	21,000	15	79,494	55.2
03-Dec-23	34,440	24	130,370	90.5
04-Dec-23	28,530	20	107,998	75.0
05-Dec-23	27,140	19	102,736	71.3
06-Dec-23	14,840	10	56,175	39.0
07-Dec-23	21,010	15	79,531	55.2
08-Dec-23	21,010	15	79,531	55.2
09-Dec-23	21,000	15	79,494	55.2
10-Dec-23	20,990	15	79,456	55.2
11-Dec-23	20,990	15	79,456	55.2
12-Dec-23	21,010	15	79,531	55.2
13-Dec-23	21,000	15	79,494	55.2
14-Dec-23	21,010	15	79,531	55.2
15-Dec-23	22,600	16	85,550	59.4
16-Dec-23	8,820	6	33,387	23.2
17-Dec-23	20,990	15	79,456	55.2
18-Dec-23	10,490	7	39,709	27.6
19-Dec-23	23,550	16	89,146	61.9
20-Dec-23	11,530	8	43,646	30.3
21-Dec-23	17,320	12	65,563	45.5
22-Dec-23	12,030	8	45,538	31.6
23-Dec-23	19,420	13	73,513	51.1
24-Dec-23	10,490	7	39,709	27.6
25-Dec-23	0	0	0	0.0
26-Dec-23	0	0	0	0.0
27-Dec-23	22,600	16	85,550	59.4
28-Dec-23	29,150	20	110,345	76.6
29-Dec-23	20,970	15	79,380	55.1
30-Dec-23	20,950	15	79,304	55.1
31-Dec-23	31,480	22	119,165	82.8

Notes:
1. All volumes measured with a flow meter and recorded on a datalogger.

APPENDIX D

Groundwater Level Monitoring

TABLE D1

Manual Groundwater Elevations (masl)

2023 Annual Report

DATE	Water Level Elevation (masl)							
	TW1-88	MW1-18A	MW1-18B	MW3A-00	MW3B-00	MW5A-05	MW5B-05	MW6A-05
22/3/23	422.37	426.72	426.92	428.37	428.28	423.49	428.54	421.54
22/6/23	422.57	426.74	426.92	428.44	428.33	423.36	428.63	421.68
20/9/23	422.73	426.74	426.92	428.37	428.28	423.52	428.54	421.88
20/12/23	422.78	426.69	426.90	428.36	428.28	423.57	428.53	421.92

TABLE D1

Manual Groundwater Elevations (masl)

2023 Annual Report

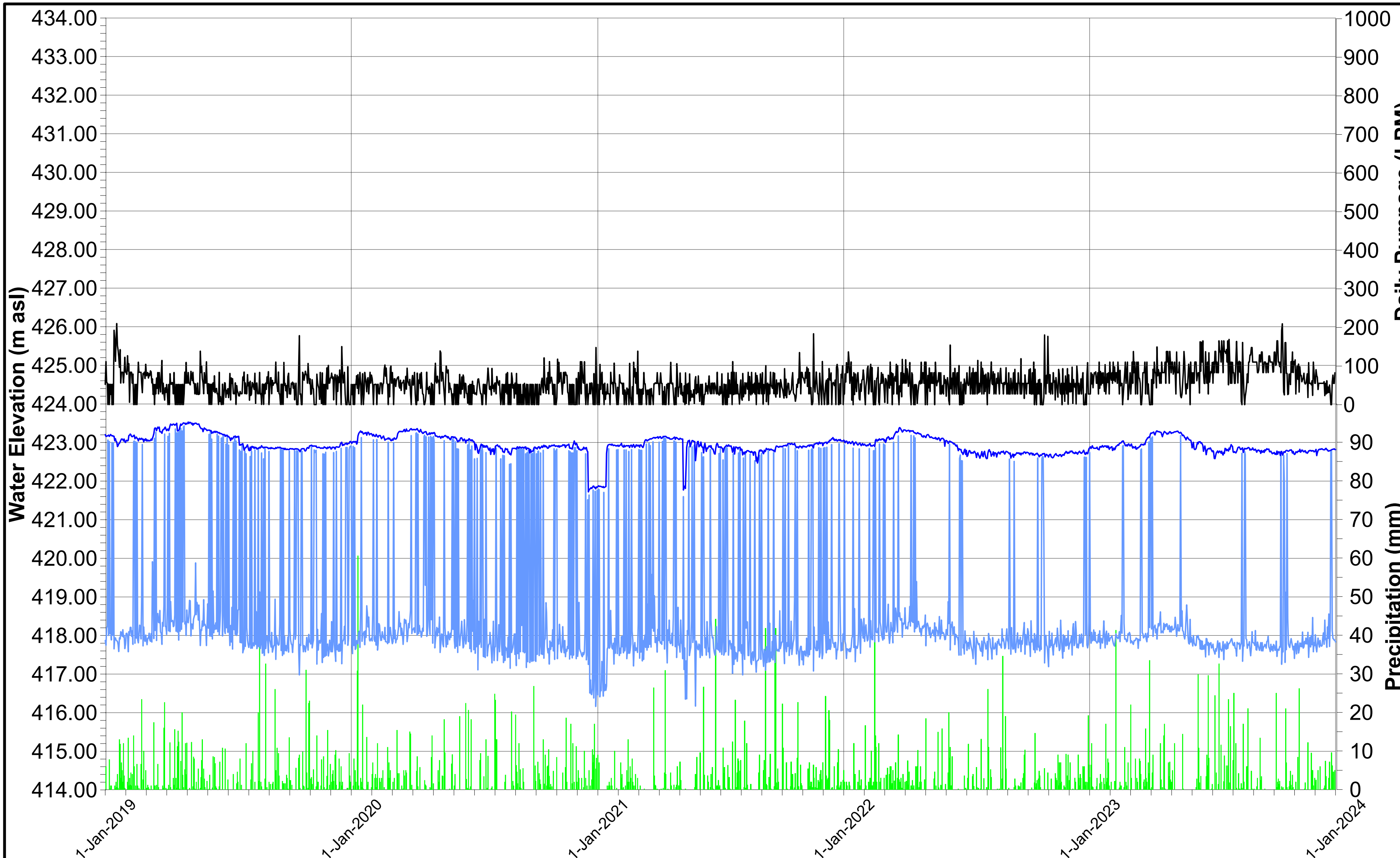
DATE	Water Level Elevation (masl)							
	MW6B-05	MW11A-08	MW11B-08	MW12A-08	MW12B-08	MW13A-20-7	MW13B-20-07	MW14A-20-7
22/3/23	428.29	426.83	428.49	424.75	DRY	425.19	433.11	420.43
22/6/23	428.32	426.89	428.58	424.70	431.90	424.42	433.44	419.37
20/9/23	428.23	426.88	428.46	424.71	431.31	425.16	433.16	420.05
20/12/23	428.22	426.87	428.43	424.69	431.09	425.67	433.03	420.46

TABLE D1

Manual Groundwater Elevations (masl)

2023 Annual Report

DATE	Water Level Elevation (masl)	
	MW14B-20-06	D3
22/3/23	428.51	423.99
22/6/23	428.44	424.06
20/9/23	428.43	424.51
20/12/23	428.44	424.71



DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

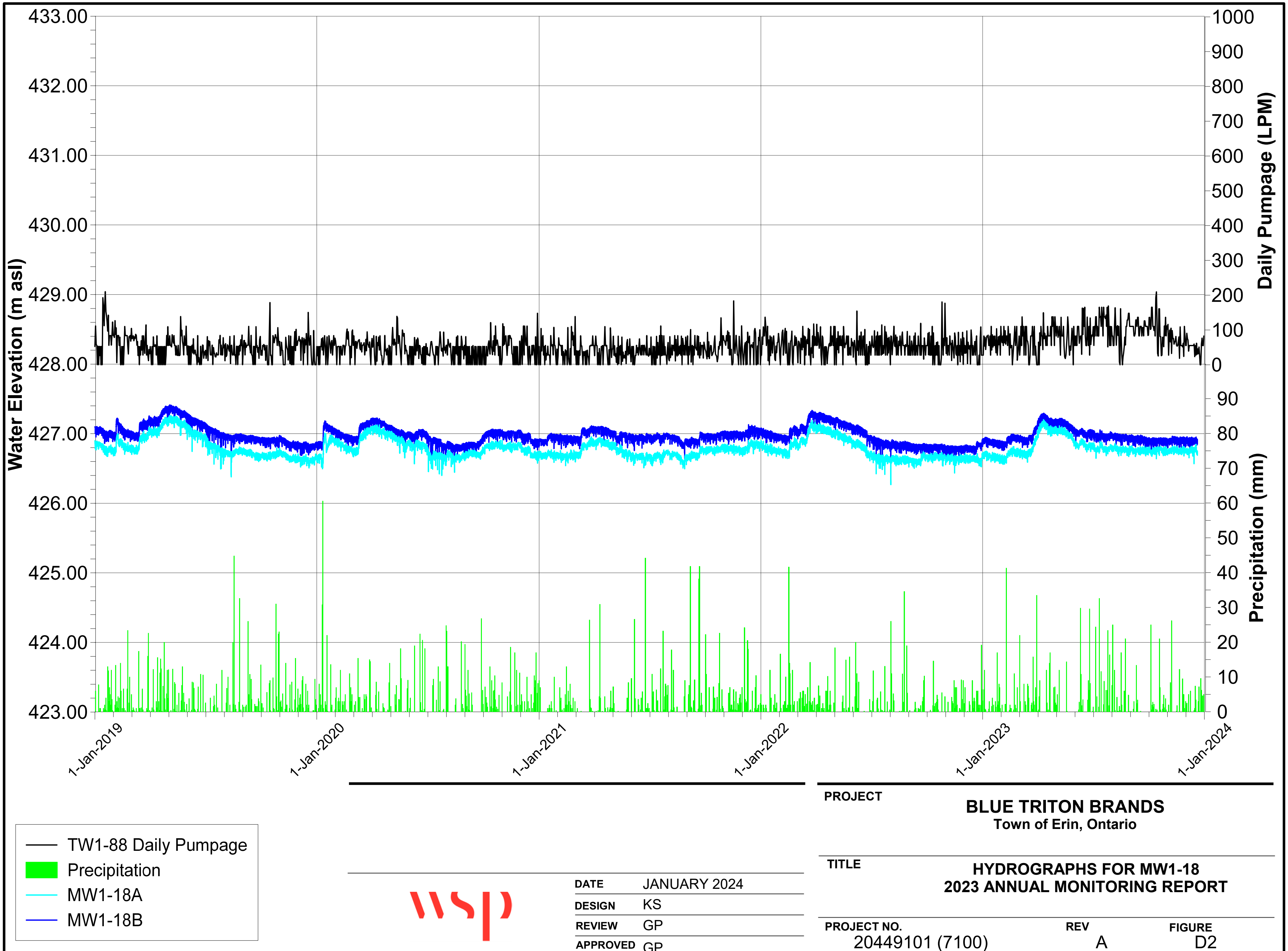
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

HYDROGRAPH FOR TW1-88
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	D1



DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

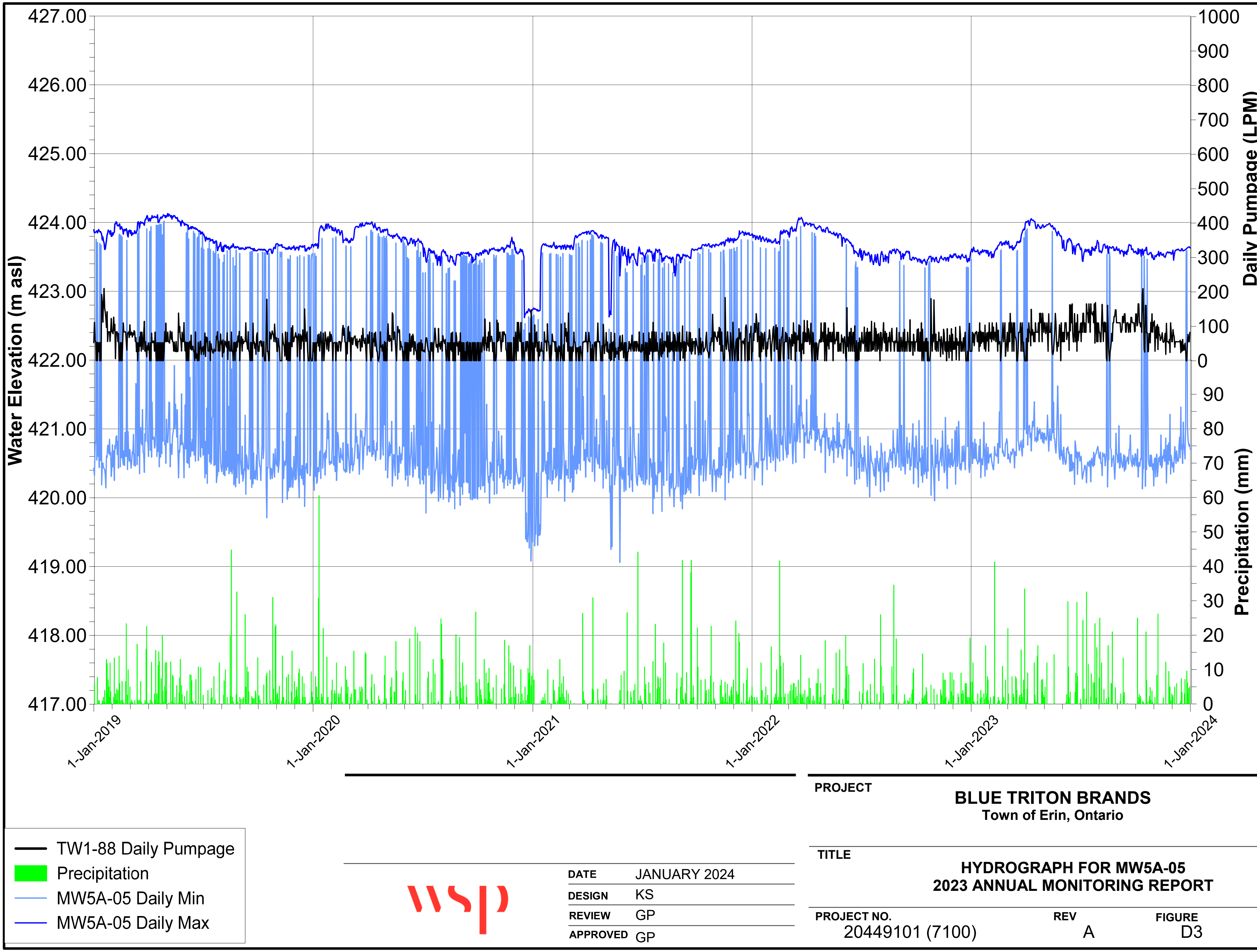
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

HYDROGRAPHS FOR MW1-18
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	D2



wsp

DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

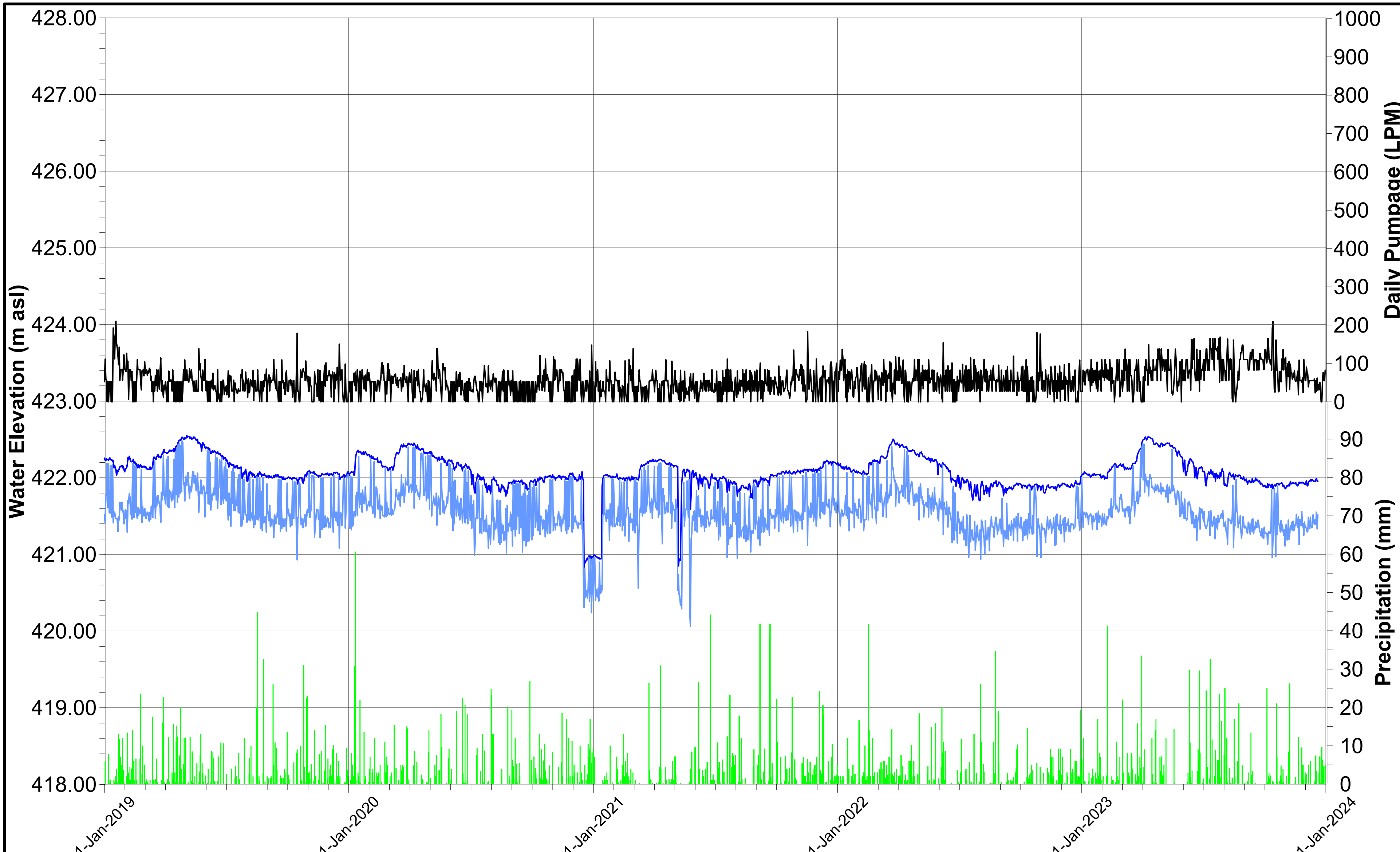
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

HYDROGRAPH FOR MW5A-05
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	D3



DATE	JANUARY 2024
DESIGN	AB
REVIEW	GP
APPROVED	GP

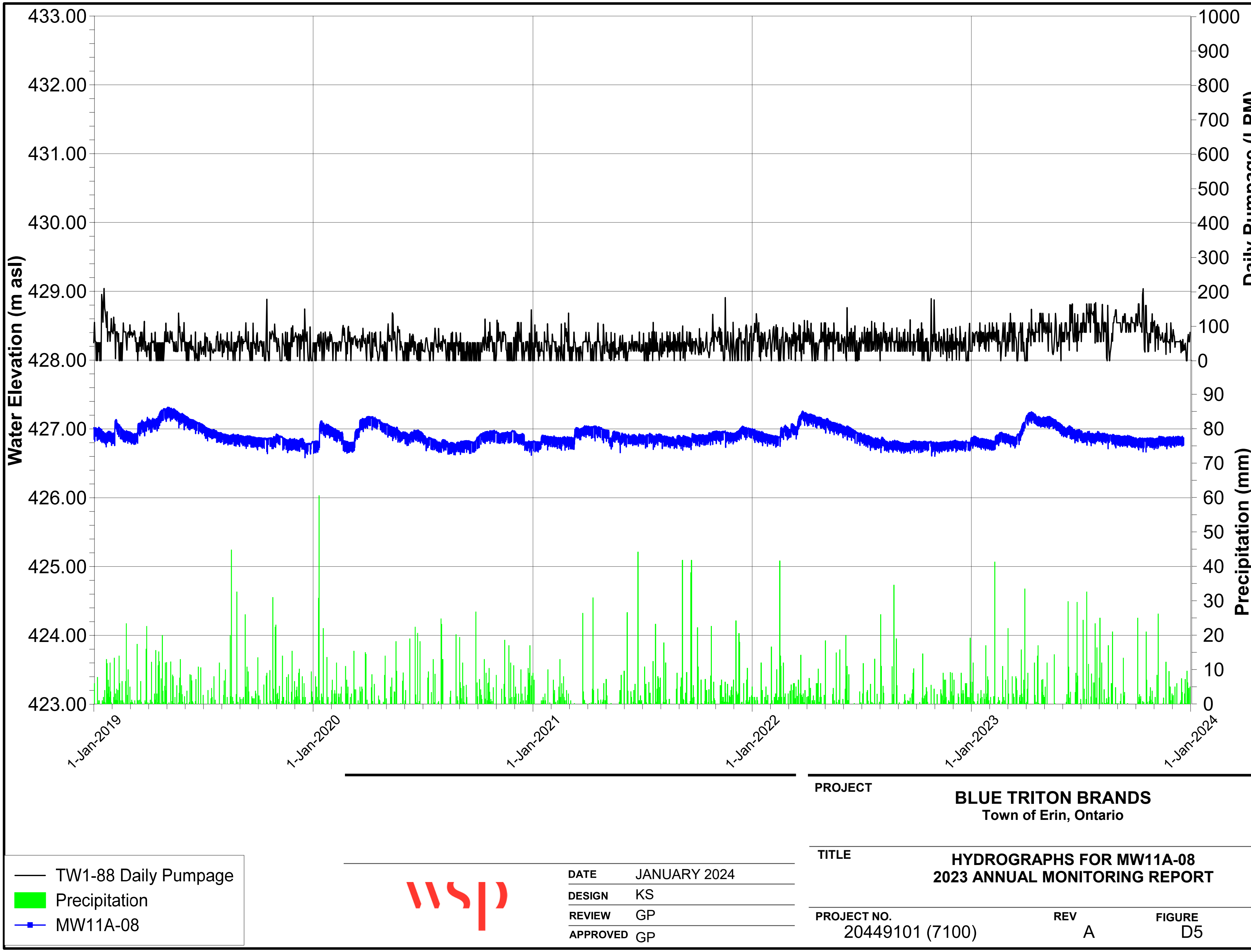
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

HYDROGRAPH FOR MW6A-05
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	D4



DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

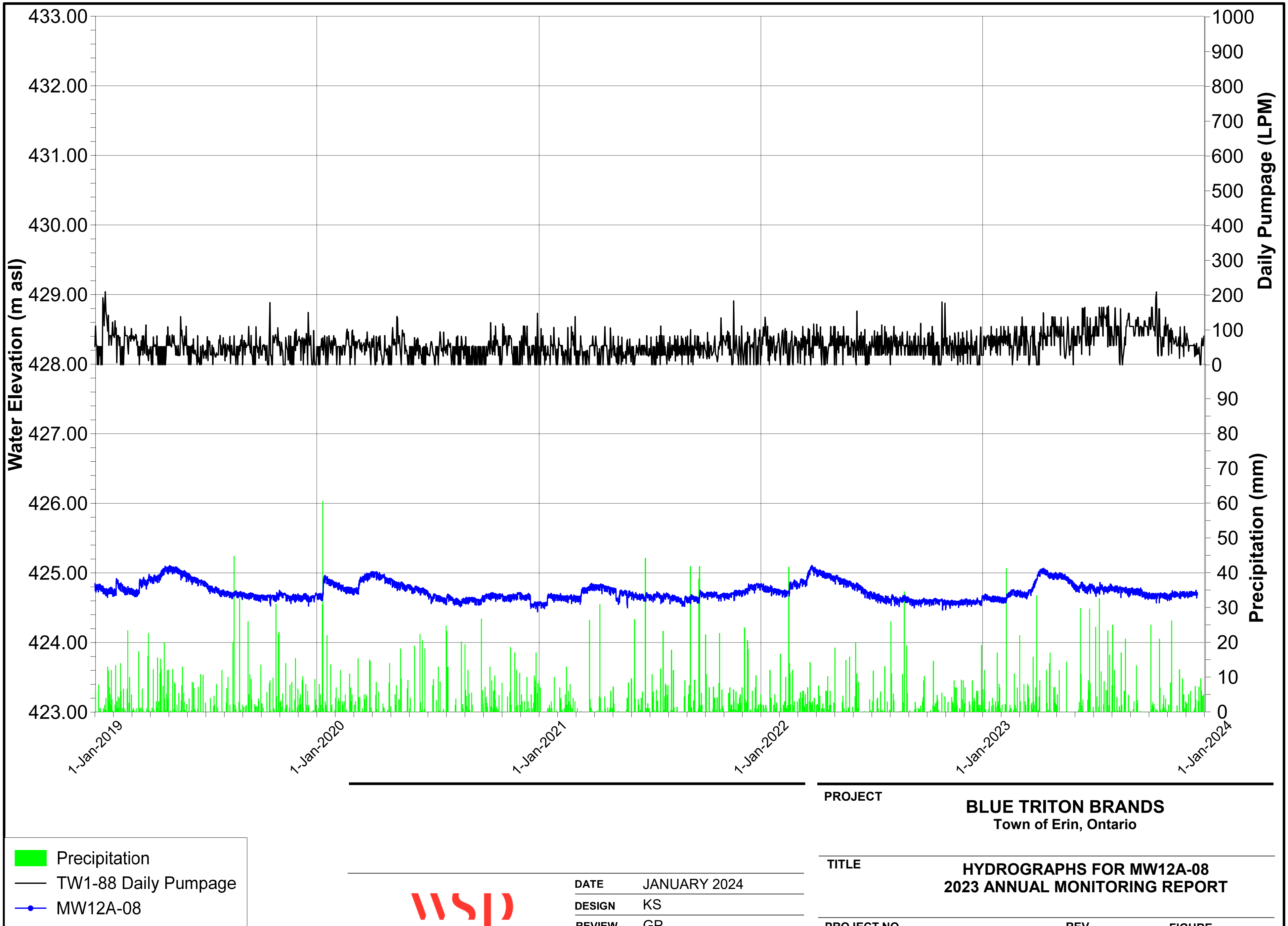
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

HYDROGRAPHS FOR MW11A-08
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	D5



DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

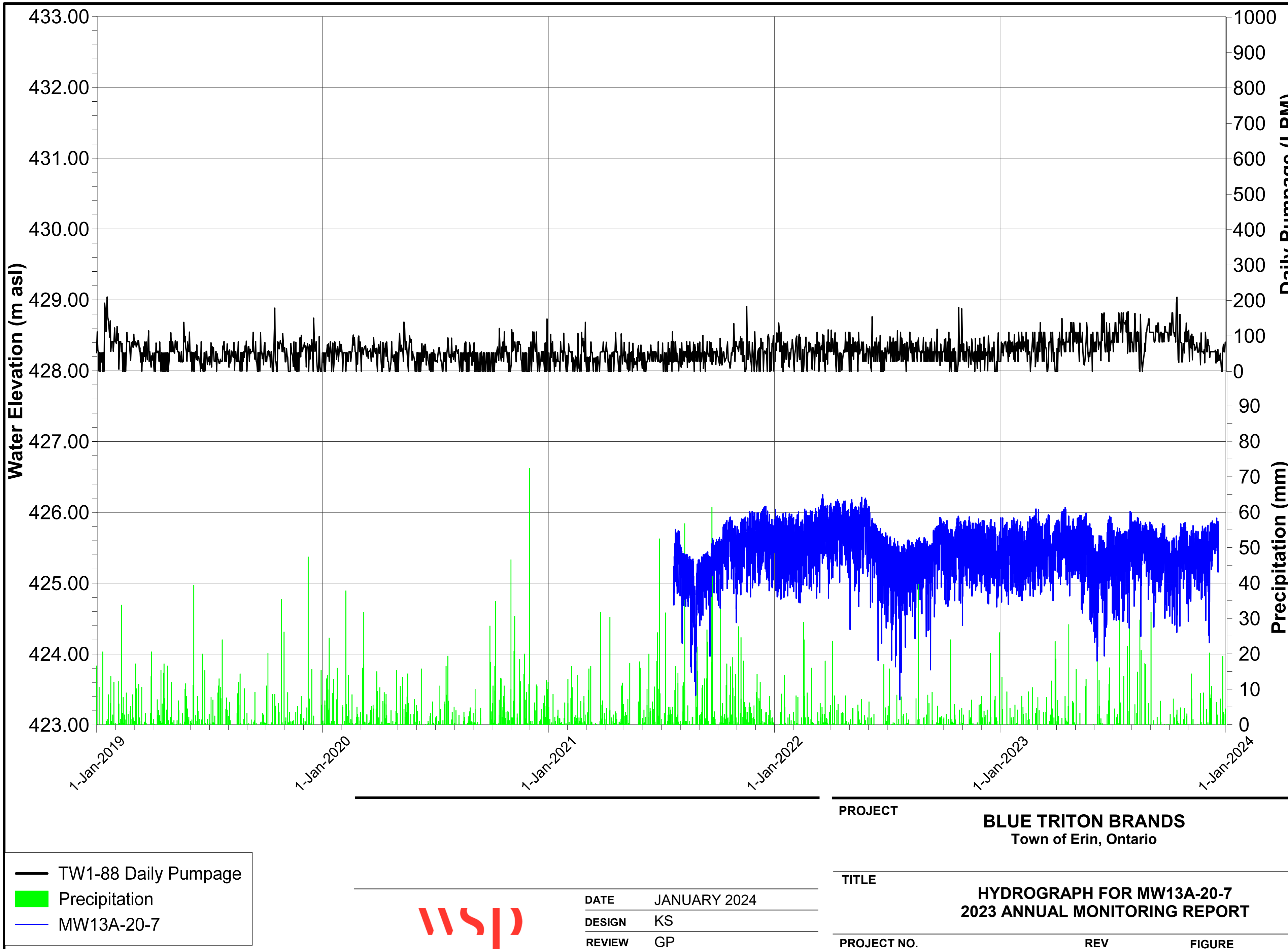
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

HYDROGRAPHS FOR MW12A-08
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	D6



DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

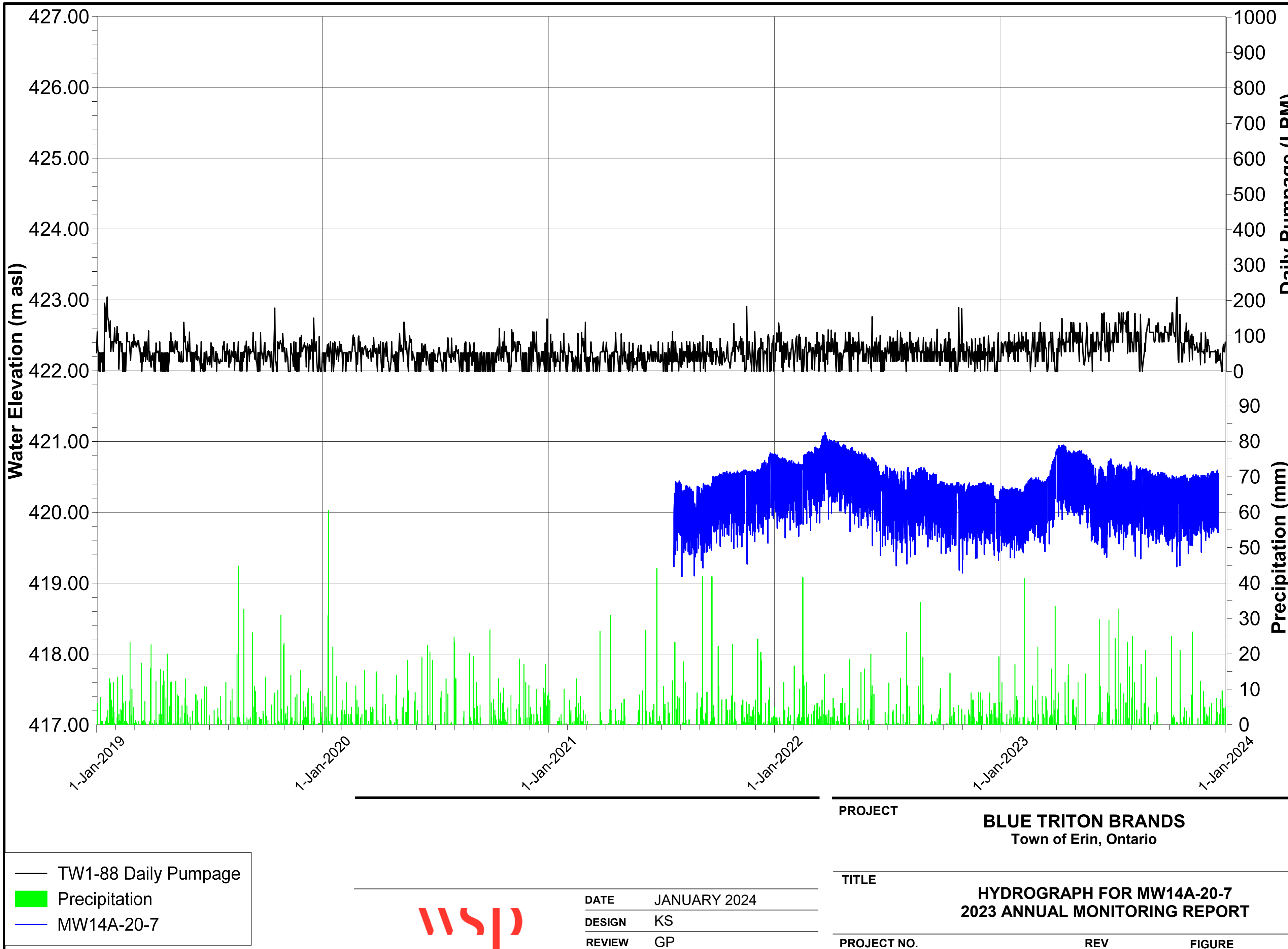
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

HYDROGRAPH FOR MW13A-20-7
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	D7



DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

PROJECT

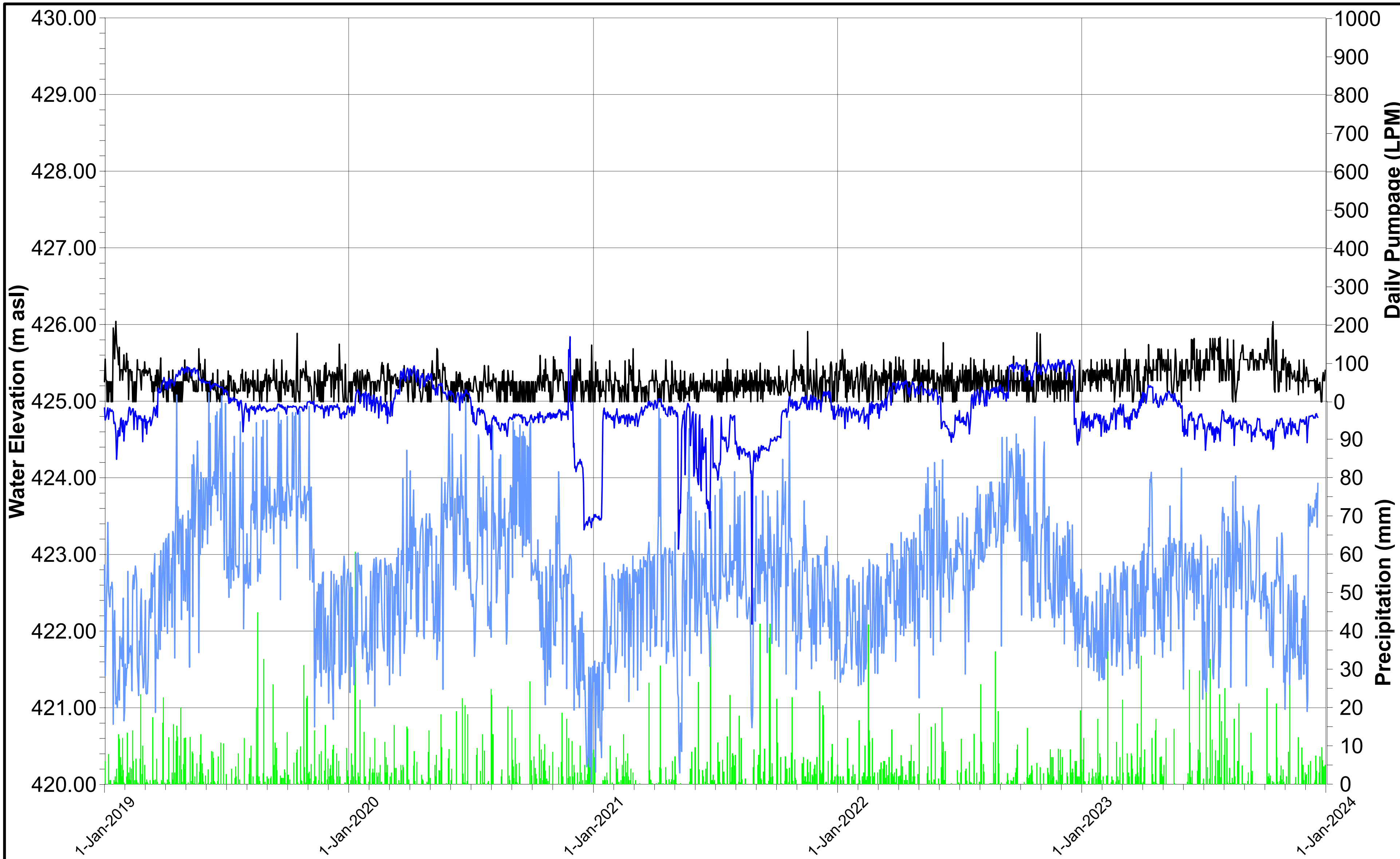
BLUE TRITON BRANDS

Town of Erin, Ontario

TITLE

HYDROGRAPH FOR MW14A-20-7
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	D8



wsp

DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

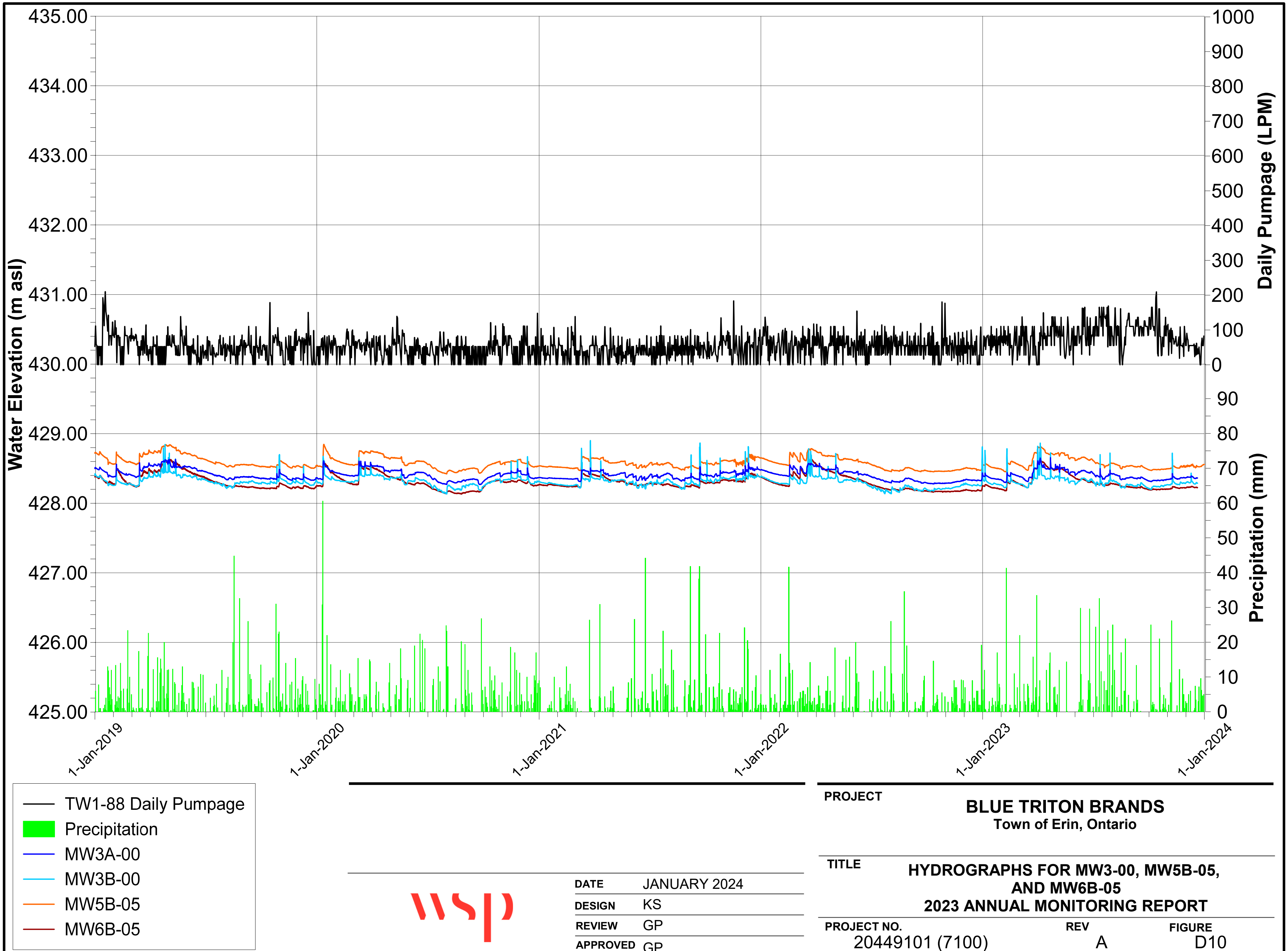
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

HYDROGRAPHS FOR D3
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	D9



DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

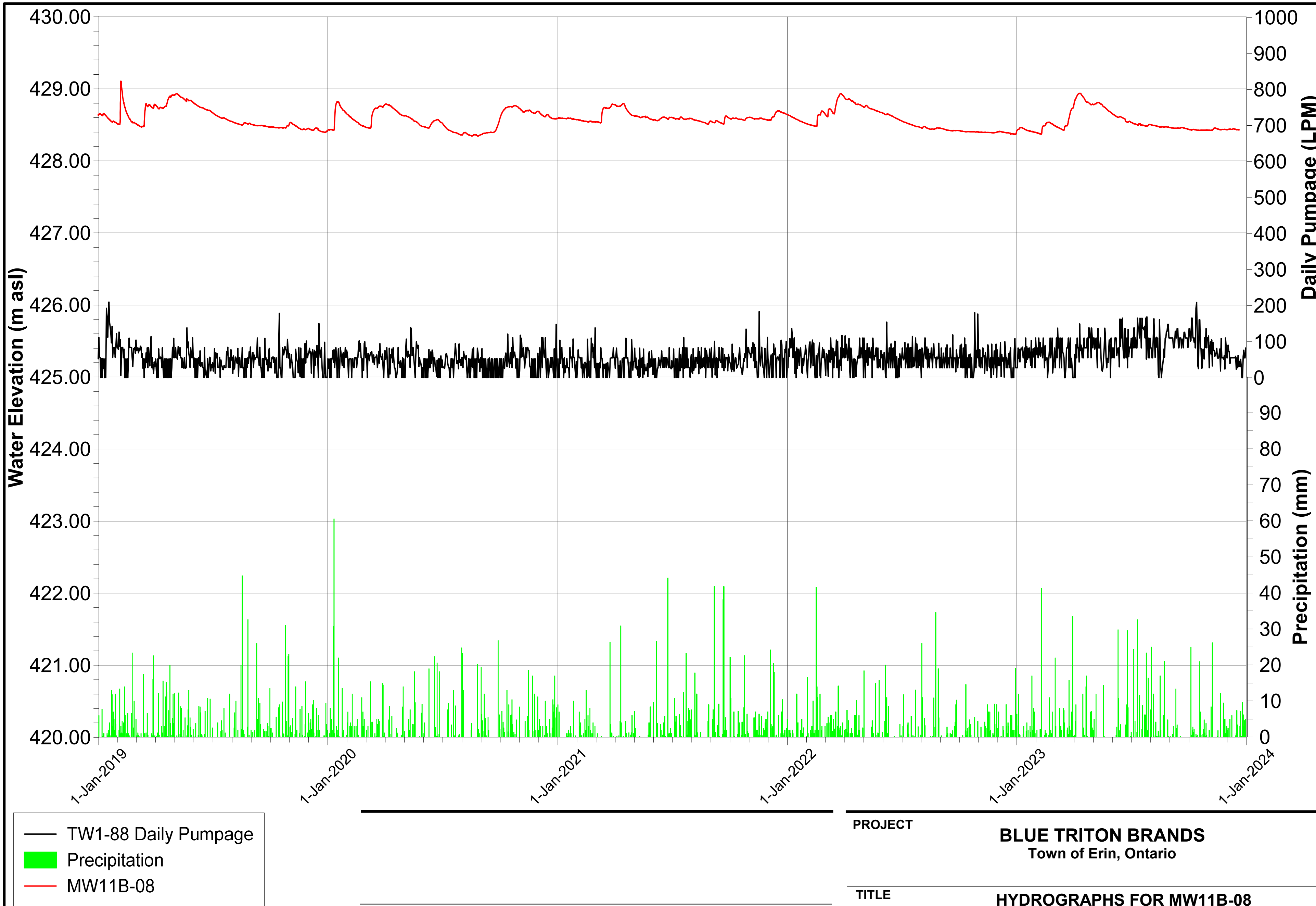
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

HYDROGRAPHS FOR MW3-00, MW5B-05, AND MW6B-05
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	D10



DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

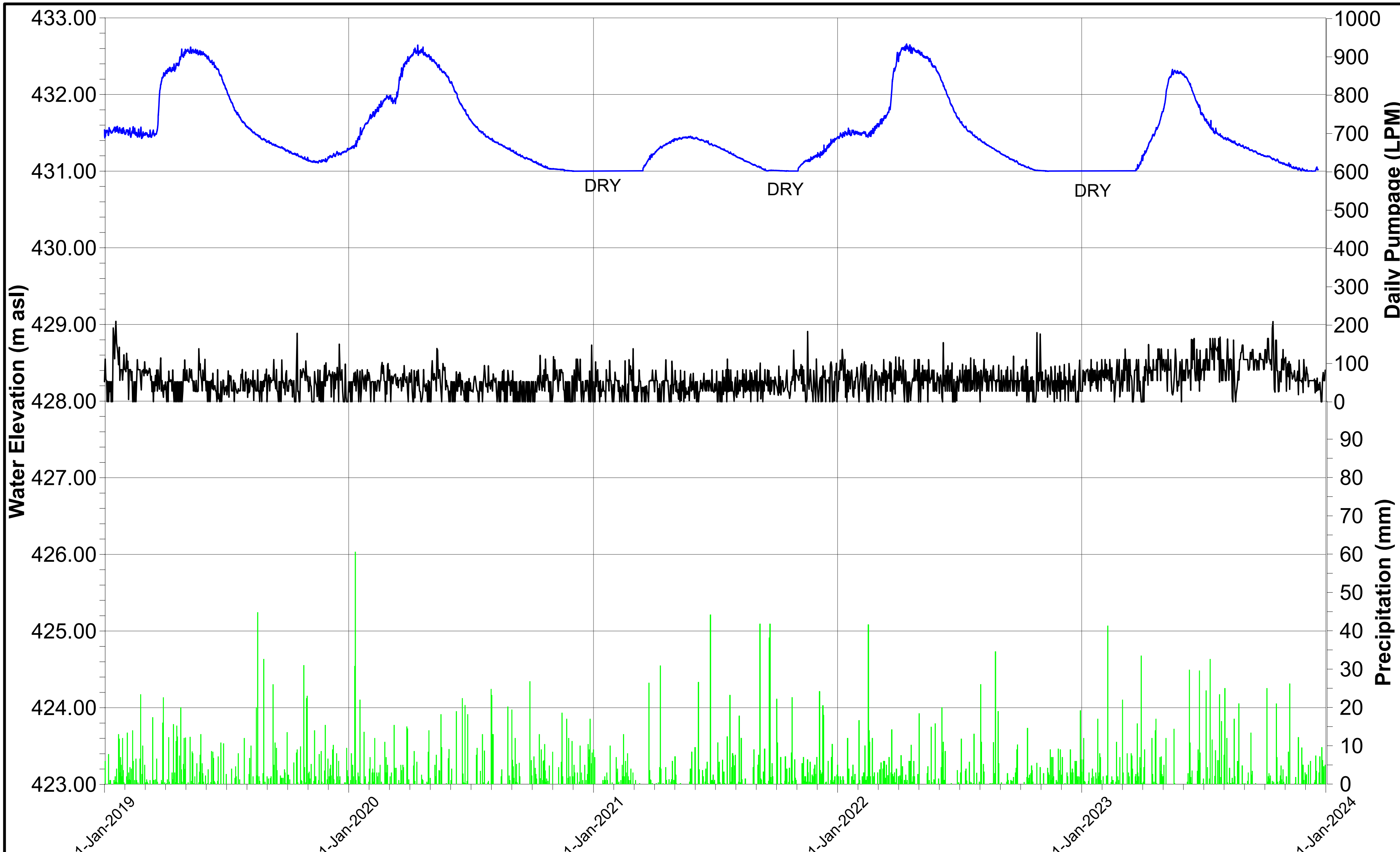
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

HYDROGRAPHS FOR MW11B-08
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	D11



wsp

DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

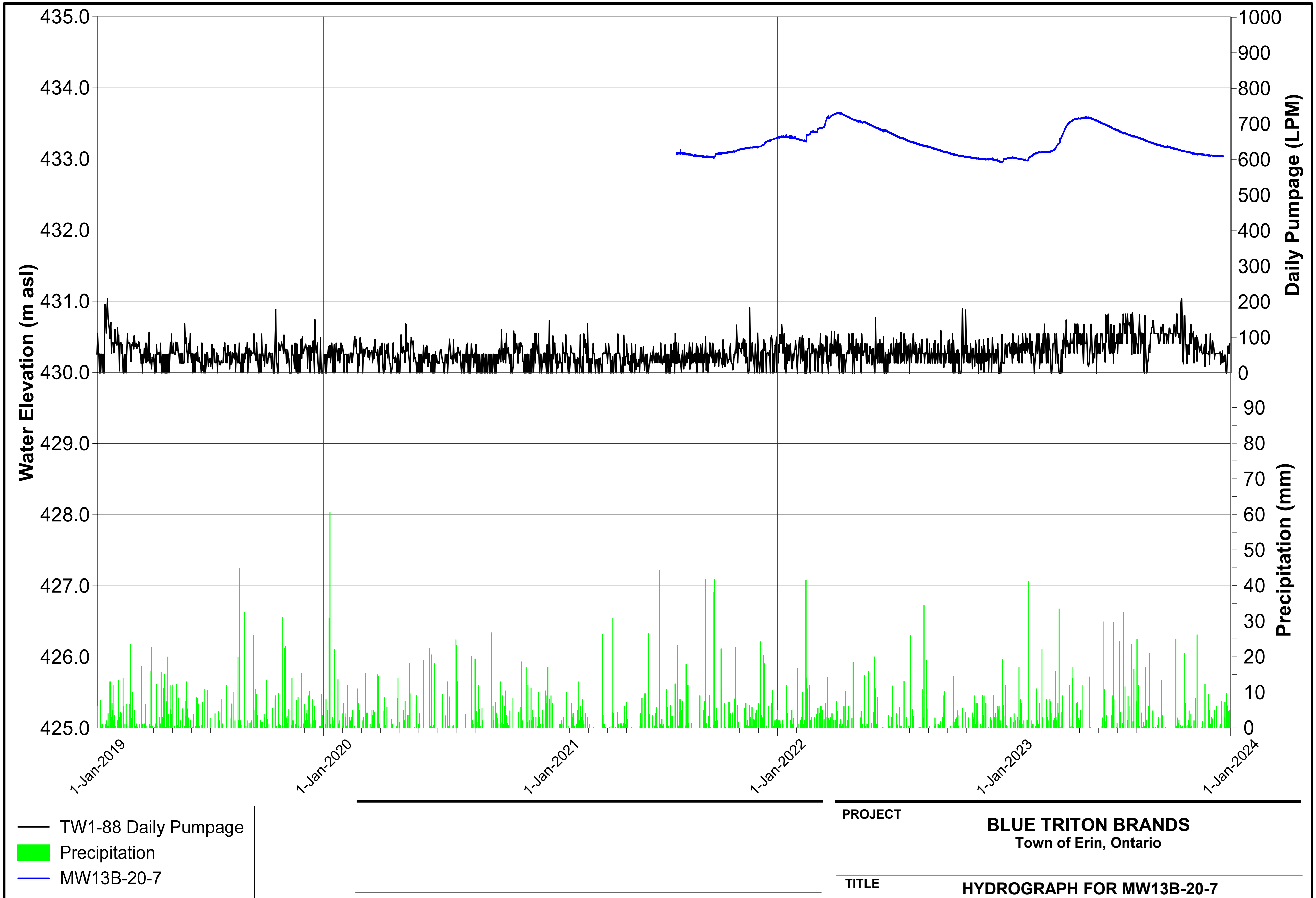
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

HYDROGRAPHS FOR MW12B-08
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	D12

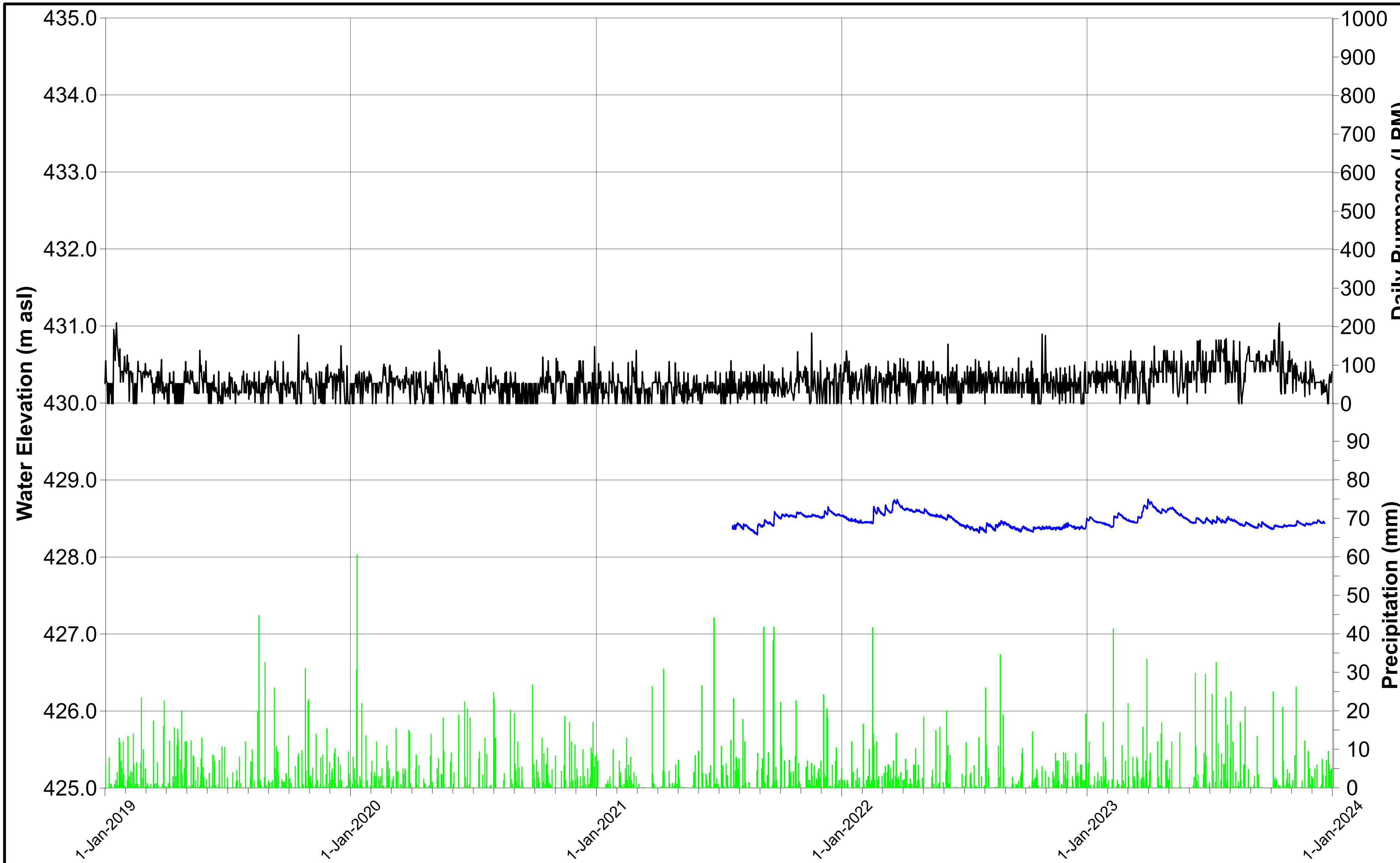


DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

PROJECT
BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE
HYDROGRAPH FOR MW13B-20-7
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	D13

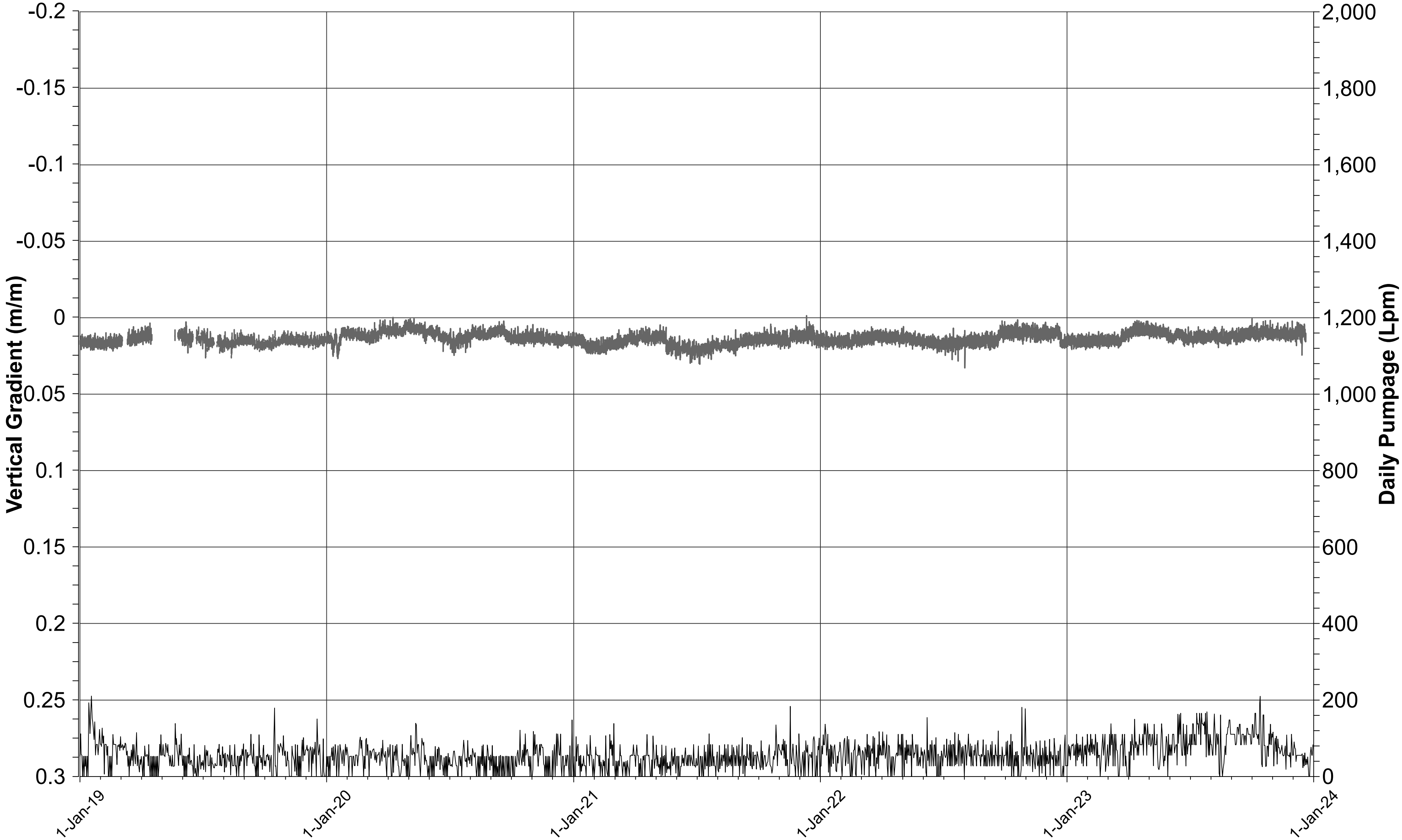


DATE JANUARY 2024
DESIGN KS
REVIEW GP
APPROVED GP

PROJECT
BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE
HYDROGRAPH FOR MW14B-20-6
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	D14

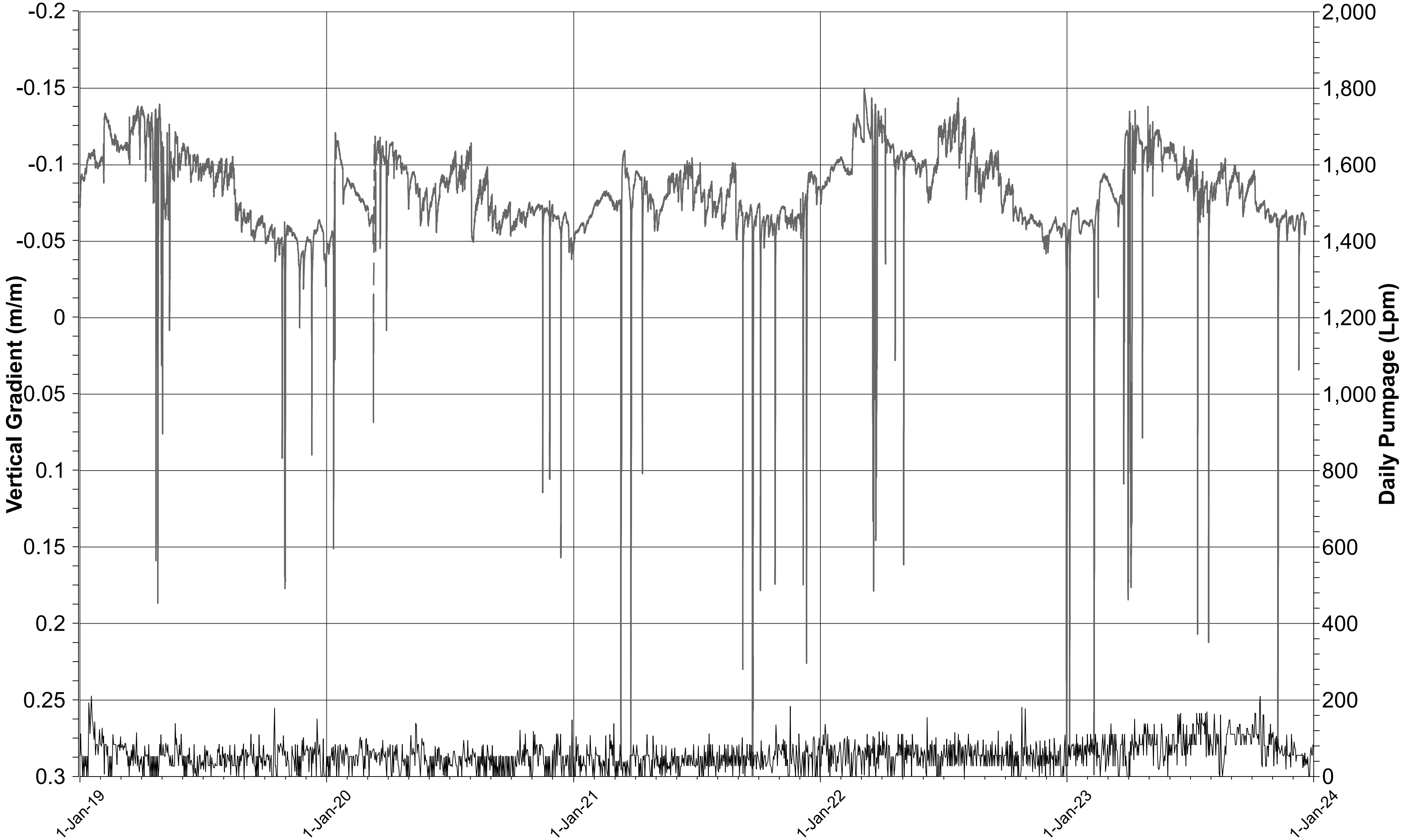


DATE	JANUARY 2024
DESIGN	AB
REVIEW	GP
APPROVED	GP

PROJECT
BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE
MW1-18 VERTICAL GRADIENT
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	D15



DATE	JANUARY 2024
DESIGN	AB
REVIEW	GP
APPROVED	GP

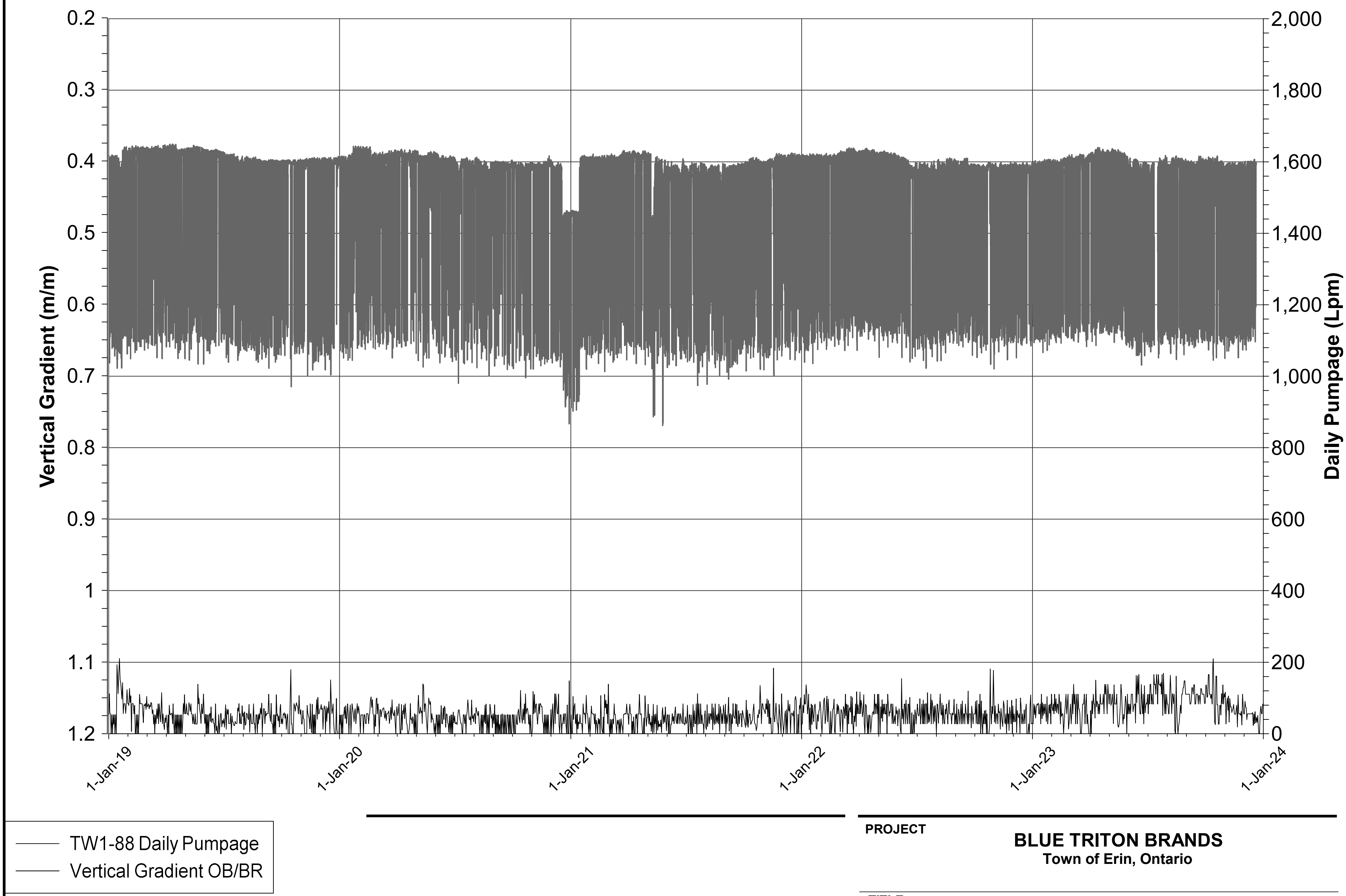
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

MW3-00 VERTICAL GRADIENT
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	D16



DATE	JANUARY 2024
DESIGN	AB
REVIEW	GP
APPROVED	GP

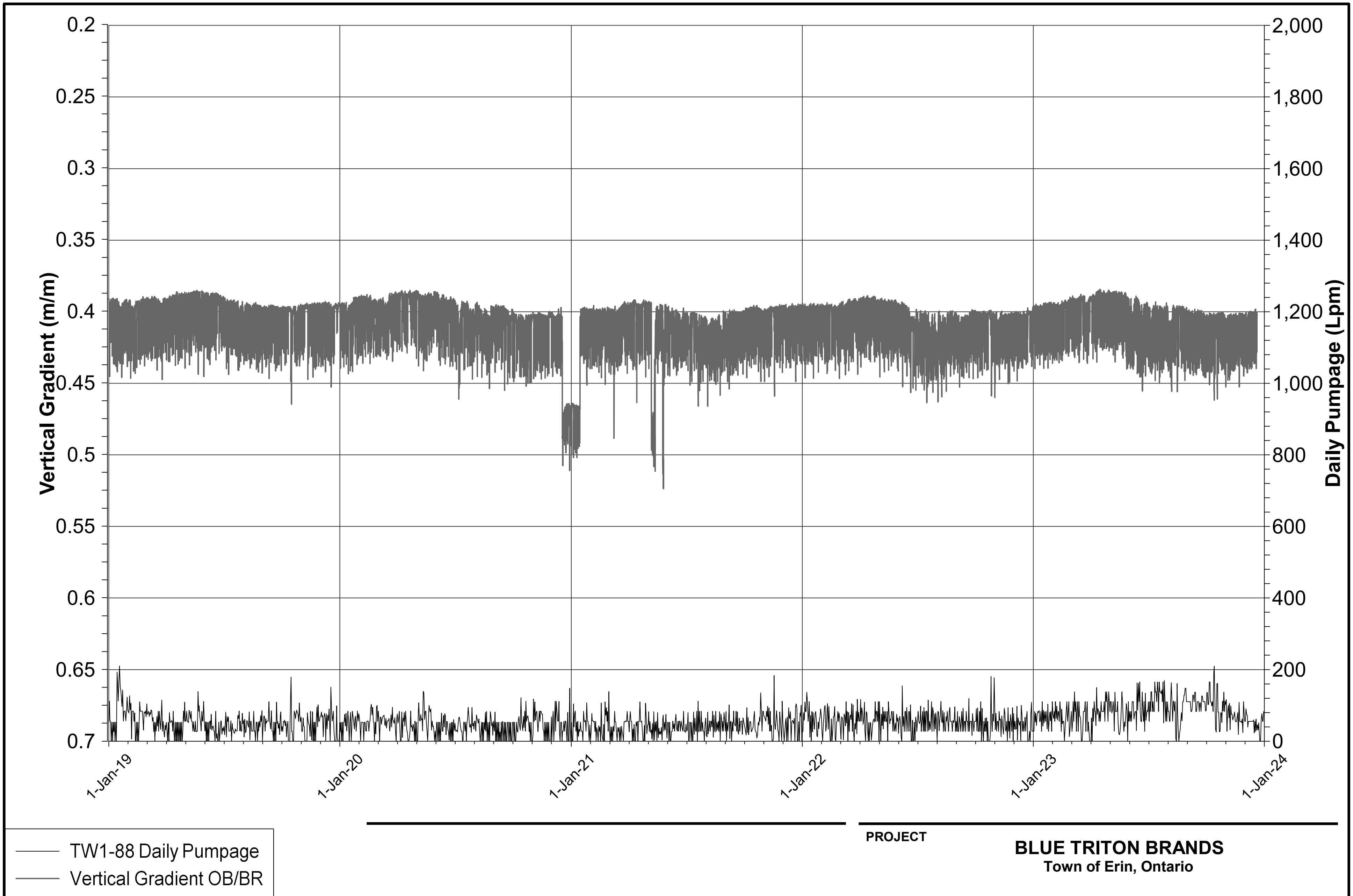
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

MW5-05 VERTICAL GRADIENT
2023 ANNUAL MONITORING REPORT

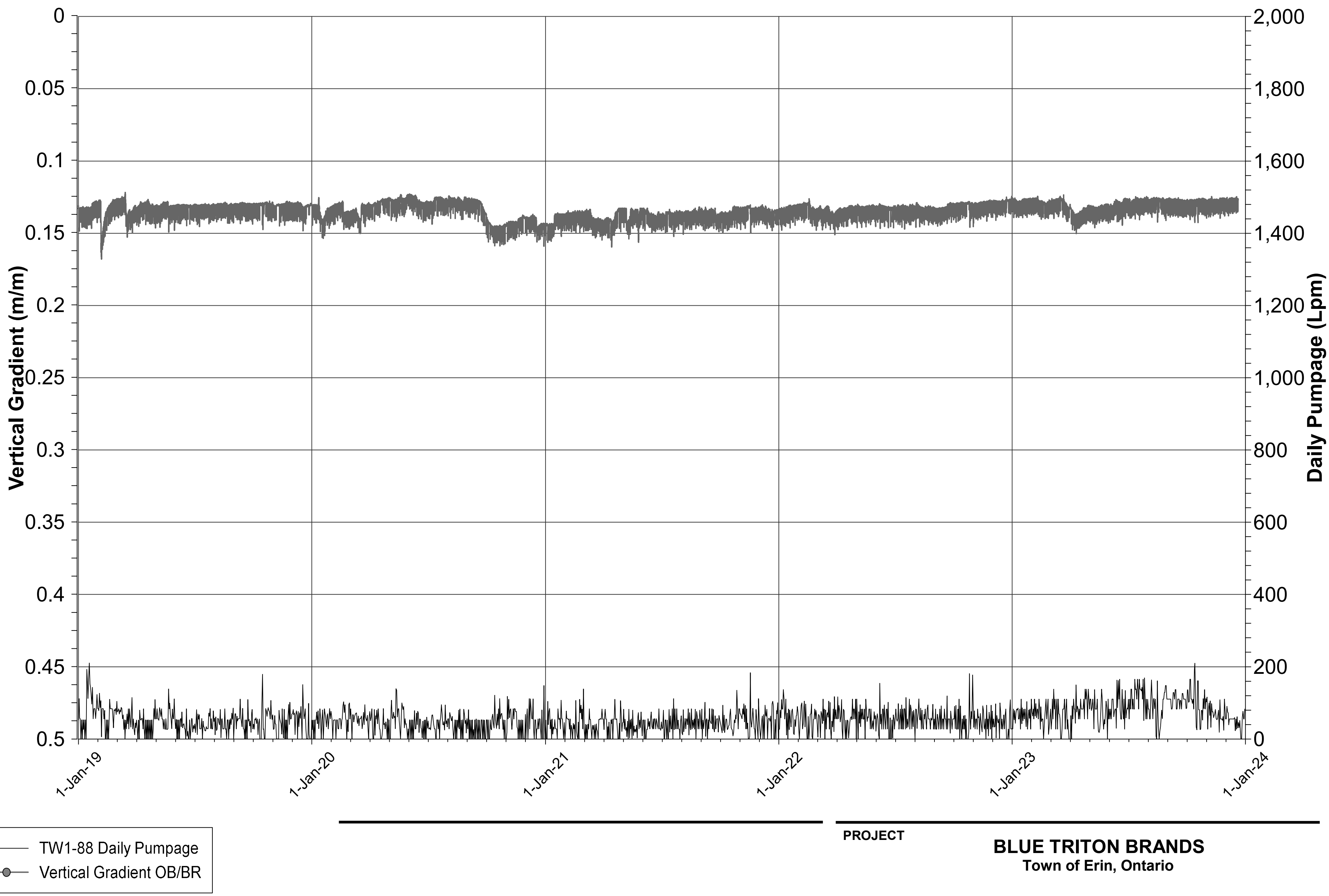
PROJECT NO.	REV	FIGURE
20449101 (7100)	A	D17



PROJECT	BLUE TRITON BRANDS Town of Erin, Ontario
TITLE	MW6-05 VERTICAL GRADIENT 2023 ANNUAL MONITORING REPORT

DATE	JANUARY 2024
DESIGN	AB
REVIEW	GP
APPROVED	GP

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	D18



wsp

DATE	JANUARY 2024
DESIGN	AB
REVIEW	GP
APPROVED	GP

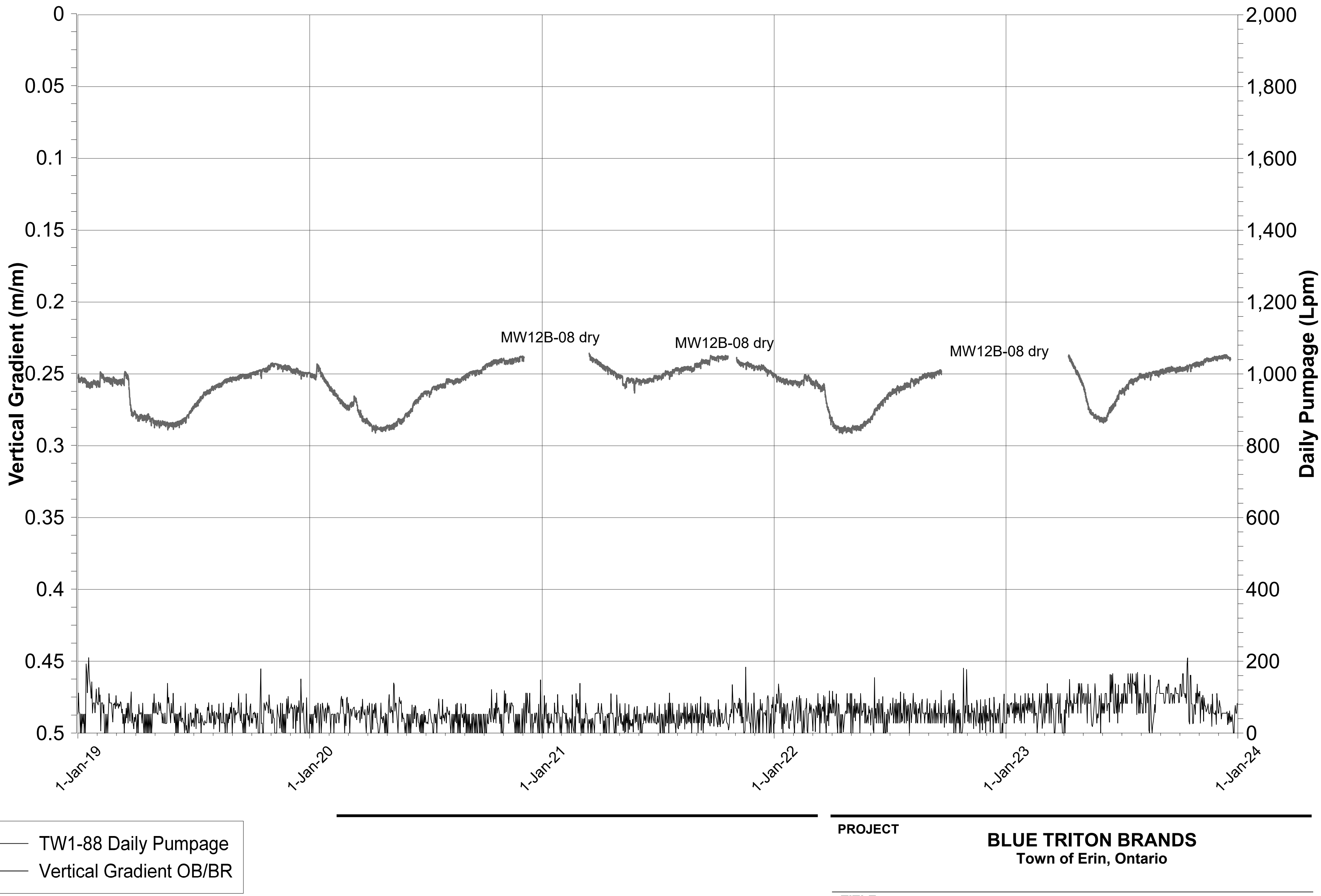
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

MW11-08 VERTICAL GRADIENT
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	D19

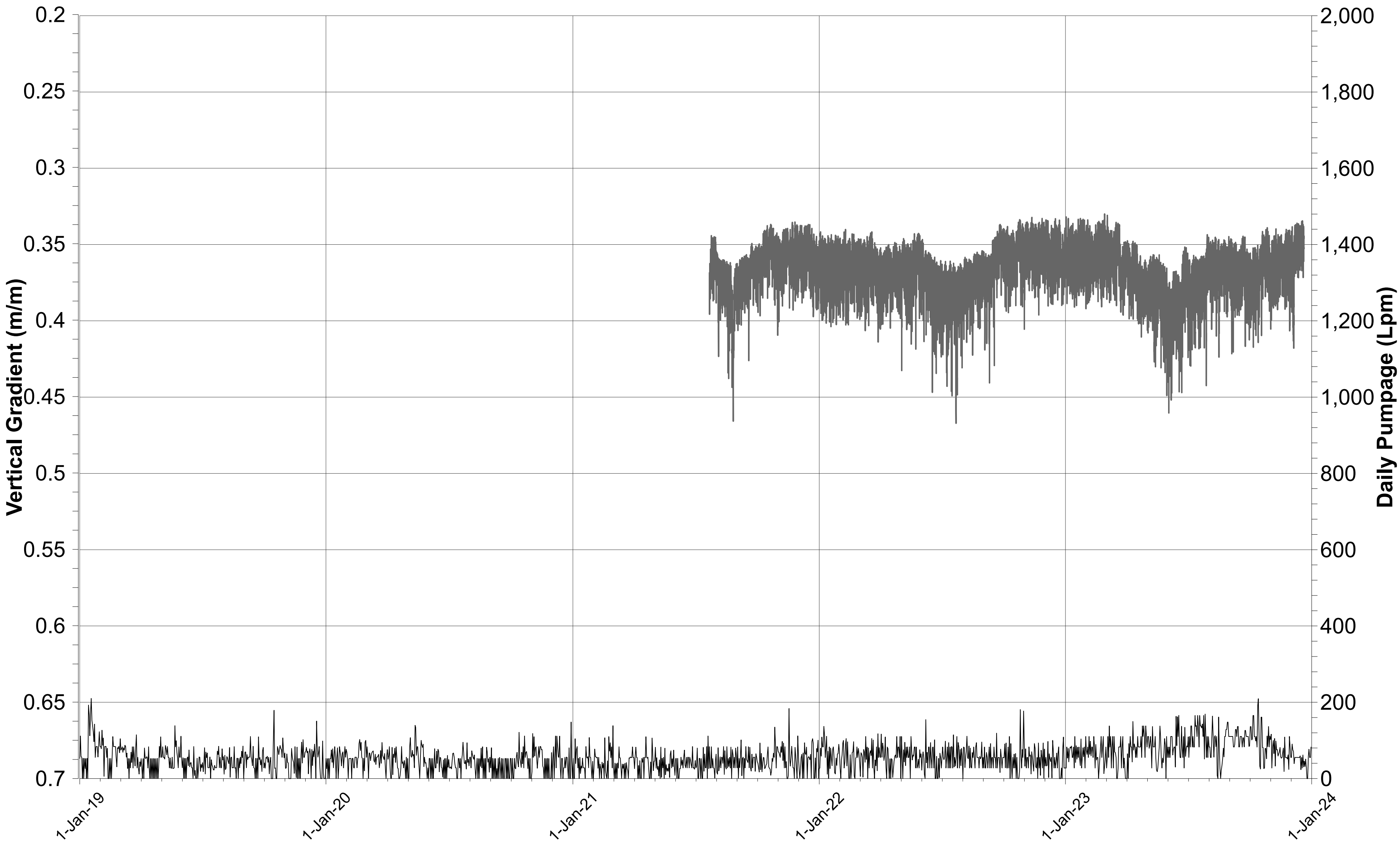


DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

PROJECT
BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE
MW12-08 VERTICAL GRADIENT
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	D20

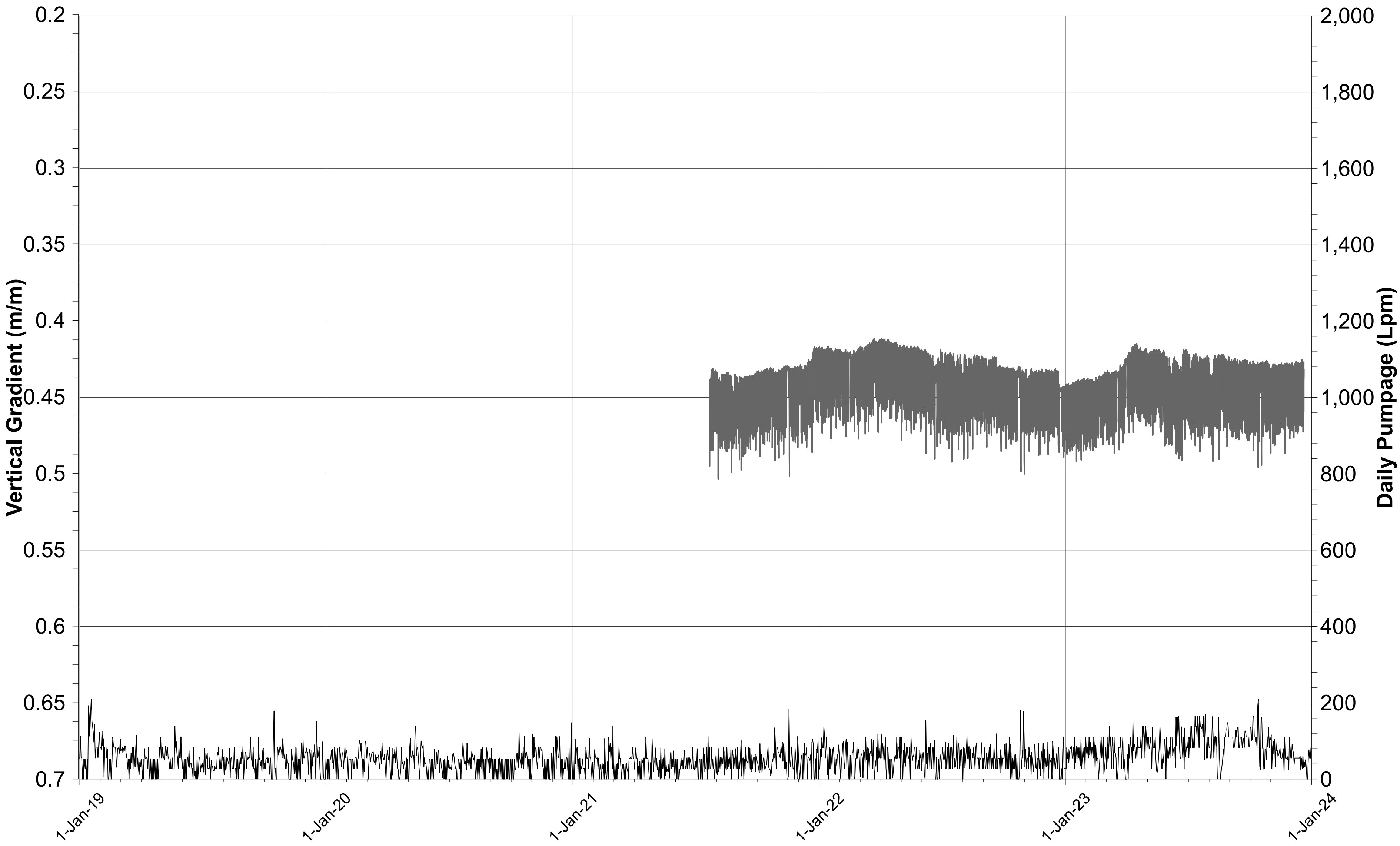


DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

PROJECT
BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE
MW13-20 VERTICAL GRADIENT
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	D21



DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

PROJECT
BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE
MW14-20 VERTICAL GRADIENT
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	D22

APPENDIX E

Surface Water Level Monitoring

TABLE E1

Manual Surface Water Elevations (Mini Piezometers)

2023 Annual Report

DATE	Water Level Elevation (masl)							
	P01A-07	P01B-07	P03A-05	P03B-05	P06A-07	P06B-07	P10A-05	P10B-05
20-Jan-23	427.97	427.96	428.50	428.48	428.46	428.48	428.20	428.24
20-Feb-23	428.00	427.98	428.52	428.50	428.47	428.49	428.23	428.27
22-Mar-23	427.99	427.98	428.48	428.46	428.43	428.45	428.24	428.27
20-Apr-23	428.01	428.01	428.58	428.57	428.52	428.55	428.27	428.22
20-May-23	428.02	428.03	428.61	428.60	428.55	428.58	428.26	428.23
22-Jun-23	427.98	427.98	428.60	428.60	428.56	428.60	428.22	428.12
20-Jul-23	427.99	428.00	428.47	428.50	428.40	428.43	428.22	428.19
20-Aug-23	427.99	428.00	428.49	428.47	428.41	428.46	428.22	428.13
20-Sep-23	427.99	427.99	428.52	428.51	428.46	428.50	428.18	428.20
20-Oct-23	427.98	427.99	428.46	428.46	428.46	428.46	428.18	428.19
20-Nov-23	427.97	427.97	428.49	428.49	428.49	428.48	428.21	428.22
20-Dec-23	427.97	427.97	428.50	428.49	428.50*	428.49	428.23*	428.23

* Water frozen

TABLE E1

Manual Surface Water Elevations (Mini Piezometers)

2023 Annual Report

DATE	Water Level Elevation (masl)					
	P11A-05	P11B-05	P12A-07	P12B-07	P13A-07	P13B-07
20-Jan-23	427.90	427.87	409.21	408.88	431.49	431.77
20-Feb-23	427.91	427.88	409.23	408.89	431.54	431.78
22-Mar-23	427.90	427.86	409.24	408.90	431.57	431.76
20-Apr-23	427.92	427.88	409.22	408.91	431.54	431.75
20-May-23	427.93	427.90	409.26	408.98	431.71	431.79
22-Jun-23	427.91	427.87	409.18	408.89	431.64	431.78
20-Jul-23	427.92	427.89	409.19	408.89	431.66	431.81
20-Aug-23	427.92	427.89	409.18	408.90	431.63	431.83
20-Sep-23	427.94	427.91	409.20	408.92	431.65	431.82
20-Oct-23	427.92	427.89	409.19	408.91	431.65	431.82
20-Nov-23	427.92	427.88	409.18	408.88	431.66	431.82
20-Dec-23	427.93	427.89	409.22*	408.91	431.65	431.81

* Water frozen

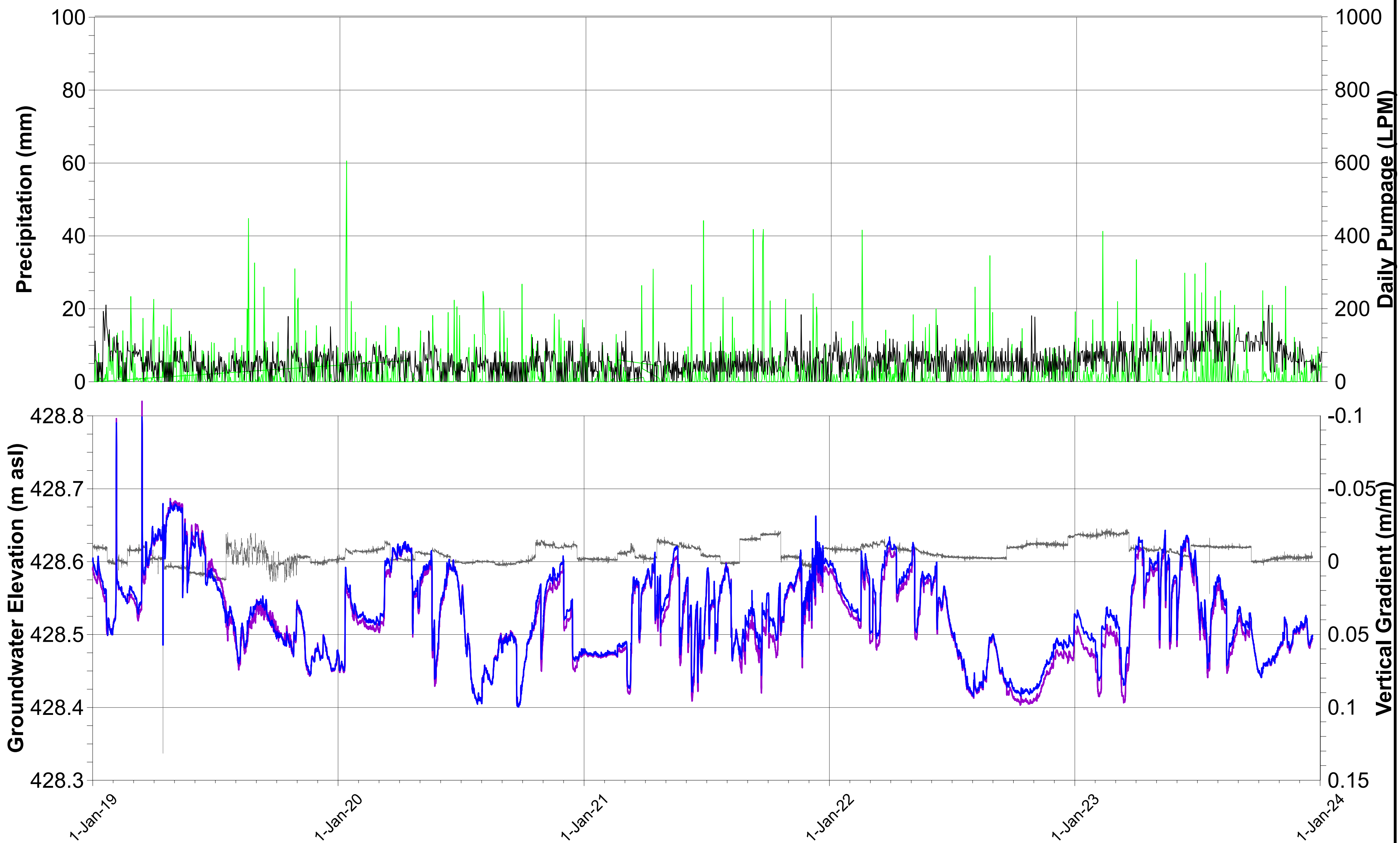
TABLE E2

Manual Surface Water Elevations (Surface Water Stations)

2023 Annual Report

DATE	Water Level Elevation (masl)						
	SW1-08	SW1A-20	SW3-08	SW4-08	SW5-08	SW7-08	SW7B-20
16-Jan-23	427.83	427.96	428.49*	408.87	408.76*	431.74	435.16
22-Feb-23	427.83	427.99	428.47	408.89	408.78*	431.73	435.16
22-Mar-23	427.81	427.99	428.47	408.90	408.78*	431.71	435.15
20-Apr-23	427.84	427.99	428.57	408.90	408.85	431.71	435.16
18-May-23	427.83	427.98	428.55	408.89	408.85	431.70	435.17
22-Jun-23	427.81	427.97	428.62	408.89	408.85	431.74	435.16
20-Jul-23	427.83	427.96	428.46	408.89	408.85	431.74	435.17
21-Aug-23	427.83	427.97	428.50	408.91	408.87	431.77	435.17
20-Sep-23	427.84	427.97	428.51	408.91	408.86	431.76	435.16
20-Oct-23	427.83	427.95	428.47	408.90	408.85	431.76	435.18
21-Nov-23	427.84	427.95	428.51	408.87	408.79	431.74	435.18
20-Dec-23	427.83	427.95	428.51	408.90	408.86*	431.73	435.17

* Water frozen



TW1-88 Daily Pumpage
Precipitation
P03B-05 (Shallow)
P03A-05 (Deep)
Vertical Gradient OB/OB

DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

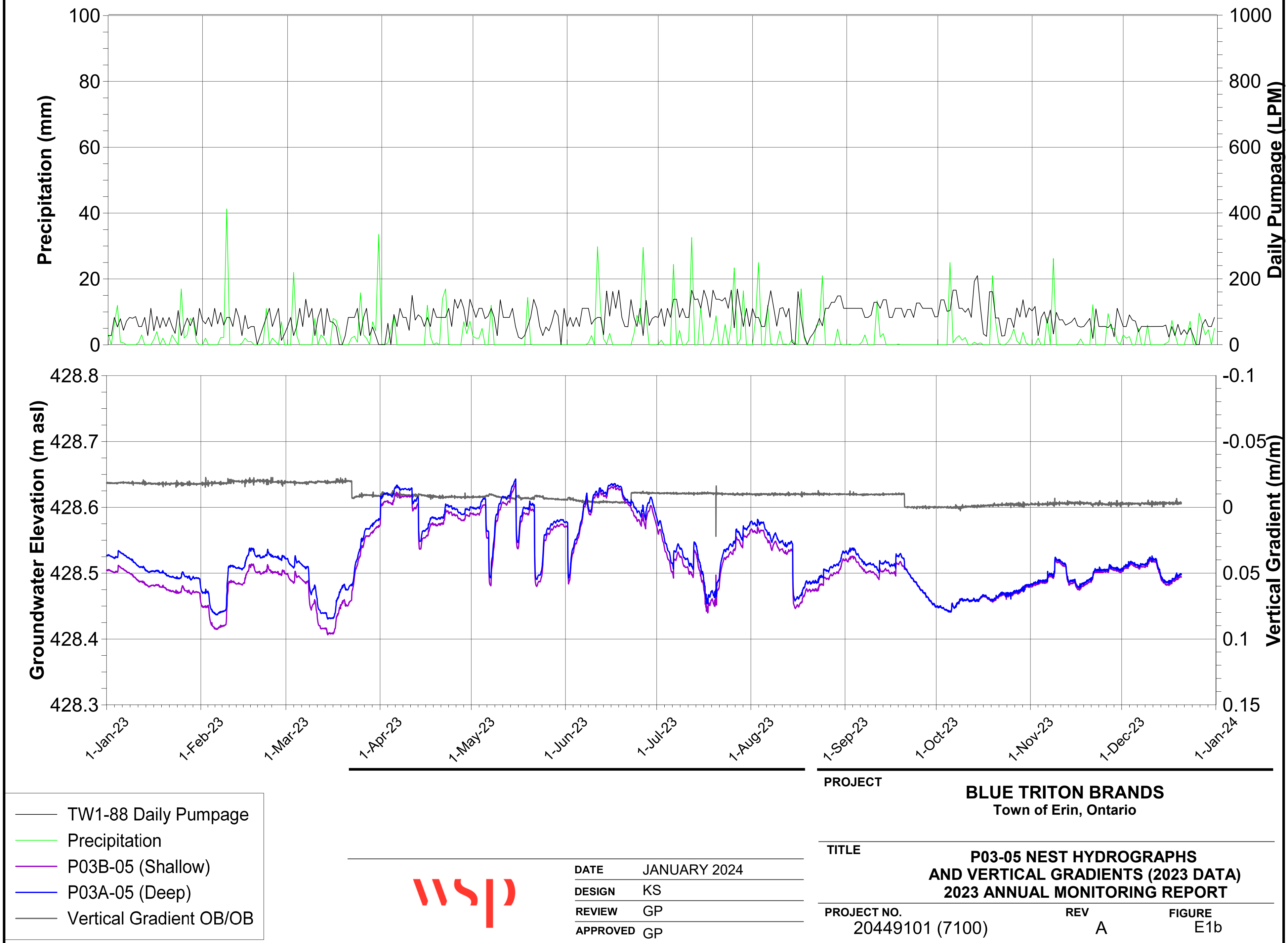
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

P03-05 NEST HYDROGRAPHS AND VERTICAL GRADIENTS 2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	E1a



DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

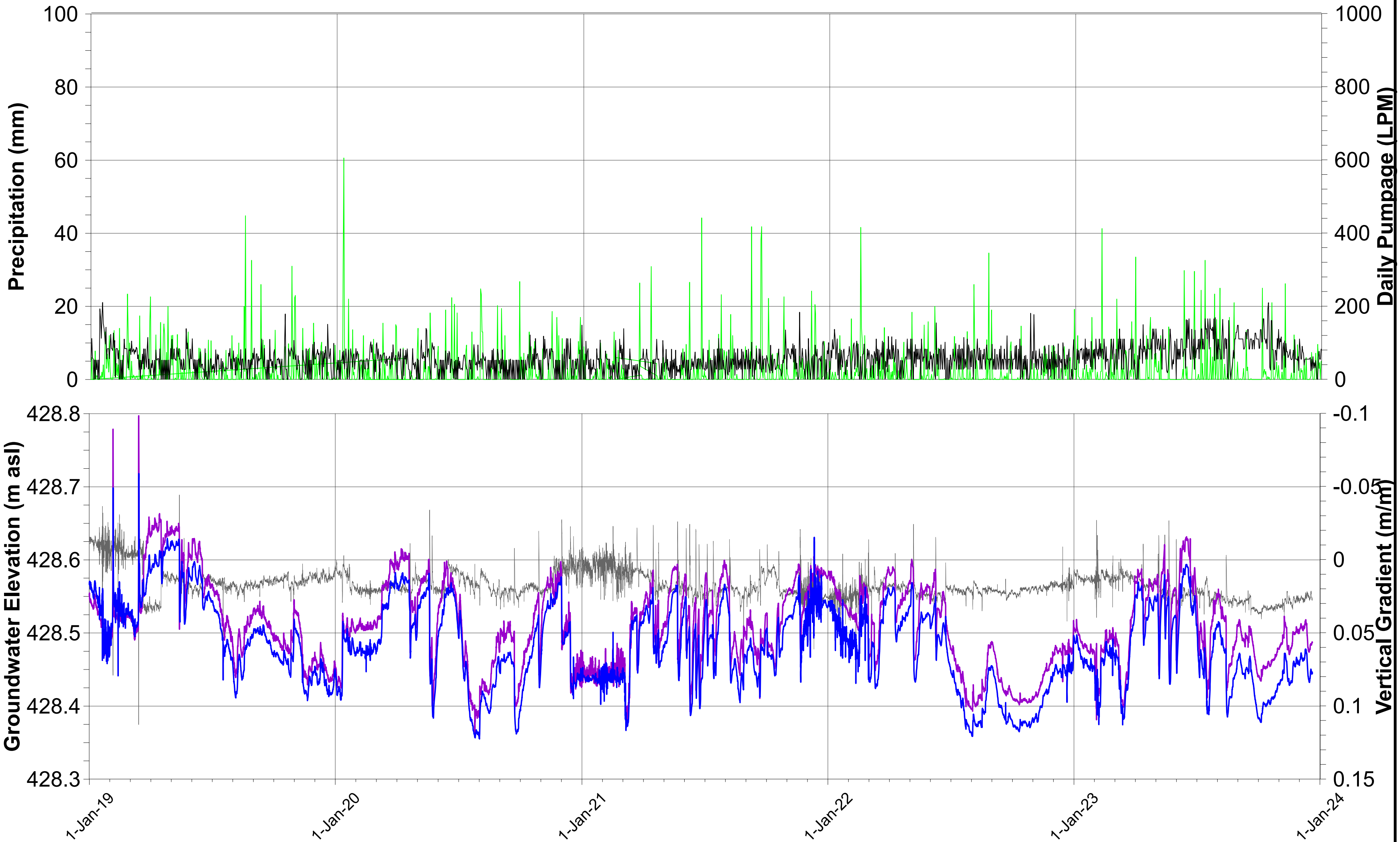
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

P03-05 NEST HYDROGRAPHS
AND VERTICAL GRADIENTS (2023 DATA)
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	E1b



wsp

DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

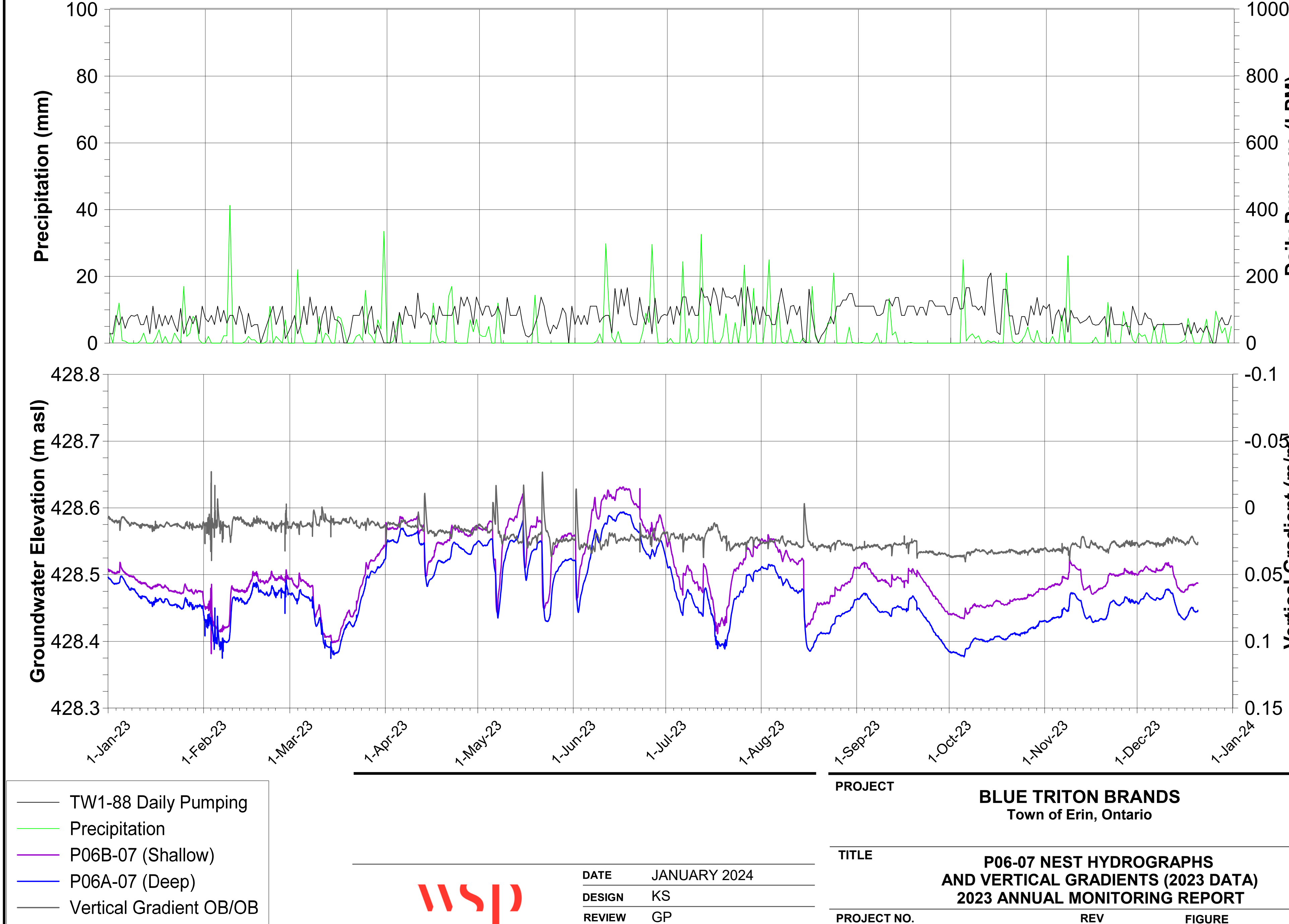
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

P06-07 NEST HYDROGRAPHS AND VERTICAL GRADIENTS 2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	E2a



DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

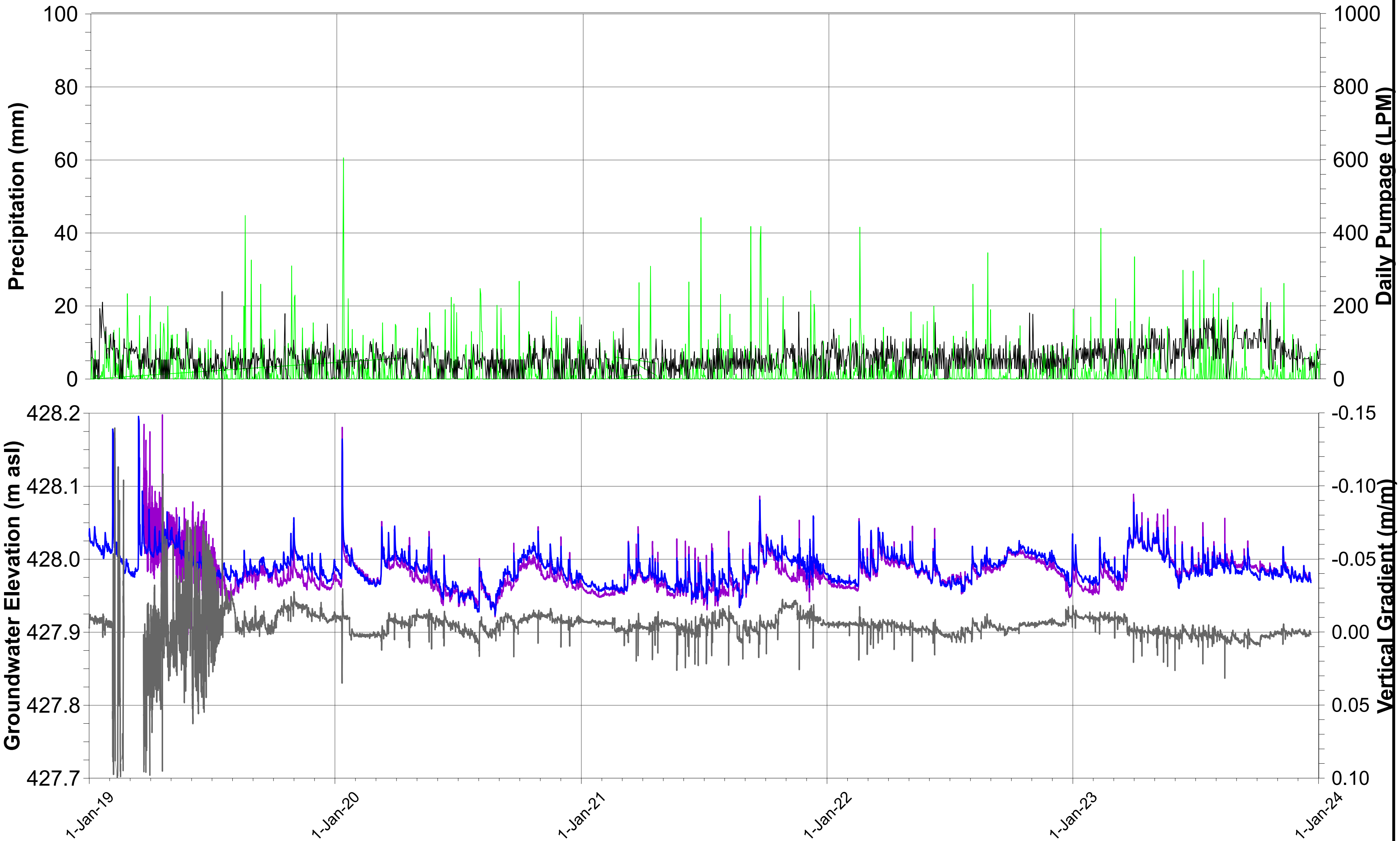
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

P06-07 NEST HYDROGRAPHS AND VERTICAL GRADIENTS (2023 DATA) 2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	E2b



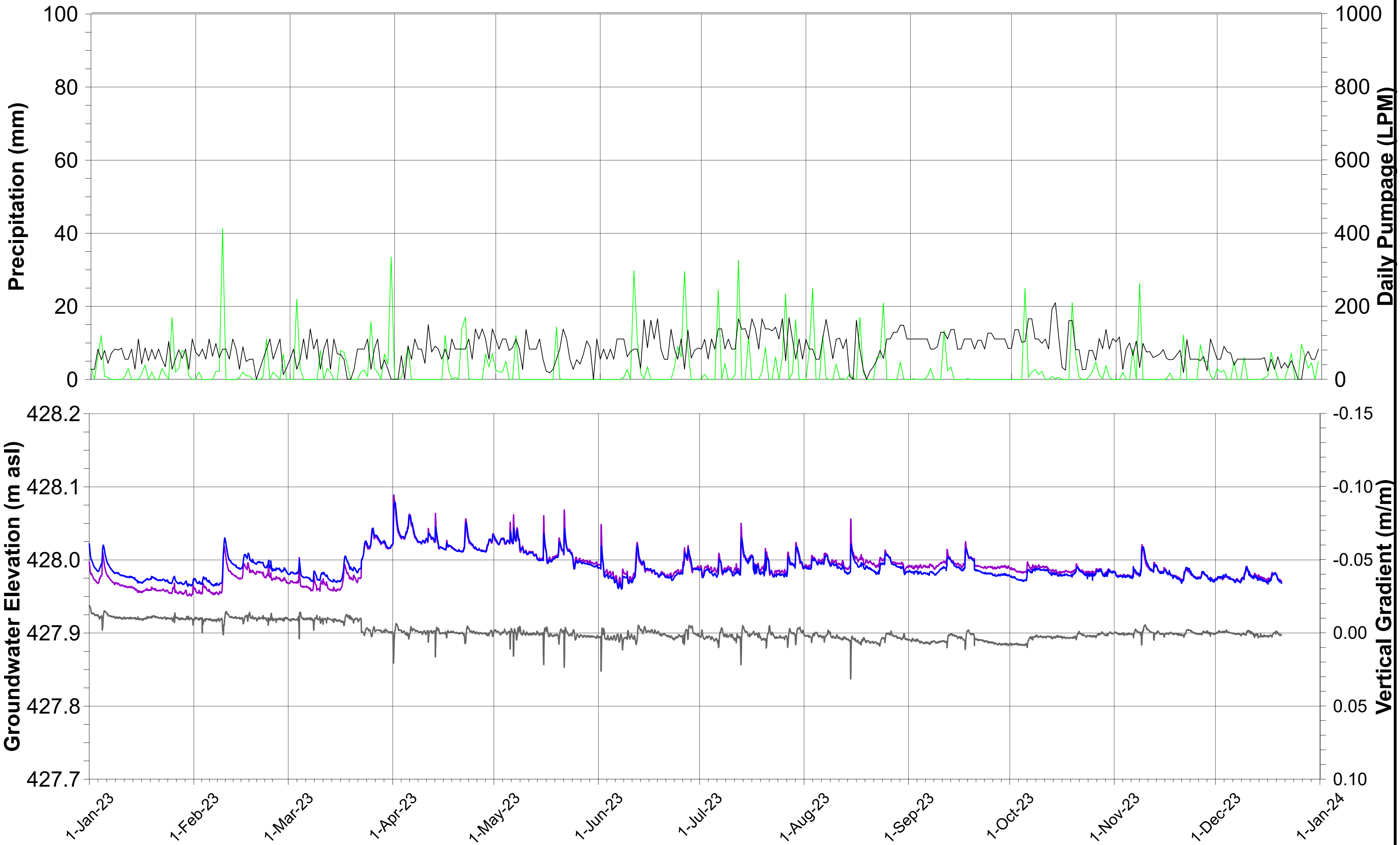
TW1-88 Daily Pumping
Precipitation
P01B-07 (Shallow)
P01A-07 (Deep)
Vertical Gradient OB/OB

DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

PROJECT
BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE
P01-07 NEST HYDROGRAPHS AND VERTICAL GRADIENTS 2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	E3a



TW1-88 Daily Pumping
Precipitation
P01B-07 (Shallow)
P01A-07 (Deep)
Vertical Gradient OB/OB

DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

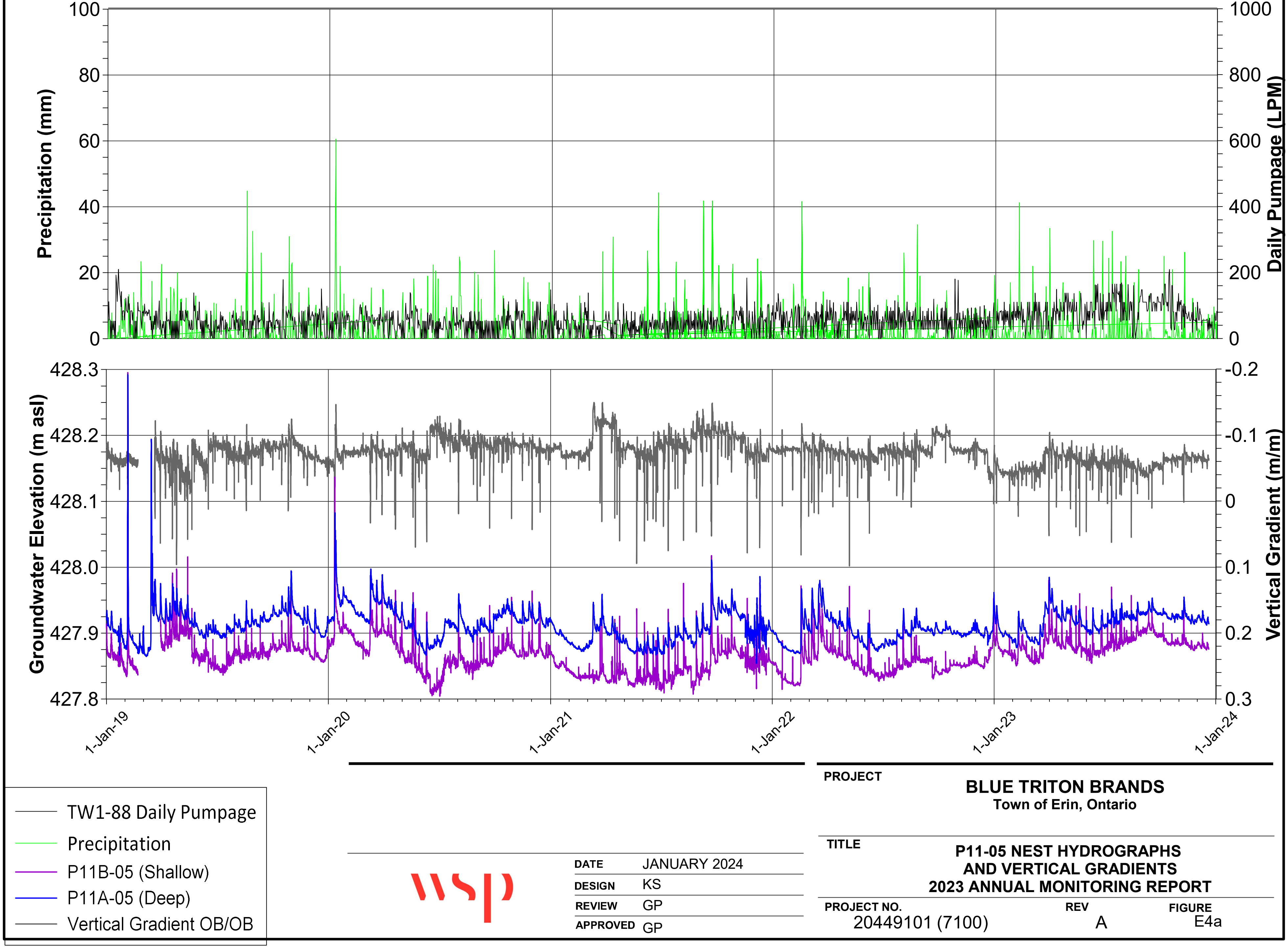
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

P01-07 NEST HYDROGRAPHS AND VERTICAL GRADIENTS (2023 DATA) 2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	E3b



DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

P11-05 NEST HYDROGRAPHS AND VERTICAL GRADIENTS 2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	E4a

DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

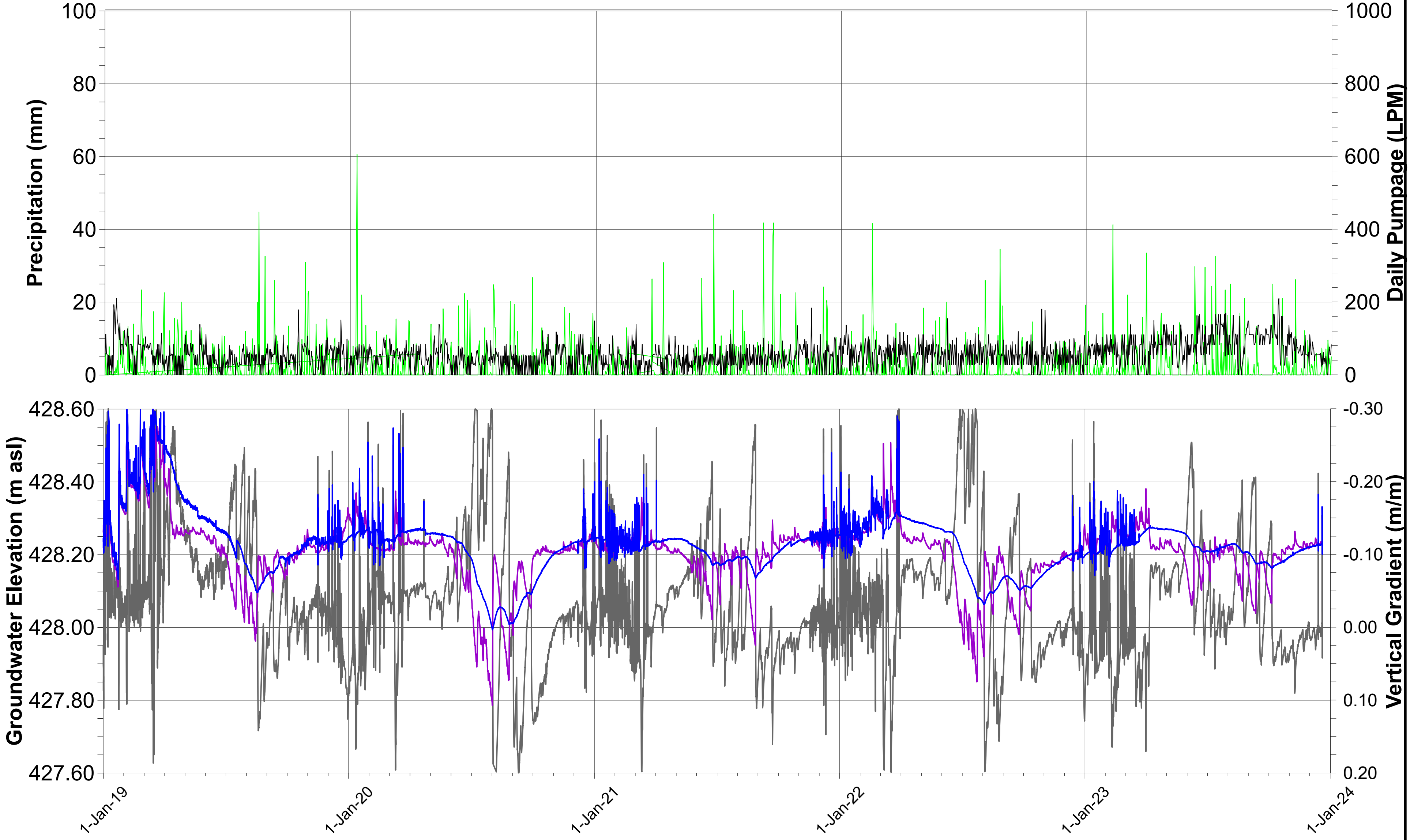
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

P11-05 NEST HYDROGRAPHS
AND VERTICAL GRADIENTS (2023 DATA)
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	E4b



DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

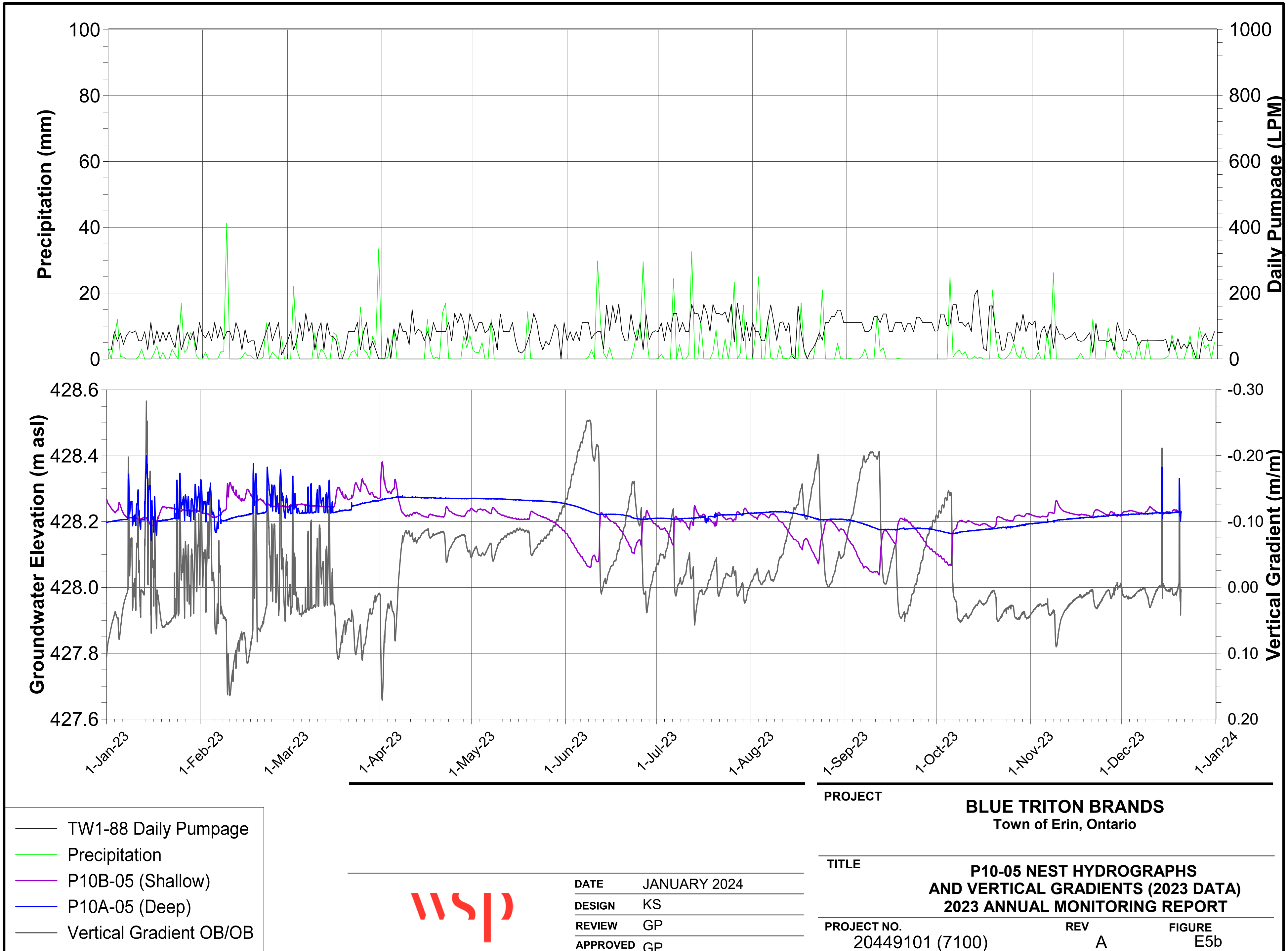
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

P10-05 NEST HYDROGRAPHS AND VERTICAL GRADIENTS 2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	E5a



DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

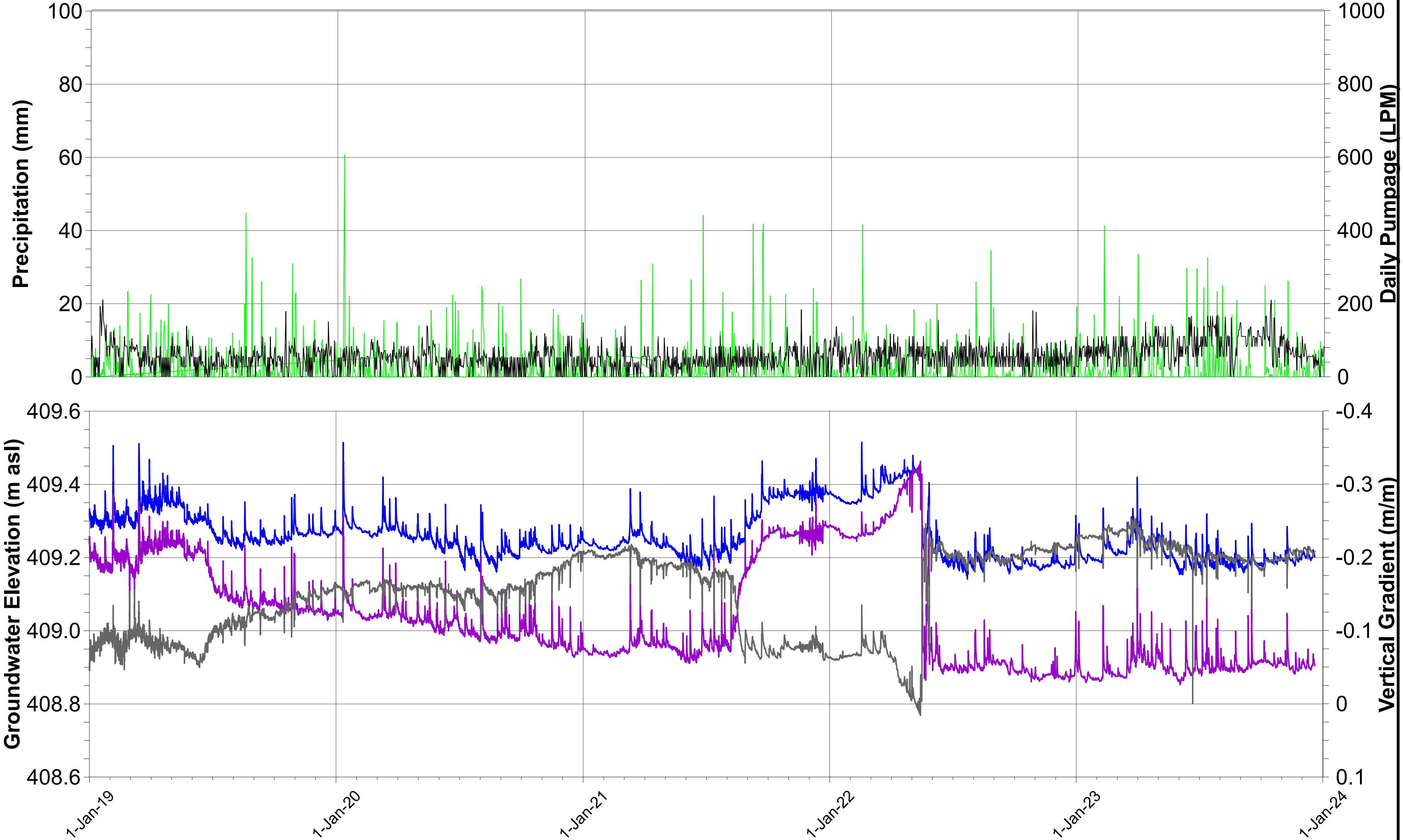
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

P10-05 NEST HYDROGRAPHS AND VERTICAL GRADIENTS (2023 DATA) 2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	E5b



NOTE:
Beaver activity caused the high water level in stream at P12A/B

DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

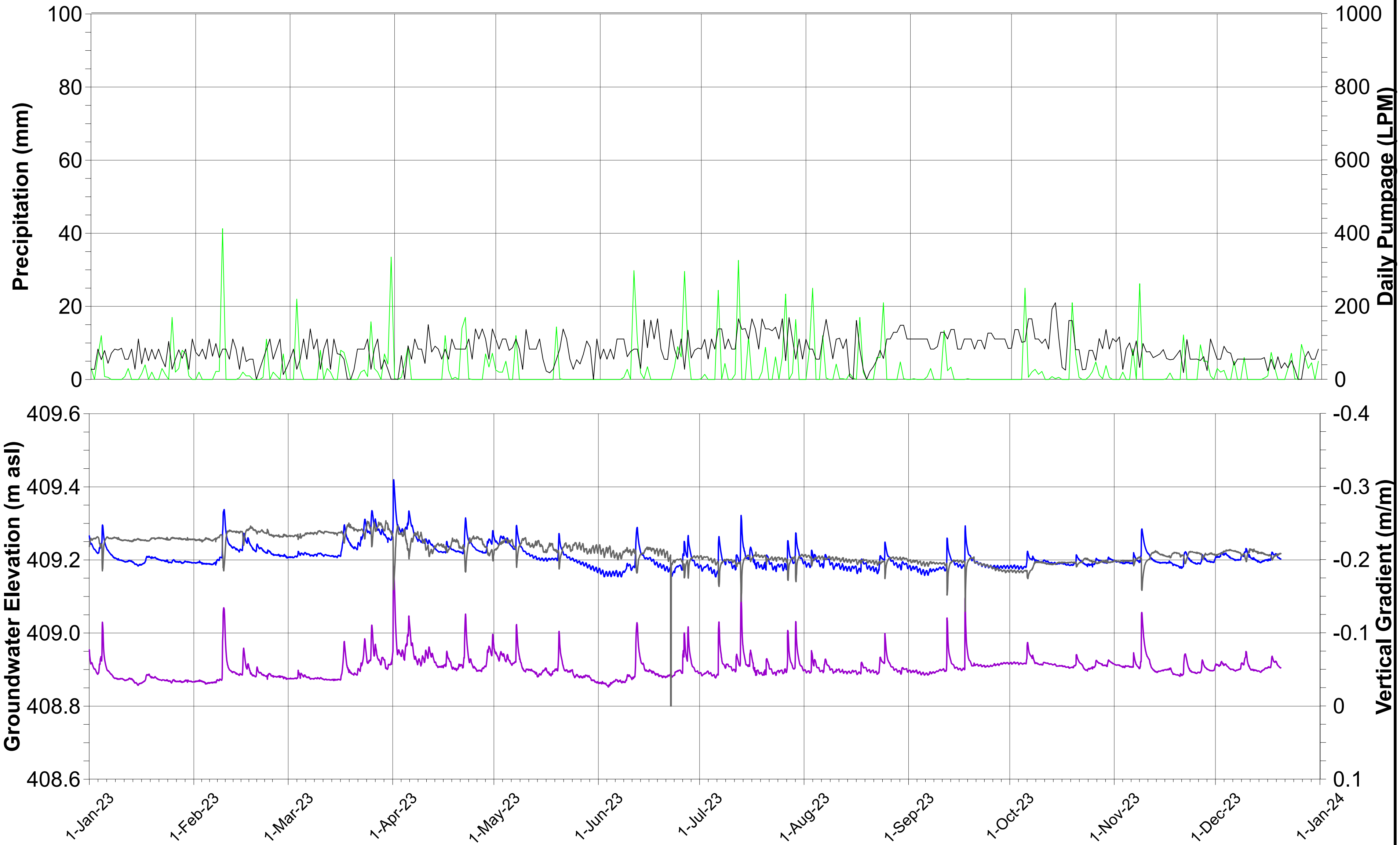
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

P12-07 NEST HYDROGRAPHS AND VERTICAL GRADIENTS 2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	E6a



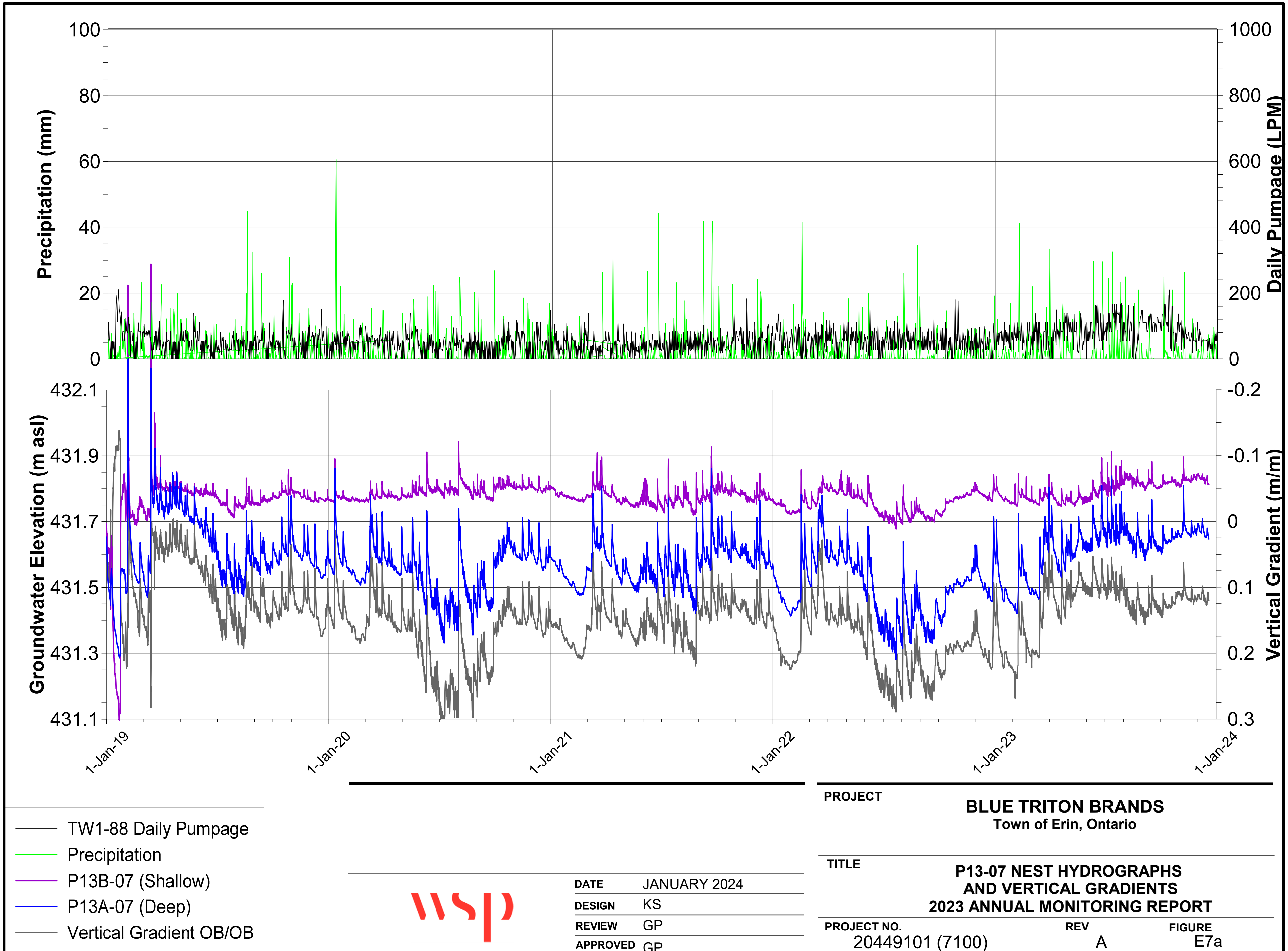
TW1-88 Daily Pumpage
Precipitation
P12B-07 (Shallow)
P12A-07 (Deep)
Vertical Gradient OB/OB

DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

PROJECT
BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE
P12-07 NEST HYDROGRAPHS AND VERTICAL GRADIENTS (2023 DATA) 2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	E6b



DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

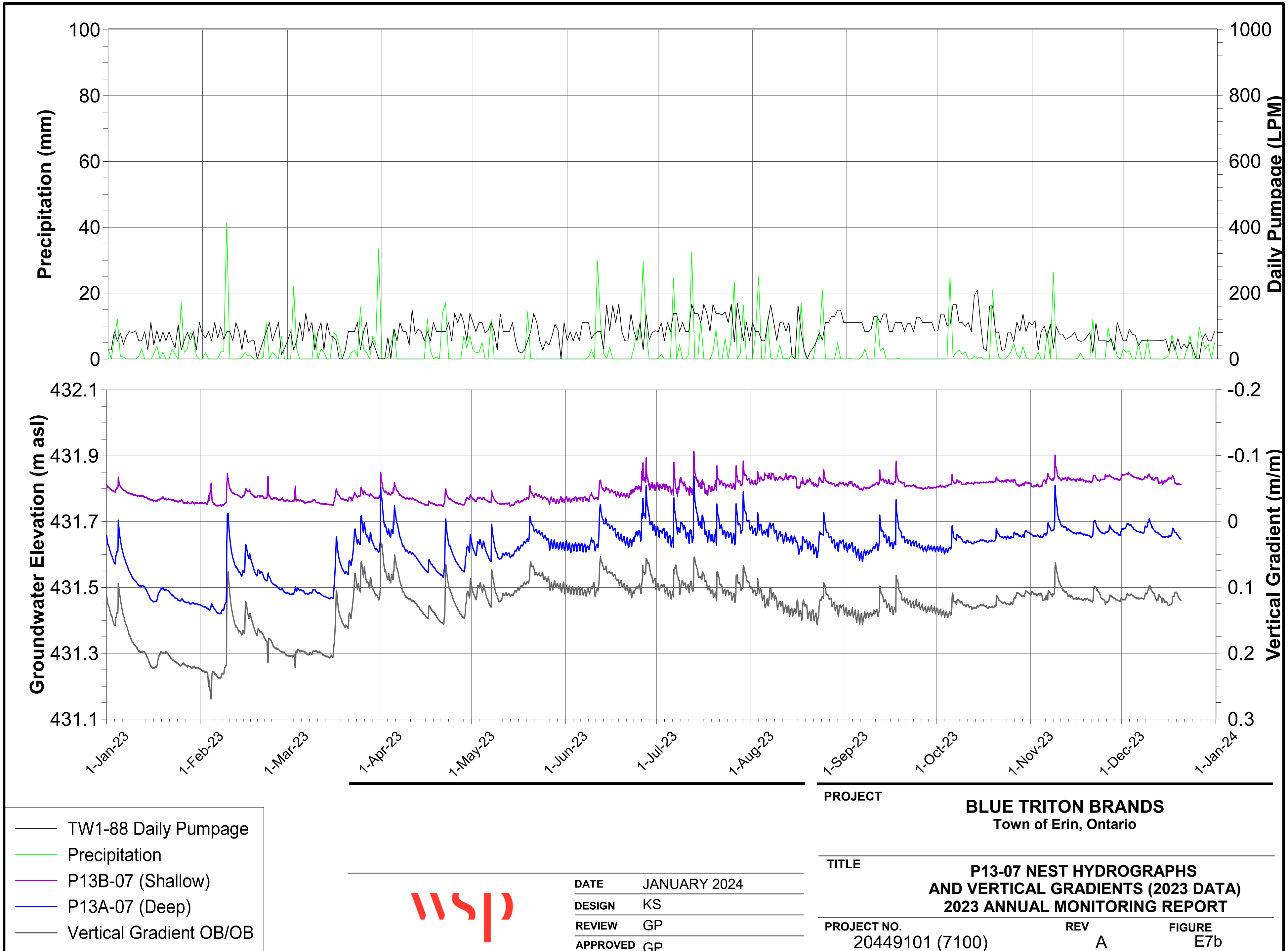
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

P13-07 NEST HYDROGRAPHS AND VERTICAL GRADIENTS 2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	E7a



DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

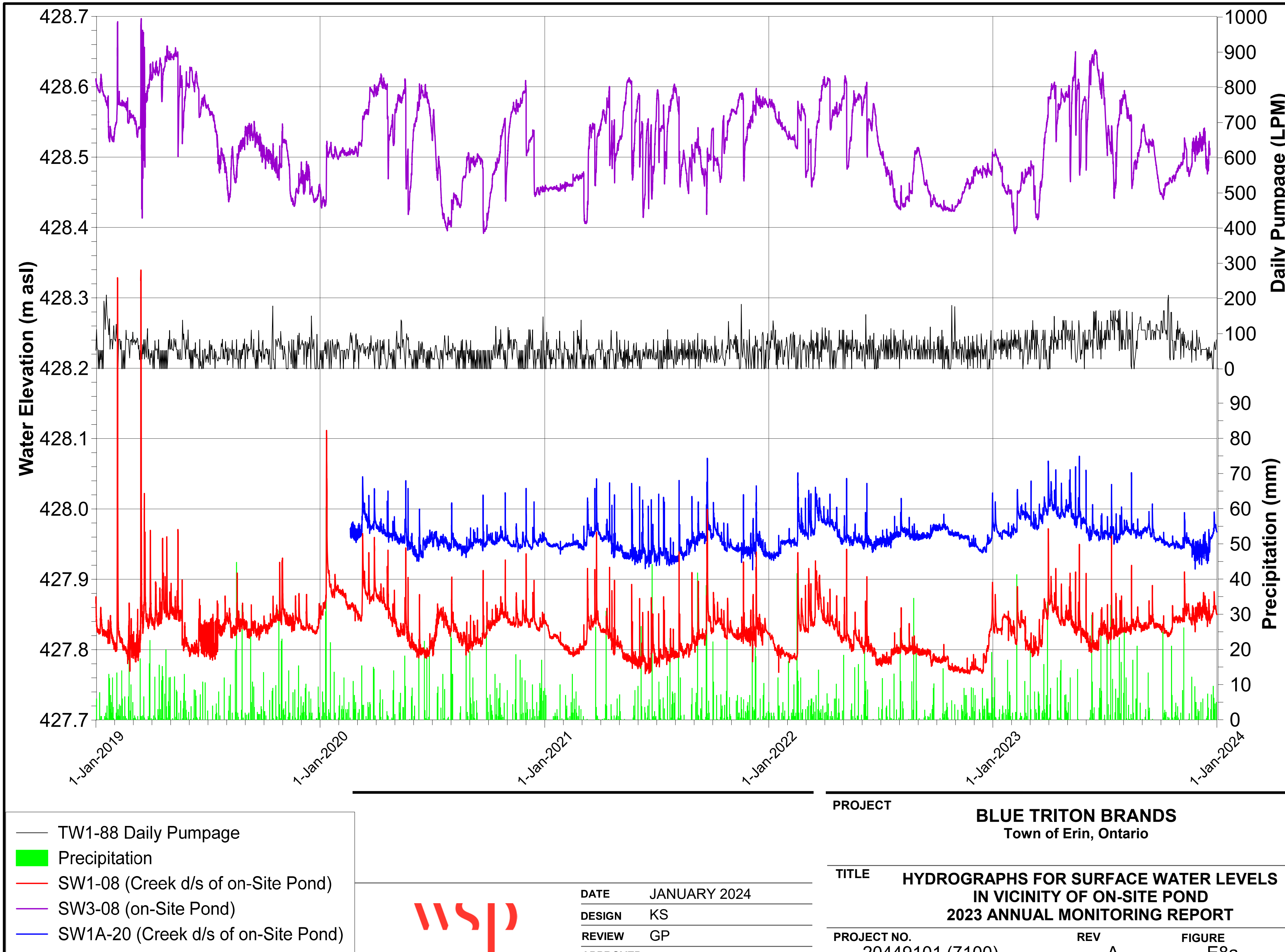
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

P13-07 NEST HYDROGRAPHS AND VERTICAL GRADIENTS (2023 DATA)
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	E7b



DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

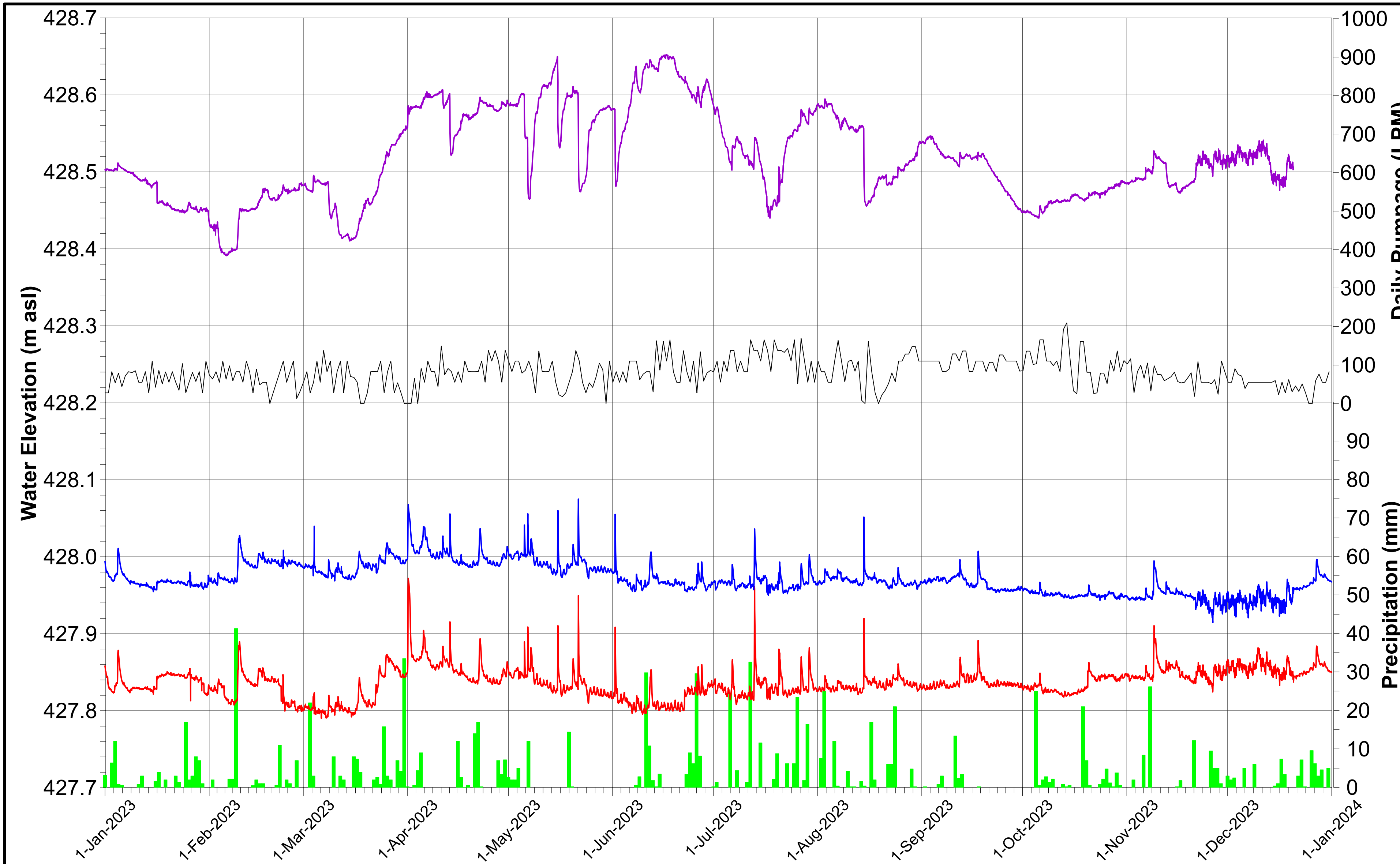
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

HYDROGRAPHS FOR SURFACE WATER LEVELS IN VICINITY OF ON-SITE POND 2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	E8a



DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

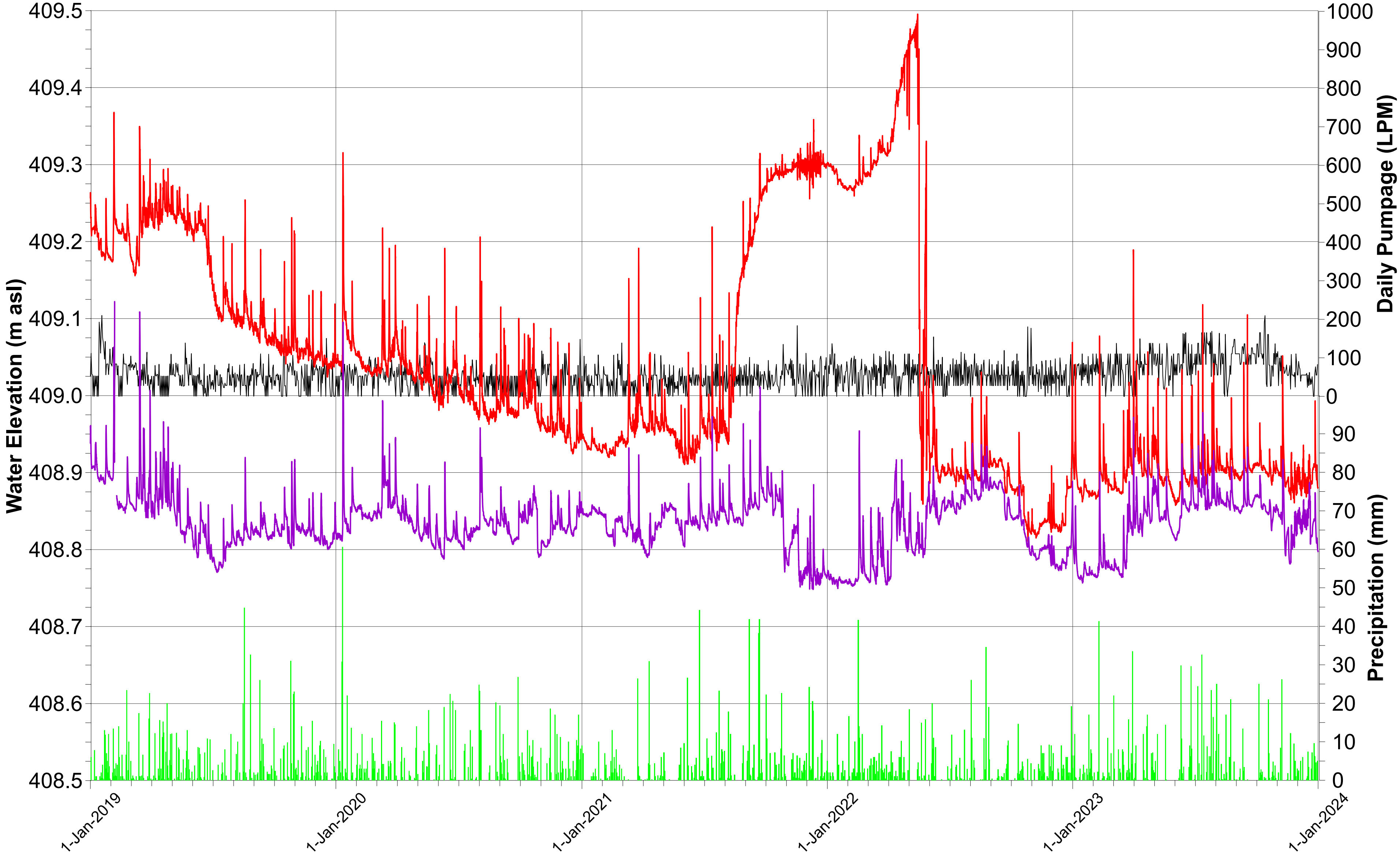
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

HYDROGRAPHS FOR SURFACE WATER LEVELS IN VICINITY OF ON-SITE POND (2023 DATA) 2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	E8b



TW1-88 Daily Pumpage
Precipitation
SW4-08 (Stream into Roman Lake)
SW5-08 (Roman Lake)

NOTE:
Beaver activity caused higher stream water levels at SW4-08

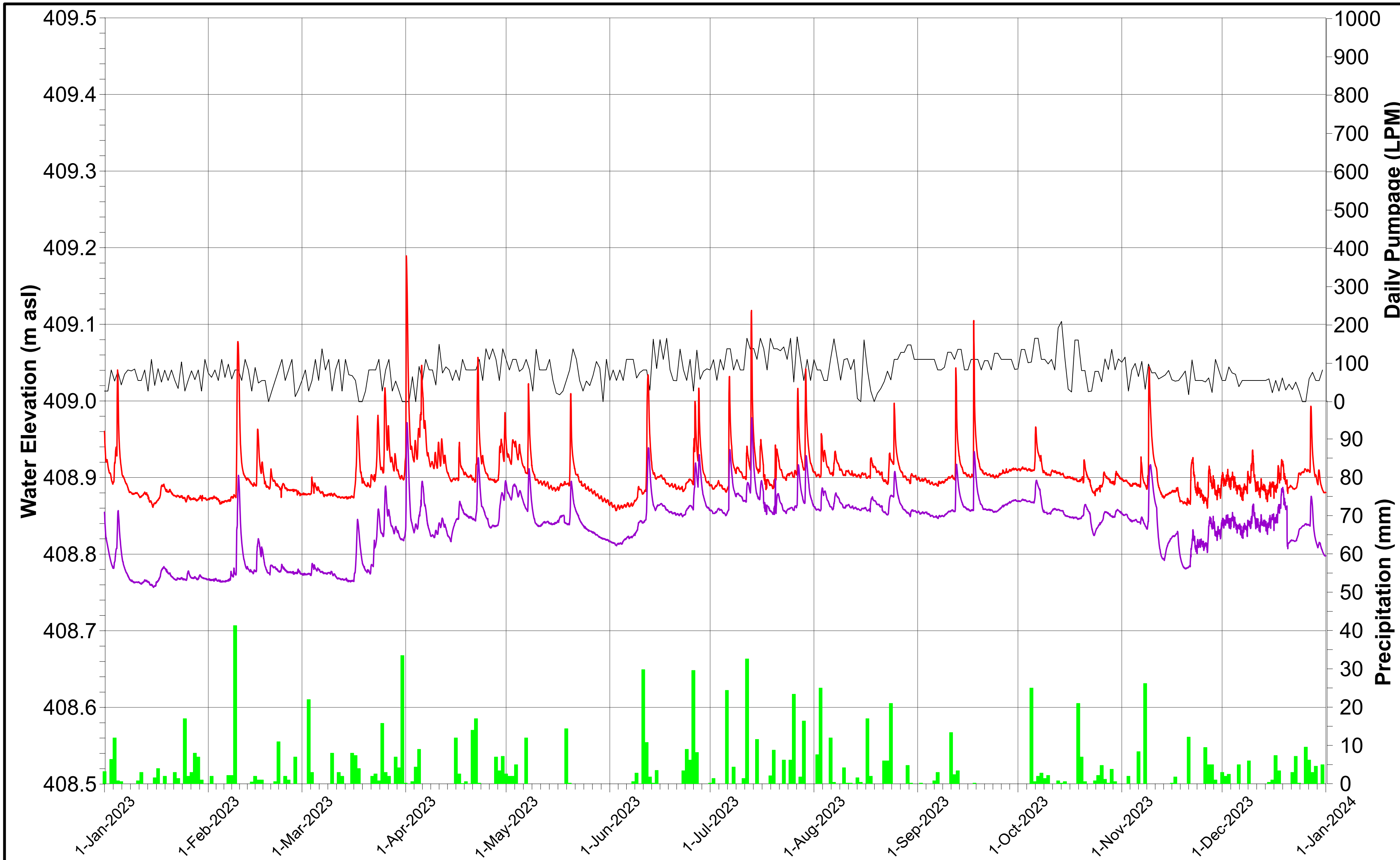
wsp

DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

PROJECT
BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE
HYDROGRAPHS FOR SURFACE WATER LEVELS IN VICINITY OF ROMAN LAKE
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	E9a



TW1-88 Daily Pumpage
Precipitation
SW4-08 (Stream into Roman Lake)
SW5-08 (Roman Lake)

wsp

DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

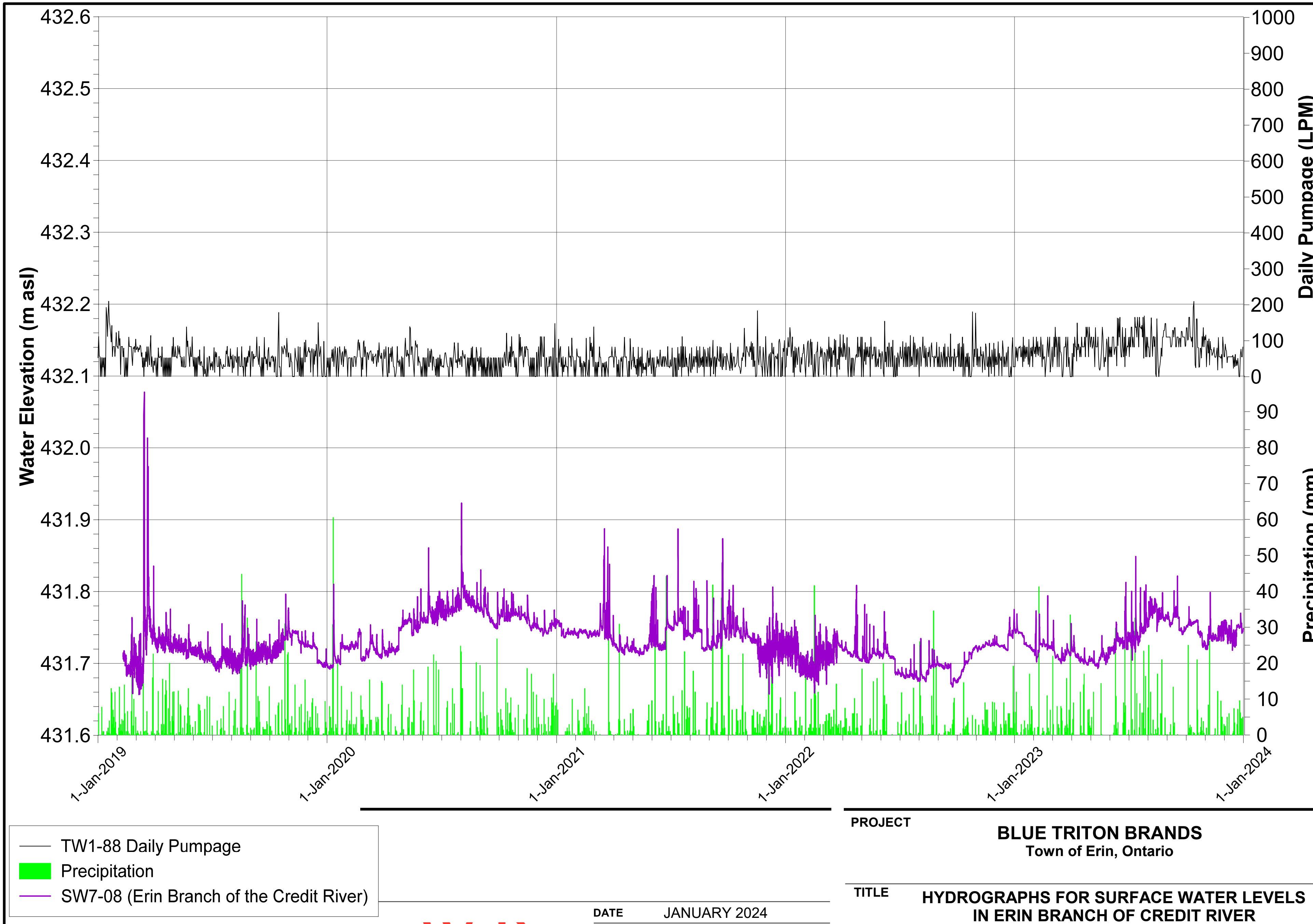
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

HYDROGRAPHS FOR SURFACE WATER LEVELS IN VICINITY OF ROMAN LAKE (2023 DATA)
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	E9b



DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

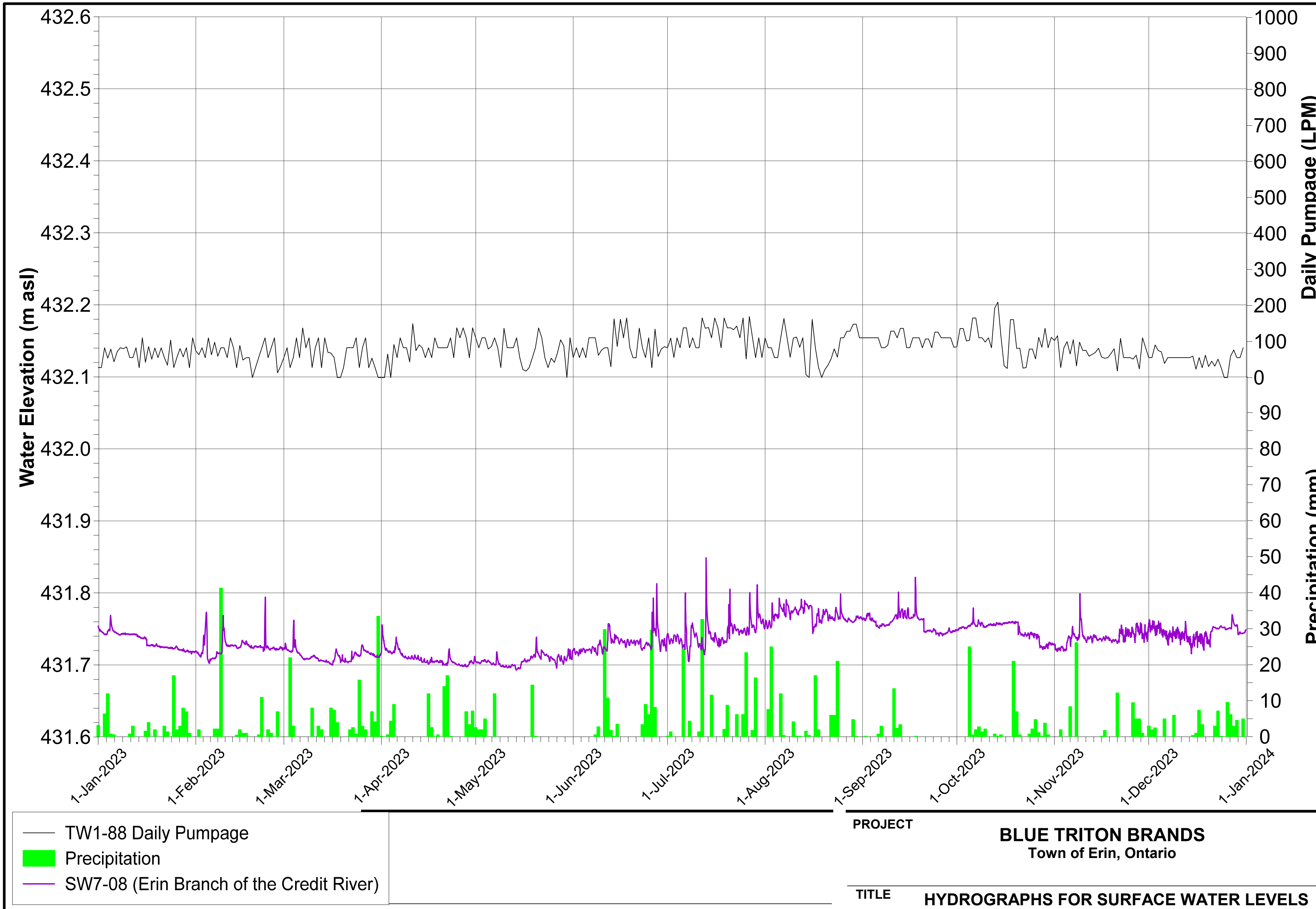
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

HYDROGRAPHS FOR SURFACE WATER LEVELS IN ERIN BRANCH OF CREDIT RIVER 2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	E10a



DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

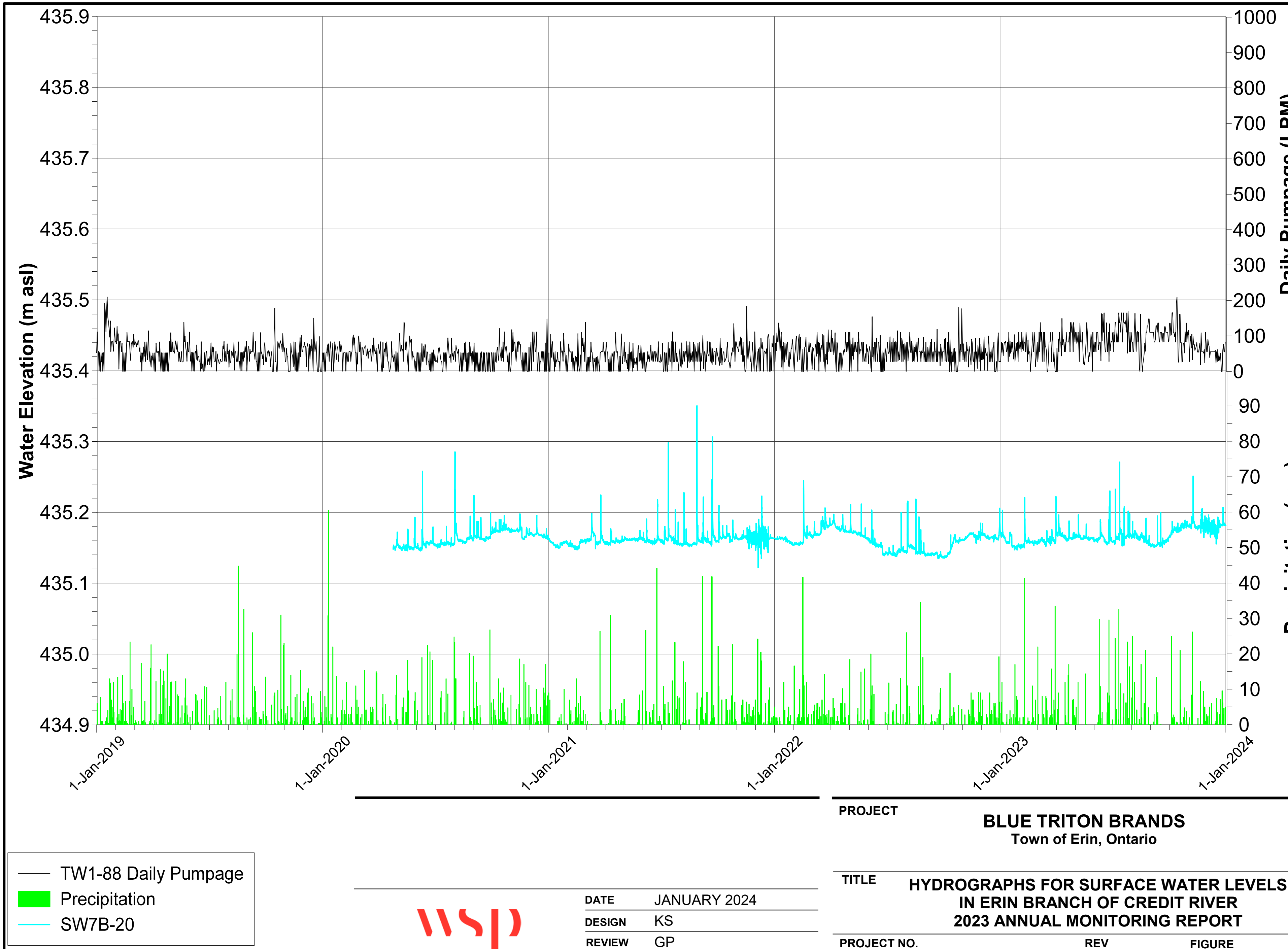
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

HYDROGRAPHS FOR SURFACE WATER LEVELS IN ERIN BRANCH OF CREDIT RIVER (2023 DATA) 2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	E10b



PROJECT

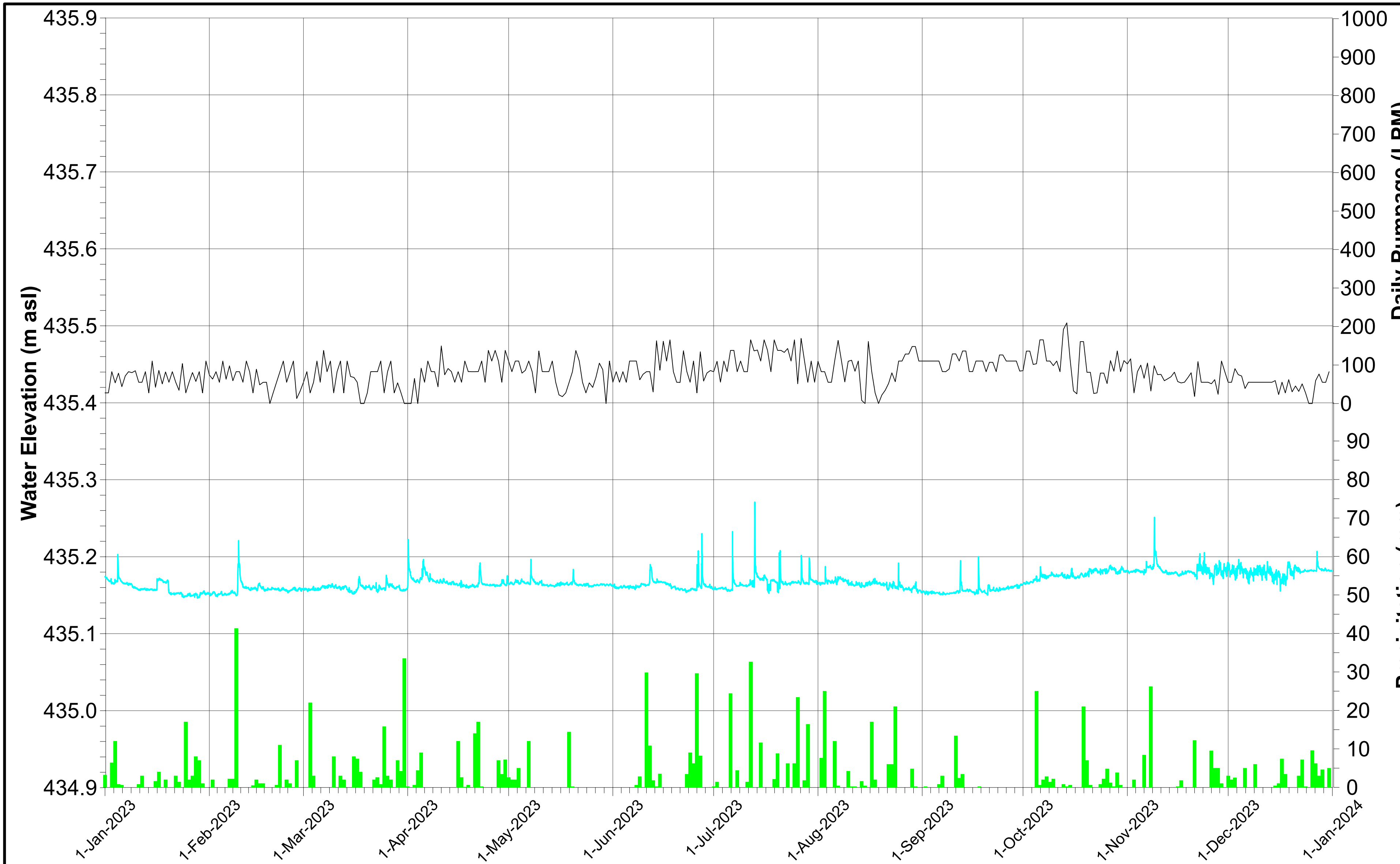
BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

HYDROGRAPHS FOR SURFACE WATER LEVELS IN ERIN BRANCH OF CREDIT RIVER 2023 ANNUAL MONITORING REPORT

DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	E11a



PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

HYDROGRAPHS FOR SURFACE WATER LEVELS IN ERIN BRANCH OF CREDIT RIVER (2023 DATA)
2023 ANNUAL MONITORING REPORT

DATE	JANUARY 2024
DESIGN	KS
REVIEW	GP
APPROVED	GP

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	E11b

APPENDIX F

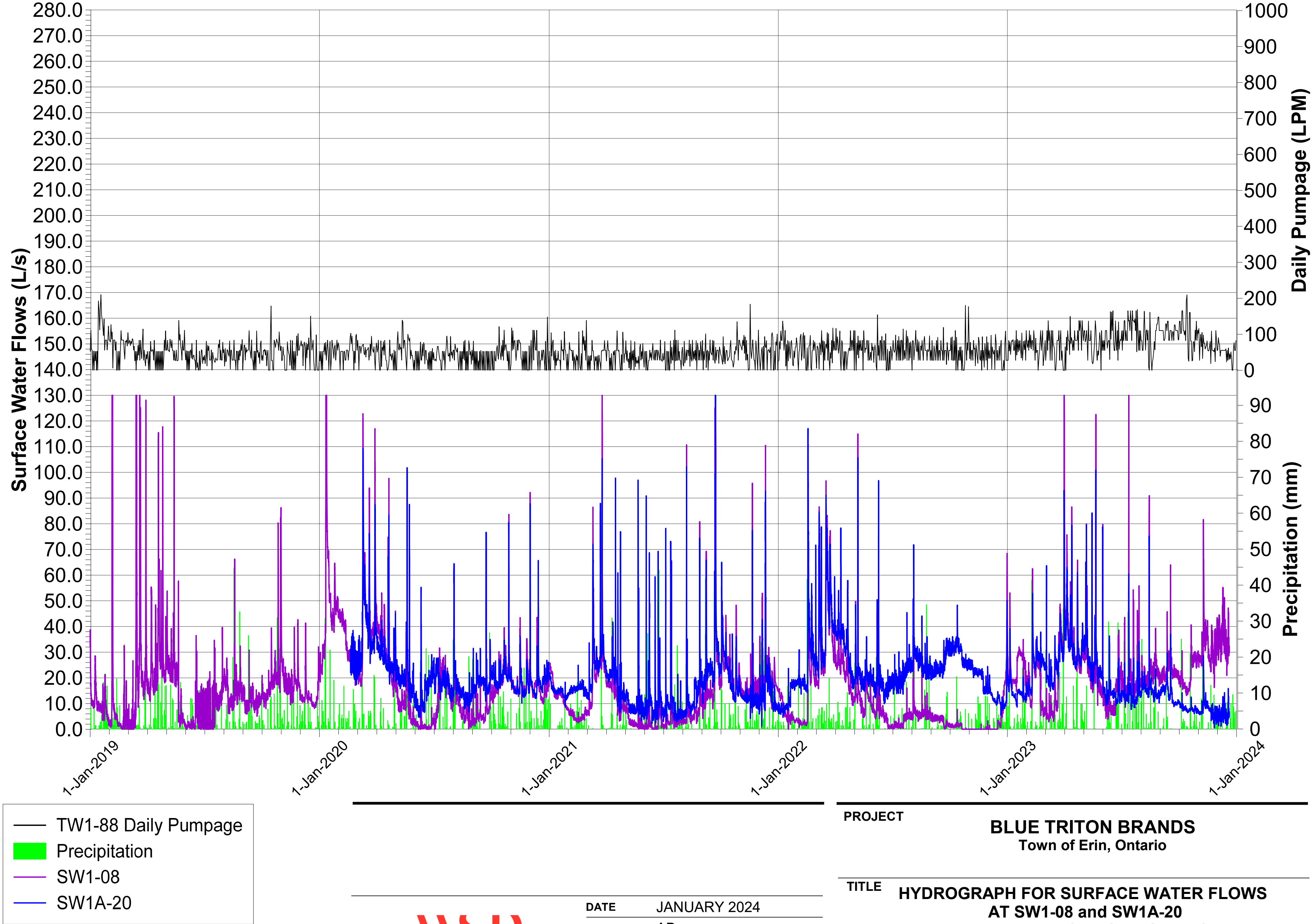
Surface Water Flow Monitoring

TABLE F1

Surface Water Flow

2023 Annual Report

DATE	SW1-08 FLOW (L/sec)	SW3-08 FLOW (L/sec)	SW7-08 FLOW (L/sec)	SW7B-20 FLOW (L/sec)
2023/01/16	13.4	4.5	1.2	14.1
2023/02/22	13.6	4.6	3.8	21.7
2023/03/22	15.3	5.9	2.6	24.9
2023/04/20	17.7	8.7	1.8	28.2
2023/05/18	18.7	5.5	4.3	23.8
2023/06/22	9.7	3.5	4.2	22.5
2023/07/23	15.3	7.1	8.7	29.2
2023/08/21	12.3	4.5	3.5	24.6
2023/09/20	7.8	5.5	9.1	19.0
2023/10/20	7.1	3.8	7.7	20.9
2023/11/20	10.8	5.5	9.1	19.0
2023/12/20	6.9	4.2	3.1	23.1



DATE	JANUARY 2024
DESIGN	AB
REVIEW	GP
APPROVED	GP

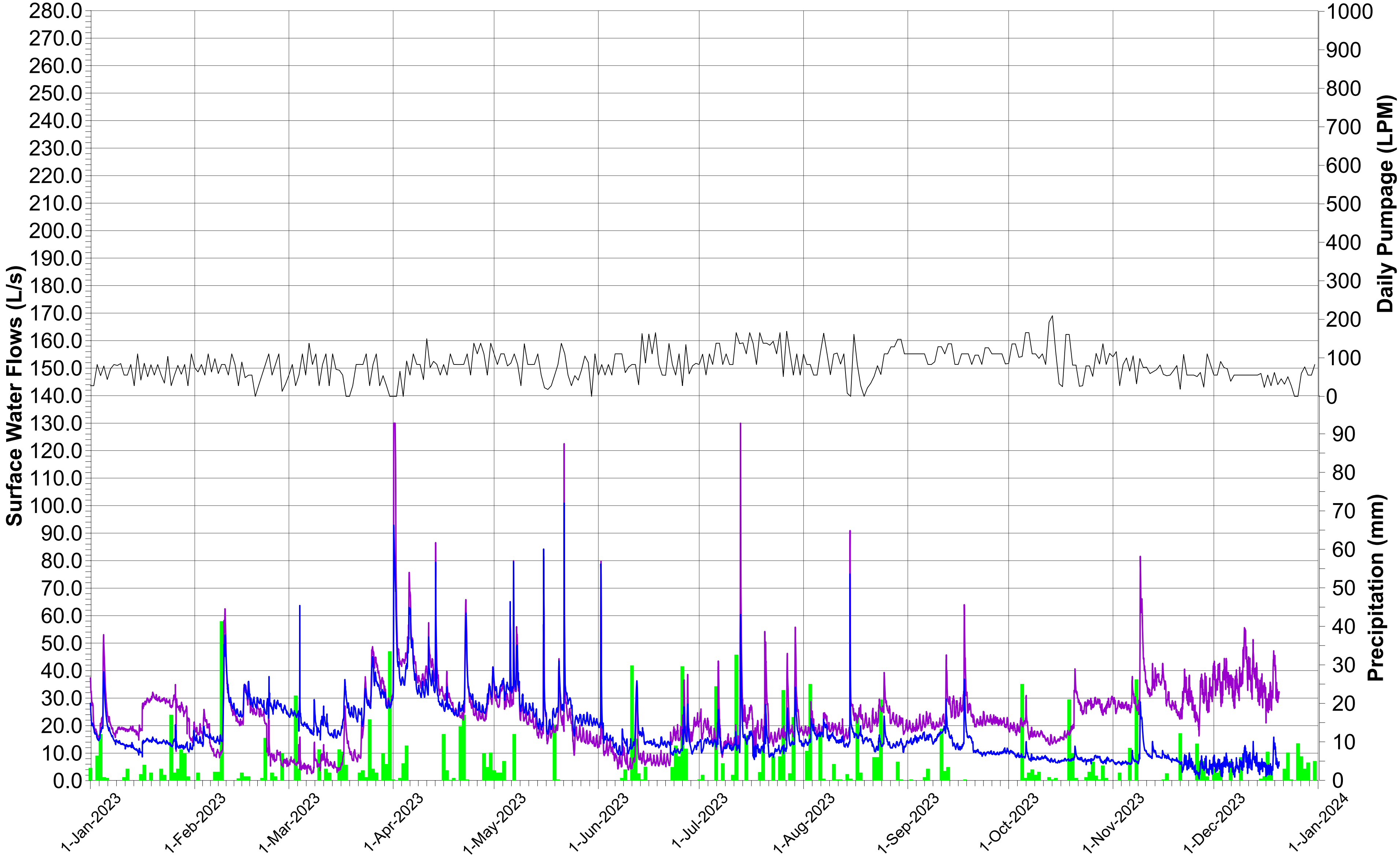
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

HYDROGRAPH FOR SURFACE WATER FLOWS AT SW1-08 and SW1A-20 2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	F1a



TW1-88 Daily Pumpage
Precipitation
SW1-08
SW1A-20

DATE	FEBRUARY 2024
DESIGN	AB
REVIEW	GP
APPROVED	GP

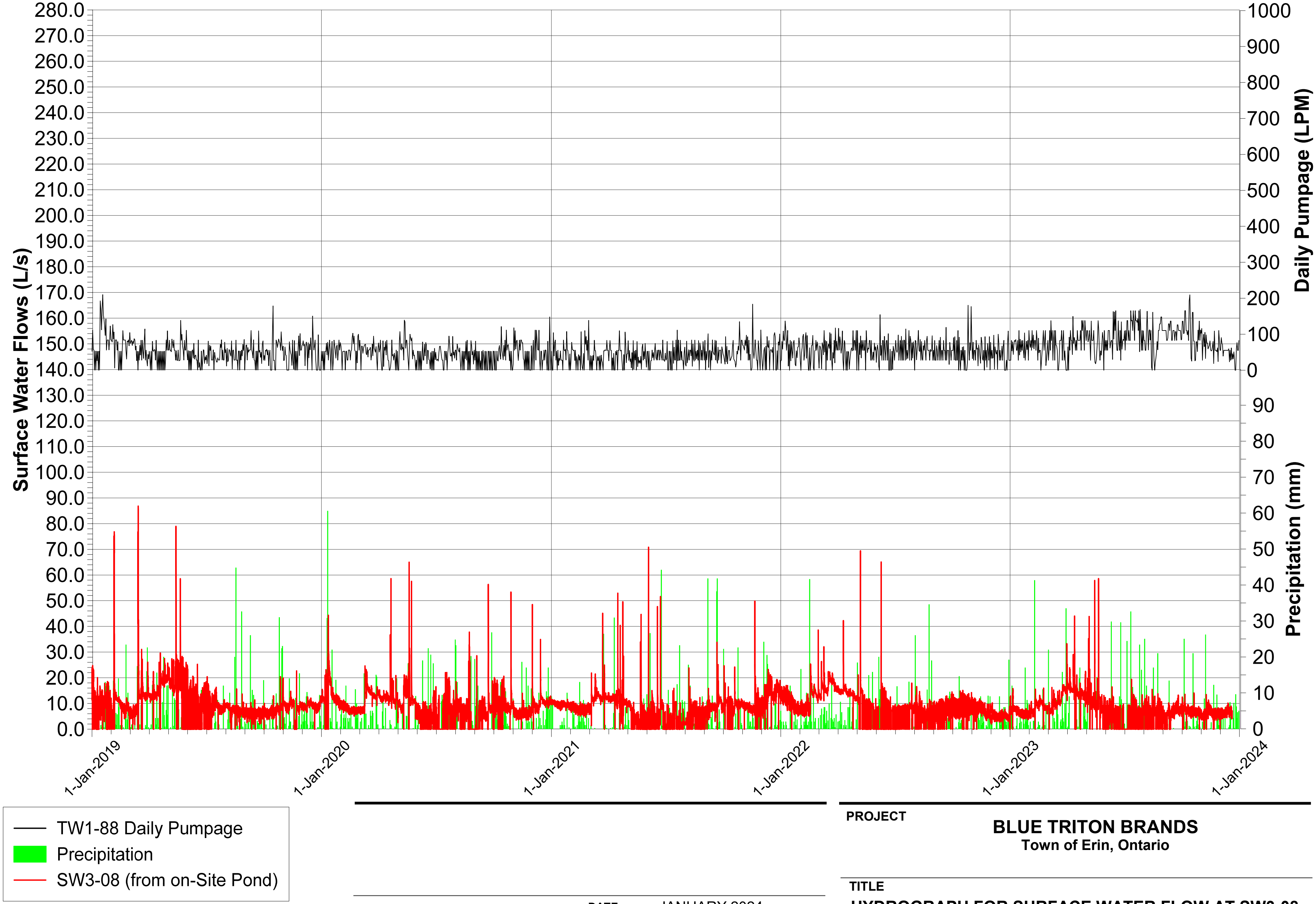
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

HYDROGRAPH FOR SURFACE WATER FLOWS AT SW1-08 AND SW1A-20 (2023 DATA)
2023 ANNUAL MONITORING REPORT

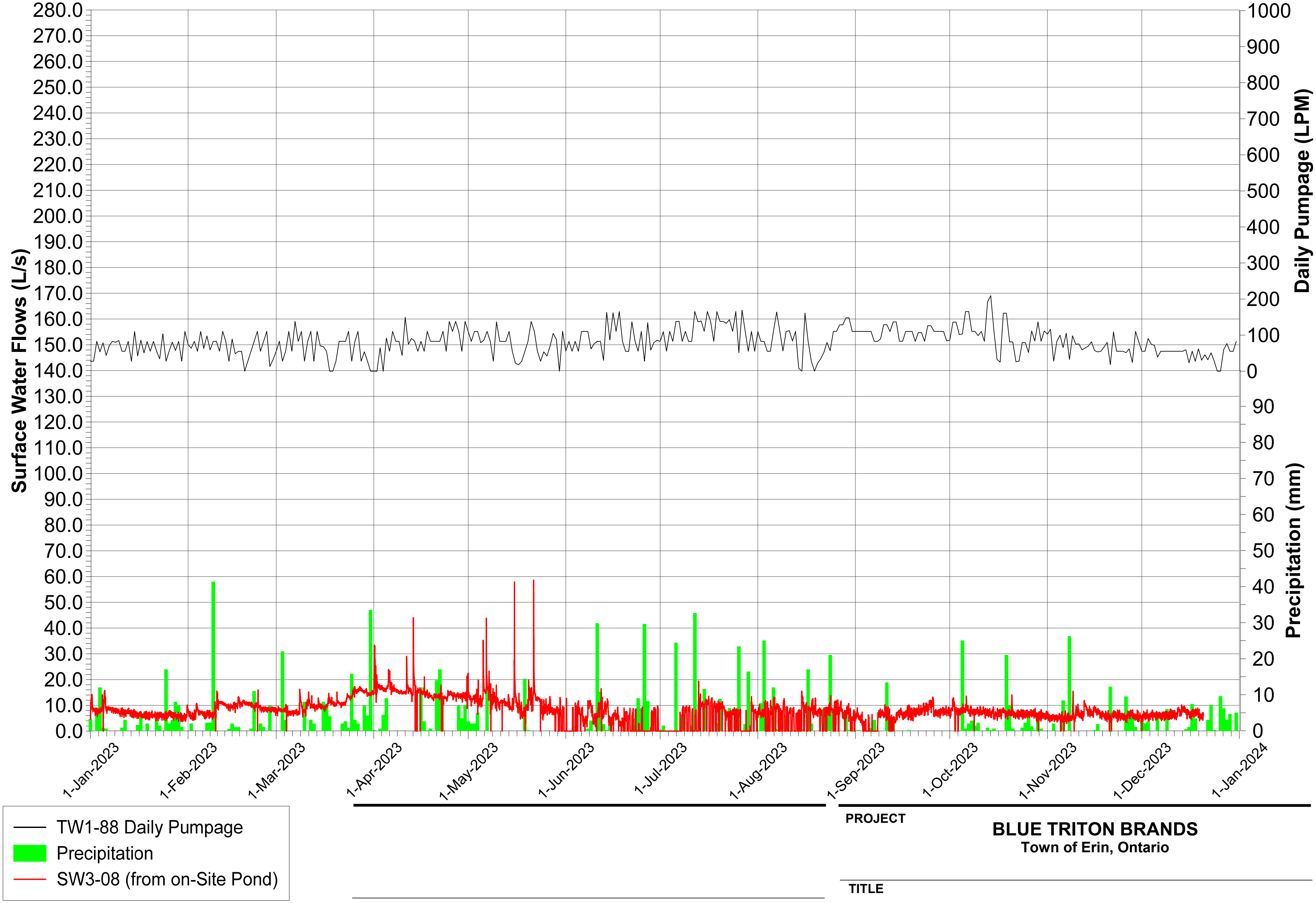
PROJECT NO.	REV	FIGURE
20449101 (7100)	A	F1b



PROJECT	**BLUE TRITON BRANDS** **Town of Erin, Ontario**
TITLE	**HYDROGRAPH FOR SURFACE WATER FLOW AT SW3-08** **2023 ANNUAL MONITORING REPORT**

DATE	JANUARY 2024
DESIGN	AB
REVIEW	GP
APPROVED	GP

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	F2a



DATE	JANUARY 2024
DESIGN	AB
REVIEW	GP
APPROVED	GP

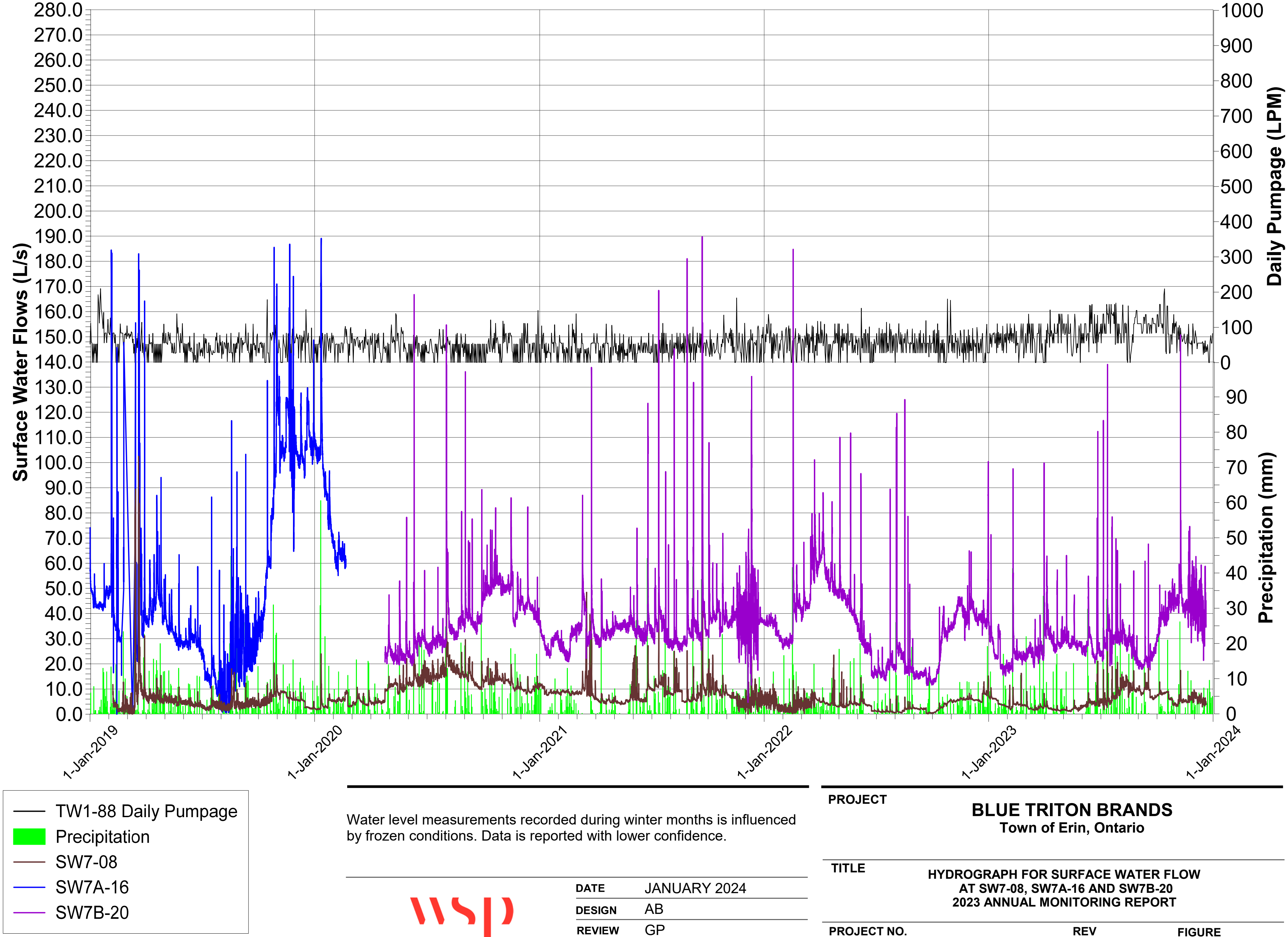
PROJECT

BLUE TRITON BRANDS
Town of Erin, Ontario

TITLE

HYDROGRAPH FOR SURFACE WATER FLOWS AT SW3-08 (2023 DATA)
2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	F2b



Water level measurements recorded during winter months is influenced by frozen conditions. Data is reported with lower confidence.

DATE	JANUARY 2024
DESIGN	AB
REVIEW	GP
APPROVED	GP

PROJECT

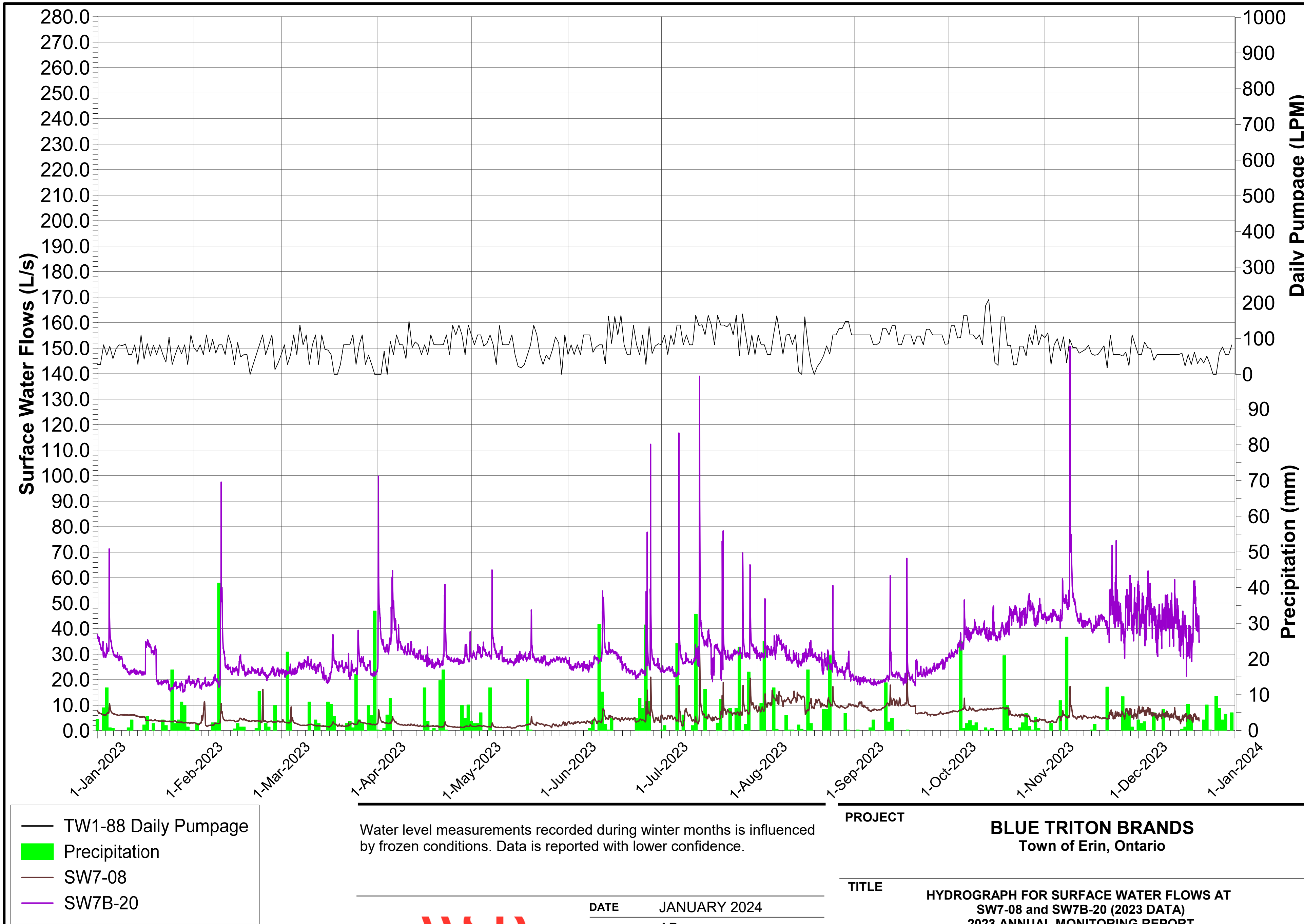
BLUE TRITON BRANDS

Town of Erin, Ontario

TITLE

HYDROGRAPH FOR SURFACE WATER FLOW AT SW7-08, SW7A-16 AND SW7B-20 2023 ANNUAL MONITORING REPORT

PROJECT NO.	REV	FIGURE
20449101 (7100)	A	F3a



Water level measurements recorded during winter months is influenced by frozen conditions. Data is reported with lower confidence.

DATE	JANUARY 2024
DESIGN	AB
REVIEW	GP
APPROVED	GP

PROJECT

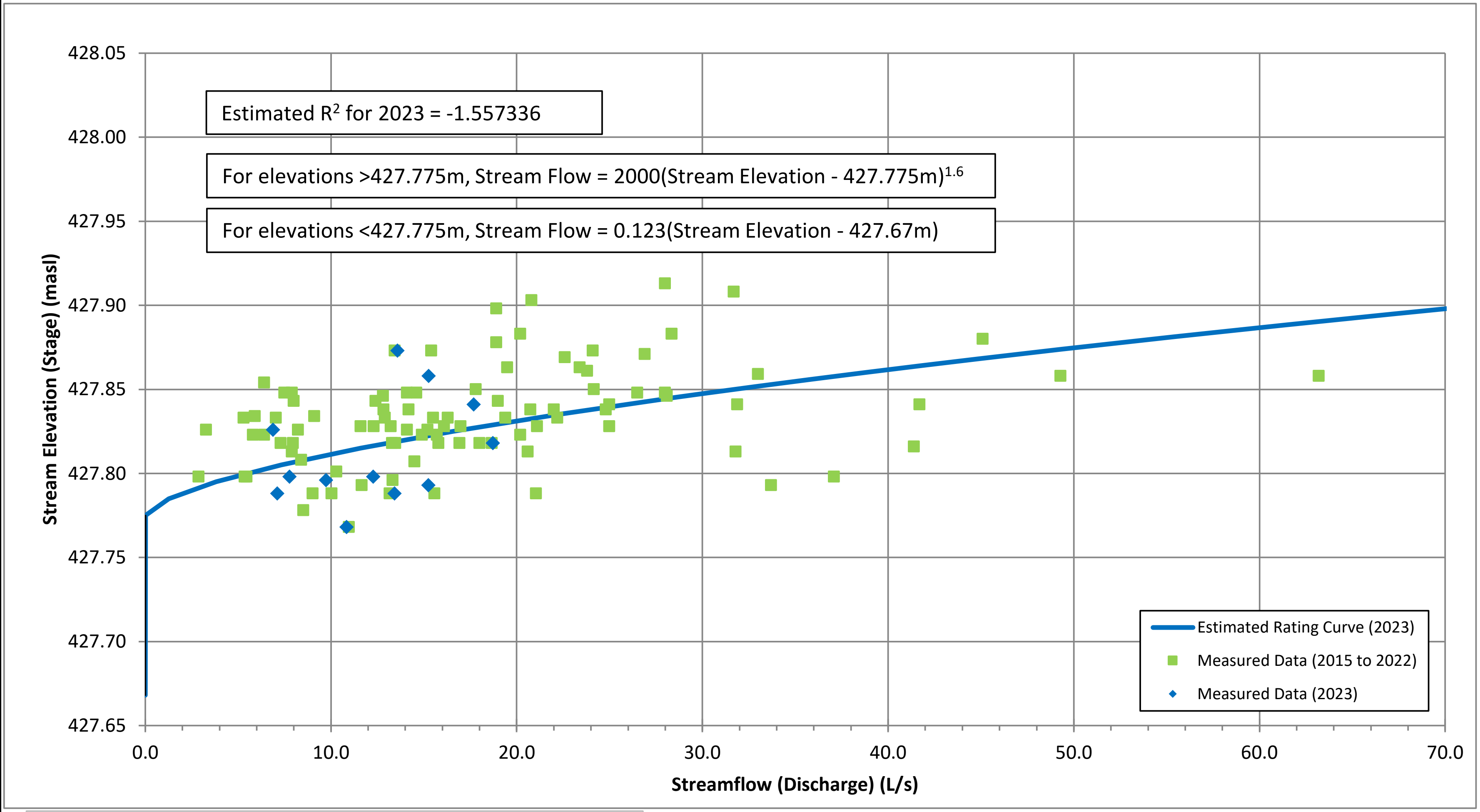
BLUE TRITON BRANDS

Town of Erin, Ontario

TITLE

HYDROGRAPH FOR SURFACE WATER FLOWS AT SW7-08 and SW7B-20 (2023 DATA) 2023 ANNUAL MONITORING REPORT

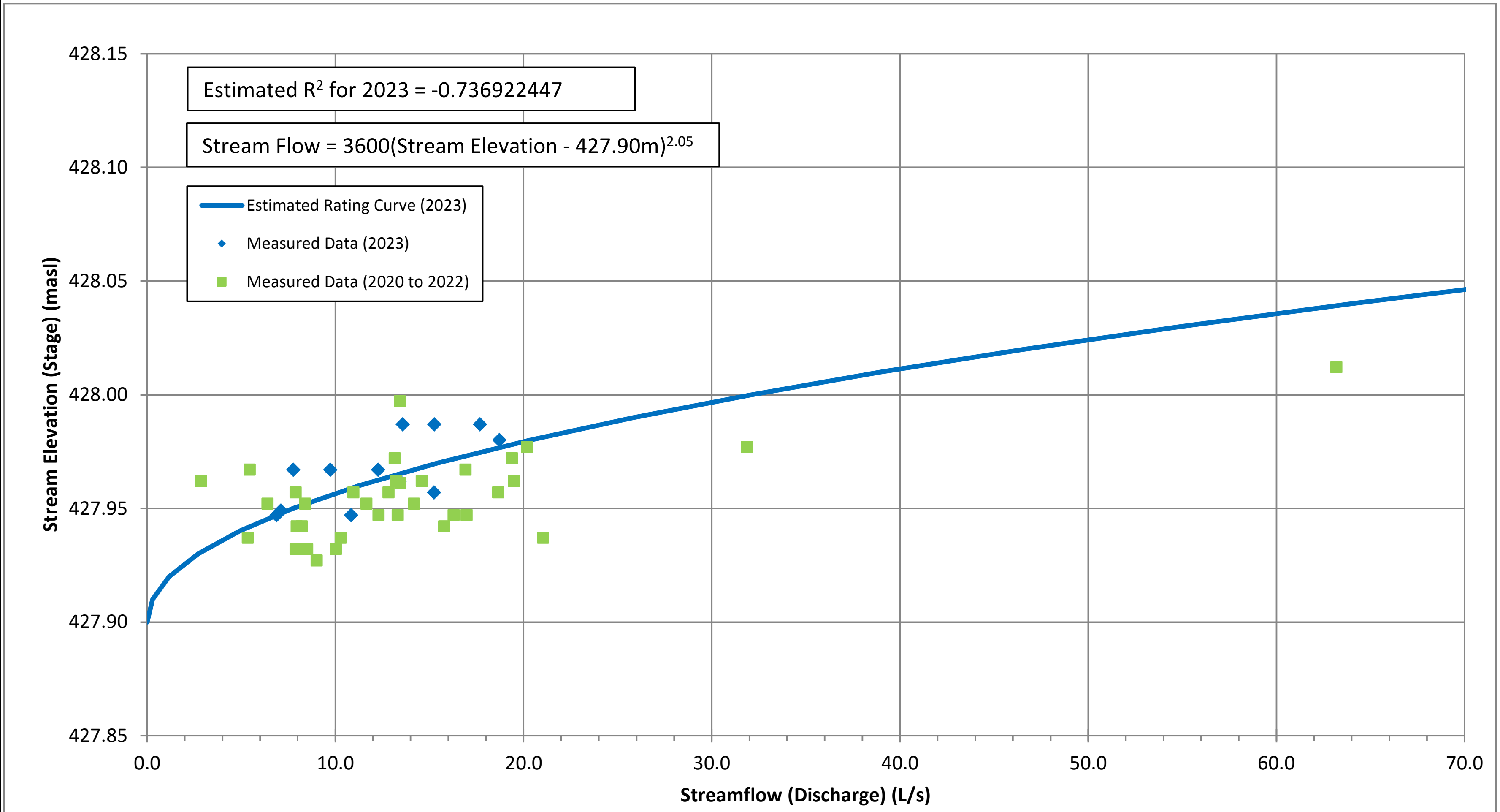
PROJECT NO.	REV	FIGURE
20449101 (7100)	A	F3b



2023 Data Notes:
In 2023, the range of water levels recording during manual flow measurements= 427.81 to 427.84 masl. The full range of water levels recorded in 2023 = ~427.79 to ~427.97 masl.

Figure F4

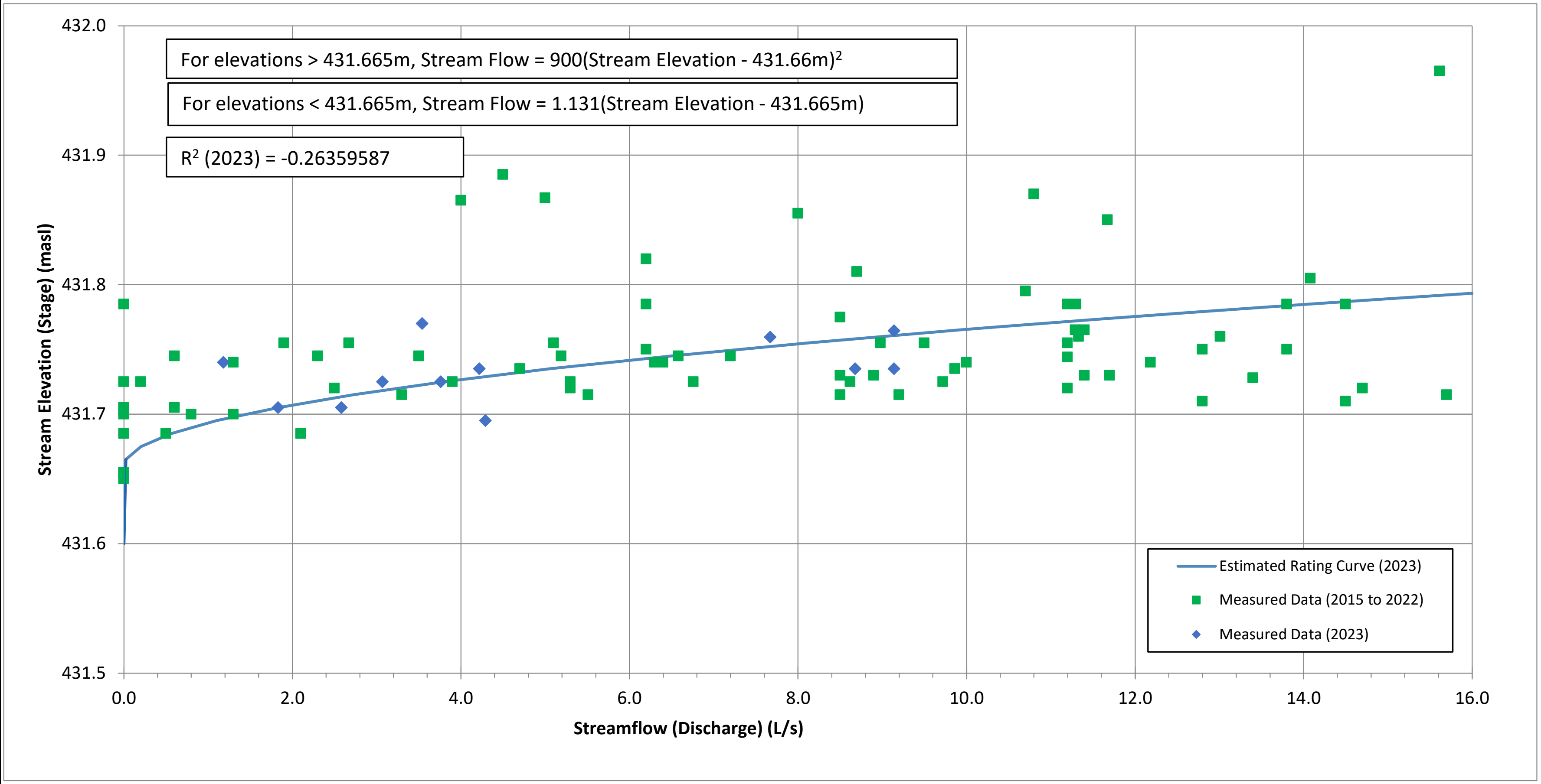
STAGE-DISCHARGE MEASUREMENTS FOR SW1-08 (2023)
2023 ANNUAL MONITORING REPORT
BLUE TRITON BRANDS
Town of Erin, Ontario



2023 Data Notes:
In 2023, the range of water levels recording during manual flow measurements= 427.95 to 427.99 masl. The full range of water levels recorded in 2023 = ~427.91 to ~428.07 masl.

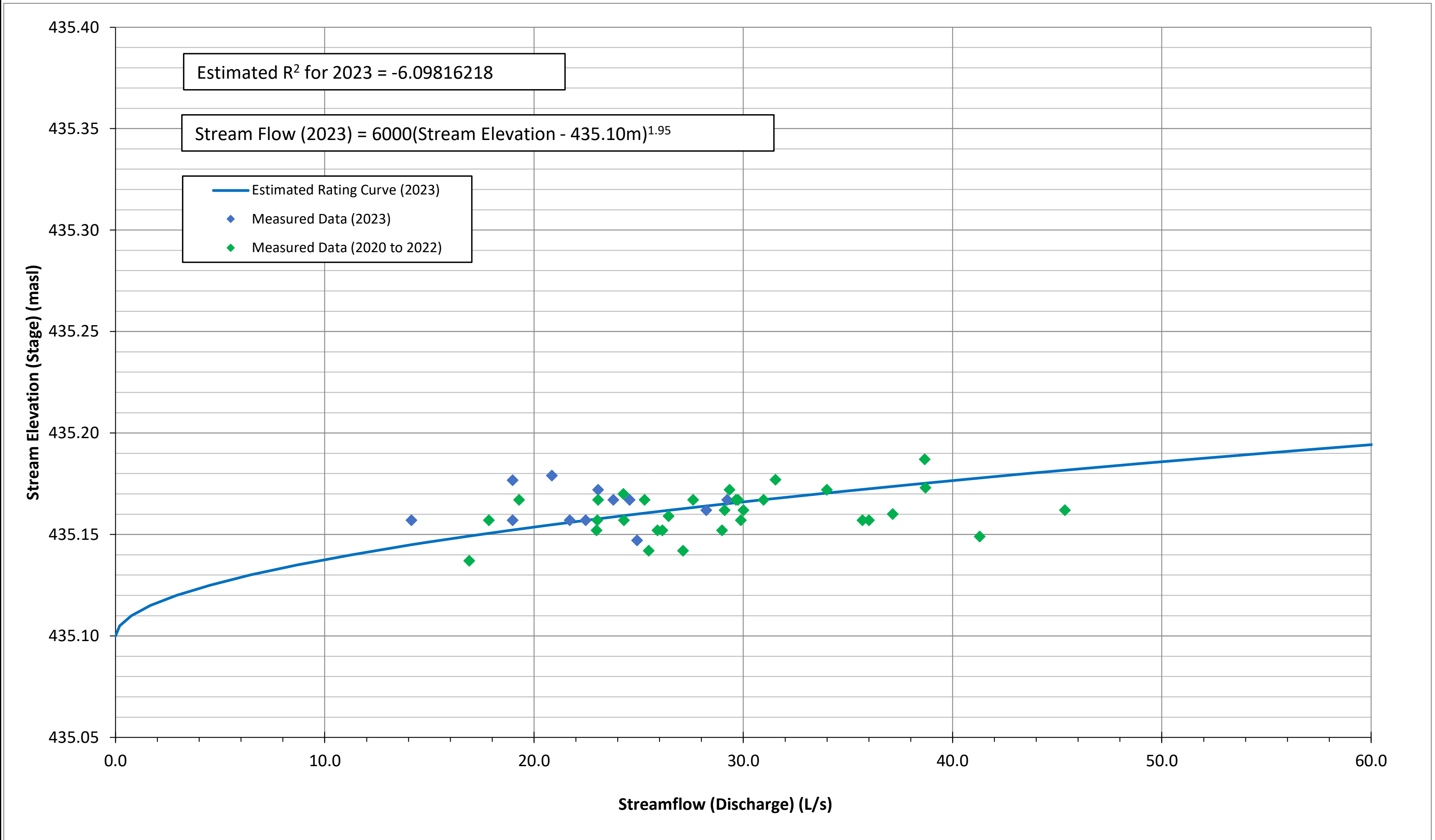
Figure F5

STAGE-DISCHARGE MEASUREMENTS FOR SW1A-20 (2023)
2023 ANNUAL MONITORING REPORT
BLUE TRITON BRANDS
Town of Erin, Ontario



2023 Data Notes:
In 2023, the range of water levels recorded during manual flow measurements= 431.70 to 431.77 masl. The full range of water levels recorded in 2023 = ~431.69 to ~431.85 masl.

Figure F6
STAGE-DISCHARGE MEASUREMENTS FOR SW7-08 (2023)
2023 ANNUAL MONITORING REPORT
BLUE TRITON BRANDS
Town of Erin, Ontario



2023 Data Notes:
In 2023, the range of water levels recorded during manual flow measurements= 435.15 to 435.18 masl. The full range of water levels recorded in 2023 = ~435.15 to ~435.27 masl.

Figure F7
STAGE-DISCHARGE MEASUREMENTS FOR SW7B-20 (2023)
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