

Long Term Pumping Test of TW1-21 Hydrogeological Report in Support of Arthur Water Supply Environmental Assessment

Arthur, Ontario Township of Wellington North



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Arthur, Ontario Township of Wellington North

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* Current Arthur PTTW 8202-9DNKD3 Expires May 31, 2024

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1.0 Introduction

R. J. Burnside & Associates Limited (Burnside) has been retained by the Township of Wellington North (Township) to complete the hydrogeological components of a water supply Environmental Assessment (EA) for the community of Arthur. The Township supplies drinking water to its residents within the community of Arthur boundaries through the Arthur Water Supply System which consists of three groundwater supply wells called 7B, 8A, and 8B. A new municipal supply well is required to support the growth of the Township and to improve water quality.

A review of existing information was presented to Township council in June 2021 that identified potential test drilling locations north of Arthur and south of Arthur at the Arthur Well 8AB site. Test well drilling north of Arthur was completed in November 2021. The project team reported the construction of a successful test well to council at their January 2022 meeting and recommended long term testing of the test well to determine the capacity and quality of the water from the site.

The test well named TW1-21 was constructed on Township owned land on the southeast corner of the unopened road allowances for Wells and MaCauley Streets, 840 m north of Domville Street. The location of TW1-21 is shown on Figures 1 and 2. The surrounding properties are currently cultivated but lands to the east are within the Arthur boundary and zoned industrial. Land to the west of Wells Street are outside the Arthur boundary and are zoned agricultural.

This report describes the construction and testing of TW1-21 which accesses an overburden aquifer that is interpreted as a potential new municipal water source for the community of Arthur. The TW1-21 overburden aquifer can produce over 27 L/s of water that contains lower concentrations of hardness, iron and manganese than the existing Arthur municipal wells but contains arsenic at a level that is above the half maximum allowable concentration (MAC) that would require treatment.

2.0 Background

2.1 Description of Existing Taking

In 1984 Burnside, with the assistance of Mr. David Crowley, established a new higher capacity overburden well called Arthur Well 7 in the southwest corner of the community. Arthur Well 7 was a 150 mm diameter well, had a capacity of 12.5 L/s (165 Igpm) and became the primary water supply for the Arthur municipal water system. Arthur Well 7 developed a hole in the casing, in 1997, due to corrosion and required repair. Once repaired, it was determined that Arthur Well 7 should be replaced with a new larger diameter well, Arthur Well 7B. Well 7B is a 250 mm diameter well and is located in the south west corner of Arthur on Wells Street (Figure 2) and was brought on-line on June 16, 2004.

A groundwater management study (GMS) was completed by Burnside for the Township of Wellington North in 2001. The GMS included the construction of several test wells one of which was located at the intersection of Highway 6 and County Road 109 on Eliza St. in an unopened road allowance. This Test Well indicated the presence of a deep overburden aquifer with a capacity in excess of 15.2 L/sec (200 Igpm).

Exploration at the southeast corner of Arthur continued in 2002 as part of a water supply EA. Due to less than ideal aquifer conditions and potential sources of contamination close to Arthur, Wells 8A/8B were eventually commissioned on the Jones Baseline approximately 2 km south of Arthur in November 2005 (Figure 2).

The wells for the Arthur System operate under PTTW 8202-9DNKD3 (Appendix A). The PTTW was renewed and issued on December 12, 2013 and expires on May 31, 2024. The well construction and permitted taking from each well is summarized below in Table 1.

| | Depth | Screened Interval | Permitted Flow | | |
|---------|-------|-------------------|-------------------------|---------------------------|--|
| Well | (m) | (m) | Maximum Rate (L/min) | Maximum Taking (L/day) | |
| Well 7B | 45.9 | 42.5 to 45.6 | 1,364 | 1,965,000 | |
| Well 8A | 61.9 | 55.8 to 61.9 | 1,570 | 2,261,000 | |
| Well 8B | 62.2 | 56.1 to 62.2 | 1,570 | 2,261,000 | |

Table 1: Arthur Water Supply Wells

2.2 2021-2022 Water Supply Environmental Assessment and Exploration

Exploration for a new water source outlined in the introduction was initiated to increase water quantity as per the 2021 water supply reserve calculations as well as redundancy through a desktop review of potential areas to develop new water sources.

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2.3 Quaternary and Bedrock Geology

The hydrogeology of the Arthur area consists of about 50 to 75 m of glacial derived overburden materials underlain by Paleozoic aged carbonate and shale bedrock. The glacial overburden consists primarily of thick layers of glacial till with thinner layers of sand and gravel sediments. The layers were laid down from glaciers that advanced and retreated (melted) multiple times from the north about 10,000 years ago. The thickest sand and gravel layers are typically found just above the bedrock in what are sometimes referred to as contact aquifers.

The deep sand and gravel contact aquifer is interpreted to be the source of water for Wells 7B, 8A, and 8B. The interpreted cross-sections (Figures 7 and 8) indicate few wells encounter these deposits in north Arthur, but it is the source of water for TW1-21.

2.4 Local Hydrogeology

Properties surrounding Arthur obtain their water from private groundwater supply wells. A review of MECP water well records and existing dwellings within 2,500 m of the TW1-21 Site (Appendix B) indicates 183 well records (excluding abandonment records) but no wells within 500 m. The well records locations are shown on Figure 2.

Of the 183 well records, 95 are recorded as supply wells. It is noted that many of these are located within the community of Arthur and have since been abandoned. Arthur Wells 1,2,3,4,5 and 6 were abandoned over 15 years ago. Of the 95 wells there are only 15 wells completed in the same sand and gravel overburden as TW1-21.

2.5 Well Survey

A door to door well survey was completed prior to long term testing. A review of the current MECP records database was used to identify existing wells within 2,500 m of the site. Burnside staff conducted a well survey of these locations and received permission to monitor 14 private wells, including four shallow monitoring wells. The monitoring wells were chosen based on accessibility, depth and location to be representative of all of the wells in the area.

A letter was provided to all homeowners within 1,000 m of the well testing to provide notice of the test and emergency contact information. A copy of the letter is included in Appendix C.

2.6 Local Surface Water Features

The surface water features are shown on the surficial geology map. (Figure 3) The Conestogo River flows from east to west along the south side of Arthur. TW1-21 is located approximately 1500 m north of the Conestogo River. Farely Creek is a tributary of the Conestogo River that flows from east to west north of Arthur and curves to the southwest on the west side of Arthur. The confluence of Farley Creek and the Conestogo River is just upstream of Arthur Well 7.

Farley Creek flows from northeast to southwest approximately 150 m west of TW1-21. An intermittent drainage swale, that is visible on Figure 3, begins in the farm field just east of Wells Street, crosses west under Wells Street approximately 530 m to the north of TW1-21 and then joins Farley Creek. Farley Creek flows to the southeast and crosses south under Wellington County Rd 109 west of Arthur (Figure 2).

A piezometer and a staff gauge were installed in Farley creek to monitor changes in the creek flows and shallow groundwater levels beneath the Creek. The installation of the piezometer and subsequent water level measurements indicate that the soils are relatively fine grained which is consistent with the surficial geology map that indicates silty to clayey till for the area. The location of the piezometer (PZ1) and the staff gauge (SG1) are shown on Figure 2.

3.0 Methodology

3.1 Well Monitoring Program

As part of the long-term pumping test monitoring program, Burnside installed automatic water level recorders (AWLR's) in seven of the fourteen selected private wells. The wells were also monitored manually before, during and after the pumping test, except for the domestic well at 7975 Side Road 10 East which was added to the monitoring network at the start of the pumping test. The wells at 7975 side Road 10 East, 15 Wells Street and 8565 County Road 14 were monitored with a sonic level meter due to accessibility issues. ALWRs were also installed in PZ1 and SG1 during the pumping test. The monitored wells are summarized in Table 2 below.

The wells that are included in the Township's PTTW monitoring program were also included, as well as TW1-21 and MW1-21. MW1-21 is a 50 mm diameter monitoring well-constructed 7 m south of TW1-21 and screened into the same formation as TW1-21. Water levels at the three Arthur supply wells (7B, 8A, and 8B) are monitored with a SCADA system the water level and pumping data prior to, during and after the

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pumping test was provided to Burnside following the pumping test. The monitoring locations are summarized in Table 2 and the well locations are shown on Figure 2.

| Monitoring Location | Monitoring Method | Well Use | Well Depth (m) | Primary Water Source | Distance to TW1-21 (m) |
|------------------------|----------------------|------------|----------------------|----------------------------|------------------------------|
| TW1-21 | Manual / AWLR | Test Well | 47.5 | Deep | 0 |
| | | | | Overburden | |
| MW1-21 | Manual / AWLR | Monitoring | 42.7 | Deep | 7 |
| | | _ | | Overburden | |
| PZ1 | Manual / AWLR | Monitoring | 0.9 | Shallow | 180 |
| | | | | Overburden | |
| MW1 | Manual | Monitoring | 4.6 | Shallow | 350 |
| | | | | Overburden | |
| MW3 | Manual | Monitoring | 4.5 | Shallow | 510 |
| | | | | Overburden | |
| 510 Eliza | Manual / AWLR | Commercial | 72.1 | Bedrock | 645 |
| MW2 | Manual | Monitoring | 7.1 | Shallow | 660 |
| | | Ū | | Overburden | |
| 8580 CR14 | Manual / AWLR | Domestic / | 61.0 | Bedrock | 775 |
| | | Farm | | | |
| 8565 CR14 | Sonic | Domestic / | 130 | Bedrock | 790 |
| | | Farm | | | |
| 8566 CR14 | Manual / AWLR | Domestic | 114 | Bedrock | 795 |
| 8590 CR14 | Manual / AWLR | Domestic | 45.7 | Deep | 1095 |
| | | | | Överburden | |
| 15 Wells St | Sonic | Commercial | 108 | Bedrock | 1190 |
| | | | | | |
| 8048 Line 2 | Manual | Domestic | 113 | Bedrock | 1600 |
| 8061 Line 2 | Manual / AWLR | Domestic | 52.4 | Bedrock | 1615 |
| MW4 | Manual / AWLR | Monitoring | 10.6 | Shallow | 1890 |
| | | Ū | | Overburden | |
| 8610 HW6 | Manual / AWLR | Domestic | 56.1 | Deep | 2315 |
| | | | | Overburden | |
| 7795 SR10E | Manual / AWLR | Domestic | 70.1 | Bedrock | 2405 |
| 7975 SR10E | Manual | Domestic | 37.2 | Deep | 2300 |
| | | | | Overburden | |
| WN-MW1/00 | Manual / AWLR | PTTW | 51.5 | Deep | 2030 |
| | | Monitoring | | Overburden | |

Table 2: Well Monitoring Locations

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| Monitoring Location | Monitoring Method | Well Use | Well Depth (m) | Primary Water Source | Distance to TW1-21 (m) |
|------------------------|----------------------|------------|----------------------|----------------------------|------------------------------|
| 7794 HW 109 | Manual / AWLR | Domestic / | 51.4 | Deep | 2295 |
| | | PTTW | | Overburden | |
| | | Monitoring | | | |
| Arthur 7A | SCADA | Municipal | 44.6 | Deep | 2050 |
| | | | | Overburden | |
| Arthur 8A | SCADA | Municipal | 61.9 | Deep | 3220 |
| | | | | Overburden | |
| Arthur 8B | SCADA | Municipal | 62.2 | Deep | 3190 |
| | | | | Overburden | |
| TW4/02 | AWLR | PTTW | 63.3 | Deep | 3250 |
| | | Monitoring | | Overburden | |

Hydrographs showing the water level monitoring data for each location are provided in Appendix D.

Water quality was monitored throughout the test and included:

- Continuous ultraviolet light transmission (UVT) and Turbidity monitoring at the pumping well TW1-21.
- Regular sampling from TW1-21 for analysis of general chemistry.
- Regular sampling from TW1-21 for analysis of e. coli and total coliforms.
- Pre-test and end of test sampling from shallow and deep overburden monitoring wells for analysis of general chemistry.
- Sampling from Farley Creek for analysis of general chemistry.
- Two samples from TW1-21 for analysis to indicate the presence of *Cryptosporidium* spp. and *Giardia* spp., and the presence of pigment-bearing algae and diatoms (PBADs).
- Sample collected from TW1-21 at the end of the test for analysis of ODWS.

The water quality results are discussed in Section 5.0.

3.2 Construction of TW1-21 and MW1-21

Microbiological and Protozoa Evaluation Results TW1-21 construction included a 150 mm nominal diameter steel casing installed to 42.4 mbgs. The annular space outside the well casing was sealed with neat cement grout with a wet density of 1,750 kg/m³. A 4.9 m long, no. 50 slot opening screen with a 140 mm diameter was installed from 42.7 to 47.5 mbgs. The screen was connected to the well casing with a 1.2 m screen extension and neoprene rubber K-packer which was installed from 41.5 to 42.7 mbgs.

A monitor well called MW1-21 was constructed 7.4 south of TW1-21. MW1-21 is a 50 mm nominal diameter PVC monitoring well that accesses the deep overburden aquifer through a No. 10 slot screen installed from 39.6 to 42.7 mbg. MW1-21 is screened into the same formation as TW1-21, although at a slightly higher interval. The monitoring data indicates that the water levels in the wells are the same under static conditions.

3.3 Variable Rate Testing

A variable rate pumping test was completed on TW1-21 on November 29, 2021. During the test, TW1-21 was pumped at successively increasing rates of 6, 13, and 19 and 25 L/s for 20 minutes each with 20 minutes recovery between steps. The results of the variable rate testing are summarized in Table 3. Graphs of the variable rate test are included in Appendix E.

| Step | Pumping Rate (L/s (L/min)) | Pumping Water Level at 30 minutes (m bgl) | Drawdown at 20 minutes (m) | Specific Capacity (L/s/m) |
|------|-------------------------------|---|-------------------------------|---------------------------------|
| 1 | 6.3 (379) | 10.54 | 0.70 | 9.01 |
| 2 | 12.6 (757) | 11.56 | 1.72 | 7.34 |
| 3 | 18.9 (1136) | 12.97 | 3.13 | 6.05 |
| 4 | 25.3 (1514) | 14.67 | 4.83 | 5.22 |

Table 3: Variable Rate Testing

Specific capacity is a way to measure efficiency of a well and available capacity. It is a pumping rate divided by the drawdown required to achieve the pumping rate. The variable rate test indicated that TW1-21 could produce a high capacity of water with a relatively high specific capacity of over 5 L/s/m. The specific capacity declined as pumping test increased due to the lack of full recovery between steps. The variable rate test indicated that a 6-day long-term pumping test could be completed at greater than 20 L/s (1200 L/min).

3.4 Long Term Pumping Test

A pumping test design report was completed by Burnside to meet the requirements for registering in the Environmental Activity Sector Registry (EASR). The pumping test EASR was registered on May 16, 2022 (Reg. No. R-011-9152754560) and permitted taking at maximum rate of 42 L/s (2,500 L/min) for seven days. Letters were delivered to properties within 1,000 m of TW1-21 (and outside of Arthur) prior to the test to provide notification and contact information.

The long-term pumping test consisted of pumping from TW1-21 at 23 L/s for 144 hours (6 days) and pretest and post-test monitoring. During the test, discharged water was pumped through a 150 mm diameter lay-flat hose to Farley Creek 150 m north of

TW1-21, downstream of PZ1 and SG1. The water was discharged first to a tarp to remove the potential for erosion before draining into Farley Creek.

TW1-21 was pumped at 23 L/s (1,382 L/min, 304 IGPM) for 144 hours (6 days) from June 18, 2022 at 09:10 to June 24, 2022 at 09:15.

3.5 Weather Conditions

Temperature and precipitation data during the monitoring period was obtained from the Environment and Climate Change Canada's nearby Fergus Shand Dam weather station. The data indicate that on June 11, 7 days before the test, 8.6 mm of rain was recorded. For the next 12 days the station only reported precipitation on June 20, when 0.2 m of precipitation was recorded. 7 days after the end of the test a total of 4 mm of precipitation was recorded with the precipitation occurring five and seven days after the test ended. The daily precipitation recorded at the Shand Dam is included on the hydrographs in Appendix C.

Precipitation data for 2022 was compared to historical data from the 1981 to 2010 Climate Normals. The precipitation data from April to June 2022 was below average as it was only 70 % of the historical normals. The period following the test was also drier than normal as 50 % of the historical normal precipitation was recorded in July.

4.0 Response to Long Term Pumping Test

A summary of the water level response to the long-term pumping test is provided in Table 4 and on Figure 9. Hydrographs showing the monitoring data for all the monitored wells have been included in Appendix C. The hydrographs show the water level data before, during and after the pumping test in relation to the ground surface, well depth and approximate pump depth. A second hydrograph for each well is also included to show more detailed water level trends during the pumping test period. These were used to interpret the drawdown caused by the pumping test and seasonal water level declines.

| Well | Aquifer | Distance (m) | Interpreted Drawdown (m) |
|--------------------|-----------------|-----------------|-----------------------------|
| TW1-21 | Deep Overburden | 0 | 14.56 |
| MW1-21 | Deep Overburden | 7 | 13.02 |
| 8565 CR14 | Bedrock | 780 | 3.3 |
| 8580 CR14 | Bedrock | 745 | 3.0 |
| 8566 CR14 | Bedrock | 795 | 2.5 |
| 510 Eliza | Bedrock | 645 | 2.2 |
| 15 Wells St Arthur | Bedrock | 1185 | 0.8 |

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| Well | Aquifer | Distance (m) | Interpreted Drawdown (m) |
|-------------|--------------------|-----------------|-----------------------------|
| 7975 SR10E | Deep Overburden | 2300 | 0.7 |
| 8590 CR14 | Deep Overburden | 1080 | 0.7 |
| 7795 SR10E | Bedrock | 2400 | 0.4 |
| PZ1 | Shallow Overburden | 176 | 0 |
| 8048 Line 2 | Bedrock | 1580 | 0 |
| 8610 HW6 | Bedrock | 2275 | 0 |
| MW3 | Shallow Overburden | 491 | 0 |
| MW1 | Shallow Overburden | 341 | 0 |
| MW4 | Shallow Overburden | 1890 | 0 |
| 8061 Line 2 | Bedrock | 1600 | 0 |
| MW4 | Shallow Overburden | 660 | 0 |
| WN-MW1/00 | Deep Overburden | 2030 | 0 |
| Voisin Well | Deep Overburden | 2295 | 0 |
| TW4/02 | Deep Overburden | 3250 | 0 |
| Arthur 7A | Deep Overburden | 2050 | 0 |
| Arthur 8B | Deep Overburden | 3190 | 0 |
| Arthur 8A | Deep Overburden | 3220 | 0 |

4.1 Response at TW1-21 and MW1-21

The static water level in TW1-21 prior to pumping was 8.63 mbgs. At the end of the pumping test the water level at TW1-21 was 23.19 mbgs (total drawdown of 14.56 m). The hydrograph of TW1-21 shows a gradual flattening as the last 8 hours of pumping produced only 0.15 m in drawdown (Appendix D). After pumping stopped, TW1-21 reached 30% recovery after two hours, and 80% recovery after 36 hours. The post pumping test water level is approximately 0.7 m lower than the static level prior to the pumping test. The lower level is interpreted to be a seasonal decline due to the dry conditions and increased taking from the aquifer on a regional level. The seasonal decline observed in the monitoring wells is discussed further in Section 4.3.

MW1-21 is a 50 mm diameter monitoring well located 7.4 m south of TW1-21. MW1-21 is interpreted to be screened in the same overburden aquifer as TW1-21. The static water levels in MW1-21 and TW1-21 differ by less than 0.03 m during static conditions.

The water levels at MW1-21 matched the water level trends at TW1-21, with 1.54 m less drawdown at MW1-21 than TW1-21 for the duration of the test. The final drawdown at TW1-21 was 13.02 m. Recovery trends were the same at MW1-21 as TW1-21.

4.2 Response at Monitoring Wells

Figure 9 shows the interpreted drawdown at each monitoring location. Four of the monitoring wells, located on Eliza Street / Wellington County Road 14 (8580 CR14, 8565 CR14, 8566 CR14 and 510 Eliza) responded to the pumping with more than 2 m of drawdown. These four wells are the only supply wells located within 1 km of TW1-21 and are located at distances between 645 and 795 m from TW1-21. The four wells followed similar trends prior to and during the pumping test, however the water levels are obscured at 8580 CR14 due constant high use of the well.

The wells are all completed in bedrock. The hydrographs show the wells began responding during the first day of the test and are interpreted to continue drawing down until approximately 24 hours after pumping was stopped. The interpreted total drawdown from the pumping test ranged from 2.2 to 3.3 m. The post pumping test water levels show the recovery is slower than the rate of drawdown during the pumping test, with approximately 50% recovery recorded 4 weeks after the pumping stopped, and the interpreted static levels after the pumping test are approximately 0.9 m lower than the static levels prior to the pumping test.

8590 Wellington Country Road 14 (8590 CR14) is a domestic well located 1 km north of TW1-21 that is completed in the deep overburden. The well is interpreted to follow a similar trend to that of the four close bedrock wells, however the water level trend is obscured by 1 to 2 m water level fluctuations. The fluctuations are interpreted to be caused by periods of increased water taking at nearby farms. The general trend indicates the well began drawing down approximately 3 days after the start of the pumping test, and total drawdown is interpreted to be approximately 0.8 m. The well then recovered to about 0.6m below the pre-test levels after 4 weeks.

7795 Side Road 10 East (7795 SR10E) is a domestic / farm well located approximately 2.3 km north of TW1-21 that is completed in the deep overburden. Permission to monitor the well was not received until the start of the pumping test. 7975 Side Road 10 East (7975 SR10E) is a domestic well located approximately 2.4 km northwest of TW1-21 that is completed in bedrock. Both wells are interpreted to be gradually declining prior to the pumping test and started drawing down in response to the pumping test after approximately 4 days of pumping. The drawdown is interpreted to continue for 2 to 4 days after the end of pumping at both wells. The AWLR data at 7975 SR10E indicated the wells slowly recovered for approximately 4 weeks after the pumping test and then continued declining on a trend similar to the trend observed before the pumping test. The interpreted total drawdown at 7795 SR10E is 0.4 m and at 7975 SR10E is 0.7 m.

15 Wells Street (15 Wells St) is a bedrock well located approximately 1.2 m southwest of TW1-21 and is also located approximately halfway between TW1-21 and Arthur Well 7B. Similar to 7795 SR10E and 7975 SR10E, 15 Wells St is interpreted to have been

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gradually declining down prior to the start of the pumping test and began responding to the pumping test after approximately 2 days of pumping. The well is interpreted to continue drawing down after pumping stopped for 24 hours, and the interpreted total drawdown is 0.8 m. As the well was only monitored manually, the interpretation of the recovery data is limited. However, recovery is interpreted to have been slow, like the recovery of the wells previously discussed.

8048 Line 2 and 8061 Line 2 are domestic bedrock wells located approximately 1.6 km northeast of TW1-21. Both wells are interpreted to have been seasonally declining during the monitoring period with no observable response to the pumping test. The water levels declined by approximately 0.6 and 1.0 m during the monitoring period.

The monitoring wells (MW1 through MW4) are between 4 and 11 m in depth and are all completed in the fine-grained (silt and / or clay) shallow overburden. MW1, MW2 and MW3 are located to the east, north and south of TW1-21 within 700 m. MW4 is located on the East side of Arthur approximately 2 km south of TW1-21. MW1, MW3 and MW4 water levels declined seasonally during the monitoring period between 0.3 to 0.6 m with no observable response to the pumping test. MW2 (a monitoring well located adjacent to a manure pit, Figure 9) was sampled prior to and at the end of the pumping test and was recovering from the sampling throughout the monitoring period.

Arthur 7B is a municipal production well located 2.0 km south of TW1-21. Arthur 7B draws water from a deep overburden like TW1-21. The SCADA system records water levels that were provided by Wellington North staff following the pumping test. The hydrographs are provided in Appendix D and show the water level declined by 1.2 m during the pumping test, beginning on the second day of the test. At the same time the daily production from Arthur 7B increased from 200 to 300 m³ to 650 m³. The Arthur 7B hydrographs show no interpreted response to the pumping test.

Arthur 8A and 8B are municipal production wells located south of Arthur, approximately 3.2 km south of TW1-21. Both wells are completed in the deep overburden like Arthur Well 7B and TW1-21. The hydrographs show the static water level in both wells was declining throughout the monitoring period. Based on review of water level trends in previous years, the declining trend is interpreted to be due to increased water consumption and seasonal variations.

4.3 Surface Water Monitoring

SG1 and PZ1 were used to monitor Farley Creek during the pumping test. PZ1 was installed adjacent to the creek, upstream of the pumping test discharge, and is 0.9 m deep. SG1 was installed in the creek adjacent to PZ1. The monitoring data for SG1 and PZ1 were plotted on the same hydrograph for comparison of the creek and shallow groundwater levels. The hydrographs show the level of Farley Creek generally declined throughout the monitoring period due to seasonally dry conditions, groundwater levels in

PZ1 were consistently above the surface water levels prior to during and after the pumping test. No response to pumping is interpreted.

4.4 Aquifer Analysis

The deep overburden aquifer at TW1-21 directly overlies the bedrock aquifer. TW1-21 and MW1-21 are both constructed in a very thick and permeable (highly transmissive) portion of the overburden aquifer that thins and becomes finer moving away from TW1-21 and MW1-21. The water level response observed during the test is typical for a leaky confined aquifer with a limiting boundary. Cross-sections on Figures 5, 6, and 7 show the interpreted geology in the area (based on available well records) and show that sand and gravel deposits or contact aquifer have been interpreted to be present over much of the area, however the thickness of the sand and gravel aquifer reduces and is not present (or not reported) in many water well logs. Many bedrock well records do not report a deposit of sand and gravel overlying the bedrock as many drillers target the bedrock aquifer as their water source.

The deep overburden aquifer that TW1-21 draws from meets some of the requirements for Cooper & Jacob analysis. The drawdown has been plotted on a semi-logarithmic plot included in Appendix E. The early time (1 to 10 minutes) rate of drawdown corresponds to a Transmissivity of approximately 467 m²/day. This is a relatively high value and is representative of the confined coarse deposits of sand and gravel encountered during well construction and likely in the nearby area.

After 10 minutes the rate of drawdown began declining until reaching a steady rate of 5.6 m/log cycle at 100 minutes, corresponding to a transmissivity of 66 m²/day. At approximately 800 minutes, the rate of decline began decreasing, reaching a steady rate of 4.2 m per log cycle between 2000 minutes and the end of the pumping test. The final rate of drawdown corresponds to a transmissivity of 84 m²/day. Similar transmissivities can be calculated at MW1-21, and the corresponding storativity at the end of pumping test is 0.02. This data supports the interpretation described above.

The drawdown during the pumping test at 510 Eliza and 8566 CR14 has been plotted on a semi-logarithmic plot included in Appendix E. 8565 CR14 and 8580 CR14 followed very similar trends however the drawdown at these locations is obscured by heavy use of the well at 8580 CR14 and only manual readings at 8565 CR14. The rate of drawdown at the end of the test corresponds to a transmissivity of 86 m²/day and a storativity of 0.001. The transmissivity is like the value calculated at TW1-21, while the lower storativity indicates these wells are part of an aquifer with different characteristics than the deep overburden aquifer of TW1-21. These wells are all constructed as bedrock wells.

A distance drawdown plot is an alternative method of applying the Jacob Cooper straight line analysis that provides an 'average' aquifer transmissivity. A distance drawdown plot

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was prepared using the total interpreted drawdowns presented in Table 4 and is included in in Appendix E (Figure E-3). The plotted drawdowns show a general trend with a slope of approximately 5.6 m per log cycle which corresponds to a transmissivity of 129 m²/day and a storativity of 0.0004. This transmissivity is interpreted to represent an averaging of a more regional bedrock aquifer and the discontinuous contact aquifer. Slightly more drawdown was interpreted at upgradient wells when compared to their distance from the Test Well, except for 8590 CR14. 8590 CR14 is the closest deep overburden well to TW1-21 and may be more directly connected.

The hydrographs show that water levels in the monitored wells were declining from a typical springtime high during the monitoring period by 0.2 to 1 m. Most of the wells were observed to be gradually declining prior to and after the pumping test, while some wells, such as 8566 CR14 and Arthur 7B, only showed significant decline during the 6 day pumping test. The supply wells that responded to the test did not recovery fully and recovery was delayed.

The reduced recovery is interpreted to be due to end-of-spring decline in the regional aquifer due to a combination of reduced precipitation and increased taking by high-capacity water users. Historical water level monitoring data beginning in 2005 for Arthur is available and the historical data shows the typical summer drawdown in the deep overburden supply wells is approximately 1 m. In 2021 approximately 1 m of decline occurred at Well 7B during the month of May. The 2021 decline is like the decline observed during the 2022 pumping test, as the hydrograph shows fairly stable levels in the months before and after the decline (Inset 1).



Inset 1: Arthur Well 7B - 2021 Hydrograph

Review of the pumping test recovery shows that in MW1-21 and TW1-21, where drawdown was several times larger than the seasonal decline, recovery primarily occurred within the same period as the length of the pumping test. For wells that responded to the pumping test with drawdown close to or equal to the expected seasonal decline, recovery was observed to be delayed or to have not occurred at all. The slow recovery and occasional lack of any recovery is interpreted to be due to the expected seasonal decline coinciding with the pumping test and recovery periods.

4.5 Estimated Impact of Pumping at TW1-21

The Water and Sanitary Systems Technical Study – Arthur (Triton, 2020) reports the projected water use in Arthur for the year 2045 is 2368 m³/day (Maximum Day Demand (MDD)) which is a continuous flow of 27 L/s. The 2045 average day demand is assumed to half the maximum day demand, or 13.5 L/s. Figure E-6 and E-7 are a semi logarithmic plots illustrating the projected drawdown after 10 years of continuous pumping TW1-21 at the average demand, and 6 months of pumping at maximum demand. Results from the plots are summarized in Table 7.

The projected drawdown of the pumping well TW1-21 for 10 years of continuously pumping at 13.5 L/s is 15.5 m, and for 6 months at 27 L/s is 20.0 m. The closest monitored private supply wells are estimated to be impacted by approximately 4 m to

8 m for these scenarios. The remaining available drawdown was calculated at each well by subtracting the typical drawdown from use of the well and the projected drawdown from the static water level.

The remaining available drawdown ranges from 11 to 24 m, except at 8580 CR14 where no remaining drawdown is predicted. 8580 CR14 is the only well where interference was reported by the owner during the pumping test. This well is reported to produce sand under heavy pumping. The pump is installed higher than typical above the bottom of the well and is equipped with a flow restrictor. Long term pumping of a permanent production well at the TW1-21 site would require well upgrades or replacement of 8580 CR14.

| Location | Drawdown due to 6 day 23 L/s Pumping Test (m) | Estimated Drawdown after 6 months at 27 L/s | Estimated Drawdown after 10 years at 13.5 L/s | Available Drawdown (m) |
|--------------------|--|--|--|------------------------------|
| TW1-21 | 14.56 | 20.0 | 15.5 | 14.1 |
| MW1-21 | 13.02 | 18.5 | 14.0 | - |
| 8565 CR14 | 3.3 | 8 | 6 | 18.6 |
| 8580 CR14 | 3.0 | 8 | 6 | -1.4 |
| 8566 CR14 | 2.5 | 8 | 6 | 24.0 |
| 510 Eliza | 2.2 | 8 | 6 | 20.9 |
| 15 Wells St Arthur | 0.8 | 7 | 5 | 20.7 |
| 7975 SR10E | 0.7 | 7 | 5 | 11.8 |
| 8590 CR14 | 0.7 | 7 | 5 | 11.7 |
| 7795 SR10E | 0.4 | 6 | 4 | 11.0 |
| PZ1 | 0 | 0 | 0 | - |
| 8048 Line 2 | 0 | 0 | 0 | - |
| 8610 HW6 | 0 | 0 | 0 | - |
| MW3 | 0 | 0 | 0 | - |
| MW1 | 0 | 0 | 0 | - |
| MW4 | 0 | 0 | 0 | - |
| 8061 Line 2 | 0 | 0 | 0 | - |
| MW4 | 0 | 0 | 0 | - |
| WN-MW1/00 | 0 | 0 | 0 | - |
| Voisin Well | 0 | 0 | 0 | - |
| TW4/02 | 0 | 0 | 0 | - |
| Arthur 7A | 0 | 0 | 0 | - |
| Arthur 8B | 0 | 0 | 0 | - |
| Arthur 8A | 0 | 0 | 0 | - |

Table 5: Estimated Long-Term Drawdown from Pumping TW1-21

5.0 Water Quality Pumping Test Results

The results of the water quality sampling program are included in Appendix F including the chlorine demand testing and UVT and Turbidity monitoring. Table 8 provides a summary of key water quality parameters in samples obtained from TW1-21 during the long-term test compared to the ODWS and the existing Arthur municipal Wells.

| Date | 18-Jun | 20-Jun | 23-Jun | 24-Jun | ODWS | Well 7B | Well 8AB |
|------------------------|--------|--------|--------|--------|-------------|-------------|----------|
| Elapsed Time (hr) | 1 | 48 | 122 | 142 | - | Typical Qua | ality |
| Hardness as CaCO3 | 137 | 149 | 154 | 151 | 80-100 (OG) | 309 | 187 |
| Chloride | 1.2 | 1.3 | 1.3 | 1.4 | 250 (AO) | 25.9 | 0.9 |
| Sodium | 26.9 | 24.2 | 22.4 | 23.3 | 20 (*) | 36.6 | 22.4 |
| Iron | 0.079 | 0.136 | 0.149 | 0.153 | 0.3 (AO) | 0.7 | 0.04 |
| Manganese | 0.0182 | 0.0152 | 0.0155 | 0.0149 | 0.05 (AO) | 0.02 | 0.174 |
| Arsenic | 0.0061 | 0.0074 | 0.0063 | 0.0070 | 0.010 (MAC) | 0.003 | <0.0002 |
| Fluoride | 0.49 | 0.50 | 0.55 | 0.51 | 1.5 (MAC) | 1.3 | 0.35 |
| Nitrate as N | < 0.06 | < 0.06 | < 0.06 | < 0.06 | 10 (MAC) | <0.05 | <0.2 |
| Sulphate | 7.3 | 7.1 | 6 | 5.9 | 500 (AO) | 294 | 4.5 |
| Total Dissolved Solids | 195 | 198 | 197 | 196 | 500 (AO) | 520 | 206 |

Table 6: TW1-21 Water Quality during Long Term Pumping Test (mg/L)

ODWS – Ontario Drinking Water Standards

AO – Aesthetic Objective

OG – Operation Guideline

MAC – Maximum Acceptable Concentration

* - local Medical Officer of Health should be notified when concentration exceeds 20 mg/L

General chemistry of the pumped water from TW1-21 was sampled daily during the test, which included analysis of major ions and metals. The laboratory results indicate essentially stable water quality with slight changes. Some parameters increased in concentration to day 3 and then stabilized while others decreased slightly.

Arsenic, sodium, fluoride is noted to be within range of health related guideline limits.

• The concentration of arsenic was above 50% of the OWDS MAC guideline of 10 μ g /L. The concentrations ranged from 6.1 to 7.4 μ g /L as shown in the following graph.



Inset 2: Total Arsenic Concentration

- Concentrations of fluoride ranged from 0.49 to 0.55 mg/L with a slight increasing trend, reaching 37% of the OWDS MAC guideline of 1.5 mg/L. The concentrations are noted to be less than those at Arthur Well 7B.
- Similar to Wells 7B and 8AB, sodium was above the health guideline limit of 20 mg/L throughout the pumping test.

The water quality produced from TW1-21 is excellent except for arsenic. It is important to note that arsenic can change over a distance of less than 5 m so that a final production well constructed at this site may produce water with different arsenic content but it is likely that a well in this area will produce water with an arsenic concentration of more than 5 μ g/L.

MW1-21 was sampled for arsenic in October 2022 to assess the local variability of arsenic at the test site. The results of the sampling are included in Appendix F and ranged from 4.3 to 4.5 μ q/L and showed an increasing trend with time pumped. These results are like TW1-21 that indicated arsenic of about 4.5 μ g/L during initial testing.

5.1 Water Quality – Monitoring Wells and Surface Water

Water quality results for samples from MW3 and 8590 CR14 are included in Appendix F. The wells were sampled before and at the end of the pumping test to monitor for changes in water quality and to compare to the water quality at TW1-21. The results for indicator parameters nitrate, sodium, chloride, and sulphate are summarized in Table 7.

| Analysis (mg/L) | Filtere (Shallow Mo | d MW3 nitoring Well) | 8590 CR14 (Deep Overburden Domestic Well) | | |
|--------------------|------------------------|-------------------------|--|-------------|--|
| | Pre-Test | End of Test | Pre-Test | End of Test | |
| Nitrate | < 0.03 | < 0.03 | 0.161 | < 0.06 | |
| Sodium | 60.1 | 59.9 | 50.2 | 42.5 | |
| Chloride | 110 | 100 | 6.5 | 4.7 | |
| Sulphate | 34 | 54 | 3.8 | 3.4 | |
| Iron | 0.012 | 0.099 | 0.994 | 0.671 | |
| Manganese | 0.0080 | 0.0158 | 0.042 | 0.0413 | |

| Table 7: | Monitor We | II/Domestic | Well Water | [,] Quality | Summary |
|----------|-------------------|-------------|------------|----------------------|---------|
| | | | | | |

The results from MW3 indicate the pumping test likely had no impact on the water quality of the shallow groundwater table. The relatively low nitrate and sulphate suggest the well is not impacted by agricultural land use.

The samples from 8590 CR14 indicate a slight decrease in nitrate, sodium and iron over the course of the pumping test. The concentration of iron was 0.9 to 0.6 mg/L, above the ODWQS of 0.3 mg/L before and at the end of the test. The sodium concentration was above the reporting level of 20 mg/L before and at the end of the test. The relatively low nitrate and chloride suggest the well is not impacted by surrounding land use.

Samples were collected from Farley Creek at SG1 prior to and at the end of the pumping test, and the results are included in Appendix F. The results are typical of surface water and the nitrate concentrations of between 4 to 9 mg/L indicate the water quality is impacted by surrounding land use. No significant differences are noted in the water quality between the sampling events.

A piper plot has been prepared to compare the chemical composition of TW1-21 to 8590 CR14, MW3 and Farley Creek and the plot is included in Appendix F. The plot indicates the waters all differ in chemical composition and the samples from 8590 CR14 is interpreted to be the closest to that of the TW1-21 samples.

5.2 Microbiological and Protozoa Water Quality

Samples were collected from TW1-21 to evaluate the microbiological quality of the source water including: 1) presence of Escherichia coli (*E. coli*); 2) presence of *Cryptosporidium* spp. and *Giardia* spp., which respectively indicate fecal contamination by protozoa of public health significance and the need to provide treatment for protozoa;

and 3) the presence of pigment-bearing algae and diatoms (PBADs) which indicate hydraulic connectivity (i.e., a pathway) to the near surface. The samples were sent to AGAT labs for bacteriological analysis. Two samples of 400 L of filtered water were sent to the York Durham laboratory for PBAD, giardia and cryptosporidium analysis. Results are found in Appendix F.

| Date | Elapsed Time (hours) | Escherichia coli | Total Coliform | PBAD | Cryptosporidium (Oo) cysts | Giardia Cysts |
|---------|----------------------------|---------------------|-------------------|--------|----------------------------------|------------------|
| June 19 | 1850 | Not detected | Not detected | - | - | - |
| June 20 | 2885 | Not detected | Not detected | - | - | - |
| June 21 | 4730 | Not detected | Not detected | Absent | 0 | 0 |
| June 22 | 6045 | Not detected | 2 cfu/100 mL | - | - | - |
| June 23 | 7310 | Not detected | Not detected | Absent | 0 | 0 |

There were no Escherichia coli bacteria, PBADs, Cryptosporidium cysts or Giardia Cysts detected in any of the water samples analysed from TW1-21. Total coliform was only detected in the June 22 sample at 2 cfu/100 mL.

The water quality data (Appendix F) indicates that TW1-21 does not contain microscopic particles found in surface water. The results combined with the interpretation that the deep overburden aquifer is separated from surface water indicate that the aquifer accessed by TW1-21 is a secure source of groundwater.

5.3 Physical Water Quality – Turbidity and UVT

Continuous turbidity monitoring was completed by WIL during the pumping test using a HF Scientific MTOL+ Online Turbidimeter. UVT was measured using a HF Scientific AccuView LED Online UV Analyze. Results are plotted in Appendix F with the manual turbidity readings.

Manual turbidity readings were taken regularly at the site with a portable turbidity meter. The turbidity was an average of approximately 0.4 NTU and primarily fluctuated between 0.2 and 0.5 NTU. Temporary increases up to 0.8 NTU observed at after 1, 2 and 5 days of pumping. The OWDS MAC guideline is 1 NTU.

The online UVT monitoring indicates the UVT fluctuated between 92 and 95 % with no significant changes observed, other than during maintenance. Field manual and laboratory UVT readings taken at the end of the pumping test were 95.5 % and 95 %, respectively. The online UVT meter is suspected to have lost calibration due to build up of sediment or condensation and the maintenance completed midway through the pumping test may have exacerbated this issue.

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5.4 Chlorine Demand Testing

The results of the chlorine demand testing are included in Appendix F. The data documents the required chlorine dose to obtain a suitable residual for proper chlorination of this water.

6.0 Source Water Protection

All new municipal supply wells must complete the necessary technical studies to be in compliance with the Clean Water Act (2006). Vulnerability assessments and threat assessments were completed for the existing Arthur supply wells in 2010 (Burnside, 2010?). This work completed by Burnside was included in the Grand River Source Protection Area - Approved Assessment Report (January 2015 – Updated June 2020).

A separate study is underway to provide updates to the existing information for the Arthur Water Supply System to be incorporated into the Grand River SPA Assessment Report. The technical work is required for a Section 34 update and has been completed as per the guidelines provided in the Technical Rules: Assessment Report (Clean Water Act, 2006). The original model used to develop the WHPAs for Arthur Wells 7B and 8AB will be obtained from the GRCA and will be used to delineate the WHPA for the TW1-21 site. We note that discussion with the Wellington County Source Protection staff indicate that the existing model may be due for an update. This will be discussed prior to completion of a model for the TW1-21 site.

The report will include the following components:

- Mapping of Wellhead Protection Areas (WHPAs).
- Identification of transport pathways.
- Increase in vulnerability based on transport pathways.
- Mapping of vulnerability scores.
- A list of potential significant drinking water threats within each vulnerable area.
- A list of conditions that are drinking water threats.
- Analysis of the uncertainty.
- Maps and supporting documentation for the above information.

7.0 Conclusions

Based on the information above, Burnside offers the following conclusions:

- TW1-21 at the corner of Wells and MacCauley Streets was constructed as a 150 mm diameter test well with a screen set in overburden gravel from 45.7 to 47.2 mbgl.
- TW1-21 was tested at a rate of 23 L/s for 6 days with drawdown of 14.56 m.
- The deep overburden aquifer at the TW1-21 site is interpreted to be a leaky confined aquifer that is extremely permeable in the local area and thins and becomes less permeable away from the site.
- Nearby water supply wells were monitored before, during and after the test with drawdown up to 3.3 m observed.
- The closest well, 8580 CR14, experienced erratic water levels due to a combination of the test and high use for crop spraying.
- The resident at 8590 CR14 complained of lost pressure and it was determined that the well had been run for an extended period but that the test had caused drawdown at this location.
- Water quality results indicate that the deep overburden aquifer is a secure source of groundwater or Category 1 (MECP, 2019) and not a GUDI water source.
- Water quality of TW1-21 is considered excellent with levels of hardness, iron and manganese that are significantly less than Arthur Wells 7B, 8A, and 8B.
- The only parameter of concern at the TW1-21 site is Arsenic which is expected to be present in water produced from a production well at the TW1-21 site at a concentration of 6 to 8 μ g/L. This level is less than the ODWS standard of 10 μ g/L but exceeds the half MAC which results in quarterly sampling and special sampling attention by operations staff.
- The concentration of arsenic at the TW1-21 warrants design at the permanent pumping station that will remove or minimize arsenic in the water so that there is no chance for water to exceed the ODWS of 10 μ g/L

8.0 Recommendations

Based on the information above, Burnside offers the following recommendations:

- The results of the pumping test of TW1-21should be included in the Arthur Water Supply Environmental Assessment as a potential municipal water source.
- If development of the TW1-21 site is determined to be a preferred solution to increase capacity and improve water quality in Arthur then:
 - Two (2) new 250 mm diameter production overburden wells should be constructed at the TW1-21 site.
 - The new production wells should be tested using short term step and 6-hour tests to ensure that they can produce at least 30 L/s.
 - The water quality and specifically the arsenic content of the production wells should be tested at the design flow rate to identify any concentrations that exceed the $\frac{1}{2}$ MAC criteria of 5 µg/L.
 - Appropriate treatment for secure groundwater (Category 1) and arsenic should be included in the pumphouse design for this site.
 - The existing PTTW 8202-9DNKD3 should be amended to add the two new wells at a continuous rate of 27 L/S using this report and a well construction report for the new production wells as supporting documentation.
 - AWLRs should be installed in MW1-21 and 8590 CR14 to monitor water levels and confirm the aquifer response beginning one year before municipal pumping begins at this site.
 - A new well should be drilled for the closest farm at 8580 CR14 to ensure that their existing water supply is not interrupted once the new wells begin pumping.
 - Additional survey of all wells within 1,500 m of the TW1-21 should be completed to identify additional well interference issues and to document baseline conditions as part of the PTTW application for this site.
- If additional exploration is desired by the project team to confirm all probable sources have been assessed, we recommend drilling of 150 mm diameter test wells the Gasport bedrock aquifer:
 - North of Arthur near the TW1-21 site to identify potential solution features in the bedrock between 50 and 180 m.
 - At the existing Arthur Well 8AB municipal well site where the bedrock aquifer is present from 60 to 180 m below grade.



Figures



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| ATIC | N | | | - | | | | | | | | brwn | rock | | | |
| | | | | | | | | | | | | | 1 | | | |

| I | | I | 1 | I | | 1 | | | , |
|------------|--------|----------|-------|---|-------|-------|---|---------|---|
| 3 Okm 3 | 2 2 | NCE (km) | 5.0km | | 6.0km | 7.0km | ā | Ω. Ω | |









Appendix A

PTTW No. 8202-9DNKD3 EASR R-011-9152754560

Ministry of the Environment Ministère de l'Environnement



PERMIT TO TAKE WATER Ground Water NUMBER 8202-9DNKD3

Pursuant to Section 34 of the <u>Ontario Water Resources Act</u>, R.S.O. 1990 this Permit To Take Water is hereby issued to:

| | The Corporation of the Towr 7490 Sideroad 7 West | ship of Wellington North | |
|---------------|---|--------------------------|--|
| | Wellington North, Ontario | N0G 2E0 | |
| For the water | | | |

Arthur Well #7B, Arthur Well #8A, Arthur Well #8B

Located at: Lot Part 35, Concession 4WOSR, Geographic Township of A

ed at: Lot Part 35, Concession 4WOSR, Geographic Township of Arthur Wellington North, County of Wellington

Lot Part of 20 and 21, Concession A, Geographic Township of Arthur Wellington North, County of Wellington

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

DEFINITIONS

taking from:

- (a) "Director" means any person appointed in writing as a Director pursuant to section 5 of the OWRA for the purposes of section 34, 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.
- (d) "District Office" means the Guelph District Office.
- (e) "Permit" means this Permit to Take Water No. 8202-9DNKD3 including its Schedules, if any, issued in accordance with Section 34 of the OWRA.
- (f) "Permit Holder" means The Corporation of the Township of Wellington North.
- (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 September 25, 2013 and signed by Barry Trood, 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 May 31, 2024. 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 | Source: | Taking | Taking | Max. | Max. Num. | Max. Taken | Max. Num. of | Zone/ |
|-------------|---------|--------|--------|------|-----------|------------|--------------|-------|
| | | | | | | | | |

| | / Description: | Туре: | Specific Purpose: | Major Category: | Taken per Minute (litres): | of Hrs Taken per Day: | per Day (litres): | Days Taken per Year: | Easting/ Northing: |
|---|--------------------|-----------------|----------------------|--------------------|----------------------------------|--------------------------|----------------------|-------------------------|-------------------------|
| 1 | Arthur Well #7B | Well Drilled | Municipal | Water Supply | 1,364 | 24 | 1,965,000 | 365 | 17 535319 4853057 |
| 2 | Arthur Well #8A | Well Drilled | Municipal | Water Supply | 1,570 | 24 | 2,261,000 | 365 | 17 538499 4852043 |
| 3 | Arthur Well #8B | Well Drilled | Municipal | Water Supply | 1,570 | 24 | 2,261,000 | 365 | 17 538494 4852048 |
| | | | - | Total Taking: | 6,487,000 | | | | |

3.3 The Permit Holder may, at any one time pump either Well 8A or Well 8B but not both wells concurrently.

4. Monitoring

- 4.1 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. A separate record shall be maintained for each source. 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.
- 4.2 The Permit Holder shall monitor the water levels with continuous dataloggers in the following wells:
 - a) Arthur Wells 7B, 8A and 8B
 - b) Water Well # 6711237, (O'Donnell), Easting 534450, Northing 4851212, NAD83- Zone 17
 - c) Water Well # 6700104, (Voisin), Easting 535075, Northing 4853205, NAD83-Zone 17
 - d) Test Well TW4/02
 - e) Well WN-MW1/00.
- 4.3 The Permit Holder shall submit an annual monitoring report to the Director by May 31 of each year for the 12 month period ending December 31 of the previous year. The report shall include: (a) all monitoring data
 - (b) rates and amounts of water taken from each well
 - (c) summary of any interference complaints

- (d) interpretation of monitoring data
- (e) recommended changes to the monitoring program
- (f) comments on whether the wellhead protection areas are reasonable.

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).

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 <u>Ontario Water Resources Act</u>, R.S.O. 1990, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 101 of the <u>Ontario Water Resources Act</u>, R.S.O. 1990, as amended, provides that the Notice requiring the 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:

- 3. The name of the appellant;
- 4. The address of the appellant;
- 5. The Permit to Take Water number;
- 6. The date of the Permit to Take Water;
- 7. The name of the Director;
- 8. The municipality within which the works are located;

This notice must be served upon:

AND

The Secretary Environmental Review Tribunal 655 Bay Street, 15th Floor Toronto ON M5G 1E5 Fax: (416) 314-4506 Email: ERTTribunalsecretary@ontario.ca The Director, Section 34 Ministry of the Environment 12th Floor 119 King St W Hamilton ON L8P 4Y7 Fax: (905)521-7820

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

by telephone at (416) 314-4600

by fax at (416) 314-4506

by e-mail at <u>www.ert.gov.on.ca</u>

This Permit cancels and replaces Permit Number 5237-6PGLHF, issued on 2006/06/08.

Dated at Hamilton this 12th day of December, 2013.

Belinda Koblik Director, Section 34 Ontario Water Resources Act, R.S.O. 1990

Schedule A

This Schedule "A" forms part of Permit To Take Water 8202-9DNKD3, dated December 12, 2013.



Ministry of the Environment, Conservation and Parks Environmental Assessment and Permissions Division

Confirmation of Registration

Registration Number: R-011-9152754560 Version Number: 1.0 Date Registration Filed: May 16, 2022 11:47:07 Date Registration Updated: May 16, 2022 11:47:07

TOWNSHIP OF WELLINGTON NORTH

7490 Sideroad 7 Kenilworth ON N0G 2E0

You have registered, in accordance with Section 20.21 (1) (a) of the Environmental Protection Act, for the taking of ground water from a well for the purposes of conducting a pumping test, as prescribed in O. Reg. 63/16.

Lot No. 29, Concession No. 1, ARTHUR

Ministry District Office: Guelph District Office

Please note that the water taking for pumping tests are subject to the applicable provisions of O. Reg. 245/11 and O. Reg. 63/16. The activity related information provided during the registration process is included as part of the confirmation of registration as schedule 'A'.

Dated on May 16, 2022 11:47:07

Director Client Services and Permissions Branch Ministry of the Environment, Conservation and Parks 135 St. Clair Avenue West, 1st Floor Toronto ON M4V 1P5

Any questions related to this registration and the Environmental Activity and the Sector Registry should be directed to:

Client Services and Permissions Branch Ministry of the Environment, Conservation and Parks Phone:(416) 314-8001 Toll free: 1-800-461-6290 Email: enviropermissions@ontario.ca

Activity Information

Registration Information

| Will you be taking water for the purpose of conducting a pumping tes | t from a well? | Yes | | | | |
|--|-------------------------|-----------------|--|--|--|--|
| Will you be taking more than 50,000 litres of water per day on any da | y? | Yes | | | | |
| Is the site where the activity will occur a mine or is being used for min activities? | ning exploration | No | | | | |
| Will you be taking water for seven or less days within a single 30-day | period? | Yes | | | | |
| Will the pumping test take water at a volume of 5,000,000 litres per day or less? | | | | | | |
| Does the taking involve a transfer from a water basin described in subsection 34.3 (1) of No | | | | | | |
| Please describe what the site is currently used for. Field Crops | | | | | | |
| Has a Qualified Person (QP) prepared a pumping test design report? | | Yes | | | | |
| Please provide the Name(s) of the Qualified Person(s) and the date t prepared. | hat the pumping test de | sign report was | | | | |
| First Name Last Name Company Name | Licence Number(s) | Date Signed | | | | |

| | | | | - |
|------|-------------|------------------------------------|-----------|------------|
| Jim | Baxter | R.J. Burnside & Associates Limited | 100184156 | 2022-01-28 |
| Josh | Donkersgoed | R.J. Burnside & Associates Limited | 90244971 | 2022-01-28 |

According to the pumping test design report, where is the water taken being discharged (select all that apply)? Discharge to land

Please provide additional information if available. Discharge location will be to land and and will drain to a creek.

Has the Qualified Person (QP) included one or more of the following as part of the pumping test design report? (select all that apply) Monitoring of groundwater (flow, etc.) Monitoring of surface water Monitoring of discharge (flow, chemical parameters, etc.) Treatment measures for discharge

Source Information

Instructions:

On this page you will enter information about the pumping test. Please note that the source specified here will each be required to report daily water taking volumes on an annual basis.

| Arthur TW1-21 | | | | |
|--|---------------------|-----------------------|----------------------|--|
| Address Lot 29 Conc 1, ARTHUR, | ONTARIO |) | | Special Policy Area |
| TW1-21 | | | | |
| Source | | | | |
| Source Type | | | | Well |
| Water Taking Source(s) | | | | Groundwater |
| Well Record | | | | 310481 |
| What is the maximum est | imated dra | awdown of the | water table (in metr | es), if available? 8 |
| Geographic (GPS) Coord | inates (to | be provided in | Datum NAD83) | |
| Method of Collection Map | Accurac 1-10 M(I | y Estimate Map) | UTM Zone 17 | UTM East (M) 536802.02 |
| UTM North (M) 4854722.74 | | | | |
| Watershed Name Upper Grand River | | Watershed Us N/A | se - Annual | Watershed Use - Summer N/A |
| Source Protection Area | | | | |
| Source Protection Area (S Grand River | SPA) | Wellhead Pro No | tection Area Q1 | Wellhead Protection Area Q1 Stress N/A |
| Intake Protection Zone Q | 1 | Intake Protect N/A | tion Zone Q1 - Stres | SS |

Estimated start date of water taking *

Estimated end date of water taking *

Water Taking Volumes (Units in Litres):

| Descript or (i.e. Nicknam e) | Purpose Category | Specific Purpose | Activity | Maximu m rate per minute | Maximu m number of hours of taking a day | Maximu m volume per day | Typical volume per day | Maxi mum numb er of days of taking in a year | Earliest month of taking | Latest month of taking |
|--|-------------------------------|---------------------|--------------|-----------------------------------|--|----------------------------------|------------------------------|--|--------------------------------|------------------------------|
| TW1-21 | 91 - Public administration | Pumping Test | Pumping Test | 2500 | 24 | 3456000 | 2160000 | 7 | June | September |

If the information for the following fields is not in the QP report or if you do not know the value of these fields, enter "0" in the field.

- Maximum rate per minute
- Maximum number of hours of taking a day
- Maximum volume per day
- Typical Volume per day

2022-06-01

2022-09-01

Water Taking Summary

| Descript or (i.e. Nicknam e) | Purpose Category | Specific Purpose | Activity | Maximu m rate per minute | Maximu m number of hours of taking a day | Maximu m volume per day | Typical volume per day | Maxim um numbe r of days of taking in a year | Earliest month of taking | Latest month of taking |
|--|-----------------------------------|---------------------|-----------------|-----------------------------------|---|----------------------------------|------------------------------|--|--------------------------------|------------------------------|
| Site Nam Lot 29 Co | e:Arthur TW1-21 onc 1, ARTHUR, | I ONTARIO | | | | | Special Po | licy Are | a: | |
| Source N | lame:TW1-21 | | | | UTM: 17 | / 536802.0 |)2 / 485472 | 2.74 | | |
| TW1-21 | 91 - Public administration | Pumping Test | Pumping Test | 2500 | 24 | 3456000 | 2160000 | 7 | June | September |
| | C | 3456000 | Total Nu | mber of | Well Intakes | 1 | | | | |

Water Taking Permissions Information:

| Do you have a Permit to Take Water for other water taking activities on the site that you are registering? | No |
|--|----|
| Do you have another EASR registration for water taking activities at the site that you are registering? | No |

The fee for this registration is \$1916



Appendix B

MECP Well Records

| Untario | Ministry of Conservation | the Environme on and Parks | nt, Well Ta | | and/or Print Below) | Regulation | y 903 Ontario W | Vell | Recor |
|--|--|---|----------------|--|--|----------------------|----------------------------|-----------------|--------------------|
| Measurements r | recorded in: 🗌 Met | tric 🛛 🛃 Imperia | | ig#:A3104 | 81 | Regulation | Pag | e | of |
| Well Owner's | Information | | | Yes | | - | | | |
| TOWAS | his of Las | I Della | tion | loch | E-mail Address | and the | | Well | Constructe |
| Mailing Address | (Street Number/Name) | wing | 100 1 | Municipality | Province | Postal Code | e Telephon | e No. (inc | c. area code |
| Well Location | Siderood | 7W | 111 | keniwort | h ON | NOGZ | E0519 | 849 | 3362 |
| Address of Well L | ocation (Street Numbe | er/Name) | 4 | Township | • • • • | Lot | Concess | ion | |
| County/District/M | Street | | | Wellington | North | | | | |
| We | lington | | | Arthu | ~ | | Province Ontario | Posta | al Code |
| UTM Coordinates | Zone Easting | Northing | | Municipal Plan and Sub | lot Number | | Other | 100 | 1971 |
| Overburden an | d Bedrock Materials | Abandonment | t Sealing Reco | ord (see instructions on | the back of this form) | | 11 | | |
| General Colour | Most Common | n Material | Oth | ner Materials | Ger | eral Description | ı | De From | pth (m/ <u>ft)</u> |
| pr | Clay | | | | 5,0 | tt | | 0 | 12 |
| grey | Clay | <u>.</u> | | stones | Ha | d | | 12 | 27 |
| grey | Clau | 9 | T | č// | Han | (| 247 | 27 | 62 |
| greg | Till | | Sand | 1 | Har | x, | | 62 | 2 29 |
| yrey | C I | 29 | 510 | nes | hav | d | | 29 | 97 |
| 9169 | Jang | g g | pracel | 500 | nes Co | junge | | 97 | 10 |
| ma | San | | R 10 4 | groneg | He | od | | 10 | 411 |
| Ma | -100 | 9 | prave | gritte | 1- 0014 | e | - | 119 | -15 |
| 131 | 2 | Annular Space | | | 1-1 900 | Results of W | ell Yield Testing | 198 | 10 |
| Depth Set at (m From T | v/ft) Ty o (M | pe of Sealant Use | ed | Volume Placed | After test of well yield | , water was: | Draw Down | F | Recovery |
| 120 | 0 Co. | ment | | 36 hac | Other, specify | | (min) (m/ft) | (min) | (m/ft) |
| , | | | | 1 095 | If pumping discontinu | ed, give reason: | Level 32. | 2 | 426 |
| | | | | | | Sec. | 1 39.5 | ; 1 | 37.5 |
| | | | | | Pump intake set at (n | n/ <u>ft)</u> | 2 39.8 | 3 2 | 37-1 |
| Method o | f Construction | | Well Us | e | Pumping rate (I/min / | GPM) | 3 40.1 | 3 | 37.0 |
| Cable Tool | | | Commer | rcial Not used | 100, 200, 300 |) levels on | 4 40.3 | 4 | 36.9 |
| Rotary (Reverse | | | Test Hol | e Dewatering | 0 hrs + 60 | min 300) | 5 40.6 | , 5 | 36.8 |
|] Boring] Air percussion | | Irrigation | | & Air Conditioning | Final water level end | of pumping (m/ft) | 10 41.3 | 10 | 36.4 |
| Other, specify | | Other, speci | fy | | If flowing give rate (I/n | nin/GPM) | 15 42.0 | 15 | 36.1 |
| Inside Ope | n Hole OR Material | Wall D | Depth (m/ft) | Status of Well | Recommended pump | depth (m/ft) | 20 42.6 | 20 | 36.0 |
| Diameter (Galv (cm/in) Cond | vanized, Fibreglass, Th crete, Plastic, Steel) | hickness (cm/in) From | то То | Replacement Well | · · · · · · · · · · · · · · · · · · · | s dopur (min) | 25 | 25 | |
| 65 | steel 1 | 188 + 1 | -139 | Recharge Well | Recommended pump (I/min/GPM) | o rate | 30 | 30 | |
| 5" 54 | l+ k parting | 188 124 | 140 | Dewatering Well Observation and/or | Well production (I/min | (CPM) | 40 | 40 | |
| 5/6 | 217 A parker | 100 / 50 | 1.10 | Monitoring Hole | | | 50 | 50 | |
| | | | | (Construction) | Disinfected? | | 60 | 60 | |
| | Construction Reco | ord - Screen | and the second | Insufficient Supply | | Map of W | ell Location | | |
| Outside Diameter (Plasti | Material ic, Galvanized, Steel) | Slot No. | epth (m/ft) | Water Quality Abandoned, other, | Please provide a ma | ap below followi | ng instructions on | the back | k. [|
| The 1 | And | No co | C 1 | specify | 1/A | | | | |
| 72 5. | sieel " | 10 190 | 5 140 | Other, specify | K · | | | | |
| | Water Details | <u> </u> | H | ole Diameter | | | | | 2 |
| | pth Kind of Water: | Fresh Untes | ted Dept | h (m/ft) Diameter | 1 | | | / | 1 |
| ater found at De | Gas Other, specify | Fresh Untes | ited | 130 83 | | - 11 - S | st | | |
| /ater found at De (m/ft) /ater found at De | aptri Kind of Water. | - 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10 | - 130 | 150 65 | | Wells | 0.11 | ./ | stor |
| /ater found at De (m/ft) /ater found at De (m/ft) | Gas Other, specify | | And I III | 11009 | 1 | | 10 1-11 | 10m | era |
| /ater found at De (m/ft) /ater found at De (m/ft) /ater found at De (m/ft) | Gas Other, specify pth Kind of Water: Gas Other, specify | /FreshUntes | ited 1. 10 | 0 | | 1 | | | |
| /ater found at De (m/ft) /ater found at De (m/ft) /ater found at De (m/ft) | Gas Other, specify Gas Other, specify Gas Other, specify Well Contractor a | /FreshUntes | cian Informati | ion | 1 | | | | |
| /ater found at De (m/ft) /ater found at De (m/ft) /ater found at De (m/ft) usiness Name of | Gas Other, specify Gas Other, specify Gas Other, specify Well Contractor Well Contractor | nd Well Technie | cian Informati | ion Il Contractor's Licence No | Arast a | ell | Anthe | 2 | |
| /ater found at De (m/ft) /ater found at De (m/ft) /ater found at De (m/ft) usiness Name of Usiness Address | Gas Other, specify pth Kind of Water: Gas Other, specify Well Contractor a Well Contractor a Well Contractor (Street Number/Name) | י FreshUntes י ind Well Technic און לאריקי און לאריקי אין לאריקי און לאריקי און לאריקי שלי לאריקי שלי און לאריקי און לאריקי און לאריקי און לאריקי און לאריקי און לאריקי און לארילי און לארילי און לארילי און לארילי און לארילי און לארילי און לארילי און לארילי און לארילי אילי | cian Informati | ion Il Contractor's Licence No 2221 nicipality | ffrast cl | ell | Arth | 2 | |
| /ater found at De (m/ft) /ater found at De (m/ft) /ater found at De (m/ft) usiness Name of Usiness Address Gour rovince | Gas Other, specify pth Kind of Water: Gas Other, specify Well Contractor a Well Contractor (Street Number/Name) Postal Code | nd Well Techni C C C C Business F-mail | cian Informati | I Contractor's Licence No | Afrost CC | ell | Arthe | m | |
| /ater found at De (m/ft) /ater found at De (m/ft) /ater found at De (m/ft) usiness Name of Usiness Address GOGT | Gas Other, specify other, specify Arid of Water: Gas Other, specify Well Contractor Well Contractor (Street Number/Name) Postal Code CIGLU 3R 9 | I Fresh Untes | cian Informati | ion Il Contractor's Licence No 72211 nicipality | Comments: | ell Package Delivere | Anthe Mini | stry Use | e Only |
| /ater found at De (m/ft) /ater fou | Gas Other, specify Gas Other, specify Gas Other, specify Well Contractor Well Contractor Well Contractor Con | I Fresh Untes Ind Well Techni Construction United States United States Unite | cian Informati | ion Il Contractor's Licence No 7221 | Well owner's Date Finformation package Y Y | Package Delivere | Anthe Mini Audit No. | stry Use Z37 | e Only 272 |
| Ater found at De (m/ft) (ater found at De (m/ft) (ater found at De (m/ft)(m/ft) | Gas Other, specify Gas Other, specify Cas Other, specify Well Contractor a Well Contractor (Street Number/Name) Postal Code Cap Cu 3 A 9 (inc. area code) Name SB 2 99 ence No. Signature of T | Ind Well Techni Construction | cian Informati | I Contractor's Licence No | Comments: Well owner's Date F Information package Y Y delivered Date V Date V | Package Delivere | Anthe Mini Audit No. | stry Use Z37 | e Only 272 |

Ministry of the Environment, Ontario 🕅 Well Tag No. (Place Sticker and/or Print Below) Well Record **Conservation and Parks Regulation 903 Ontario Water Resources Act** Measurements recorded in: Metric Imperial 4328801 Page ____of___ Well Owner's Information First Name /Organization E-mail Address U Well Constructed Dellington by Well Owner owns OT Mailing Address (Street Province Postal Code Municipality Telephone No. (inc. area code) 1490 Sideroad NO 62 EOST 98483620 Kenilworth ON Well Location Address of Well Location (Street Number/Name) Township Lot Concession Wellington North Wells Street County/District/Municipality Province Postal Code Wellington Anthun Municipal Plan and Sublot Number **Ontario** NOGIAO UTM Coordinates Zone , Easting Northing Other NAD 8 3 1 7536 78944854706 Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form) General Colour Most Common Material Depth (m/ft) Other Materials General Description From Br clay Hard 12 0 Clay 12 drey Hara 27 27 Clau 62 ver Sandy 29 Clay 79 reg Sano nes racc 116 rse Annular Space **Results of Well Yield Testing** Type of Sealant Used (Material and Type) Volume Placed (m³/ft³) After test of well yield, water was: Depth Set at (m/ft) From To Draw Down Recovery Clear and sand free Time Water Leve Time Water Level (min) Other, specify (m/ft) (m/ft) (min) Sand 140 122 13 bas Static If pumping discontinued, give reason: 29-3 Level Holeplay 177 1 1 Pump intake set at (m/ft) 2 2 3 3 Pumping rate (I/min / GPM) Method of Construction Well Use Diamond Jetting Public
Domestic 4 4 Cable Tool Commercial Not used Duration of pumping Rotary (Conventional) Dewatering Municipal 5 5 hrs + min Rotary (Reverse) Driving Test Hole Livestock Monitoring Boring Irrigation Digging Cooling & Air Conditioning Final water level end of pumping (m/ft) 10 10 Air percussion Industrial Other, specify C Other, specify 15 15 If flowing give rate (I/min/GPM) **Construction Record - Casing** Status of Well 20 20 Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) Inside Wall Thickness Recommended pump depth (m/ft) Depth (m/ft) Water Supply Diamete Replacement Well 25 25 (cm/in) From To (cm/in) Test Hole Recommended pump rate 30 30 Plastic Recharge Well 2 (I/min/GPM) 50440 130 Dewatering Well 40 40 Observation and/or Well production (I/min/GPM) Monitoring Hole 50 50 Alteration Disinfected? (Construction) X Yes No 60 60 Abandoned, Insufficient Supply **Construction Record - Screen** Map of Well Location Abandoned, Poor Outside Please provide a map below following instructions on the back Depth (m/ft) Water Quality Material Diamete Slot No Abandoned, other, (Plastic, Galvanized, Steel) From То (cm/in) specify 2.5 Plagtic 10 130 140 Other, specify Water Details **Hole Diameter** Water found at Depth Kind of Water: Fresh Diameter (cm/in) Depth (m/ft) From (m/ft) Gas Other, specify 140 cocaty st ġ 1-kilometer Water found at Depth Kind of Water: Fresh Dutested 140 0 wells (m/ft) Gas Other, specify Water found at Depth Kind of Water: Fresh Untested (m/ft) Gas Other, specify Well Contractor and Well Technician Information Business Name of Well Contracto Well Contractor's Licence No Well 7221 (Street Number/Name) s Address Municipality Comments: Tounline Orcenger L943 Agintol Well owner's information Ministry Use Only well initiatices. Date Package Delivered Audit No. **Z**372731 ephone No. (inc. area code) Y Y Y Y M M D D package 98468289 delivered Date Work Completed Yes ubmitted D 28 2 Y MM 2003 No No entry org 26 ZOZXXM 29 for Ontario, 202 **Ministry's Copy**

| 6 | 6 | | MINIST The Ont | RY OF THE ario Wate | ENVIRONMEN r Resources | Act | | 406 | 7/150 | |
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| | 2 |] FRESH 3 _ SULPHUR] SALTY 4 _ MINERAL | 2 [] GALVANIZED 3 [] CONCRETE | | | FROM 10-13 | TO 14-17 | | LEAD PAC | KER, ETC.) |
| | ²⁵⁺²⁸ 1 [|] FRESH 3 🗍 SULPHUR ²⁹] Salty 4 🗋 Mineral | 4 OPEN HOLE | | 27-30 | 18-21 | 22-25 | | | |
| | 30-33 1 C |] FRESH 3 [] SULPHUR ³⁴ ⁸⁰] SALTY 4 [] MINERAL | 2 🛄 GALVANIZED 3 🗍 CONCRETE 4 🗍 OPEN HOLE | | | 26-29 | 30-33 80 | | | |
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| s | STATUS | 2 DOBSERVATION WELL 3 TEST HOLE | 6 🗌 ABANDONED, POOR Q 7 🗍 UNFINISHED | UALITY | - | | | 1 | street | |
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| | ME OF WELL | | | | | 58 CON | | DATE REOIVE | 2057 | 5 ⁶³⁻⁶⁸ ⁸⁰ |
| | DRESS | OTTISON WELL | urilling Ltd | • - 5740 | | CTION | INSPECTOR | .1 | | i , |
| TRA | ME OF DRILLI | 5 Mount Fores | st, Ont. | NCE NUMBER | | | | | | 1- |
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| Measureme | ntario | Ministry and Clir ed in: | of the Envir nate Chang Metric 🗌 I | ronment e mperial | Well Tag 142 | No. (Place Sticker a 46141 | nd/or Print Below) | Regulation | 903 Ontario I Pa | Nell R Water Reso ge <u>\</u> | ecord |
|--|-------------------------|--|--|--------------------------------|---|--|---|----------------------------|------------------------------------|--|--|
| | | | | | | | | | | | |
| Address of \ <u>2) \</u> County/Dist | Well Locatio | n (Street Nun <u>120</u> 7 ality | nber/Name) らて。 | | Tc C | wnship ity/Town/Village | | Lot | Conces | sion | Code |
| UTM Coordi | inates Zone | Easting | | orthing | 062 | <u>Arthur</u> unicipal Plan and Suble | ot Number | | Ontario Other | | |
| Overburde | en and Bed | Irock Materi | als/Abando | nment Se | aling Reco | d (see instructions on th | e back of this form) | | 5 | Denti | - (|
| | | Most Comn | non Material | | Othe | er Materials | Gene | ral Description | l | From | |
| | | | | | | | <u> </u> | | | | |
| Braun | | Topson | <u>.</u> | | | · · · · · · · · · · · · · · · · · · · | | | | <u>ð</u> | <u>.3</u> 9.4 |
| Black | K c | oraani. | | | | | | | | 3.4 | 3.6 |
| aner | C | layer | Silt | | | | | | | 3.6 | 6.0 |
| Grey | 5 | 11kg s | sand | | Some | gravel, | | | | 6.0 | 7.6 |
| grey | | Sond. | | | | £ | | | | 26 | 9.1 |
| à rei | | <u>Silk</u> | Sand | | Some (| grave | | | | 19,1 | 10.4 |
| Depth Se | t at (<i>m/ft</i>) | | Annular Type of Sea | Space Ilant Used | | Volume Placed | After test of well yield, | Results of W water was: | ell Yield Testi | n g n Re | covery |
| From | `To ´ | | (Material ar | d Type) | · · · · · · · · · · · · · · · · · · · | (m³/ft³) | Clear and sand f | ree | Time Water L (min) (m/f | evel Time V | Nater Level (m/ft) |
| -3 | 5 e 7 e | Cor Bent | vorete. Onite | chips | > | 001 -02 | If pumping discontinue | ed, give reason: | Static Level | 1 | |
| <u> </u> | 7.9 | Bert | prile | grau | t slum | 1 0342 | Pump intake set at (m | /ft) | 2 | 2 | |
| 7.9 | 5.5 | Bente | onct a | chips | | <u> </u> | Dumping rate (Kevin (C | (C) (A) | 3 | 3 | |
| | od of Cor | | | alia | Well Us | eiol 🔲 Net used | Pumping rate (<i>Vmin /</i> G | iPM) | 4 | 4 | |
| Rotary (C | Conventional) | | | mestic | Municipa | Dewatering | Duration of pumping hrs + n | nin | 5 | 5 | |
| Boring | (everse) | Driving | | estock gation | Cooling & | Air Conditioning | Final water level end o | f pumping (m/ft, | 10 | 10 | |
| Air percus | ssion <i>ecify</i> | | | ustrial ner, <i>specify</i> | | | If flowing give rate (1/m | in / GPM) | 15 | 15 | |
| | Cor | nstruction R | ecord - Cas | ing | | Status of Well | | | 20 | 20 | · ····· |
| Inside Diameter | Open Hole (Galvanize | e OR Material d, Fibreglass, | Wali - Thickness | Dept From | h (<i>m/ft)</i> To | Water Supply | Recommended pump | depth <i>(m/ft)</i> | 25 | 25 | |
| (Chinh) | | | | | Qi | E Test Hole | Recommended pump | rate | 30 | 30 | ···· |
| -Dal | T · V | <u>?</u> ? <u></u> | - 945 | | 101 | Dewatering Well | | (0010) | 40 | 40 | |
| | | | | | ; | Monitoring Hole | vvell production (Vmin / | (GPM) | 50 | 50 | |
| | | | | | | (Construction) | Disinfected? | | 60 | 60 | |
| | Cor | nstruction R | ecord - Scr | een | | Insufficient Supply | | Map of M | /ell Location | January Ja | |
| Outside Diameter | Ma (Plastic, Gal | aterial vanized. Steel) | Slot No. | Dept | ћ (<i>m/ft)</i> I то | Water Quality | Please provide a ma | p below follow | ing instructions | on the back. | |
| (cm/m) 6.44 | P.V | <u>a</u> | , i O | 9,1 | 10.6 | Specify | | | +3+00+337-4 0.10.17.17. | - + ∧omm | ····· |
| III.XII.XII.XII.XII.XII.XII.XII.XII.XII | | | | | ((/ <u>) 1/)/)///////////////////////////////</u> | | Buze II | | | | Ĺ. |
| Water found | d at Depth | Kind of Wate | r: Fresh | Untested | d _ Dept | h (<i>m/ft</i>) Diameter | - 1 Jizon | s mw vo | ι. | | , , |
| Water found | 1/ft) ⊡Gas | Other, species of Wate | ecify | lintester | | (0, (a, b)) | | aan | | | 5. Maria |
| (m | a/ft) ⊡Gas | Other, sp | ecify | | | | | , î | | | م -: ع |
| Water found | d at Depth √#) ⊡Gas | Kind of Wate | r: Fresh e <i>cify</i> | Untested | ··· لا | | | 2 | | | ي م |
| | W | ell Contract | or and Well | Technicia | n Informat | ion | | د میں میں | -0-70 | | |
| Business N | ame of Well | Contractor | | | We | Il Contractor's Licence No | - | | HWY 1 | 09 | ************************************** |
| Business Ad | ddress (Stre | | AIAL DF | KILLING | з б | hicipality 0 7 | Comments: | | | | |
| Province | NSEW G | Carlo Carlo | | s E-mail Ad | dress Ha | alton Hills | - | | | | |
| ON | | 7 JOA | 1 eștima | tes@ge | <u>-environ</u> i | <u>mentaldrilling com</u> | Well owner's Date F | ackage Deliver | ed | inistry Use | Only CCCC |
| Bus. Telepho | | area code) ∣Na L | | UETT | | | package Y Y delivered Date Y | | | ‴ <u>~</u> ∠01 DD ∩ 1 | |
| | | No. Signature | e of Technicia | an and/or C | ontractor Da | | TIIYes Date v No S∧ | | | г к U 4 | 26.3 |





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| | | | | | | | PEPT | H 236 /2 | / | | | |
| | | Annular S | pace | | | | | Results of We | | esting | | |
| Depth Set at (<i>m/B</i>) | Ту | pe of Seala | Int Used | | Volume | Placed | After test of w | ell yield, water was: | Draw | Down | Re | ecovery |
| | | nateriai ano | Туре) | | (<i>m</i> %), | 7 | Other. so | a sano free lecify | (<i>min</i>) | ater Level | (<i>min</i>) | vvater Levei (m/ ji) |
| 0 7.0 | BENTON | UTE | | | » نړ | ۷ | If pumpina dis | continued, give reason: | Static | 1134 | | 22:68 |
| | | | | | | | · · · • | | Level / | 17 27 | | <u> - 1 91</u> |
| | | | | | | | | - 4 - 4 (/ 74) | '- <i> -1</i> | 3.52 | 1 | 51-11 |
| | | | | | | | 4/2 w | $\frac{150}{150}$ | 2 | 14:94 | 2 | <u> 30.36</u> |
| | | | | | | | Pumping rate | (Vmin / GPM) | 3 | 6.35 | 3 | 28.91 |
| | Diamond | | C | | cial 🗂 | Not used | 45 LPM | 126PM | 4 | 17.60 | 4 | 27,87 |
| Rotary (Conventional) |) 🗍 Jetting | Dome | estic | Municipal | | Dewatering | Duration of pu | mping | 5 / | Q.15 | 5 | 71.35 |
| Kotary (Reverse) Boring | Driving | Livest | iock tion | ∟ iest Hole □ Coolina 8 | نسا Air Conditior k | ivionitoring ing | Final water lev | /el end of pumping (m/ft) | | 0 - 10 | 10 | |
| Air percussion | UU U | | trial | | | - | 33.68 | 1105 | | <u>.</u> | IU | 4.00 |
| | | | , specity | <u> (1100 (1799)))))))))))))))))))))))))))))))))))</u> | | | If flowing give | rate (I/min / GPM) | 15 | 26.00 | 15 | 18,52 |
| Inside Open Hol | e OR Material | Wali | ig Depth | (m/ @ | Status | upply | Recommende | d pump depth (m/ft) | 20 🍃 | 8.1Z | 20 | 16.29 |
| Diameter (Galvanize | ed, Fibreglass, T | hickness | From | To | | ment Well | 44 | 15 | 25 - | 29.67 | 25 | 14.91 |
| 200 | | . 40 | 2.2 | 10.0 | Test Hol | e 1e Well | Recommende | ed pump rate | 30 🗟 | zn,82 | 30 | 14.04 |
| 10.7 STE | = | 7 | | 48. | Dewater | ring Well | 3RIPH | ID GPH | 10 7 | 27 25 | 40 | 17.09 |
| 15.6 OPER | , HOLE | | 48.0 | 72.1 | Observa | ition and/or ng Hole | Well productio | n (l/min / GPM) | 40 < | 2 | 40 | 13:00 |
| | | | | | | n Intern | Disinfected? | | 50 2 | 3.01 | 50 | 12.00 |
| | | ····· | | | Abandor | ned, | Ves 🗌 | No | 60 了 | 33.68 | 60 | 12:37 |
| Со | nstruction Reco | ord - Scree | en | | Insufficie | ent Supply | | Map of We | ell Locati | ion | | |
| Outside M | aterial | Slot No | Depth | (<i>m/</i> ft) | Water Q | uality | Please provid | ie a map below followir | ng instruct | ions on th | e back | • |
| (Plastic, Ga | livanized, Steel) | | From | То | Abandor | ned, other, | | A | | | | K |
| | | | | | | | | 1 | | | A CERTAIN | - 424 |
| | | · | | | Other, <i>s</i> i | pecify | | \mathbf{N} | | A | . ~~. | © K |
| | | | | | nie Diamet |] | | | • | 4 | han f dha | RT S |
| Water found at Depth | Kind of Water: | Fresh 💋 | Untested | Dept | n (<i>m/</i> 0) | Diameter | | | | 8 | | |
| 60-72 (m/19) 🗌 Gas | Other, specify | ÿ | | From | То | (cm/m) | | | | | S | 24 6 |
| Water found at Depth | Kind of Water: | Fresh | Untested | 0 | 1.0 | 25' | | | | | | 6 |
| (m/ft) Gas | Other, specify | | Intested | 7.0 | 480 | 22.3 | | | | | | i i |
| (m/ft) □Gas | Other. specifi | ,⊡⊂ > ।≀ ∕∕ | Untesteu | i\$7.0 | 72.1 | 15.6 | | | | | Ĵ. | |
| N | lell Contractor | and Well To | echniciar | linformati | on | | | | | | ليمي م. أُنْ | |
| Business Name of We | Il Contractor | <u>y yaan ahaan ah</u> | | Wel | I Contractor's | Licence No. | | | | | | |
| MEADOW BANK | C VRILLING | 5 551 | EVICES | 5 6 | <u>××</u> | 55 | Commenter | | | {\v} | | <u>k</u> |
| $\mathcal{D}\mathcal{D}\mathcal{K}$ | eel Number/Name | e) | | \mathcal{M} | La La | the state of the s | Comments: | | | | | |
| Province F | ostal Code | Business E | E-mail Add | ress | 1 1 101/02 | iona _{nat} ta | | | | | | |
| ON N | 10G216 | | | | | | Well owner's | Date Package Delivere | :d | Minist | ny Use | |
| Bus. Telephone No. (inc. | area code) Name | e of Well Teo | ehnician (L | ast Name, I | First Name) | | package | 2019N2 | 20 | uait No. Z | 29 | 8683 |
| Well Technician's Licence | No. Signature of | <u>MGH D</u> Technician |)KOAP(and/or Cou | -00 (htractor Dat | e Submitted | | Yes | Date Work Completed | | EES ' | I Q 7 | 171 |
| | 7 //// | 1 abreak | | | XVON | RARIA | No | DAV0112 | 1616 | | 1 11 41 | لاتر ز |



Meadowbank Drilling Services

RR 5, Mt Forest, Ont. N0G 2L0 519-323-3548 MOE Lic. 6865

| | | | | We | ell Test | Data | | | | |
|----------|---------|----------|----------|-----------|-----------|---------|------------|---|------------|----------|
| MOE Au | dit No. | Z298683 | Well | Tag No. | A214513 | PL | 28, C 1, A | Arthur Tw | p, Wellin | gton Cty |
| Date | 16-E | Dec-19 | Client | Clark Bro | os Contra | acting | | 510 El | iza St, Ar | thur, ON |
| Well # | Static | Pumping | Rate | Intke At | Amnt/ | Casing | Amnt/ | Screen | Ttl Dpth | Datum |
| 19-17 | 37.2' | 10 | IGPM | 150' | +2' 9" | 157' 6" | Open | Hole | 236.5' | Casing |
| Elapsd | Wate | er Level | Draw | Down | Reco | overy | | Rem | arks | |
| Time | Meters | Feet | Meters | Feet | Meters | Feet | | Rock stai | rts @ 154 | |
| 0 | | 37.2 | | | | 110.5 | | | | |
| 1 | | 43.7 | | , | | 104.7 | | | | |
| 2 | | 49.0 | | | | 99.6 | | | | |
| 3 | | 53.65 | | | | 94.85 | | | | |
| 4 | | 57.75 | | | | 90.45 | | | | |
| 5 | | 61.5 | | | | 86.45 | | | | |
| 6 | | 64.9 | | | - | 82.7 | | | - | |
| 7 | | 67.95 | | | | 79.3 | | | | |
| 8 | | 70.8 | | | | 76.1 | | | | |
| 9 | | 73.4 | | | | 73.25 | | | | |
| 10 | | 75.8 | | | | 70.55 | | | | |
| 12 | | 80.15 | | | | 65.8 | | | | |
| 14 | | 83.8 | | | | 61.85 | | | | |
| 15 | | 85.5 | | 48.3 | | 60.1 | | | | |
| 16 | | 87.0 | | | | 58.45 | | | | |
| 18 | | 89.8 | | | | 55.65 | | | | |
| 20 | | 92.25 | | | | 53.45 | | | | |
| 25 | | 97.35 | | | | 48.9 | | | | · |
| 30 | | 101.1 | | 15.6 | | 46.05 | 87.9% | | | |
| 35 | | 103.8 | | | | 44.2 | 90.5% | | | |
| 40 | | 105.8 | | | | 42.95 | | | | |
| 45 | | 107.4 | | 6.3 | | 42.1 | | | | |
| 50 | | 108.5 | | | | 41.5 | | | | |
| 55 | | 109.45 | | | | 41.0 | | | | |
| 60 | | 110.5 | | 3.1 | | 40.6 | | <u>, , , , , , , , , , , , , , , , , , </u> | | |
| | | | <u>.</u> | | | | | | | |
| | | | | | | | | | | |
| Drawdow | n @ 60 | Minutes | | 73.3 | | | | | | |
| Recoverv | @ 60 | Minutes | | | | 69.9 | 95.4% | | | |
| Comment | s | | <u></u> | | <u></u> | <u></u> | <u> </u> | | | |

| Minist of the | ry | | | e Ontario V | Water Resour ELL | ces Act RECC | R |
|----------------------|--|--|------------------|------------------------------|---------------------|-------------------------------|--------------|
| Enviro ntario | | PACES PROVIDED | 6708 | 3191 | MUNICIP | | |
| | | TOWNSHIP. BOROUGH. CITY. TOWN. V | LLAGE | CON | BLOCK. TRACT. SURVE | YETC | LOT 25-2 |
| | ,Б }///// | PRIMUA PR# 2 | ARTHUR | C ? | 1011 2 | DATE COMPLETED | PR. X |
| | | | | | BASIN CODE | | |
| 2 | LO | G OF OVERBURDEN AND E | BEDROCK MATE | 30 RIALS ISEE II | NSTRUCTIONS) | | |
| NERAL COLOUR | MOST COMMON MATERIAL | OTHER MATERIALS | | GENER | AL DESCRIPTION | DEP1 FROM | H - FEET |
| BLACK | TOP SOI | 2 | | | | 0 | 1 |
| BROWN | ChAY. | | · · · | · · · | | 27 | 37 |
| DREY DR | CLAY | RIACE | | | | 64 | 177 |
| DREY | SHOLF | TIMESTONE | | | | 177 | 18 |
| BLUE | LIMESTO | NE GREY | WHITTE | STR | EAKS- | 181 | 24. |
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| | | | | | | | |
| 31 [] | | | | | | | |
| | | | | | 54 S) OF OPENING | 31-33 DIAMETER 34-38 | LENGTH |
| 41 WATE | KIND OF WATER | INSIDE MATERIAL HICKNE | | | RIAL AND TYPE | INCHES | P 41-44 |
| 182" | FRESH ³ [] SULPHUR ¹⁴ SALTY ⁴ [] MINERAL | STO-11 1 Correct 12 18 | 8 0 18 | 2 : | · · · · | OF SCREEN | FEET |
| 20215-11 2 | PRESH ³ □ SULPHUR ¹⁹ SALTY ⁴ □ MINERAL | CONCRETE | 182 24 | 12 61 | | G & SEALING REC | ORD |
| 2400 2 | FRESH 3 _ SULPHUR 24 Salty 4 _ Mineral | 17-18 1 □ STEEL 19 2 □ GALVANIZED 3 □ CONCRETE | | FROM | TO 13 14-17 | MATERIAL AND TYPE LEAD | PACKER ETC) |
| 25-28 1 🗌 | FRESH 3 🗍 SULPHUR 29 SALTY 4 🗍 MINERAL | 4 _ OPEN HOLE 24-25 1 _ STEEL 26 | - 2 | 7-30 | 8-21 22-25 | | |
| 30-33 i [] 2 [] : | FRESH 3 🗍 SULPHUR SALTY 4 🗌 MINERAL | 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE | | 20 | 5-29 30-33 80 | | |
| PUMPING TEST METHO | DD 10 PUMPING RATE | 3)-14 DURATION OF PUMPING | 17-18 14/1 | L | OCATION C | OF WELL | |
| STATIC | BAILER WATER LEVEL 25 END OF WATER L | GPM HOURS | | N DIAGRAM BEL OT LINE INI | OW SHOW DISTANCI | ES OF WELL FROM ROAD RROW. |) AND |
| | 22-24 15 MINUTES | 30 MINUTES 45 MINUTES 60 A | 25-37 | L . | | | |
| | FEET FEI 38-41 PUMP INTAKE | ET FEET FEET FEET SET AT WATER AT END OF TEST | | | | | |
| RECOMMENDED PUMP | GPN // | FEET 1 CLEAR 2 C | 45-49 | | | Υ. | |
| SI SHALLOW | DEEP SETTING | 160 FEET RATE 10 | GPM | | | | |
| FINAI | A I WATER SUPPLY | S 🔲 ABANDONED. INSUFFICIENT | SUPPLY | | 1 | UNT A | * |
| STATUS OF WELL | 2 OBSERVATION WEL 3 TEST HOLE 4 RECHARGE WELL | L 6 ABANDONED POOR QUALITY 7 UNFINISHED | | | 1 t | | |
| 55-5 | I DOMESTIC | 5 COMMERCIAL 6 MUNICIPAL | | | 1 | | |
| WATER USE | IRRIGATION | 7 D PUBLIC SUPPLY | | | / | | |
| 5 | | * LJ NOT USED | | | | | |
| METHOD OF | 2 ROTARY (CONVEN 3 ROTARY (REVERSE | TIONAL) 7 DIAMOND =) • DIAMOND =) • DIATING | | Λ | ARTH | uk | |
| DRILLING | Derotary (AIR) Dercussion | י ∐ DRIVING | DRILLERS R | EMARKS | K | | |
| RAY SA | ENTRACTOR | 11 DR THE LICENCE NUT | ABER DATA SOURCE | 58 | CONTRACTOR 59-62 | 10050 | ···· |
| ADDRESS RH | 5 MT | FOREST | | INSPECTION | INSPECTOR | () | 5 |
| NAME OF DRILLER | OR BOREF | FR LIP. | | 5 | | | |
| SIGNA URE OF CO | | SUBNISSION DATE | DFFIC | | | | |
| 1 7 1/ | | | _ <u>YR.</u>] | | | FORM | SES |

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of the Environment

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Print only in spaces provided. Mark correct box with a checkmark, where applicable. 6713391 67

The Ontario Water Resources Act WATER WELL RECORD

| County or District | t | Township/Borough/City | Township/Borough/City/Town/Village | | | | Con block tract survey, etc. Lot | | | |
|--|---|--|------------------------------------|--------------------------|-------------------------------|----------------------|----------------------------------|----------------------|--------------------------|--|
| Merringe | | Address | • | | | | Z Date | | <u>21</u> 48-53 | |
| | | R.R. 2, Art Northing | hur, Or | ntario RC Elev | vation RC | Basin Code | ii | day 1 | month year | |
| | | 17 18 | 24 | 25 26 | | 31 | | <u> </u> | 4/ | |
| General colour | LOG OF | OVERBURDEN AND BED | ROCK MAT | ERIALS (| see instructio | ons) | | Dep | oth - feet | |
| | | | -() === | | General | description | | From | То | |
| | WELL PREVIOUSLY | DRILLED TO CEAN | ich) 10 | 243 F | BET | | | | | |
| - N | DEEPENED TO 335 | FEET | | | | | | | | |
| White | Freviously arilled | Strooko | | | | | | 242 | 243 | |
| MILLOS | Dimestorie with brown | Screaks | | | | | | 243 | | |
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| 31 | | | | | | | | | | |
| 32 | | | | | | | | | 75 80 | |
| 41 WATE Water found | Kind of water | CASING & OPEN HOLE | RECORD Depth - | feet | Sizes of c (Slot No.) | pening ³¹ | -33 Diameter | ³⁴⁻³⁸ Ler | ngth 39-40 | |
| at - feet | Kind of water diam inches | Material thickness inches | From | To 13-16 | Material a | and type | " | Depth at to | p of screen 30 | |
| 335 2 | 3 Salty 6 □ Gas 5 | Galvanized Goncrete | 243 | 335 | ŭ | | | | feet | |
| 1 1 1 C | □ Fresh 3 □ Suprur 19 4 □ Minerals □ Salty 6 □ Gas 17-18 | 4 Jopen hole 5 Plastic | | 20-23 | 61 | PLUGGING | & SEALING | RECOR | D | |
| ²⁰⁻²³ 1 [|] Fresh ³ ☐ Sulphur ²⁴ A ☐ Minerals | 2 Galvanized 3 Concrete | | | Depth set at | Annular space | rial and type (Cer | Abandon | ment bentonite, etc.) | |
| 25-28 1 | Gas Gas Fresh ³ ☐ Sulphur ²⁹ 4 ☐ Minerals ^{24,25} | 4 Open hole 5 Plastic | | 27,30 | 10-13 | 14-17 | | g , | | |
| 2 [30-33] | Salty 6 Gas 24-25 Fresh 3 Culphur 34 60 | 1 Steel 20 2 Galvanized 3 Concrete | | 27-30 | 18-21 | 22-25 | | | | |
| 2 | ☐ Salty 6 ☐ Gas | 4 Open hole 5 Plastic | | | 26-29 | 30-33 80 | | | | |
| 71 Pumping test m | nethod ¹⁰ Pumping rate 11-14 | Duration of pumping |] | | LOC | | WELL | | <u></u> | |
| Static level | Vater level 25 Water levels during 1 [| Pumping 2 | | In diagrar Indicate r | n below show orth by arrow | distances c | of well from ro | bad and I | ot line. | |
| | ²²⁻²⁴ 15 minutes 26-28 30 minutes 29-31 | 45 minutes 32-34 60 minutes 35-37 | | | , , . | | | | Ń | |
| | 90 feet 80 feet 50 feet | 42 feet 42 feet | | | · | | | | | |
| | GPM 160 feet | Xiiii Clear Cloudy 46:49 | | | | LON, | 2 | | | |
| Hecommended p | Image: sympletic symplet Hecommended Image: sympletic sympl | pump rate 10 GPM | 2 | 1 | | | | | | |
| 50-53 | | | | •' • | | | | | | |
| FINAL STATU: 1 XWater sup 2 1 Observation | SOFWELL 54 pply 5 Abandoned, insufficient so on well 6 Abandoned poor quality | upply ⁹ Unfinished ¹⁰ Benlacement well | 1 | 1 | | | | | | |
| ³ Test hole ⁴ Recharge | 7 Abandoned (Other) 8 Dewatering | | | 1 | | | | | | |
| WATER USE | 55-56 | | | 1 | 1 | | | | | |
| * Connectic 2 Connection 3 Intrinsition | 5 🔲 Commercial 6 🔲 Municipal 7 🔲 Public supply | 9 □ Not use 10 □ Other | N | ł | No | ISE | | 5.7 | | |
| 4 🗌 Industrial | 8 Cooling & air conditioning | 1 | | | | ' | ·) | " | | |
| | | ⁹ [] Driving | | | × | | L | | | |
| ² Rotary (co ³ Rotary (re | werse) 7 Diamond | ¹⁰ Digging ¹¹ Other | + | | | BARN | 7 | 047 | 025 | |
| "⊔ Rotary (ai | r) ° Li Jetting | | , | | | · | | 211 | 030 | |
| Name of Well Contra | actor | Well Contractor's Licence No. | Data source | 9 | 56 Contractor | 27 | 59-62 Date receiv | red ۲۹۹ (| 63-68 80 | |
| Address | well Drilling Limite | a 1737 | | of inspection | | nspector | AUU | 001 | | |
| Box 486, Name of Well Techn | Wingham, Ontario NO | G 2WO Well Technician's Licence No. | SS Remai | rks | | | | | | |
| K. Losch | | T0927 | ISTR | | | | | CSS | .ESO | |
| Signature of Technic D.F. D.H. | Ciarveontractor | day 09 _{mo} Mayyr 00 | NIN NIN NIN | | | | <u></u> | | - | |
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| 🗑 Ont | Cario Ministry of the 02 Environment | -04 | | | The | <i>Ontario Wa</i> i WATER W | ter Resourd VELL REC | ces Act CORD |
|---|---|---|------------------------------------|----------------|---|--|--|-----------------------------|
| Print only in spa Mark correct box | ices provided. x with a checkmark, where a | pplicable. | 11 1 2 | 6714 | 062 | Municipality 6,7001 | Con. Con. SIR E | 22 23 24 |
| County or Distric | t y | Т | ownship/Borough/City | /Town/Village | | Con block tract | survey, etc. Lo | PAR \$-27 |
| GELLIA | YGTOH | 2 | ddress | 1 6 | | Date | 30 0 | 48-53 7/ 02 |
| | | | Sox 969 + Northing | RTHUR C | Elevation RC | Basin Code | ii iii | iv iv |
| 21 | Ч т м 10 | | 17 18 | 24 25 | | 31 | | 47 |
| General colour | L(| | Other materials | ROCK MATERIAL | S (see instruction General d | ns) | Deptr | n - feet |
| BROWN | CIAU | 570 | MES | | | ···· | From | 13 |
| GREY | CLAY | 510 | MES | | | | 13 | 120 |
| GREY | CLAY | Roc | rk's | | , <u>, , , , , , , , , , , , , , , , , , </u> | · · · · · · · · · · · · · · · · · · · | 120 | 125 |
| GREY | CLAY | | | HA | RD | | 125 | 174 |
| GREY | CLAY | GRA | VEL | | | | 174 | 194 |
| GRE4 | LIMESTONIE | F | | | | ····· | 194 | 230 |
| | | | | | | | | |
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| .* | | | | | | | | |
| 31 | | | | | | | | |
| 32 | 14 15 | | | | | | 65 | |
| 41 WAT Water found | ER RECORD Kind of water | 51 CASIN | G & OPEN HOLE Wall thickness | Depth - feet | Cizes of op Z (Slot No.) | pening 31-33 Dia | ameter ³⁴⁻³⁸ Leng inches | th ³⁹⁻⁴⁰ feet |
| 230^{10-13} | Erest 3 Sulphur 14 | 10-11 1 Steel | inches | From To | 3-16 Material ar | ad type | Depth at top | of screen 30 |
| 15-18 1 | □ Saltý 6 □ Gas □ Fresh ³ □ Sulphur ¹⁹ | 64 2 Galva 3 Conc 4 Oper | anized prete \$\$8 n hole | 2 19 | 9 | | | Bet |
| 20-23 | □ Salty ⁴ □ Minerals 6 □ Gas □ □ Erech ³ □ Sulphur ²⁴ | 5 ☐ Plast | ic I ¹⁹ anized | 20 | 0-23 61 P | LUGGING & SEA | ALING RECORD | ient |
| 25,28 | □ Safty 4 □ Minerals □ Safty 6 □ Gas | | rete n hole | 199 23 | Depth set at - From 10-13 | To Material and t | type (Cement grout, be | entonite, etc.) |
| 1 2 | □ Fresh 4 □ Minerals □ Salty 6 □ Gas | 24-25 1 Stee 2 Galv | 26 anized | 21 | 7-30 | 22-25 | ONITE | |
| 30-33 1 2 | □ Fresh ³ □ Sulphur ³⁴ ⁶⁰ □ Salty ⁶ □ Gas | 3 Conc 4 Oper 5 Plast | rrete n hole lic | | 26-29 | 30-33 80 | | |
| Pumping test | method 10 Pumping rate | 11-14 Duration | of pumping | | | | | |
| Static level | Bailer Ø Water level 25 Water levels dur | GPM | Hours Mins | | agram below show | distances of well | from road and lot | line. |
| 19-21 19-21 | 22-24 15 minutes 30 | minutes 45 minut | es 60 minutes 35-37 | | | | 1 | |
| | feet feet | 7 // 74 feet Water at | feet 76 3 feet feet 42 | | | ************************************** | | |
| | GPM 100 | feet 🏹 | Clear Cloudy | | CON | E Lor 3 | > | |
| □ Shallow | Deep pump setting | ⊃ feet pump r | ate 🎖 GPM | | | | | |
| FINAL STATU | US OF WELL 54 | | | CONE | + 570-2 |) | C | ON'E |
| ¹ 🖾 Water su ² 🔲 Observat 3 🗔 Test bols | upply 5 Abandoned, ins tion well 6 Abandoned, po | sufficient supply 9 [or quality ¹⁰ [| Unfinished Replacement well | LOT 31 | 1 | | 4 | or 33 |
| 4 🗌 Recharge | e well ⁶ Dewatering | | | | 213 | 0' | | |
| WATER USE | 55-56 c 5 ⊡ Commercial | 9 [| Not use | | | | | |
| 3 🗌 Irrigation 4 🗋 Industria | al 7 🗋 Public supply al 8 🗌 Cooling & air or | onditioning | | | | 6 | | |
| METHOD OF | CONSTRUCTION 57 | | | 1 | | | | |
| ¹ □ Cable to ² ▲ Rotary (c ³ □ Rotary (r | ol 5 Air percussion conventional) 6 Boring reverse) 7 Diamond | 9 [10 [11 [| Driving Digging Other | | CONM | - Lot 32 | | |
| 4 🗌 Rotary (a | air) ⁸ 🗌 Jetting | ····· . | | | 11 | | 225 | 326 |
| Name of Well Con | tractor | Well | Contractor's Licence No. | Data source | 58 Contractor | 6 59-62 D | ate received | 63-68 80 |
| Address | ANIC URILLINICSERVI | icrs | 0097 | Date of inspe | ection Ir | Ispector | THI UD (| WUC |
| Name of Well Tech | LORA UNIT NO | - 150 Well | Technician's Licence No | Remarks | | | and all all all all all all all all all al | |
| Jim Bi Signature of Tech | ROADFOOT hician/Contractor | 5 Subr | nission date | | | đ | on r | <u>o</u> c |
| Am 3 | roodfast | day | | Ī | ý | l. | 100, E | |

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The Ontario Water Resources Act WATER WELL RECORD

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|--|--|--------------------------|-------------------------------------|--|----------------|-----------------------|------------------------------|---------------------|---------------------------------------|----------------------|--------------------|
| | | | Address R.R \$2, | ARTHUR, | ONTARK | > | | <u></u> | Date completed | 3 /6 /2002 dav | 48-5 month vea |
| 21 | U T | | | Northing | ! | RC Ele | vation RC | Basin C | ode ii | <u> </u> | |
| 2 | M 10 | | | | | ERIALS (| see instruct | 31 ions) | | | |
| General colour | Most common materia | al | Othe | er materials | | | Genera | l descriptio | n | Dept | h - feet To |
| BROWN | TOPSOIL | | | | | | | | | 0 | 2 |
| BROWN | CLAY | | | φ | | | | | | 2 | 18 |
| REY | CLAY | OC | C 370 | NES. | | | | | | 18 | 121 |
| SREY | HARDPAN | | | ······································ | | | | | · · · · · · | 121 | 167 |
| ROWN | LIMESTONE | | | | | | | | | 157 | 164 |
| REY | LIMESTONE | | | | | | | | · · · · · · · · · · · · · · · · · · · | 164 | 172 |
| | | | | | | | | <u> </u> | | | |
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| 31 1 1 | 1 1 - 1 - 1 - 1 - 1 | <u> </u> | 11 | ¥.I.I | 11 | 1 | | | | , , . | . I . I |
| 32 | ┶╍┶┶┶┶┶┶ ╡┋╻╏╻╏╷║╹╹╹ | ┶┶┶┶┷┙ ╡╻╎╻╿╻╿ | | | ┛└┸┹┹ ┨┇┇╻╹ | ╵╵╷╎╎ | | | ┶╍┷╍┸┙└┸┷ ╡╷┃╷┃╿╷ | | |
| 41 WAT | ER RECORD | 51 CA | SING & O | PEN HOLE | | | | opening | 31-33 Diamete | er 34-38 Len | 75 gth 39-4 |
| later found t - feet | Kind of water | Inside diam inches | Material | Wall thickness inches | Depth From | - feet To | | i.) | | inches | fee |
| 10-13 1 [64-172 2 1 | □ Fresh ³ □ Sulphur ¹⁴ 4 □ Minerals Saity 6 □ Core | | Steel ¹² Galvanized | 490 | 0 | 13-16 | S Materia | and type | | Depth at top | of screen 41-44 |
| 15-18 1 [| □ Fresh ³ □ Sulphur ¹⁹ | 3 - 4 | Concrete Open hole | .100 | v | 101 | | | | | reet |
| 20-23 | $\square Salty \xrightarrow{6} \square Gas$ | | Steel 19 | | | 20-23 | 61 Atom | PLUGGI Annular s | NG & SEALIN | G RECORD Abandonr |) nent |
| 2 [| ☐ Fresh 4 ☐ Minerals ☐ Salty 6 ☐ Gas | 3 () 4 () | Concrete Open hole | | 101 | 1/2 | Depth set | at - feet To | Material and type (| Cement grout, b | entonite, etc |
| 25-28 1 [2 [| □ Fresh ³ □ Sulphur ²⁹ 4 □ Minerals □ Salty ₆ □ Gas | 24-25 1 | Plastic Steel 26 | | | 27-30 | 10-13 | 14-17 172 | BEILCLAY. | SLUR | |
| 30-33 1 [| Fresh ³ Sulphur ³⁴ ⁶⁰ | 2 | Galvanized Concrete Open hole | | | | 26-29 | 30-33 84 | 5 | | |
| 2 [| 🗆 Saity 6 🗌 Gas | 5 🗌 | Plastic | | | | | | 1 | | |
| Pumping test n 1 1 Pump 2 | method ¹⁰ Pumping rate | 11-14 Du GPM | ration of pump 15-16 Hours | ing 17-18 Mins | | | LO | CATION | OF WELL | | |
| Static level | Water level 25 end of pumping Water levels d | luring 1[]Pu | mping g 2 | | | In diagra Indicate | m below sho north by arro | w distanc w. | es of well from | road and lo | ot line. |
| ¹⁹⁻²¹ | 22-24 15 minutes 26-28 3 | 30 minutes 45 | minutes 32-34 | 60 minutes 35-37 | | | | γ | | | |
| feet | feet feet feet rate 38-41 Pump intake set a | feet at Wa | feet ater at end of te | feet st ⁴² | | | LIN | E C | * | I | |
| Becommended | GPM Becommended | feet 43-45 D | | Cloudy 46-49 | | _ | | - | | ١ | |
| □ Shallow | pep pump setting | p | ump rate | 30 дрм | | - | 1 | | | i | |
| 50-53 | | ····· | | | | | ١ | | 2500 | ١ | |
| INAL STATU | JO UP WELL 54 pply 5 Abandoned, i ion well 6 Abandoned - | insufficient supply | 9 🗌 Unfinisi | ned ement well | | | 1 | | 1. | 200 | |
| ³ Test hole ⁴ Recharge | a Abandoned, 7 □ Abandoned (e well 8 □ Dewatering | Other) | _ періасі | | | | 1 | | Ø | 700 1 | |
| WATER USE | 55-56 | | | | | | ١ | | | ļ | |
| 1 Domestic 2 Stock | 5 Commercial 6 Municipal | | 9 🗌 Not use 10 🗌 Other | | | | 1 | | | | ١ |
| ³ Irrigation ⁴ Industrial | 7 🗋 Public supply 8 🗌 Cooling & air | conditioning | | | . | ٨ | ł | | | | 1 |
| | CONSTRUCTION 57 | | | | | Ĩ | | ١ | | | • |
| ¹ Cable too ² Rotary (c 3 Determine | ol 5 🗆 Air percussio conventional) 6 🗌 Boring everse) 7 🗆 Diamond | In | 9 Driving | 1 | | KUX. | | (| | ~ | |
| 4 A Rotary (re 4 A Rotary (a | ir) ⁸ 🗌 Jetting | | | | | | | | | 236 | 183 |
| ** | | | Well Contracto | or's Licence No. | ► Data | | 58 Contractor | 2 4 4 | 59-62 Date re | ceived C | 2007 63-68 |
| Name of Well Cont | - T 5 K LINN 2 U | | 25 | | ONC Dete | ce of increation | K | 044 | F 1 | JL | |
| Name of Well Cont | | | | | | UT INSPECTION | | LINSDECIOF | | | |
| Vame of Weil Cont DURL HOP | T. MARYS, ONTARIO MAX | 109 | | | USE | · | | | | | |
| Name of Well Con DURC HOI Addinese. 17, 51 | T. MARYS, ONTARIO MAX | | Well Technic | icence No. | ISN VAL | arks | | | | | |
| Varne of Well Cont DURL HOT Addither 17, ST Varr DOUGLUN Signature of John | T. MARYS, ONTARIO MAX | | Well Technic | Ste icence No. | INISTRY USE | arks | | | CS | SE | 52 |

| Mini | istry | | | The (| Ontario V | Vater Resou | rces Act | \sim | |
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| Ontario |). PRINT ONLY IN 2. CHECK 🖾 CORI | SPACES PROVIDED | <u>i</u> 6 | 7072 | 276 | | | | |
| COUNTY OR DISTRICT | in at on | TOWNSHIP BOROUGH CITY TOWN | VILLAGE | | CON | Con. 2 | EY. ETC | | LOT 25-27 |
| | | R. 2 Ar | rthur | Ont. | ,,,,,,,, | | DATE COMPL | ETED 5 | 48-53 v. 80 |
| | | IING | RC. | ELEVATION | RC. | BASIN CODE | " | 191 | |
| | u 10 12 | | | MATERI | | | | | |
| GENERAL COLOUR | MOST | OTHER MATERIALS | | | GENERA | L DESCRIPTION | | DEPTH | · FEET |
| black | tonsoil | | | | | | | 0 | 1 |
| brown | clay | stones | | | | | | 1 | 18 |
| grey | clay | stones | | | | | | 18 | 138 |
| grey | limestone | | | | , | | | 138 | 185 |
| brown | limestone | | | | ····· | | | 185 | 325 |
| white | limestone | | | | | | | 325 | 425 |
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| 31 | | | | | | | | | |
| | | | | | | 54 OF OPENING | 31-33 DIAMET | ER 34-38 | 75 80 |
| WATER FOUND | KIND OF WATER | INSIDE MATERIAL THICK | | | | NO) | | INCHES | FEET |
| 10.13 1 | FRESH 3 [] SULPHUR 14 | INCHES INCHE | ES FROM | 13-14 | SCI S | RIAL AND TIPE | | OF SCREEN | 41-46 50 FEET |
| 15-18 1 [| T FRESH 3 [] SULPHUR 19 | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ | 3 0 | 140 | 61 | PLUGGI | NG & SEAL | ING RECO | DRD |
| <u>425</u> | FRESH 3 [] SULPHUR 24 | 17-18 I _ STEEL 19 2 _ GALVANIZED | | 20-2 | DEPTH S | TO | MATERIAL AND | TYPE CEN | ENT GROUT. ACKER, ETC.) |
| 25.28 | SALTY 4 [MINERAL FRESH 3 [SULPHUR ²⁹ | CONCRETE | 140 | 425 | 10 | -13 14-17 | | | |
| 30-33 I | SALTY 4 [] MINERAL | 2 GALVANIZED 3 CONCRETE | | | 26- | 29 30-33 80 | 1 | | |
| 2 | SALTY 4 MINERAL | | | | | | | | |
| | 2 D BAILER 5 | GPMHOURS | 17-18 | | | OCATION | OF WELL | | |
| | WATER LEVEL 25 END OF WATER PUMPING 23 14 MANUAL | LEVELS DURING 2 RECOVE | G RY | LOT | LINE IND | ICATE NORTH BY | ARROW. | FROM ROAD 5 | AN D |
| 20 | 80 FEET FE | 28 29-31 32-34 | BO FEET | NORTH | $\langle \rangle$ | 14 Con | | | |
| IF FLOWING. GIVE RATE | 38-41 PUMP INTAKE | SET AT WATER AT END OF TEST | 42 | \wedge | | 201 | Side | croad | |
| RECOMMENDED P | GPM UNP TYPE RECOMMENDE PUMP | D 43-45 RECOMMENDED PUMPING | 46-49 | ı | FELL | | | | |
| 50-53 | W DEEP SETTING | 130 FEET RATE 5 | GPM | | -2/1 | 1231- | -[]•E W | ell | |
| FINAL | 54 ; X WATER SUPPLY | | SUPPLY | | 2 | IFTI | | | |
| STATUS OF WELL | 3 [] TEST HOLE 4 [] RECHARGE WELL | 7 UNFINISHED | | | | /XHr, | | ++ | |
| | SS-56 1 DOMESTIC | S COMMERCIAL | | | | | | | |
| WATER USE | 3 🗍 IRRIGATION 4 🗌 INDUSTRIAL | 7 D PUBLIC SUPPLY COOLING OR AIR CONDITIONING | | H | WY9 | | <u>, ()</u> | | |
| | 57 | 9 [] NOT USED | | | | A.Hun | | | 4. ₁₆ |
| METHOD | I CABLE TOOL 2 1 ROTARY (CONVEN 3 ROTARY (REVERS | € ∐ BORING NTIONAL) 7 ☐ DIAMOND E) B ☐ JETTING | | | | Villa | ge \ | \backslash | |
| DRILLING | 4 D ROTARY (AIR) 5 AIR PERCUSSION | 9 🗍 DRIVING | | RILLERS REMA | ARKS | | | <u>II</u> | |
| NAME OF WELL | CONTRACTOR | LICENCE NU | MBER > | DATA SOURCE | 58 0 | ONTRACTOR 59-6 | 2 DAYE YECHTO | 078 | <u>}</u>) ^{••••} |
| Hugh M | orrison Well | Drilling Ltd. 3 | 740 | DATE OF INS | SPECTION | INSPECTOR | i de frad | <u> </u> | |
| R.R. 5 | Mount Fores | t, Ont. | | REMARKS | | | | | |
| Hugh M | OTTISON | SUBMISSION DATE | <u>40 5</u> | | | | | <u>Cee</u> | a |
| Hug | 2 morise | NU DAY NO | YR | 5 | | | | USS.E | S |
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| Min | istry | · · · · · · | | | The C | Ontario ' | Wate | r Resource | es Act | | |
|--------------------------|---|--|--------------------------------|------------|----------------|-----------|--------------------------|--------------------------|----------------|---------------|----------------------------|
| of the Env | he ironment | | WA [*] | TE | R | WI | EL | _L_ F | RE | CO | RD |
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| COUNTY OR DISTRICT | rton | TOWNSHIP. BOROUGH. CI | TY, TOWN, VILLAGE | | | | BLOCK | TRACT. SURVEY | ETC | | LOT 23-27 |
| | | <u></u> | Anthum | 07 | tanio | | 06 | 140 | DATE COMP | | 41-53 YQQ |
| | | NG J | | | | , (| | | | | |
| 1 2 | - 10 12 | OG OF OVERBURDE | N AND BEDF | ROCK | 24 MATERIA | LS (SEE) | 31 NSTRUC | TIONS | | | 47 |
| GENERAL COLOUR | MOST COMMON MATERIAL | OTHER MA | ATERIALS | | | GENER | AL DESC | CRIPTION | | DEPTH FROM | - FEET TO |
| 1 | opsoil | | | | | | | | | 0 | 2 |
| brown | clay | | | | | | | | | 2 | 15 |
| grey | clay | stones | | | - | | | | | 15 | 220 |
| grev | limestone | | | | | | | | | 220 | 305 |
| white | limestone | | | | | | | | | 305 | 375 |
| | | | | | | | | | | | |
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| 31 | | | | | | | | | | | |
| | | | | | | 51ZE+ | 54 SI OF OPE | NING 31 | 1-33 DIAME | ER 34-38 | 75 80 |
| WATER FOUND AT - FEET | KIND OF WATER | INSIDE MATERIAL | | DEPTH | · FEET | | | TYPE | | INCHES | FEET |
| 10-13 1 5 202-375 2 C | FRESH 3 ULPHUR SALTY 4 MINERALS 6 GAS | 10-11 10-11 STEEL | ¹² 188 | 0 | 14'4" | သိ | | | | OF SCREEN | FEET |
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| 20·23 1 [2 [|] FRESH 3 □SULPHUR ²⁴ 4 □ MINERALS 5 SALTY 6 □ GAS | 1 STEEL 2 GALVANIZED 3 CONCRETE 4 STOREN NOLE | | 1 4 4 | 20-21 | FROM | D-13 | TO MA | TERIAL AND | TYPE LEAD P | INT GROUT. ACKER. ETC) |
| 25-28 1 [2 [|] FRESH 3 SULPHUR 4 MINERALS 5 SALTY 6 GAS | 5 SPLASTIC | Z & | 144 | 27-30 | 11 | 1-21 | 22-25 | | | , |
| 30-33 1 [2 [|] FRESH 3 □ SULPHUR 34 4 □ MINERALS] SALTY 6 □ GAS | C 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 5 PLASTIC | | | | 20 | -29 | 30-33 80 | | | |
| 71 PUMPING TEST ME | THOD air 10 PUMPING RAT | TE 11-14 DURATION OF | PUMPING 15-16 17-1 | | | L | 0 C A | TION OF | WEL | L | |
| | WATER LEVEL 25 END OF WATER | LEVELS DURING | OURS MIN | s | IN DIA | AGRAM BEL | DW SHO | W DISTANCES | OF WELL OW. | FROM ROAD A | N D |
| | 22-24 IS NINUTES | - 20 MINUTES 45 MINUTE - 20 29-31 | 5 60 MINUTES 32-34 35- | ה ת היי | larth | า | | | | | |
| S S FEE | T 95 FEET F | EET FEET | FEET 95 FEE | | - | Lo | たら | he_ | | _ | : |
| | GPM | | R I CLOUDY | | | | \uparrow | Tin | 1 | | |
| S0-53 | | | 10 GP1 | - | | 217 | N | | 174 | -> 2 | |
| FINAL | S4 WATER SUPPLY | B ABANDONED, INSI | UFFICIENT SUPPLY | - | | | $\overset{\vee}{\frown}$ | . 24 | 6' | P+ | |
| STATUS OF WELL | 3 D TEST HOLE 4 D RECHARGE WELL | 7 UNFINISHED 9 Dewatering | IR QUALITY | | old d wel | 1 35 | | tocen | tre P | R |) |
| MATER | SS-SE 1 DOMESTIC | S COMMERCIAL S D MUNICIPAL | | 1 | | U | | | | | H |
| USE | 3-4 IRRIGATION 4 INDUSTRIAL | 7 D PUBLIC SUPPLY D COOLING OR AIR CON I NO | DITIONING | | | | | | | | |
| | 57 I CABLE TOOL | • 🗋 BORING | | | | Lot | Lin | L | | | |
| | 2 D ROTARY (CONVER 3 ROTARY (REVERS ON 4 D ROTARY (AIR) | NTIONAL) 7 ☐ DIAMONE E) 8 ☐ JETTING 9 ☐ DRIVING | D | | | | | | | 34: | 393 |
| | AIR PERCUSSION | | | | LLERS REMAR | KS | | | | | |
| Hugh Ma | CONTRACTOR | Drilling Tta | LL CONTRACTOR | NLY NL | DATA SOURCE | 58 | 37 | 4 0 ^{°°} | NOV | 0 1 199 | 0 **** ** |
| | - Mount Fore | st. Ontario | | SE O | DATE OF INSP | LCTION | | INSPECTOR | | | |
| Z Howard | 1_Morrison | | LL TECHNICIAN'S ENCE NUMBER | | REMARKS | | | | | | |
| O SIGNATURE OF | 12 Manie | SUBMISSION DATE |)YR | OFF | | | | | | CS | S.ES |
| MINISTR | Y OF THE ENVIRC | NMENT COPY | | | | | | | FO | RM NO. 0506 (| 11/86) FORM 9 |

|--|



| Address of | f Well Loo | cation (Street Number/Name) | | Township | <u>\</u> / | Lot | Concess | ion | *************************************** |
|---------------------|----------------------|------------------------------|----------------|-----------------------|-------------------------------|--|------------------|--|---|
| at 85 | 66 (| CTV, KO, 14 | | Noeth 1 | BELNGTON | 25 | \mathbf{A} | | |
| County/Dis | strict/Mur | nicipality | (| City/Town/Village | | | Province | Postal | Code |
| | ARN | L'ME-TEN | | ARTHO | JZ | | Ontario | Ne | BNA-d |
| UTM Coord | dinates Z | one Easting Northing | 1 | Municipal Plan and | Sublot Number | | Other | | |
| NAD | 83 | 7534587485 | 3949 | | | | **** | | |
| Overburd | len and I | Bedrock Materials/Abandonmer | t Sealing Reco | ord (see instructions | on the back of this form) | | | | |
| General C | Colour | Most Common Material | Otł | her Materials | Gener | ral Description |) | Dep From | th (<i>m/ft</i>) |
| Brow | SN | CLAN | | | V~~~Se | | | 3 | 34 |
| GOR | | Bandza | | | | | | 24 | 36 |
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| T24C | 50 | | | • | | ****** | | 36 | |
| 45Roce | | OUACS | GRAN | Æ | | | | <u>G</u> M | 122 |
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| /^^. | | | 1 . L w | | | | | | ····· |
| | | | | LASING | LEIVE AN | sc- | | | |
| | | Annular Space | | | | esults of W | ell Yield Testin | 9 | |
| Depth S | et at (<i>m/ft)</i> | Type of Sealant U | sed | Volume Place | d After test of well yield, v | vater was: | Draw Down | R | ecovery |
| rom | 10 | (Material and Type | ? | (m³/ft³) | Clear and sand fr | ee | Time Water Le | vel Time | Water Level |
| \bigcirc | 20 | - Quick Ga | Rant | CLOGHE- | | | Static (M/II) | ······································ | (11/11) |
| | | | | | If pumping discontinue | d, give reason: | Level | | ZQE |
| | | | | | | · | 1 14 | 2 1 | 30,0 |
| | | | | | Pump intake set at (n | n/ft) | 2 1.2 | 0 2 | 203 |
| | | | | | 100 | g ***** | | | |
| Mati | hod of (| Sonstruction | Wall IIc | | Pumping rate (I/min / (| GPM) | 3 63. | ▶ 3 | 26. |
| 6. WE BE NOT | | | | | | *** | | 2 | 111 mm 1 |

N 25/7 18. Public Commercial Not used Cable Tool Diamond 4 Duration of pumping Rotary (Conventional) Domestic Municipal Dewatering \mathbb{C} 200 5 V9 min hrs + 5 Rotary (Reverse) Monitoring Driving Livestock Test Hole Boring Final water level end of pumping (m/ft) Digging Cooling & Air Conditioning Irrigation S 0 10 22. 10 39.8 \Box Air percussion \bigcirc Industrial Other, specify Korcentra A 22 Other, specify 15 15 If flowing give rate (I/min / GPM) **Construction Record - Casing** Status of Well 20,0 20 20 Water Supply Depth (*m/ft*) Inside Recommended pump depth (m/ft) Open Hole OR Material Wall (Galvanized, Fibreglass, Diameter Thickness VQ 6 ∞ Replacement Well 25 25 From То Concrete, Plastic, Steel) (cm/in) (cm/in) Test Hole Recommended pump rate 398 30 30 Recharge Well <u>•166</u> 199 t all a start (I/min / GPM) C 10 JE35 Dewatering Well 398 Gave 40 40 Observation and/or Well production (I/min / GPM) Monitoring Hole 39,8 · · 50 :50 Alteration ۰. ۰. Disinfacted? · · . · · · . . 39.8 (Construction) 60 60 Yes No Abandoned, . . . Insufficient Supply Map of Well Location **Construction Record - Screen** Abandoned, Poor Please provide a map below following instructions on the back. Outside Water Quality Depth (*m/ft*) Material Diameter Slot No. (Plastic, Galvanized, Steel) Abandoned, other, From То N (cm/in) Leet specify . · . Other, specify BORN 65 20 late and see at the Q

| Water Details | H | | | | | |
|--|--|-------------------|---------------|---|--|--|
| Water found at Depth Kind of Water: Fresh Untested | Deptl | n (<i>m/ft</i>) | Diameter | | | |
| $\lambda \partial \mathcal{A}(m/ft) \square Gas \square Other, specify _$ | FTOIN | 10 | | | | |
| Water found at Depth Kind of Water: Fresh Untested | \bigcirc | 20 | 10' | Γ | | |
| (m/ft) 	Gas Other, specify | 20 | 1:50 | Lie" | | | |
| Water found at Depth Kind of Water: Fresh Untested | | 100 | | County Ro #14 | | |
| (m/ft) Gas Other, specify | | | | | | |
| Well Contractor and Well Technicia | | | | | | |
| Business Name of Well Contractor | Wel | I Contractor's | Licence No. | | | |
| Hannelle Dianer | | 261 | 081 | | | |
| Business Address (Street Number/Name) | Mur | nicipality | | Comments: | | |
| #3896 CEL BITH CLAS | 5896 WEL BUT PRAS GUELPH | | | | | |
| Province Postal Code Business E-mail Add | ress | 11 .1 | | | | |
| CN N146521260001 | and | d~11m | gican | Well owner's Date Package Delivered Ministry Use Only | | |
| Bus.Telephone No. (inc. area code) Name of Well Technician (L | | package | | | | |
| STAPAGERIZED HANDER d | delivered, <u>201720014</u> Data Wark Completed | | | | | |
| Well Technician's Licence No. Signature of Technician and/or Co | Ves Date work Completed | | | | | |
| 0590392946 | , de | 5140 | 725 | Re14 06251 3EF 262014 | | |
| 0506E (2007/12) © Queen's Printer for Ontario, 2007 | | Ministr | y's Copy | | | |
| | | | ···· 167 @[6* | | | |

GROUND WATER BRANCH E 014 Z]0 ONTARIO WATER RESOURCES COMMISS Ontario Water Resources Commission Act Ele С RD CO Basin .Township, Village, Town or City. County or 13 6 Date completed. Con (day Iress RB#? **Pumping Test Casing and Screen Record** 11 2 Static level Inside diameter of casing. G.P.M. Test-pumping rate Total length of casing Pumping level. n Type of screen 4 hrs Duration of test pumping Length of screen Clear Water clear or cloudy at end of test.... Depth to top of screen. 4" 0 G.P.M. Recommended pumping rate Diameter of finished hole 80 feet below ground surface with pump setting of Water Record Well Log Depth(s) at which water(s) Kind of water From То (fresh, salty, sulphur) Overburden and Bedrock Record ft. ft. found 85 FRESh 0 6 よう 5 loO 0 100 100 60 125 00 1 60 Q 5 181 60 181 200 Location of Well For what purpose(s) is the water to be used? In diagram below show distances of well from road and lot line. Indicate north by arrow. RT H **U** R Is well on upland, in valley, or on hillside? Drilling or Boring Firm 7] 150 Address ush Licence Number.... ned. Name of Driller or Borer RR#S Forest. Address 963 Date 3 Licensed Drilling or Boring Contractor) (Signa 6 ONN Form 7 15M-60-4138 188.88 OWRC COPY

| | Mini | strv | | | The | Ontario V | Water Resour | ces Act | |
|--|---------------------------------------|---|---|---|--------------|-------------------|---------------------------------------|----------------------------|------------------------------|
| Online Interview States areas 6708424 Construction Construction Construction Construction Construction Construction Construction Construction Construction Construction Construction Construction Construction Construction Construction Construction Construction Construction Construction Construction Construction | of th | ie ironment | | NAT | ER | WI | ELL | RECO | RD |
| The set of a barrier To set of a bar | Ontario | 1. PRINT ONLY IN S | | | 6708 | 424 | with the | | 22 23 24 |
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| EFREAL COLDU Difference Black topsoil bhack topsoil brown clay grey olay hardpan 11 grey hardpan grey haran grey grey | ſ | LC | G OF OVERBURDEN | AND BEDRO | OCK MATER | IALS (SEE 1 | NSTRUCTIONS) | | 47 |
| black topsoil 0 brown clay 1 grey clay hardpan grey hardpan gravel grey grey hardpan grey grey hardpan grey grey hardpan grey grey hardpan grey grey grey grey grey grey grey< | GENERAL COLOUR | MOST COMMON MATERIAL | OTHER MATE | ERIALS | | GENER | AL DESCRIPTION | DEPTI | I - FEET TO |
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| grey clay hardpan III grey hardpan gravel 145 1 grey hardpan gravel 145 145 grey grey hardpan grey hardpan 145 grey grey grey hardpan grey grey grey grey grey grey grey grey grey grey grey grey grey grey grey grey grey grey grey grey grey grey grey grey grey grey grey | brown | clay | | | | | | 1 | 11 |
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| 32 All WATER RECORD Image: State of the state o | 31 | | | | | | | | |
| 41 WATER RECORD WITT FORM EXAM OF WATER 150 CASING & OPEN HOLE RECORD WATER RECORD WATER RECORD WATER RECORD WATER RECORD 150 Carray & Distance 151 Carray & Distance 151 | | | | | | | | 65 31.33 DIAMETER 36.38 | 75 80 |
| A1. TELT MARMAN | 41 WA | | 51 CASING & C | | DEPTH - FEET | | T NO > | INCHES | FEET |
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| 1 Σ PUMP 2 \Box BAILEB 6 G OPH 4 $Iste 10005$ Minutes 1000 Minutes 1000 Minutes 100 Minutes | PUMPING TEST NE | SALTY 4 MINERAL | E II-14 DURATION OF PL | JMPING | | | OCATION (| DF WELL | |
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| | | END OF WATER L PUMPING 1 22-24 15 MINUTES | LEVELS DURING 2 2 | RECOVERY | | DT LINE. INI 1 | DICATE NORTH BY A | RROW. | |
| Guide BATE Goid Goid <th></th> <td>25 FEET FE</td> <td>E 29-31 32- ET FEET FI SET AT WATER AT END</td> <td>25³⁴ FEET 25³⁵⁻³⁷ FEET 42</td> <td>Nori</td> <td>~</td> <td></td> <td></td> <td></td> | | 25 FEET FE | E 29-31 32- ET FEET FI SET AT WATER AT END | 25 ³⁴ FEET 25 ³⁵⁻³⁷ FEET 42 | Nori | ~ | | | |
| Reconverdod pump type Reconverdod pump type 41-45 Reconverdod pump type 44-45 I SHALLOW DEEP BEEP String 90 FEET RATE G GPM 1 SHALLOW DEEP I SE WATER SUPPLY S I ABANDONED, INSUFFICIENT SUPPLY ABANDONED, INSUFFICIENT SUPPLY I ABANDONED, INSUFFICIENT SUPPLY I ABANDONED, INSUFFICIENT SUPPLY 2 OBSERVATION WELL I DOMESTIC I ABANDONED, INSUFFICIENT SUPPLY I ABANDONED POOR QUALITY 3 I TEST HOLE 7 I UNFINISHED ABANDONED AIR CONDITIONING IIIII SUPPLY VATER I REIGATION I PUBLIC SUPPLY IIIII SUPPLY USE I ODMESTIC I COULING OR AIR CONDITIONING I INDUSTRIAL I COULING OR AIR CONDITIONING IIIIII SUPPLY USE I OTHER I IIIII SUPPLY IIIIIII SUPPLY I ROTARY (REVERSE) I IIIII SUPPLY IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII | | GPM C | | 2 🗌 CLOUDY | | | | | |
| B0-53 FINAL 34 I & WATER SUPPLY 2 OBSERVATION WELL 3 I TEST HOLE 3 I TEST HOLE 4 I RECHARGE WELL 35:36 I & DOMESTIC 4 I RECHARGE WELL 35:36 I & DOMESTIC 55:36 I & DOMESTIC 50 COMMERCIAL 2 STOCK 4 I REIGATION 2 STOCK 4 I REIGATION 2 I REIGATION 3 I REIGATION 4 I OCOLING OR AIR CONDITIONING 37 I CABLE TOOL 57 I CABLE TOOL 5 I ROTARY (REVERSE) 6 J ETTING 7 I DIAMOND 7 I DRIVING 8 I RERCUSSION | RECOMMENDED PI | UMP TYPE RECOMMENDE PUMP W REDEEP SETTING | D 43-45 RECOMMENDED PUMPING 90 FEET RATE | 46-49 <u>6</u> срм | | | | Lane | |
| FINAL 1 GV WATER SUPPLY 5 G ABANDONED, INSUFFICIENT SUPPLY STATUS 0 DBSERVATION WELL 6 ABANDONED, POOR QUALITY y TEST HOLE 7 UNFINISHED OF WELL 4 RECHARGE WELL 7 UNFINISHED stock 6 MUNICIPAL vater 3 Tock 6 MUNICIPAL vater 3 Tock 6 MUNICIPAL vater 9 Observation 7 Dublic SUPPLY USE 1 REGATION 7 Dublic SUPPLY use 9 Not used state 9 Not used state 9 Not used state 9 Other off 9 Rotary (conventional) state 9 Driving brillers remarks: brillers remarks: | \$0.53 | 34 | | |] ' 1 ' | | 1 | | C |
| OF WELL • □ RECHARGE WELL 55:56 • □ DOMESTIC • □ STOCK • □ MUNICIPAL • □ STOCK • □ MUNICIPAL • □ STOCK • □ NOLUSTRIAL • □ COOLING OR AIR CONDITIONING □ OTHER • □ CABLE TOOL • □ BORING • □ CABLE TOOL • □ DIAMOND OF • □ ROTARY (CONVENTIONAL) • □ DIAMOND OF • □ ROTARY (REVERSE) • □ DIAMOND OF • □ ROTARY (AIR) • □ DRIVING • □ DRIVING • □ AIR PERCUSSION | FINAL STATUS | 1 ST WATER SUPPLY 2 DOBSERVATION WE 3 TEST HOLE | S L ABANDONED, INSU LL G ABANDONED, POOR 7 UNFINISHED | QUALITY | | | | well | w t |
| WATER 2 STOCK | OF WELL | 4 C RECHARGE WELL | 5 COMMERCIAL | | | | 1 12 | 84' | J R. |
| USE I HOUSTRIAL I COLLING ON AND CONTINUES I OTHER I NOT USED METHOD CABLE TOOL I BORING VI CABLE TOOL I BORING OF I COVENTIONAL) I DIAMOND OF I ROTARY (COVENTIONAL) I DIAMOND OF I ROTARY (REVERSE) I DIETTING OF I ROTARY (AIR) I DRIVING DRILLING I AIR PERCUSSION DRIVING | WATER | | 5 D MUNICIPAL 7 D PUBLIC SUPPLY 8 D COOLING OF AIR COND | | | | A Loc | | (let |
| 37 1 CABLE TOOL 6 BORING METHOD 2 GROTARY (CONVENTIONAL) 7 DIAMOND OF 3 GROTARY (REVERSE) 9 JETTING DRILLING 4 GROTARY (AIR) 9 DRIVING S J. AIR PERCUSSION DRIVING DRILLERS REMARKS- | USE | | 9 [] NO | TUSED | | | | | Ro |
| OF 3 ROTARY (REVERSE) 0 JETTING DRILLING 4 ROTARY (AIR) 9 DRIVING 3 AIR PERCUSSION DRIVING | METHOD | 57 1 CABLE TOOL 2 CROTARY (CONVEN | 6 BORING RTIONAL) 7 DIAMOND | | | | | <u> </u> | |
| | | ROTARY (REVERS A ROTARY (AIR) AIR PERCUSSION | E, ■ L JETTING 9 🗍 DRIVING | | DRILLERS RI | EMARKS | | | 102 |
| NAME OF WELL CONTRACTOR | NAME OF WELS | | LI | CENCE NUMBER | | 58 | CONTRACTOR 59-62 | DATE 1-14 05 | 86. " |
| Hugh Morrison Water Well Drilling Itd | Hugh ADDRESS | Morrison Wat | er Well Drill | ing Ltd | | INSPECTION | INSPECTOR | | VU |
| R.R. 5 Mount Forest, Ontario. | R.R. | 5 Mount Fore | st, Ontario. | CENCE NUMBER | | | | | |
| Bignature of contractor Submission date | Hugh | Morrison CONTRACTOR | SUBMISSION DATE | 3740 | FFIC | | | - | |
| Luge here was an and the second secon | L Mu | of manusor | DAY MO. | YR | 0 | | <u> </u> | FORM NO. 05 | S.ES |

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| | LO | | ATERIALS | | GENER | AL DESCRIPTION | F | DEPTH - FEET | т |
| BROWN | FILL | | | | | | | 0 3 | 3 |
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| GREY | HARK | PAN 2 | STON | ES | | | | +2/ | 7/ |
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| | | | 1 1 1 1 | | | | | | |
| | | | | | SIZE | ST OF OPENING | 31-33 DIAMETER | 34-38 LENGT | 15 80 H 39-40 |
| 41 WATER WATER FOUND AT - FEET KI | RECORD | 51 CASING | & OPEN HOLE | RECORD | | T NO , 30 | DEPTH OF SC | | FEET |
| 172 2 SA | ESH 3 🗍 SULPHUR LTY 4 🗍 MINERALS 6 🗍 GAS | 10-11 1 STEEL 2 GALVANIZED 3 CONCRETE | | A 10 | | STEEL | | 181 | FEET |
| | ESH 3 SULPHUR 4 MINERALS LTY 6 GAS ESH 3 SULPHUR 24 | J 4□ OPEN HOLE 5□ PLASTIC 17-14 1 □ STEEL | 188 | 018 | 20-21 DEPTH | | ATERIAL AND TYPE | CEMENT GR | IOUT ETC) |
| 25-28 I _ FR | $4 \square MINERALS$ $LTY \qquad 6 \square GAS$ $ESH \qquad 3 \square SULPHUR \qquad 21$ $4 \square MINEPALS$ | 3 CONCRETE 4 OPEN HOLE 5 PLASTIC | 26 | | 27-30 | 10-13 14-17 18-21 22-25 | | | |
| 2 🗌 SA 30-33 1 🗌 FR 2 🗆 SA | LTY $6 \Box GAS$ ESH $3 \Box SULPHUR$ 34 80 4 \Box MINERALS | 1 D STEEL 2 D GALVANIZED 3 D CONCRETE 4 O OPEN HOLE 5 D PLASTIC | | | | 6-29 30-33 80 | | | |
| 71 PUMPING TEST METHOD | 10 PUMPING RATE | | DF PUMPING 15-16 () 17-3 | a] | 1 | OCATION O | F WELL | | |
| | J'BAILER ATER LEVEL 25 END OF WATER LE PUMPING | VELS DURING | HOURS MINS | | N DIAGRAM BEL OT LINE IN | OW SHOW DISTANCES DICATE NORTH BY AR | S OF WELL FROM ROW. | ROAD AND | _/ |
| | 90 _{FEET} 32-24 | 1 2 Preet 20 | JITES 60 MINUTES | 17 | | | | 6 | / |
| GIVE RATE | 30-41 PUMP INTAKE S GPM A/R | ITOFEET VATER AT | EAR L CLOUDY | 2 | | | | H | |
| C SHALLOW | DEEP SETTING | A3-48 RECOMMEN | -10 | | | | | 4 | |
| FINAL 54 | I WATER SUPPLY | | NSUFFICIENT SUPPLY | | | | | | |
| STATUS OF WELL | 1 DESERVATION WEL | 9 Dewatering | | | | · | | | |
| WATER | 1 C DOMESTIC 2 C STOCK 3 C IRRIGATION | COMMERCIAL MUNICIPAL PUBLIC SUPPLY CONVERSION 15 | ONDITIONING | | | o L | | | |
| USE | | | NOT USED | _ | | WELL | | | |
| METHOD OF | CABLE TOOL | | NG NG NG | | | | | 2288 | 30 |
| | ROTARY (AIR) AIR PERCUSSION | | ING OTHER | DRILLERS R | REMARKS | CONTRACTOR 59-42 | DATE RECEIVED | | 63-68 8 |
| C DURH | AM DRIL | LING, EN | 77804 | AIN SOURCE | E | 1804 INSPECTOR | SEP 1 | 2 1988 | |
| NAME OF WELL | DURHA. | M NOC | WELL TECHNICIAN | | R S | | | | |
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| Ontario Ministry of Environment and Energy | | The | e Ontario Water Resource WATER WELL REC | es Act ORD |
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| County or District | Township/Borough/City/T | own/ <u>Milage</u> | Con block tract survey, etc. Lot | 25-27 |
| her Himahan | Address | | Date 044 | 48-53 |
| | Roy 189 14 | 16 George St ART | bue completed day mo | 7 98 1th year |
| | | | | IV : 47 |
| | OVERBURDEN AND BEDF | ROCK MATERIALS (see instruc | tions) | the fact |
| General colour Most common material | Other materials | Genera | al description From | in – teet To |
| BROWN TOP Soil | | | 0 | |
| BROWN CLAY | cobbles | STREAM | bed 1 | 13 |
| GREY CLAY | STONES | | 1.3 | 36 |
| BROWN CLAY | stones + cub. | bles till | 36 | 130 |
| GRAVEL | | water be | aring 130 | 152 |
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| | | | | |
| 31 | | | | |
| | | | 65 65 65 65 | 75 80 |
| 41 WATER RECORD 51 Water found Kind of water diam | CASING & OPEN HOLE Wall Material thickness | Depth - feet |)) = #50 10 inches | n feet |
| 10-13 1 Fresh 3 Sulphur 14 10-13 1 Minerals | 1 Steel 12 | From To Material | I and type Depth at top of | 1 screen 30 |
| 30 2 15-18 3 Eresh 3 Sulphur 19 | Galvanized Galvanized Concrete Open hole | + Ster | NESS STEEL 1391 | 2 feet |
| 2 Gas | s Plastic | 2 138 61 | | D |
| 20-23 1 ☐ Fresh 3 ☐ Supnur 24 2 ☐ Salty 6 ☐ Gas | 2 Galvanized 3 Concrete | Depth set at | t - feet To Material and type (Cement grout, be | ntonite, etc.) |
| 25-28 1 E Fresh 3 E Sulphur 29 2 Salty 4 Minerals 24.25 | 5 D Plastic | 10-13 77, 30 | 40 CEMENT GROW | 14 |
| 30-33 1 E Fresh 3 E Sulphur 34 60 | 2 Galvanized 3 Concrete | 18-21 | 22-25 BENTONITE | |
| 2 C Salty 6 Gas | Open noie Den noie Den noie Den noie Den noie | a-73 | 30- 33 6 0 | |
| Pumping test method 10 Pumping rate 11-14 | Duration of pumping 2.4. Hours 1.0. Mins | LC | | |
| Static level end of pumping 25 Water levels during | Pumping 2 🗌 Recovery | In diagram below show Indicate north by arrow | v distances of well from road and lot li v. | ne. |
| 5 + 1.72 9.29 15 minutes 30 minutes | 45 minutes 45 minutes 45 minutes 60 minutes 5. 16 ³⁵⁻³⁷ | | <u>VELL 7B</u> | × |
| | t Mater at end of test 42 | 25' | | 1 |
| GPM fee | Clear Cloudy | 10 + WELL | | |
| C Shallow Deep | pump rate | | Wells | 1- |
| b0-53 | | | STREET | Nel 1 |
| FINAL STATUS OF WELL 54 | t supply g 🔲 Unfinished | OWE | | 112 |
| Test hole Abandoned (Other) Action of the second sec | , | i con | | |
| WATER USE 55-56 | | E | | |
| 1 Domestic 5 Commercial 2 Stock 6 Municipal | 9 □ Not used 10 □ Other | Ten - | | = 1 |
| 3 ☐ irrigation 7 ☐ Public supply 4 ☐ Industrial 8 ☐ Cooling & air conditioni | ing | | #9 | |
| METHOD OF CONSTRUCTION 57 | | Mary | , | |
| Cable tool 5 Air percussion Cable tool 6 Boring Boring Boring Boring | 9 Driving 10 Digging | | 4 0 0 4 0 7 | |
| Rotary (air) _s Detring | | | 160123 | , |
| Name of Well Contractor | Well Contractor's Licence No. | Data 58 Contracto | 59-62 Date received | 63 68 80 |
| Address Well Deilling | 3406 | Date of inspection | HUD APR 0 1 1 | 177 |
| RR#1 Grand Unliey | | | | |
| Name of Well Technician | Well Technician's Licence No. | Remarks | CSS ESO | |
| Signature of Technician/Contractor | Submission date | NINI INI | ~~~ ~ ~~ | |
| X MARCALINI X UMAGelac | day mo yr | | 0506 (07/94) F | ront Form 9 |

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The Ontario Water Resources Act WATER WELL RECORD

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| County or District | t | Iownship/Borough/Çity/I | Fown/Village | 9 7 L | | Con block | tract surve | y, etc. L | ot the F |
| Owner's surname | アクト/ B ²⁸⁻⁴¹ First Name | Address PO BOX 1 | THUR | | | CONA | Data | | 20 |
| TWP OF WR | ELLINCTON MORTH | KENILWORTH | ONT | NOGLE | 0 | | completed | ් dav | י ≊א מפ month ve |
| 21 | Zone Ų | Easting Northing | | RC Elevatio | n RC | Basin Code | ii ii | iii | IV |
| 2 | | | | | | 31 | | Lill | |
| General colour | Most common material | Other materials | | ENIALS (See | General de | 15} | | Dep | th - feet |
| | Most common material | | | | General de | escription | | From | To |
| A | TOP SOIL | | | | | | | 0 | (|
| BROWN | Car | STONES | | | | | | r | 25 |
| GREY | Cery | STOMES | | | | | | 25 | 37 |
| GREY | CLAS | | | MARD | | | | 37 | 4-7 |
| GREY | Cary | GRAUBL | | FINE | | | | 47 | 51 |
| BROWN | SANO | GORY CURY CLAR | | | | | | 51 | 84 |
| Loc - | 6 parts (| Curry Corr | | | | | | | 14.3 |
| Cor . | I A V | LIGIT COMP | Maaaaaa | | | | | 07 | 103 |
| <u>3829</u> | ((4) | OKAVEL | | | | | | 103 | 110 |
| SREY | CLAV | | | HARD | | | | 118 | 12.3 |
| SREY | CIAY | GRAVEL | | -staf- | | | | 123 | 133 |
| 31 | Image: Second | All and a second sec | ECORD Depth - From 2 | In diagram be Indicate north | Material and Stress of oper (Slot No.) Material and Stra rw c V - L Depth set at - f From T 0 ^{10,13} / 8 18-2 26-29 LOCA elow show d b y arrow. | Image: second system Image: second system Image: second system Ima | 33 Diampter 8 ∑ i 7€ ₹ 4 8 SEALING ial and type (Ce MAZ AF C WELL f well from ro | Lenn hoches 2 Depth at top 183 RECORE Abandonn ment grout, b Row 7 Dad and lo | t line. |
| Water sup Observatio Observatio Test hole Recharge WATER USE I Domestic Domestic Omestic Omestic I Domestic Omestic I Domestic Omestic O | ply 2 Abandoned, insufficie on well 6 Abandoned, poor qua 7 Abandoned (Other) well 8 Dewatering 55-56 5 Commercial 6 Municipal 7 Public supply 8 Cooling & air condition construction 57 5 Air percussion nventional) 6 Boring verse) 7 Diamond 9 Etting | 9 Unfinished lity 10 Replacement well 9 Not use 10 Other ning 10 9 Driving 10 Digging 11 Other | | e to the total of | r ago . | 30 ANACLES | | 253 | 367 |
| Name of Well Contra | actor « DRILLING SERVICES | Well Contractor's Licence No. | Data source | 58 C | 68 | 3 5 | 9-62 Date recei | ^{red} 192 | 004 ⁶³⁻⁶⁸ |
| Address RR I EL Name of Well Techn Tim Brod | ORA ONIT NOBI Ician 10F00T | SO Well Technician's Licence No. アク3フロ | Bate of Date o | n inspection | Ins | | <u> </u> | o r | |
| Signature of Technic | sian/Contractor | Submission date day mo yr | MNIS | | | | U O | | 154 |
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| County or Distric | t | e Con | block tract survey | y, etc. I | Lot | |
| Owner's surnam Tいの or | e ²⁸⁴² First Name <i>Witter (11/16 For Alera</i> 1 | Address Date compl | | | | month year |
| 2 | Zone T | Easting Northing | RC Elevation RC Basin | | | |
| | LOG C | FOVERBURDEN AND BEDROCK MA | TERIALS (see instructions) | | | |
| General colour | Most common material | Other materials | General descrip | otion | Dep | oth - feet |
| GREY | CLAY | FROM WELL RECORD | #153367 11A20 | | 133 | 138 |
| BROWN | CLAY | GRAVELF ROCKS | | | 138 | 170 |
| BROWN | GRAVEL | Cery | INVERD | | 170 | 178 |
| BROWN | GRAVEL | SAND | | | 178 | 211 |
| BROWN! | GAND | SILTY CLAL | | | 211 | 220 |
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| [41 W | ATER RECORD | | 51 | CASING & OF | PEN HOLE | RECORD | | Г | | Sizes | of opening | 31.33 | Diameter | 34-38 | Length | 39-40 | |
| Water found at - feet | Kind of water | | Inside diam | Material | Wall thickness | Depti | - feet | | | (Slot N | o.) | | | inches | | feet | |
| :0.13 15.14 | 1 Fresh 3 Sulphur 14 2 Salty 6 Gas | | inches 10-11 | 1 Steel 12 2 Galvanized 3 Concrete | inches | Prom | 13-16 | | SCR | Materia | al and type | | J | Depth | at top of s | feet | |
| 22.52 | 1 Fresh 3 Suppluing 13 2 Salty 4 Minerals 6 Gas | | 17-18 | 17-18 | 4 | 4 Open hole 5 Plastic 1 Steel 19 | | 20 23 | F | 61 PLUGGING & SE | | | | SEALING | EALING RECORD | | |
| 20-23 | Fresh 3 🗆 Suprior 34 | | 2 Galvanized | | Galvanized Concrete | | | ŀ | Depth set at - feet | | | et | | | | | |
| | 6 Gas | | | 4 🗌 Open hole | | | | | Fre | om | То | Material a | ind type (Ce | ement gr | out, bento | nite, etc.) | |
| 25-23 | : Fresh ³ Sulphur ²⁹ | | | 5 📋 Plastic | | | | ſ | | 10-13 | 14-17 | | | | | | |
| | | | 24-25 | 1 🖸 Steel 26 | | | 27-30 | ┝ | | 18-21 | 22-25 | | | | | | |
| 30-33 | 1 Fresh 3 Sulphur 34 2 Salty 6 Gas | 60 | | Concrete Copen hole C | | | | - | | 26-29 | 30-33 | 80 | | | | | |

| 71 | Pumping tes | t method 10 | Pumping rate | 11-14 GPM | Duration of pum | ping | | | LO | CATION | DF WEI | |
|----------|---------------------------------------|-------------------------------|---|---------------------|-------------------------|---------------------|-----------|---------------------------|-----------------------------|------------------|-----------------|------------------------------|
| Ŀ | Static level | Water level end of pumping | 25 Water level | s during | Pumping | 2 Recovery | | In diagram Indicate ne | n below sho orth by arro | w distance w. | es of we | ell from road and lot line. |
| TES | 19-21 | 22-24 | 15 minutes 26-28 | 30 minutes 29 31 | 45 minutes 32-34 | 60 minutes 35-37 | | | - | | | |
| NG NG | feet | feet | feet | feet | feet | feet | | | | | | |
| 16 | If flowing give | e rate 38-41 | Pump intake se | et at | Water at end of t | est 42 | | | | | | |
| 15 | | GPM | | feet | 🗌 Clear | Cloudy | | | | | | |
| 1 | Recommende | d pump type | Recommended | 43-45 | Recommended | 46-49 | | | | | | |
| | 🗌 Shallow | 🗌 Deep | pump setting | feet | pump rate | GPM | | | | | | |
| | 50-53 | | | | | | | | | | | |
| FI | VAL STAT | US OF WELL | 54 | | | | | | | | | |
| . | 1 🗌 Water s | upply | 5 🗌 Abandone | d, insufficient sup | oply 🦻 🗌 Unfinis | shed | | | | | | |
| | 2 Observa | ation well | Abandone | d, poor quality | 10 🔲 Repla | cement well | | | | | | |
| | 4 🗌 Rechar | ie ge well | 8 Dewatering | a (Omer) | | | | | | | | |
| | | - | | - | | | | | | | | |
| W | ATER USE | | 55-56 | | | | | | | | | |
| é | 1 Domest | ic | 5 🗋 Commercia | al | e 🗌 Not us | e | | | | | | |
| | 2 Stock | n | Municipal Public sup | nhv | 10 LI Other | | | | | | | |
| | 4 🗌 Industri | al | 8 Cooling & | air conditioning | | | | | | | | |
| | | | - | _ | | | | | | | | |
| MI | ETHOD OF | CONSTRUC | TION 57 | | | | | | | | | |
| | 1 🗌 Cable to | loc | 5 🔲 Air percusa | sion | a 🗋 Driving | 9 | | | | | | |
| | ² E Rotary (3 Botary) | (conventional) (reverse) | Boring 7 Diamond | | ¹⁰ [] Diggin | g | | | | | | ab white alls alls alls alls |
| | 4 🗌 Rotary | (air) | ⁸ U Jetting | | | | | | | | | 253366 |
| l | ****** | | | | | | | | | *** | | |
| Nar | ne of Well Co | ntractor | | ****** | Well Contract | tor's Licence No | | Data | 8 Contractor | | 59-62 | Date received 63-68 Jec |
| | | | | | | | E V | source | B A | 65 | | JAN 1 9 2004 |
| Acte | iress | | | | l | | ő | Date of inspection | | Linspector | | Aren i Arin Mali |
| | | | | | | | ш Ю | and of mopoorton | | | | |
| Na | ne of Well Ter | hnician | · | | Well Technic | an's Licence No | | Bemarks | | <u>l</u> | | |
| | | | | | | | <u>ac</u> | | | | and the second | CC FCA |
| 01- | noture of T | nining/Contractor | | | | | Ś | | | | 1 | 100. [34 |
| Sig | nature of Tech | inician/Contractor | | Submission c | late | Z | | | | | an a mun alla j | |
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| WELLING | STON | Tour OF ARTHU | r VR | CONA | | | 20 |
| Owner's surname | e 28-47 First Name | Address Po Box 125 | | | Date | 23 | 08 03 |
| TWP OF W | FLUINGTON NORTH | KENILWORTH ONT | NOG 2EO | | completed | day | month year |
| 21 | Zone | Easting Northing | RC Elevation RC | Basin Code | í. | in 1 | iv. |
| | | 12 17 18 24 | 25 26 30 | 31 | <u></u> | L | |
| | LOG C | FOVERBURDEN AND BEDROCK MAT | ERIALS (see instructio | ns) | | | |
| General colour | Most common material | Other materials | General c | lescription | | D | epth - feet |
| | | | | | | Pron | 10 |
| | 10P 2016 | | | | | 0 | 1 |
| BROWN | CLAY | STONES | | | | 1 | 9 |
| GREE | CLAY | STONES | | | | 9 | 32 |
| GREY | CLAY | GRAVEL | FINE | | | 32 | 49 |
| BROWN | SAND | SILT- CLAS | | | | 49 | 84 |
| GREY | GRAVEL | SILTY CLAY | FINIS | **** | | 84 | 102 |
| GREY | CLAY | GRAVEL | | | | 102 | 120 |
| GREY | CLAT | | HARD | | | 120 | > 128 |
| GREY | CIAY | GRAVIEL | | | <u>.</u> | 128 | 136 |
| GREY | CIAY | | HARD | | | 13 | 6 139 |
| | CONTINUED | ON WELL RECORD # | 253364 | | | | |

| 41 WATER RECORD | | | 51 CASING & OPEN HOLE RECORD | | | | | Г | Si | izes of opening | 3*-33 | Diameter | 34-38 | Length | 39.46 |
|--------------------------|--|----|------------------------------|---|-----------------------------|---------------|--------------|-----|---------------------|--|--------------------------|-------------|-----------|--------------------------|-------------------|
| Water found at - feet | Kind of water | | Inside diam inches | Material | Wall thickness inches | Depth From | - feet To | | 2) (S | GO | | 82 | inches | 2 | ⊘ _{feet} |
| 1()+1 ÷ | 1 □ Fresh 3 □ Sulphur 14 2 □ Salty 6 □ Gas | | 10-11 | Steel ¹² Galvanized Galvanized | . 365 | * , | 13-16 183 | 100 | 57 57 | laterial and type アイルイモタブ ・ トレノバ モ | 57 <i>6</i> 760 | ۷ | Depth | at top of so 5-4- | feet |
| 13-19 | 1 Fresh 3 Sulphur 19 2 Salty 6 Gas | | 10 | 4 Open hole C Plastic | | | | 6 | 1 | PLUGO | NG & S | EALING | G REC | ORD | |
| 20-23 | Eroch 3 Sulphur 24 | | 17.18 | Steel | | | 20-23 | | | 🔀 Annular | space | | 🗍 Aba | ndonment | |
| | 2 Salty 4 Minerals | | | | | | | | Depth set at - feet | | Material and type (Cemer | | omont or | at arout bentonite etc.) | |
| | Gas | | | 4 🗌 Open hole | | | | | Fror | n To | watena a | iu type (Ci | ernent gr | | |
| 25-28 | ¹ □ Fresh ³ □ Sulphur ²⁹ | | 24.05 | 5 [] Plastic | | | 07.22 | | 0 10 | 1837 | Comme. | ur 6 | Row | 7 | |
| | 2 Gas | | 24-20 | 2 Galvanized | | | 27-30 | - | 18 | -21 22-25 | | | | | |
| 30-33 | 1 Eresh 3 Sulphur 34 | 60 | | 3 Concrete | | | | | | | | | | | |
| | 2 Salty 6 Gas | | | 4 Open hole 5 Plastic | | | | | 26 | -29 - 30-53 | ao | | | | |

| 71 Pumping test method 30 Pumping rate 11-14 | Duration of pumping 15-16 17-18 Hours Mins | |
|---|---|---|
| Static level end of pumping 25 Water levels during 1 | Pumping 2 🗌 Recovery | In diagram below show distances of well from road and lot line. Indicate north by arrow. |
| 13-21 22-24 15 minutes 30 minutes 15 minutes 16 minutes 16 minutes 17 minutes 16 minutes 16 minutes 17 minutes 10 minutes 16 minutes 16 minutes 17 minutes 10 minutes 16 minutes 16 minutes 10 minutes 10 minutes 16 minutes 16 minutes 10 minutes 10 minutes 16 minutes 16 minutes 16 minutes 10 minutes 16 minutes 16 minutes 16 minutes 16 minutes 17 minutes 16 minutes 16 minutes 16 minutes 18 minutes 16 minutes 16 minutes 16 minutes 19 minutes 16 minutes 16 minutes 16 minutes 19 minutes 16 minutes 16 minutes 16 minutes 19 minutes 16 minutes 16 minutes 16 minutes 10 minutes 16 minutes 16 minutes 16 minutes 10 minutes 16 minutes 16 minutes 16 minutes 10 minutes 16 minutes 16 minutes 16 minutes 16 minutes 16 minutes 16 minutes 16 minutes 17 minutes 16 minutes 16 minutes 16 minutes 10 minutes 16 minutes | 45 minutes 32-34 Feet 60 minutes 35-37 Feet 60 minutes 35-37 Water at end of test 42 Clear Cloudy Recommended 45-49 pump rate GPM | Hur o Hur o Hur o |
| WATER USE 55-56 1 Domestic 5 2 Stock 5 3 Irrigation 7 4 Industrial 6 Cooling & air conditioning | 9 🗌 Not use 10 🗌 Other | 2715 |
| METHÓD OF CONSTRUCTION 57 1 Cable tool 5 Air percussion 27 Rotary (conventional) 6 Boring 3 Rotary (reverse) 7 Diamond 4 Rotary (air) 8 Jetting | Driving Digging Other | 253368 |
| Name of Well Contractor | Well Contractor's Licence No. | Data 58 Contractor 59-62 Date received 63.68 50 |
| MCADOWBANK DRILLING SERVICES | 6865 | z ^{source} 00000 JAN 192004 |
| Address RRI ELORA ONT MOBISO | | Date of inspection Inspector |
| Name of Well Technician | Well Technician's Licence No. | CSS ES4 |
| Im Burgheer | day mo yr | [≥] |

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| V Or | ntario |
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Ministry of the Environment

| Print only in spaces provided. | |
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| Mark correct box with a checkmark, w | here applicable. |

03-68

11

The Ontario Water Resources Act WATER WELL RECORD

6714776

pj2 GTOIO CON LIL A _____]

| | | | | | 1. Dł | 7664 | - 1 C | | | | | |
|------------------------------------|--|----------------------|-------------------------|----------------------------------|---------------------------|-----------------|-----------|--------------------------|---------------|--------------------|--------------------|-----------------------|
| County or Distric | rt | | | Township | /Borough/City/ | Town/Village | Э | | Con block | tract survey | etc. Lo | ot |
| Owner's surnam Tいい or i | e ²³⁴⁷ WELLINGTON | First Name | 7 ⁴ | Address | | | | | 1 | Date completed | | nonth vear |
| 21 | | | Easting | · | Northing | | | vation RC | Basin Code | р ¹ | | |
| | | LOG | OF OVER | BURDEN | AND BEDR | OCK MAT | ERIALS (s | see instructio | əns) | | | |
| General colour | Most common ma | aterial | | Othe | er materials | | | General | description | | Dept From | h - feet To |
| | CONTIN | UED | FR | 0 *2 | WELL | P Ec | UKD 2 | 253 | 368 | | | |
| BROWN | CLAY | | GRA | いだく ナ | ROCKS | | | - | | | 139 | 179 |
| BROWN | GRAVEL | | SAN | is r.R. | OCK S | | | | | | 179 | 214 |
| BROWN | SAMO | | 6RA | vecr | Ceny | | | | | | 214 | 225 |
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| | | | | | | | | | | | | |
| 31 | | LLI | | | | | | | | | | |
| 32 | | | | | | | | | | | | LLL L |
| 41 WAT Water found at - feet | ER RECORD Kind of water | 51 Inside diam | | SING & O | Vall Wall thickness | RECORD Depth | - feet | Sizes of c (Slot No.) | ppening 31 | -33 Diameter ir | iches | yth 39.40 feet |
| ^{10,13} 1 2 | □ Fresh ² □ Sulphur 14 4 □ Minerals 6 □ Gas | 10-1 | s 1 1 🗆 S 2 🗆 G | teel ¹² alvanized | Inches | 11011 | 13-16 | Material a | and type | | Depth at top | of screen 30 co.da |
| 15.19 | Fresh 3 C Sulphur 19 | j . | | pen hole | | | | ll | | | | |
| 2 | □ Salty ∈ □ Gas | 17- | 8 1 🗆 S | teel 19 | | | 20-23 | 61 ГТ | Annular space | & SEALING | RECORD Abandonr | nent |
| 20-25 | □ Fresh ³ □ Sulphur ²⁴ □ Salty ⁴ □ Minerals <u>6</u> □ Gas | | 2 🗆 G 3 🗆 C 4 🗆 O | alvanized oncrete pen hole | | | | Depth set at From | - feet Mater | ial and type (Cer | nent grout, b | entonite, etc.) |
| 25-2+ 1 | □ Fresh ³ □ Sulphur ²⁹ □ Salty ⁴ □ Minerals | 24-3 | 5 [] P | lastic | | | 27-30 | 10-13 | 14-17 | | | |
| 30-33 1 | □ Sally 6 □ Gas □ Fresh ³ □ Sulphur ³⁴ □ Sally ⁴ □ Minerals | 50 | 2 🗆 G 3 🗆 C 4 🗆 O | alvanized oncrete pen hole | | | | 18-21 26-29 | 30-33 80 | | | |
| 2 | 🗆 Sany 6 🗔 Gas | | 5 🗆 P | lastic | | | | 1 | 1 | | | |

| 71 | Pumping tes | t method 10 2 🔲 Bailer | Pumping rate 11-14 GPM | Duration of pumping 15-16 17-18 Hours Mins | LOCATION OF WELL |
|--------|-------------------------------------|-------------------------------|---|--|------------------------------|
| F | Static level | Water level end of pumping | Water levels during 1 | Pumping 2 🗌 Recovery | Indicate north by arrow. |
| μ | 19-21 | 22-24 | 15 minutes 28-28 30 minutes 29-31 | 45 minutes 60 minutes 35-37 | |
| 2 | feet | feet | feet feet | føet feet | HW |
| G. | If flowing give | e rate 38-41 | Pump intake set at | Water at end of test 42 | 9 |
| 15 | | GPM | feet | 🗋 Clear 🔲 Cloudy | |
| 1. | Recommende | d pump type | Recommended 43-45 | Recommended 46-49 | |
| | Shallow | 🗌 Deep | feet | GPM | |
| | 50-53 | | <u>1</u> | | |
| | LAL OTAT | | | | La la |
| 1-14 | | US OF WELL | n ⁵⁴ 5 □ Abandonod incufficiant au | only 🤌 🗔 Liofinished | |
| 1 | 2 Observ | ation well | Abandoned, insuncient su Abandoned, poor quality | ¹⁰ Beplacement well | |
| | 3 🔲 Test ho | le | 7 🗌 Abandoned (Other) | | |
| | 4 🗌 Rechar | ge well | 8 Dewatering | | ET / |
| 100 | | | | | 1 22 |
| 1 44.8 | | | 5 Commercial | a 🗂 Notuse | |
| | 2 Stock | | 6 🔲 Municipal | 10 Other | [5] - [2] |
| | 3 🗌 Irrigatio | n N | 7 Public supply | | |
| | | a | 8 Cooling & air conunioning | | |
| ME | | CONSTRUC | | | 1 240-11 |
| ···· | Cable t | ool | 5 Air percussion | ⁹ 🔲 Driving | |
| | 2 🗌 Rotary | (conventional) | 6 🔲 Boring | 10 🔲 Digging | |
| | ³ ∐ Rotary 4 □ Botary | (reverse) (air) | Diamond Identified | U Uther | |
| | L. Hotaly | () | esting | | EUUUU |
| | | | | | |
| Nar | ne of Well Co | ntractor | | Well Contractor's Licence No. | |
| | | | | | |
| Add | iress | | | | Date of inspection Inspector |
| | | | | | |
| Nar | ne of Well Te | chnician | | Well Technician's Licence No. | Remarks |
| | . * | | | | |
| Sia | nature of Tool | pician/Contractor | | Submission date | |
| 1 org | | initian contractor | | | |
| L | | | | day mo yr | 0506 (07/00) Front Form 5 |

| \mathcal{P}_{0} | nta | rio | Ministry and Clin | of the Envir mate Chang | ronment e | Well Ta | ag No. (Plac | e Sticker ar | nd/or l | Print Below) | Regulatio | n 903 C | Intario V | Vell Vater Re | Rec | ord es Act |
|----------------------------|---------------------------|-----------------------|-----------------------|--|--------------------------------|----------------------------|--|------------------------------------|--------------------|---------------------------------------|-------------------------|-------------------------|---------------------|-------------------------|---|------------------|
| Measurem | nents re | ecorded in | n: 🖸 | Wetric 🗌 I | Imperial | A2. | 27265 | | | | | | Pag | ge <u>l</u> | of | |
| Well Ow | ner's | Informa | tion | 5 6 5 5 S | 位之外主 | | | 教教会教会 | | 1866.80 | 646200 | | 466 | 54 K | See Co | |
| First Name | 2 | | | | | han | 144 | | | E-mail Address | | : - <u>.</u> | | U We | ll Consti Nell Ow | ructed /ner |
| Mailing Ad | dress (S | Street Nun | nber/Nan | ne) | | | Municipality | | · F | Province | Postal Coc | le | Telephor | ie No. (in | c. area o | code) |
| 200 (| $\frac{2}{2}$ | \$ 5t | - | ห่างหารีสาวีพิเมติสต. เป็นสีมารี แต่ง. | Nerts of search cardination is | na alam di sina na ana ana | Arthur | | an a stradegic and | <u>00</u> | N061 | <u> </u> A 0 | | | Friday of scientific states with states | 1000 TUBE 100 TE |
| Address of | ation Well Lo | ocation (St | reet Nur | nber/Name) | <u> 16 16 16 16</u> | | Township | 666280 | i s | | llot | <u></u> | Concess | lion | | |
| Dom | JULE | ST (AQ | THUR | .) | | | lownomp | | | | | | 00110000 | | | |
| County/Dis | strict/Mu | unicipality | | <u></u> | · · · | | City/Town/Vill | age | • | · | | Provin | ice | Pos | tal Code | · . |
| UTM Coon | NGTo dinates | <u>~)</u> Zone ,Ea | sting | N | orthing | | ARTHUR Municipal Pla | in and Sublo | ot Num | ber | | Other | | | | |
| NAD | 8 3 | 175 | 366 | 0374 | 854 | 272 | | | | | | | | | | |
| Overburd | len and | Bedroc | k Materi | als/Abando | nment Se | aling Rec | ord (see instr | uctions on th | e back | of this form) | | | | | antin (m. | <u></u> |
| General C | olour | IVIC | ost Comr | non Material | <u> </u> | 0 | ther Materials | | | Ge | neral Descriptio | л | | From | | 10 To |
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| Beau | <u>د</u> | Sic | ٢ | <u> </u> | | SANT | <u>></u> | | | | | | | 0.3 | 15 | <u>5</u> |
| 6064 | | SIC | C | | | un | | | <u>.</u> | | | | | 15 | 4 | <u>5</u> |
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| | | | | • | | | | · | | | | | | | į | |
| | | | | Annular | Space | | | ing ang sanagan Ang ang sanagan | | | Results of V | Vell Yiel | d Testin | g _ | | |
| Depth S | etat (mi | (() | | Type of Sea (Material an | ilant Used d Type) | | Volume | Placed (Mit ³) | Afte | r test of well yiel Clear and sand | d, water was: 1 free | Time | aw Dowr Water Le | ı evel Tîma | Recove Water | ry Level |
| 0 | 24 | 1 | 1 3/A | HNEPL | <u>1</u> 5 | | | | Ī | Other, specify | | (min) | (m/ft) | (min |) (m | 1∕ft) |
| 211 | 46 | | 2 < 5 | | <u> </u> | · | | | lfpu | mping discontin | ued, give reasor | Elevel | | | | |
| _2.4 | 1.0 | | <u> </u> | | | | | | | | | 1 | | 1 | | |
| | | | | | | | | | Purr | np intake set at (| ′m∕ft) | 2 | | 2 | | |
| and a lower to an electric | | | and the second | | - | | | Menant Phone Man To March 2000 | Pum | ping rate (Vmin) | / GPM) | 3 | | 3 | | |
| | noc jo XVI | r <u>Constru</u> | Diamond | | olic | | ercial 🗆 | Not used | | | · | 4 | - | 4 | 1 | |
| Rotary (| Convent | ional) | Jetting | | mestic | | pal | Dewatering | Dura | ation of pumping hrs + |) min | .5 | | 5 | | |
| Boring | Reveise |) 🗹 | Digging | l Live | estock jation | | g & Air Conditio | ning | Fina | l water level end | d of pumping (m/ | 10 | | 10 | 1 | |
| Air percu | ussion · | | | | ustrial | | | | | | | | | | | . |
| | | Constru | ction R | ecord - Cas | ing | | Status | of Well | l if flov | wing give rate (k | (min / GPM) | 15 | | 15 | | |
| Inside | Oper | n Hole OR I | Material | Wall | Depti | | Water S | Supply | Reo | ommended pur | ıp deptin <i>(m/ft)</i> | 20 | | 20 | | |
| | Conc | rete, Plastic | regiass, c, Steel) | (cm/in) | From | То | Replace | ement Well le | | <u></u> | | 25 | | 25 | | |
| 2 51 | PU | stuc | | | 0 | 3 | | ge Well | (l/mi | ommenaea pun in / GPM) | ip rate | 30 | | 30 | <u> </u> | |
| | | | | | | | | ation and/or | Weil | production (I/m | in / GPM) | 40 | | 40 | | |
| | | | | | | | — Monitor | ing Hole on | | | | 50 | | 50 | | |
| | <u> </u> | | | <u>_</u> | | | (Construction) (Construction) (Construction) | uction) | | nfected? Yes 🗌 No | | 60 | | 60 | | |
| Mezazaki ka | | Constru | iction R | ecord - Scr | een | | | ent Supply | | | Map of 1 | Nell Loc | ation | | | - |
| Outside | T | Material | <u></u> | Slot No. | Dept | י (האי | Water C | Quality | Plea | ase provide a n | nap below follow | ving i n str | uctions o | on the ba | ck. | |
| | (Plasti | c, Galvanize | ed, Steel) | | From | То | Abando | ned, other, | > | - Km | v ∔ x∕ | · | | | | |
| 33 | P | ASTIC | | 10 | 3 | 45 | | | `? | · 仌 | 1 | | | | | |
| | | | | - | | | Other, s | респу | | た | 1 FIELD | ι | | | | |
| | , singer | W | ater Del | ails | | | Hole Diamet | er | | 一会 | 1 | : . 1 | | | | |
| Water foun | id at De | pth Kind | of Water | : Fresh [| Untested | De From | pth (1) To | Diameter (cm)in) | | | | | | | | |
| Water foun | n/π) [id at De | oth Kind | of Water | <i>city</i> ∵∏Fresh [| Untested | 0 | 45 | 10 | : | 个个个 | 2550 | · · · | | | | त |
| (n | n/ft) 🗌 | Gas 🔲 C | ther, spe | ecify | | | | | | | | • | | | | 3 |
| Water foun | id at De | pth Kind | of Water | :Fresh [| Untested | | | - · | | - <u>1</u> | =`\ | . / | | | | N N |
| <u>(n</u> | νπ) 🔄 | | ther, spe | city | | | | | HW | E Huse 1 | tuse i | / - | | | | ∎ ∎ |
| Business N | lame of | Well Con | tractor | | TECHNICIA | V | /ell Contractor's | Licence No. | | | | | · · | | | |
| CHT | DEI | UNG | 1 IN | <u> </u> | | | 71316 | <u> </u> | . • . | Dc | MULLE S | ۳ | | • • | | |
| | uuress I⊾ir∾ v | | imber/Na | ame) | | | | | Com | ments: | | | | | | |
| Province | | Postal | Code | Business | E-mail Add | fress | NHIEKLO | | | | · | . + | | | <u> </u> | |
| 02 | * | NO | 52µ | O CUT | INC NO | ET | - F 1 - 4 1 | | Well | owner's Date | Package Delive | red | Mir | nistry U | se Only | |
| Bus Teleph C | one No. にんのの | (inc. area (| code) Na ⊒ ⊂ ∽ | ame of Well T | echnician (i Lacuse | Last Name | e, ⊢irst Name) | | pack | age | <u> YYMM</u> | οĢ | AUDIT NO | z 27 | 633 | 37 |
| Well Technic | €)~\ Xian's Lic | Ence No. S | | of Technicia | n and/or Co | ontractor | ate Submitted | | | Yes | Work Complete | d | 0 | CT D R | 7017 | |
| 3 7 | <u> </u> | | Q | - BX | 2 | | 261771 | 002 | | No 20 | DICTY OP | 25 | Received | | | |
| USU6E (2014/ | 11) | | | | • | | Ministr | y's Copy | | | | • : | © Quee | en's Printer | for Ontar | io, 2014 |
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Notice of Collection of Personal Information

Personal information contained on this form is collected pursuant to sections 35-50 and 75(2) of the Ontario Water Resources Act and section 16.3 of the Wells Regulation. This information will be used for the purpose of maintaining a public record of wells in Ontario. This form and the information contained on the form will be stored in the Ministry's well record database and made publicly available. Questions about this collection should be directed to the Water Well Customer Service Representative at the Wells Help Desk, 125 Resources Road, Toronto Ontario M9P 3V6, at 1-888-396-9355 or wellshelpdesk@ontario.ca.

Fields marked with an asterisk (*) are mandatory.

| | | | | | | | Well T | ag Number * |
|---|-----------------|------------------|---------------------------|----------------------------------|----------|-------------|----------------------|------------------|
| | | | | | | | A 295 | 003 |
| Туре * | | | | | | | | |
| Construction | n 🗌 A | bandonr | nent | | | | | |
| Measurement I | recorded in | * | | | | | | |
| Metric | 🖌 Ir | nperial | | | | | | |
| 1. Well Owne | er's Inforr | nation | | | | | | |
| Last Name and | First Name, | or Orga | nization is r | nandatory. * | | | | |
| Last Name | | | | | First Na | me | | |
| | | | | | | | | |
| Organization MILO GROUP | OF COMF | PANIES | LTD. | | Email Ad | ddress | | |
| Current Addres | SS | | | | | | | |
| Unit Number | Street I | Number | * Street | Name * | | | City/Town/Vil | lage |
| | | | | | | | | |
| Country CAN | | | | Province ON | | | Postal Code | Telephone Number |
| 2. Well Loca | tion | | | | | | | |
| Address of We | II Location | | | | | | | |
| Unit Number | Street Num | ber * | Street Nam WEST OF | ne * TUCKER ST | | | Township |) |
| Lot | | | Concessio | n | | County/Dist | rict/Municipali | ty |
| City/Town ARTHUR | | | Province Posta Ontario | | | Postal Code | | |
| UTM Coordinates Zone * Easting * Northing * | | | orthing * | Municipal Plan and Sublot Number | | | an and Sublot Number | |
| UTM Coordinate | es Zone * | Easting | ^N | Junig | | | | |
| UTM Coordinate NAD 83 | es Zone * 17 | Easting 53700 | $\hat{5}$ | 854452 | Test U | TM in Map | | |

| 3. Overburden and Bedrock Material * | | | | | | | | | | | | |
|--------------------------------------|----------------------|-----------------|---------------------|------------|----------|--|--|--|--|--|--|--|
| Well Depth * | 15 | (ft) | | | | | | | | | | |
| General Colour | Most Common Material | Other Materials | General Description | Depth From | Depth To | | | | | | | |

| | | | | (ft) | (ft) |
|-------|------|------|-------|------|------|
| Brown | Silt | Till | Dense | 0 | 15 |

| 4. Annular Space * | | | | | | | | | | |
|--------------------|----------|--|---------------|--|--|--|--|--|--|--|
| Depth From | Depth To | Type of Sealant Used (Material and Type) | Volume Placed | | | | | | | |
| (ft) | (ft) | | (cubic feet) | | | | | | | |
| 0 | 4 | 3/8 HOLEPLUG | 0.08 | | | | | | | |
| 4 | 15 | #2 SAND | 0.2 | | | | | | | |

| 5. Method of Constru | uction * | | | | | | | | | | | |
|----------------------|---|--|----------------------|-------------|---------------|---------------|----------|--|--|--|--|--|
| Cable Tool R | otary (Conventional) | Rotary (Reverse) | | Boring | Air percu | ussion | Diamond | | | | | |
| Jetting D | Priving 🗌 Digging | Rotary (Air) | | Augering | V Direct P | ush | | | | | | |
| Other (specify) | | | | | | | | | | | | |
| 6. Well Use * | | | | | | | | | | | | |
| Public | Industrial | Cooling & Air C | ondit | ioning | | | | | | | | |
| Domestic | Commercial | Not Used | | | | | | | | | | |
| Livestock | Municipal | Monitoring | | | | | | | | | | |
| Irrigation | Test Hole | Dewatering | | | | | | | | | | |
| Other (specify) | | | | | | | | | | | | |
| 7. Status of Well * | 7. Status of Well * | | | | | | | | | | | |
| Water Supply | Replaceme | ent Well | י 🗌 | Fest Hole | | | | | | | | |
| Recharge Well | Dewatering | y Well | | Observation | and/or Monit | oring Hole | | | | | | |
| Alteration (Construc | tion) 🗌 Abandoned | d, Insufficient Supply | <u> </u> | Abandoned, | Poor Water | Quality | | | | | | |
| Abandoned, other (s | specify) | | | | | | | | | | | |
| Other (specify) | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | use (use | e negative number(S) to | | cate depth | above ground | i sullace) | - | | | | | |
| Inside Diameter | Open Hole or Materia Concrete | al (Galvanized, Fibregl , Plastic, Steel) | ass, | V Thic | Vall kness | Depth From | Depth To | | | | | |
| (in) | | | | | | (f +) | (ft) | | | | | |

| (in) | | | (ft) | (ft) |
|----------------------|--------------|------|------|------|
| 1.5 | Plastic | 0.06 | -3 | 5 |
| | | | | |
| 9. Construction Reco | ord - Screen | | | |
| Outside | Material | Slot | | |

| Diameter (in) | (Plastic, Galvanized, Steel) | Number | Depth From (ft) | Depth To (ft) |
|------------------|------------------------------|--------|--------------------|------------------|
| 1.56 | Plastic | 10 | 5 | 15 |

| 10. Water Det | ails | | | | | | | | | | | | | |
|---|-----------------|---------------------------|-----------|---|-----------|-------|-------------|------|----------|-------|------|----|----|----|
| Mater found at | Donth | | | Gas | Kind of y | vator | Erect | | Intested | | ther | | | |
| | Depth | | (π) [| Gas | | alei | | | Jilesleu | | | | | |
| 11 Hole Diam | otor | | | | | | | | | | | | | |
| | leter | | | | | | | 1 | | | | | | |
| De | epth Fror | th From Depth To Diameter | | | | | | | | | | | | |
| | (ft) | | | | (ft) | | | | | | (in) | | | |
| | 0 | | | | 15 | | | | | | 3.5 | | | |
| | | | | | | | | | | | | | | |
| 12. Results of | f Well Y | ield Te | esting | | | | | | | | | | | |
| Pumping Dis | scontinue | d | | | | | | | | | | | | |
| Explain | | | | | | | | | | | | | | |
| If flowing give ra | ate | | | | | | | | | | | | | |
| Flowing (GPM) | | | | | | | | | | | | | | |
| Draw down | | | | | | | | | | | | | | |
| Time (min) | Static Level | 1 | 2 | 3 | 4 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 |
| Water Level (ft) | | | | | | | | | | | | | | |
| Recovery | | | | | | | | • | | • | • | • | | |
| Time (mir | ı) | 1 | 2 | 3 | 4 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 |
| Water Lev (ft) | el | | | | | | | | | | | | | |
| After test of wel | l yield, w | ater wa | S | | | | _11 | | | | | | | I |
| Clear and sa | and free | Ot | ner (spec | cify) | | | | | | | | | | |
| Pump intake se | t at Pum | nping ra | ite | Duration of pumping Final water level end of pumping Disinfected? * | | | | | | ? * | | | | |
| | (ft) | | (GPM) | A) hrs + min (ft) ☐ Yes ✔ No | | | | | | No No | | | | |
| Recommended | pump de | epth | Recom | mended | pump rate | e W | /ell produc | tion | | | | | | |
| | | (ft) | | | (GPN | 1) | | | (GPM) | | | | | |
| 13. Map of We | ell Loca | tion * | | | | | | | | | | | | |
| Map 1. Please Click the map area below to import an image file to use as the map. | | | | | | | | | | | | | | |



| 14. Information | | |
|--|-------------------------------------|---|
| Well owner's information package delivered | Date Package Delivered (yyyy/mm/dd) | Date Work Completed (yyyy/mm/dd) * 2020/09/17 |
| Comments | | |

| 15. Well Cont | tractor and We | ell Tec | hnician | Information | | | | | | |
|--|---|---------|-----------|------------------------------------|--------|---|---------------------|---------------------------|--|--|
| Business Name CMT DRILLIN | e of Well Contrac <mark>IG INC</mark> | tor * | | | | Well Contractor's License Number * 7366 | | | | |
| Business Add | ress | | | | | | | | | |
| Unit Number 1 | hit Number Street Number Street Name * 1011 INDUSTRIAL CRES | | | | | | | | | |
| City/Town/Village * ST CLEMENTS | | | | | | vince | | Postal Code * N0B 2M0 | | |
| Business Telephone Number 519-699-5775Business Email Address info@cmtinc.net | | | | | | | | | | |
| Last Name of V BLACK | Vell Technician * | | | First Name of Well Techni CHRIS | cian * | an * Well Technician's License Number 3711 | | | | |
| 16. Declaration | on * | | | | | | | | | |
| ✓ I hereby cor and accurat | nfirm that I am the | e perso | on who co | nstructed the well and I he | reby c | confirm tha | t the information | on on the form is correct | | |
| Last Name BLACK | | | First Na | ame | | Email Ado cblack@ | dress cmtinc.net | | | |
| Signature | | | | | | Date Sub | mitted (yyyy/m | nm/dd) | | |
| Chris Black Digitally signed by Chris Black Date: 2020.10.05 16:12:54 -04'00' | | | | | | | 2020/10/05 | | | |
| 17. Ministry l | Jse Only | | | | | | | | | |
| Audit Number | | | | | | | | | | |
| Z4V3 DQ6U | | | | | | | | | | |

| Water Wel | l Record | S | | | 2021 | | | | |
|------------------|------------------------|--------------|------------|---------|-----------|----------|---------|-----------------------------------|--|
| | | | | | | 1:53:43 | B PM | | |
| TOWNSHIP CON LOT | UTM | DATE CNTR | CASING DIA | WATER | PUMP TEST | WELL USE | SCREEN | WELL | FORMATION |
| ARTHUR TOWNSHIP | 17 536179 4853736 W | 2012/02 7221 | | | | МО | | 7179345 (Z143817) A | |
| ARTHUR TOWNSHIP | 17 536097 4853701 W | 2009/07 7241 | 5.19 | | | MT | 0007 10 | 7128094 (Z102260) A089005 | BRWN SAND FILL LOOS 0002 BRWN SAND SILT LOOS 0008 BRWN SILT ROCK DNSE 0015 GREY SILT CLAY DNSE 0017 |
| ARTHUR TOWNSHIP | 17 536121 4853700 W | 2009/07 7241 | 5.19 | | | MT | 0005 10 | 7128095 (Z102259) A089015 | BRWN SAND FILL LOOS 0002 BRWN SAND SILT LOOS 0008 BRWN SILT ROCK DNSE 0015 |
| ARTHUR TOWNSHIP | 17 535330 4853277 W | 2006/07 7221 | 5.90 4.32 | | | | 0149 10 | 6715856 (Z42939) A | |
| ARTHUR TOWNSHIP | 17 537639 4853114 W | 2006/03 6988 | 2.00 | | | | 0003 10 | 7042081 (Z41261) A037358 | BRWN SAND SILT LOAM 0004 BRWN SILT SAND CLAY 0006 BRWN SAND SILT 0008 BRWN SILT 0010 GREY SILT CLAY SAND 0013 GREY CLAY 0013 |
| ARTHUR TOWNSHIP | 17 537631 4852888 W | 2010/05 7383 | 0.79 0.79 | | | МО | | 7145549 (M06954) A069003 | BLCK 0007 BRWN SAND GRVL FILL 0016 BRWN SILT CLAY SOFT 0041 BRWN SAND SILT LOOS 0066 |
| ARTHUR TOWNSHIP | 17 535803 4853637 W | 2020/04 7609 | | | | | | 7363874 (Z336573) A283574 P | |
| ARTHUR TOWNSHIP | 17 536338 4853746 W | 2012/04 7238 | | | | | | 7231470 (C15153) A123976 P | |
| ARTHUR TOWNSHIP | 17 537445 4854267 W | 2013/06 7366 | | | | | | 7204097 (C17112) A148247 P | |
| ARTHUR TOWNSHIP | 17 536096 4853693 W | 2009/07 7241 | 5.19 | | | MT | 0008 10 | 7128093 (Z102261) A089003 | BRWN SAND FILL DNSE 0002 BRWN SAND SILT DNSE 0008 BRWN SILT ROCK DNSE 0015 GREY SILT CLAY DNSE 0018 |
| ARTHUR TOWNSHIP | 17 537307 4853285 W | 2014/06 7221 | | | | MN NU | | 7223173 (Z188882) A | |
| ARTHUR TOWNSHIP | 17 536108 4853687 W | 2009/07 7241 | 5.19 | | | MT | 0007 10 | 7128096 (Z102258) A089014 | BRWN SAND FILL LOOS 0002 BRWN SAND SILT LOOS 0008 BRWN SILT ROCK DNSE 0017 GREY SILT CLAY |
| ARTHUR TOWNSHIP | 17 536179 4853736 W | 2012/02 7221 | | | | МО | | 7179346 (Z143816) A | |
| ARTHUR TOWNSHIP | 17 537649 4852945 W | 2017/01 7190 | 1.5 | UT 0008 | | МО | 0005 5 | 7281679 (Z246442) A156712 | BRWN SAND SILT LOOS 0010 BRWN SILT SAND LOOS 0015 |

| TOWNSHIP CON LOT | UTM | DATE CNTR | CASING DIA | WATER | PUMP TEST | WELL USE | SCREEN | WELL | FORMATION |
|------------------|------------|--------------|------------|-------|-----------|----------|---------|------------------------|--|
| ARTHUR TOWNSHIP | 17 536338 | 7238 | | | | | | 7180999 | |
| | 4853740 W | | | | | | | (1008231) A123976 P | |
| ARTHUR TOWNSHIP | 17 537254 | 2012/07 7241 | 1.58 | | | MT | 0005 10 | 7185004 | BLCK SOFT 0000 BRWN SAND GRVL SOFT 0005 BRWN SILT |
| | 4853279 W | | | | | | | (2151068) A109742 | SAIND SOFT 0015 |
| ARTHUR TOWNSHIP | 17 537254 | 2012/07 7241 | 1.58 | | | MT | 0006 10 | 7185005 | BLCK SOFT 0000 BRWN SAND GRVL LOOS 0007 BRWN SILT |
| | 4853279 W | | | | | | | (2151070) A109744 | SAND SOFT 0016 |
| ARTHUR TOWNSHIP | 17 537254 | 2012/07 7241 | 1.58 | | | MT | 0005 10 | 7185006 | BLCK SOFT 0000 BRWN SAND GRVL SOFT 0007 BRWN SILT |
| | 4853279 W | | | | | | | (Z151072) A109745 | SAND SOFT 0015 |
| ARTHUR TOWNSHIP | 17 536663 | 2013/06 7488 | 2 | | | MO | 0005 10 | 7204089 | BRWN GRVL LOOS 0001 BRWN SILT TILL 0015 |
| | 4853460 W | | | | | | | (Z138620) A122257 | |
| ARTHUR TOWNSHIP | 17 537254 | 2012/07 7241 | 1.58 | | | MT | 0005 10 | 7185007 | BLCK SOFT 0000 BRWN SAND GRVL SOFT 0007 BRWN SILT |
| | 4853279 W | | | | | | | (2151069) A109743 | SAND SOFT 0015 |
| ARTHUR TOWNSHIP | 17 537641 | 2014/05 7190 | 2 | | | MO | 0010 10 | 7220861 | BRWN SILT SAND SOFT 0015 GREY SILT SAND SOFT 0020 |
| | 4852940 W | | | | | | | (2180443) A146221 | |
| ARTHUR TOWNSHIP | 17 536345 | 2008/12 6607 | | | | NU | | 7118614 | |
| | 4853263 W | | | | | | | (M03071) A074897 A | |
| ARTHUR TOWNSHIP | 17 535962 | 2009/07 7241 | 2.04 | | | MT | 0006 12 | 7127800 | BLCK HARD 0000 BRWN SAND GRVL LOOS 0015 GREY SILT FSND |
| | 4853/97 W | | | | | | | (2102284) A088967 | HARD 0018 |
| ARTHUR TOWNSHIP | 17 535994 | 2009/07 7241 | 2.04 | | | MT | 0007 12 | 7127799 | BLCK HARD 0000 BRWN SAND GRVL LOOS 0015 BRWN SILT |
| | 4853759 W | | | | | | | (2099404) A087353 | L2ND HAKD 0013 |
| ARTHUR TOWNSHIP | 17 535815 | 2020/04 7609 | | | | | | 7363873 | |
| | 4833033 W | | | | | | | A285573 P | |
| ARTHUR TOWNSHIP | 17 535866 | 2020/04 7609 | | | | | | 7363872 | |
| | 4655024 W | | | | | | | A283571 P | |
| ARTHUR TOWNSHIP | 17 535866 | 2020/06 7609 | | | | | | 7363868 | |
| | +0JJU24 VV | | | | | | | A283571 P | |
| ARTHUR TOWNSHIP | 17 537183 | 2006/12 6607 | 0.75 | 0016 | | | 0017 8 | 7040778 | BRWN SILT LOAM FILL 0015 BLCK PEAT 0017 BRWN SAND GRVL |
| | +033013 M | | | | | | | A051099 | OUT OUT JET SHID CEAL OUT J |

| TOWNSHIP CON LOT | UTM | DATE CNTR | CASING DIA | WATER | PUMP TEST | WELL USE | SCREEN | WELL | FORMATION |
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| ARTHUR TOWNSHIP | 17 535815 4853635 W | 2020/06 7609 | | | | | | 7363869 (Z336592) A283573 P | |
| ARTHUR TOWNSHIP | 17 535822 4853670 W | 2020/04 7609 | | | | | | 7363871 (Z336570) A283572 P | |
| ARTHUR TOWNSHIP | 17 536006 4853792 W | 2009/07 7241 | 2.04 | | | MT | 0008 12 | 7127801 (Z102280) A088966 | BLCK HARD 0000 BRWN SAND GRVL LOOS 0016 BRWN SILT FSND HARD 0021 |
| ARTHUR TOWNSHIP | 17 535822 4853670 W | 2020/06 7609 | | | | | | 7363867 (Z336590) A283572 P | |
| ARTHUR TOWNSHIP 01 028 | 17 537164 4855246 W | 2005/06 7282 | 2.06 | FR 0020 | | NU | 0013 10 | 6715447 (Z27704) A027809 | BRWN CLAY STNS 0012 GREY SILT STNS CLAY 0020 GREY SILT SAND 0023 GREY CLAY 0030 |
| ARTHUR TOWNSHIP 02 027 | 17 535276 4856419 W | 2005/11 2644 | | | | | | 6715649 (Z41890) A | PRDG 0282 |
| ARTHUR TOWNSHIP CON 01 025 | 17 537003 4856857 W | 1987/08 3740 | 5 5 | FR 0245 FR 0260 | 24/75/4/1:0 | DO | | 6708889 (06091) | BRWN CLAY 0012 GREY HPAN STNS 0140 GREY LMSN 0260 |
| ARTHUR TOWNSHIP CON 01 025 | 17 536631 4857014 W | 2014/06 2663 | 6.61 | UT 0122 | 15/40/10/1: | DO | | 7228245 (Z181046) A157686 | BRWN CLAY LOOS 0034 GREY BLDR 0036 BRWN CLAY 0094 BRWN SAND GRVL 0122 |
| ARTHUR TOWNSHIP CON 01 027 | 17 536536 4855340 W | 1963/07 1804 | 4 4 | FR 0185 | 32/50/10/4:0 | ST DO | | 6700014 () | LOAM 0005 GRVL STNS 0020 CLAY FSND 0060 CLAY GRVL 0100 FSND GRVL 0125 CLAY GRVL 0160 CLAY MSND 0181 GREY ROCK 0200 |
| ARTHUR TOWNSHIP CON 01 027 | 17 537203 4855713 W | 1986/04 3740 | 5 | FR 0150 | 17/25/6/4: | DO | | 6708424 () | BLCK LOAM 0001 BRWN CLAY 0011 GREY CLAY HPAN 0145 GREY HPAN GRVL 0150 |
| ARTHUR TOWNSHIP CON 01 028 | 17 537218 4855338 W | 2015/12 7556 | | | | | | 7255395 (Z226366) A | |
| ARTHUR TOWNSHIP CON 01 028 | 17 537233 4855356 W | 1990/09 3740 | 5 5 | FR 0302 | 30/95/10/1:0 | DO ST | | 6710468 (34393) | LOAM 0002 BRWN CLAY 0015 GREY CLAY STNS 0142 BRWN LMSN 0220 GREY LMSN 0305 WHIT LMSN 0375 |
| ARTHUR TOWNSHIP CON 01 029 | 17 536618 4853591 W | 2020/01 7190 | 2 | UT 0022 | 22///: | MT | 0020 10 | 7362917 (7D4JPUGO) A287472 | BRWN LOAM 0001 GREY SILT TILL DNSE 0018 GREY SILT SAND 0030 |
| ARTHUR TOWNSHIP CON 01 029 | 17 537499 4853203 W | 2020/07 7366 | | | ///: | | | 7363656 (4L2BI7RE) A294993 A | |
| ARTHUR TOWNSHIP CON 01 029 | 17 536447 4853997 W | 2020/01 7190 | 2 | UT 0011 | 11///: | MT | 0010 10 | 7362920 (OT7JHFQK) A287480 | BRWN LOAM 0001 GREY SILT SAND LYRD 0020 |
| ARTHUR TOWNSHIP CON 01 029 | 17 536422 4853852 W | 2020/01 7190 | 2 | UT 0015 | 15///: | MT | 0010 10 | 7362918 (9FH2R3L8) A287473 | BRWN LOAM 0001 GREY SILT SAND LYRD 0020 |

| TOWNSHIP CON LOT | UTM | DATE CNTR | CASING DIA | WATER | PUMP TEST | WELL USE | SCREEN | WELL | FORMATION |
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| ARTHUR TOWNSHIP CON 01 029 | 17 536266 4853033 W | 2013/07 7221 | 6.30 | | 60/85/13/1:0 | DO | | 7207131 (Z159292) A121597 | BRWN CLAY 0005 BRWN SILT SAND 0012 GREY CLAY STNS 0057 GREY SILT SAND CLAY 0075 GREY CLAY STNS SAND 0098 BRWN GRVL SAND 0115 |
| ARTHUR TOWNSHIP CON 01 029 | 17 537491 4853192 W | 2020/04 7366 | 1.5 | | ///: | | 0010 10 | 7360352 (WXHC9MH3) A294992 | BRWN FILL GRVL 0006 BRWN TILL 0013 GREY SILT SAND 0020 |
| ARTHUR TOWNSHIP CON 01 029 | 17 537489 4853201 W | 2020/04 7366 | 1.5 | | ///: | | 0005 10 | 7360351 (OYVTQ3W4) A294989 | BRWN FILL SAND LOOS 0007 BRWN TILL 0011 GREY SILT SAND 0015 |
| ARTHUR TOWNSHIP CON 01 029 | 17 537483 4853206 W | 2020/04 7366 | 1.5 | | ///: | | 0005 10 | 7360350 (CTMH27X6) A294991 | BRWN FILL SAND 0007 BRWN TILL 0011 GREY SAND SILT 0015 |
| ARTHUR TOWNSHIP CON 01 029 | 17 537499 4853203 W | 2020/04 7366 | 1.5 | | ///: | | 0010 10 | 7360349 (BMY2XQEA) A294993 | BRWN FILL SAND 0006 BRWN TILL 0013 GREY SILT SAND 0020 |
| ARTHUR TOWNSHIP CON 01 029 | 17 537401 4854520 W | 2019/12 6865 | | | | | | 7353747 (Z298683) A214512 P | |
| ARTHUR TOWNSHIP CON 01 029 | 17 536365 4853685 W | 2020/01 7190 | 2 | UT 0012 | 12///: | MT | 0010 10 | 7362919 (D2WDWUZV) A287479 | BRWN LOAM 0001 GREY SILT SAND LYRD 0020 |
| ARTHUR TOWNSHIP CON 02 026 | 17 534972 4856658 W | 2014/05 7146 | | | | | | 7224269 (Z178969) A | |
| ARTHUR TOWNSHIP CON 02 026 | 17 535173 4857034 W | 2015/09 7090 | | UT UT | 24/36/15/1:30 | ST | | 7254812 (Z217637) A147771 | BRWN LOAM 0001 BRWN CLAY STNS 0017 GREY HPAN 0105 GREY HPAN STNY 0106 BRWN LMSN 0175 WHIT LMSN 0198 BRWN LMSN 0355 BRWN LMSN LYRD 0395 |
| ARTHUR TOWNSHIP CON 02 026 | 17 534967 4856601 W | 1988/02 1737 | 6 6 | FR 0240 FR 0293 | 41/150/8/1:30 | DO | | 6709169 (24605) | BRWN CLAY HARD 0014 GREY CLAY SOFT 0055 GREY HPAN STNS HARD 0146 GREY CLAY SAND STNS 0191 GREY LMSN HARD 0303 |
| ARTHUR TOWNSHIP CON 02 027 | 17 535419 4856165 L | 2000/05 1737 | 5 | FR 0335 | 42/90/12/3: | DO | | 6713391 (217835) | PRDR 0243 WHIT LMSN 0335 |
| ARTHUR TOWNSHIP CON 02 027 | 17 535265 4856355 W | 1985/04 4856 | 5 5 | FR 0182 FR 0202 | 40/160/11/2:0 | DO ST | | 6708191 () | BLCK LOAM 0001 BRWN CLAY 0032 GREY CLAY 0064 BRWN HPAN BLDR 0177 GREY SHLE LMSN 0181 BLUE LMSN 0242 |
| ARTHUR TOWNSHIP CON 03 029 | 17 534542 4853221 W | 1990/09 1804 | 5 | FR 0136 FR 0141 | /28/30/2:0 | DO | | 6710416 (81886) | LOAM 0002 BRWN HPAN STNS 0035 GREY CLAY 0100 GREY HPAN STNS 0112 BRWN ROCK 0141 |
| ARTHUR TOWNSHIP OSR E 032 | 17 534601 4855758 W | 2002/01 6865 | 6 6 | UK 0230 | 22/76/8/1:0 | DO | | 6714062 (225326) | BRWN CLAY STNS 0013 GREY CLAY STNS 0120 GREY CLAY ROCK 0125 GREY CLAY HARD 0174 GREY CLAY GRVL 0194 GREY LMSN 0230 |
| ARTHUR TOWNSHIP OSR E 032 | 17 534763 4856077 W | 2016/10 7154 | 6.25 6 | FR 0286 FR 0316 | 36/164/8/1: | DO | | 7273742 (Z234488) A193018 | BRWN CLAY STNS 0098 GREY CLAY 0165 GREY CLAY STNS 0193 GREY LMSN 0322 |

| TOWNSHIP CON LOT | UTM | DATE CNTR | CASING DIA | WATER | PUMP TEST | WELL USE | SCREEN | WELL | FORMATION |
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| ARTHUR TOWNSHIP OSR E 034 | 17 535704 4854930 L | 2003/07 6865 | 6 6 | UK 0260 | 20/154/8/1:0 | DO | | 6714548 (253339) | BRWN CLAY STNS 0009 GREY CLAY HARD 0044 GREY CLAY STNS 0075 GREY CLAY GRVL STNS 0115 BRWN CLAY HARD 0123 GREY CLAY GRVL 0181 GREY GRVL CLAY 0193 GREY LMSN 0218 LMSN 0238 GREY LMSN 0260 |
| ARTHUR TOWNSHIP OSR E 035 | 17 535661 4854201 W | 1951/12 1723 | 4 4 | UK 0230 FR 0263 | -3//25/: | ST DO | | 6700089 () | CLAY 0063 FILL 0191 GREY LMSN 0263 |
| ARTHUR TOWNSHIP OSR E 035 | 17 536072 4854069 W | 1975/04 3740 | 4 | FR 0270 FR 0355 | 35/115/6/1:0 | DO | | 6705494 () | BLCK LOAM 0001 BRWN CLAY BLDR 0045 GREY SAND HPAN BLDR 0195 GREY LMSN 0210 BRWN LMSN 0214 WHIT LMSN 0352 BRWN LMSN 0355 |
| ARTHUR TOWNSHIP OSR W 025 | 17 534537 4853949 W | 2014/06 2663 | | | | DO | | 7228278 (Z181047) A | |
| ARTHUR TOWNSHIP OSR W 033 | 17 534552 4854841 W | 1988/08 1804 | 5 | FR 0172 | 28/90/10/2:0 | DO | 0181 3 | 6709327 (22880) | BRWN FILL 0003 BRWN CLAY 0042 GREY HPAN STNS 0171 BRWN GRVL 0184 |
| ARTHUR TOWNSHIP OSR W 033 | 17 534817 4854642 W | 2019/04 7557 | 6.11 | | 35/50/10/1:0 | DO | | 7333175 (Z308013) A256296 | BRWN SAND STNS 0010 BRWN CLAY STNS SOFT 0075 BRWN CLAY BLDR 0091 BRWN CLAY SOFT 0120 BRWN CLAY GRVL STNS 0183 BRWN LMSN 0192 GREY LMSN HARD 0220 BRWN LMSN HARD 0240 GREY LMSN HARD 0260 |
| ARTHUR TOWNSHIP OSR W 033 | 17 534817 4854644 W | 2019/04 7557 | | | 35///: | | | 7333174 (Z308012) A | |
| ARTHUR TOWNSHIP OSR W 034 | 17 535414 4854273 W | 1969/01 2313 | 5 5 | FR 0281 FR 0412 | 24/35/15/2:0 | ST DO | | 6703297 () | LOAM 0002 CLAY 0130 HPAN 0190 GRVL 0200 MSND 0205 GREY LMSN 0235 BRWN LMSN 0281 GREY LMSN 0421 |
| ARTHUR TOWNSHIP OSR W 034 | 17 535254 4854409 W | 1993/08 3317 | 6 6 | FR 0250 FR 0264 | 28/60/10/1:30 | DO | | 6711333 (128299) | BRWN CLAY STNS 0010 GREY CLAY STKY 0088 GREY CLAY STNS 0203 GREY LMSN 0270 |
| ARTHUR TOWNSHIP OSR W 035 | 17 535324 4853271 W | 1998/01 3428 | 1 | | | MN | 0142 10 | 6712493 (093326) | PRDR 0142 |
| ARTHUR TOWNSHIP OSR W 035 | 17 535324 4853271 W | 1998/03 6865 | 6 6 | | | | | 6712508 (188508) | BRWN CLAY GRVL 0001 BRWN GRVL SAND WBRG 0014 GREY GRVL CLAY 0019 GREY CLAY STNS 0040 BRWN CLAY STNS 0071 GREY CLAY STNS 0075 BRWN CLAY STNS 0131 BRWN HPAN 0134 BRWN GRVL CLAY 0141 BRWN GRVL SAND 0152 GREY LMSN 0155 BRWN LMSN 0157 GREY LMSN 0163 |
| ARTHUR TOWNSHIP OSR W 035 | 17 535864 4853823 W | 1969/09 1804 | 4 | FR 0200 FR 0220 | 4/52/10/2:0 | ST DO | | 6703466 () | BLCK LOAM 0005 GRVL BLDR 0045 MSND CLAY 0070 MSND GRVL 0100 GRVL CLAY 0120 GRVL 0160 MSND GRVL 0172 LMSN 0220 |
| ARTHUR TOWNSHIP OSR W 035 | 17 535683 4854003 W | 1990/07 1804 | 5 | FR 0210 | 29/110/5/2:20 | DO | | 6710365 (81821) | LOAM 0003 BRWN CLAY STNS 0189 BRWN ROCK 0231 |
| ARTHUR TOWNSHIP OSR W 035 | 17 535549 4854083 W | 1951/09 1723 | 4 4 | FR 0228 FR 0246 | 2/2/20/: | ST DO | | 6700102 () | PRDG 0016 FILL 0193 GREY ROCK LMSN 0246 |
| ARTHUR TOWNSHIP OSR W 035 | 17 536176 4853030 W | 2000/10 6865 | 6 | UK 0142 | 44/48/10/1: | DO | | 6713542 (211352) | LOAM 0001 BRWN GRVL CLAY STNS 0009 BRWN GRVL SAND 0021 GREY CLAY GRVL 0038 GREY CLAY 0050 GREY CLAY STNS STNS 0131 BRWN GRVL SAND CMTD 0141 BRWN GRVL SAND 0142 |
| ARTHUR TOWNSHIP OSR W 035 | 17 535334 4853273 W | 1998/01 3428 | 4 | | 6/22/180/0:30 | MN | 0149 10 | 6712492 (093325) | PRDR 0149 |

| TOWNSHIP CON LOT | UTM | DATE CNTR | CASING DIA | WATER | PUMP TEST | WELL USE | SCREEN | WELL | FORMATION |
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| ARTHUR TOWNSHIP OSR W 035 | 17 534784 4853310 W | 2017/07 6865 | 6.26 6.13 | UT 0131 UT 0141 | 1/107/7/2:0 | DO | | 7292800 (Z244502) A171815 | BRWN GRVL CLAY FILL 0004 BRWN CLAY STNS GRVL 0015 GREY CLAY 0102 GREY GRVL CLAY 0103 GREY CLAY GRVL 0115 GREY LMSN 0118 GREY LMSN 0141 |
| ARTHUR TOWNSHIP OSR W 035 | 17 535330 4853279 W | 1998/07 3406 | 21 | UK 0130 | 11/9/300/24:10 | MN | 0140 10 | 6712921 (160123) | BRWN LOAM 0001 BRWN CLAY 0013 GREY CLAY STNS 0036 BRWN CLAY STNS TILL 0130 GRVL WBRG 0152 |
| ARTHUR TOWNSHIP OSR W 035 | 17 535314 4853143 W | 1975/09 4856 | 4 | FR 0178 | 35/50/42/2:0 | DO | | 6705722 () | LOAM GRVL 0002 BRWN GRVL 0042 GREY HPAN GRVL BLDR 0098 GREY SAND BLDR CLAY 0171 BLUE GRVL SHLE LYRD 0180 |
| ARTHUR TOWNSHIP OSR W 035 | 17 535219 4853688 L | 2003/08 6865 | 6 | FR 0127 | 24/28/15/1:0 | DO | | 6714684 (253375) | LOAM 0002 CLAY STNS 0055 CLAY BLDR 0063 HPAN STNS BLDR 0097 GRVL SAND 0127 |
| ARTHUR TOWNSHIP OSR W 035 | 17 535077 4853309 W | 1962/07 1804 | 5 | FR 0140 | ///: | PS | | 6700104 () | LOAM 0002 CLAY 0105 CLAY BLDR 0125 MSND 0132 GRVL 0140 |
| ARTHUR TOWNSHIP OSR W 035 | 17 535214 4853153 W | 1970/07 3104 | 5 | FR 0165 | 33/35/12/2:30 | DO | 0164 4 | 6703798 () | LOAM 0003 CLAY GRVL 0007 BLUE CLAY 0080 BRWN CLAY 0125 BLUE CLAY 0147 YLLW CLAY GRVL 0157 YLLW GRVL 0168 |
| ARTHUR TOWNSHIP OSR W 035 | 17 535065 4853153 W | 1988/08 1804 | 5 | FR 0090 FR 0112 | 62/90/9/2:0 | DO | 0108 4 | 6709328 (22881) | BRWN CLAY STNS 0089 BRWN GRVL 0112 |
| ARTHUR TOWNSHIP OSR W 035 | 17 535205 4853172 W | 1961/06 2519 | 30 | FR 0009 | 14/19/4/1:0 | DO | | 6700103 () | LOAM 0001 BRWN CLAY 0009 GRVL 0019 |
| ARTHUR TOWNSHIP OSR W 035 | 17 535740 4853917 W | 2009/06 6231 | 6.30 | | | | | 7129169 (Z85092) A002990 | |
| ARTHUR VILLAGE | 17 536244 4853683 W | 1969/12 2801 | 2 | FR 0080 | 22/54/5/: | | 0088 11 | 6703603 () A | BRWN CLAY 0007 BRWN CLAY GRVL MSND 0019 GREY CLAY GRVL 0037 MSND GRVL 0038 BRWN CLAY GRVL 0080 BRWN MSND GRVL CLAY 0100 BRWN CLAY MSND GRVL 0161 GREY CLAY MSND GRVL 0180 RED CLAY MSND GRVL 0186 BRWN LMSN 0189 |
| ARTHUR VILLAGE | 17 536214 4853063 W | 1969/12 1657 | 5 | FR 0147 | 25/145/4/4:0 | DO | 0148 3 | 6703566 () | BRWN CLAY 0045 BLUE CLAY 0095 CLAY MSND 0098 CLAY BLDR 0147 GRVL MSND 0151 |
| ARTHUR VILLAGE | 17 537302 4853291 W | 1997/07 3428 | 6 | | 65/148/60/23:0 | MN | | 6712301 (093334) | PRDR 0173 |
| ARTHUR VILLAGE | 17 537394 4853217 W | 2008/04 7366 | 1.5 | | | MO | | 7105361 (M01110) A058441 | BRWN LOAM LOOS 0002 BRWN SAND SILT LOOS 0008 BRWN CLAY SILT DNSE 0015 |
| ARTHUR VILLAGE | 17 536705 4852989 W | 2007/07 6865 | 6.30 5.11 | FR 0171 | 29/31/12/1: | DO | 0168 3 | 7108048 (Z74779) A034737 | BRWN CLAY SAND 0006 GREY CLAY SAND 0084 GRVL SAND 0130 CLAY GRVL 0136 GRVL SAND CLAY 0174 |
| ARTHUR VILLAGE | 17 536264 4853683 W | 1970/03 2801 | 10 | FR 0240 | 33/175/61/7:0 | MN | | 6703637 () | BRWN CLAY GRVL 0019 GREY CLAY GRVL 0038 BRWN CLAY GRVL 0161 GREY CLAY MSND GRVL 0180 BRWN CLAY GRVL 0186 GREY LMSN 0218 BRWN LMSN 0276 GREY LMSN 0297 WHIT LMSN 0326 BRWN LMSN 0332 WHIT LMSN 0350 |
| ARTHUR VILLAGE | 17 536066 4853668 W | 2006/08 7215 | | | | | | 6715952 (Z50067) A019883 A | |

| TOWNSHIP CON LOT | UTM | DATE CNTR | CASING DIA | WATER | PUMP TEST | WELL USE | SCREEN | WELL | FORMATION |
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| ARTHUR VILLAGE | 17 537695 4852834 W | 2006/06 7241 | 1.5 | | | | 0006 10 | 6715824 (Z50137) A039339 | BRWN SAND SILT FILL 0010 BRWN CLAY SILT GRVL 0016 |
| ARTHUR VILLAGE | 17 536166 4853742 W | 2005/10 7221 | 10 | | 41///: | | | 6715546 (Z26593) A | |
| ARTHUR VILLAGE | 17 537716 4852903 W | 2006/01 6061 | | | | | | 6715657 (Z39480) A | |
| ARTHUR VILLAGE | 17 537731 4852904 W | 1998/12 3406 | 6 | UK 0056 UK 0143 | 27/43/20/24:0 | СО | | 6712922 (201732) | BRWN FILL 0011 BRWN CLAY STNS TILL 0056 BRWN SAND CLAY SILT 0061 BRWN CLAY STNS 0121 BRWN CLAY STNS 0143 BRWN GRVL SAND 0153 |
| ARTHUR VILLAGE | 17 536066 4853668 W | 2004/12 7282 | 2.24 | 0010 | | NU | 0005 10 | 6715219 (Z20079) A019883 | BLCK SAND GRVL SOFT 0001 BRWN SAND STNS SOFT 0004 BRWN GRVL STNS WBRG 0008 GREY CLAY STNS DRY 0017 |
| ARTHUR VILLAGE | 17 537517 4853844 W | 2005/03 7221 | 9.84 | | | MN PS | | 6715277 (Z26588) A | |
| ARTHUR VILLAGE | 17 537037 4853063 W | 2005/03 7221 | 9.84 | | | MN PS | | 6715278 (Z26589) A | |
| ARTHUR VILLAGE | 17 537663 4852858 W | 2011/05 7190 | 2 2 | UT 0015 | | MT | 0005 10 | 7163864 (Z120266) A105833 | BRWN LOAM LOOS 0001 BRWN SAND GRVL LOOS 0003 BRWN SILT GRVL 0010 GREY SAND GRVL DNSE 0015 |
| ARTHUR VILLAGE | 17 536474 4854123 W | 2005/11 6865 | | | | | | 6715619 (Z38390) A | |
| ARTHUR VILLAGE | 17 537394 4853217 W | 2008/07 7366 | 3.79 | | | ОТ | 0010 5 | 7109131 (Z82317) A058441 A | |
| ARTHUR VILLAGE | 17 537490 4853366 W | 2005/10 7221 | 7.86 | | 67///: | | | 6715545 (Z26595) A | |
| ARTHUR VILLAGE | 17 537693 4853116 W | 2006/08 6634 | | | | | | 6715886 (Z71053) A043259 A | |
| ARTHUR VILLAGE | 17 537947 4853283 W | 2019/01 6607 | 2.00 | | ///: | MT | 0015 5 | 7331058 (Z282666) A246140 | BRWN CLAY SLTY 0016 GREY CLAY SAND LYRD 0020 |
| ARTHUR VILLAGE | 17 537659 4853872 W | 2017/07 7230 | | | | | | 7306845 (C40148) A226699 P | |
| ARTHUR VILLAGE | 17 537514 4853828 W | 1966/11 2406 | 10 10 | FR 0200 UK 0372 | 35/235/85/7:30 | MN | | 6700004 () | LOAM 0001 BRWN CLAY 0016 GREY CLAY STNS 0045 GREY CLAY FSND 0060 GREY CLAY STNS 0082 GREY CLAY FSND 0110 GREY CLAY STNS 0118 CLAY STNS 0164 GRVL MSND 0168 BRWN ROCK 0174 GREY ROCK 0195 BRWN ROCK 0248 GREY ROCK 0292 WHIT ROCK 0312 GREY ROCK 0324 BRWN ROCK 0372 |

| TOWNSHIP CON LOT | UTM | DATE CNTR | CASING DIA | WATER | PUMP TEST | WELL USE | SCREEN | WELL | FORMATION |
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| ARTHUR VILLAGE | 17 537394 4853463 W | 1963/09 1804 | 4 4 | FR 0162 | 60/75/18/10:0 | DO | | 6700003 () | LOAM 0004 GRVL BLDR 0020 GREY CLAY 0040 GREY CLAY STNS 0100 GREY CLAY MSND 0115 GREY QSND 0150 YLLW MSND 0161 BRWN ROCK 0179 |
| ARTHUR VILLAGE | 17 536302 4853349 W | 2008/08 6607 | 2.00 | UK 0010 | | МО | | 7113898 (M03064) A074897 | BRWN SILT LOAM 0001 BRWN SILT CLAY SAND 0008 GREY SILT CLAY SAND 0020 |
| ARTHUR VILLAGE | 17 538831 4853098 W | 2016/11 7241 | 2 | | | MT | 0004 10 | 7276934 (Z245645) A211453 | BRWN GRVL SAND 0001 BRWN SILT CLAY 0012 BRWN SAND SILT 0013 GREY CLAY SILT 0014 |
| ARTHUR VILLAGE | 17 537785 4852848 W | 2016/06 7215 | | | | | | 7276127 (C33098) A206774 P | |
| ARTHUR VILLAGE | 17 537484 4853003 W | 1950/06 2414 | 10 10 | FR 0285 | 30/130/70/8:0 | MN | | 6700002 () | FILL 0005 BRWN CLAY 0035 BRWN FSND 0050 BLUE CLAY 0060 BLUE CLAY MSND 0155 GRVL SILT 0159 BRWN LMSN 0183 WHIT LMSN 0187 BLUE ROCK 0194 GREY ROCK 0203 BRWN ROCK 0240 BLUE ROCK 0259 WHIT ROCK 0267 BLUE ROCK 0269 GREY ROCK 0273 BRWN ROCK 0288 BLUE ROCK 0305 |
| ARTHUR VILLAGE | 17 535377 4853167 W | 2018/11 7221 | 6.11 | UT 0207 | 44/44/15/1: | DO | 0203 4 | 7323473 (Z293203) A236834 | BRWN SAND GRVL STNS 0013 GREY CLAY STNS HARD 0020 BRWN GRVL STNS CGVL 0024 GREY CLAY HARD 0042 GREY TILL STNS HARD 0157 GREY CLAY STNS HARD 0199 GREY GRVL STNS CGVL 0209 |
| ARTHUR VILLAGE | 17 535814 4853123 W | 1975/05 1737 | 4 | FR 0123 | 40/45/12/2:30 | DO | | 6705509 () | BRWN CLAY SNDY SOFT 0013 BRWN CLAY STNS HARD 0025 CGVL 0033 BLUE CLAY HARD 0093 GREY HPAN STNS HARD 0121 FGVL 0123 |
| ARTHUR VILLAGE | 17 537785 4852864 W | 2013/10 7241 | 1.5 | | | MT | 0005 10 | 7210892 (Z179159) A152547 | BRWN FILL LOOS 0002 BRWN SAND SILT LOOS 0013 BRWN SAND SILT HARD 0015 |
| ARTHUR VILLAGE | 17 537633 4853064 W | 2019/01 6607 | 2.00 | | ///: | MT | 0015 5 | 7331056 (Z282664) A246093 | BRWN LOAM 0001 BRWN SILT GRVL SNDY 0008 BLCK 0012 GREY SILT CLYY 0020 |
| ARTHUR VILLAGE | 17 537634 4853063 W | 2019/01 6607 | 2.00 | | ///: | MT | 0030 5 | 7331057 (Z282665) A246141 | BRWN LOAM 0001 BRWN SILT SNDY 0008 BLCK 0012 GREY SILT CLYY 0020 GREY SAND SLTY GRVL 0025 GREY SAND 0032 GREY SAND GRVL SLTY 0035 |
| ARTHUR VILLAGE | 17 537597 4852908 W | 2011/05 7383 | | | | | | 7163571 (M07840) A099198 P | |
| ARTHUR VILLAGE | 17 536772 4852531 W | 2020/06 6946 | | | | | | 7361065 (Z332267) A285936 P | |
| ARTHUR VILLAGE | 17 537769 4852678 W | 2009/05 7238 | 1.97 | | | МО | 0008 10 | 7123321 (Z098684) A083323 | BRWN CLAY SILT 0018 |
| ARTHUR VILLAGE | 17 537754 4852658 W | 2009/05 7238 | 1.97 | | | MO | 0011 5 | 7123322 (Z098685) A083342 | BRWN CLAY SILT 0016 |

| TOWNSHIP CON LOT | UTM | DATE CNTR | CASING DIA | WATER | PUMP TEST | WELL USE | SCREEN | WELL | FORMATION |
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| ARTHUR VILLAGE | 17 537767 4852649 W | 2009/05 7238 | 1.97 | | | МО | 0007 5 | 7123323 (Z098686) A083354 | BRWN CLAY SILT 0012 |
| ARTHUR VILLAGE | 17 537783 4852629 W | 2009/05 7238 | 1.97 | | | MO | 0009 5 | 7123324 (Z098687) A083355 | BRWN CLAY SILT 0014 |
| ARTHUR VILLAGE | 17 537014 4853023 W | 1977/10 2336 | 10 10 | FR 0310 FR 0393 | 14/100/60/23:0 | MN | | 6706565 () | BRWN CLAY STNS 0015 BRWN CLAY STNS GRVL 0065 BRWN CLAY GRVL 0075 HPAN GRVL 0085 BRWN CLAY GRVL 0115 BRWN CLAY 0135 BRWN STNS GRVL 0172 BRWN STNS 0185 GREY STNS 0195 BRWN STNS 0285 GREY STNS 0335 BRWN STNS 0390 GREY STNS 0400 |
| ARTHUR VILLAGE | 17 536934 4854043 W | 1973/05 3737 | 4 | FR 0197 | 50/100/5/1:0 | DO | | 6704639 () | BLCK LOAM 0001 BRWN CLAY STNS 0037 GREY HPAN BLDR 0156 BRWN HPAN GRVL 0160 BLUE LMSN 0168 GREY LMSN 0200 |
| ARTHUR VILLAGE | 17 535803 4853646 W | 2020/06 7609 | | | | | | 7363870 (Z336591) A283574 P | |
| ARTHUR VILLAGE | 17 538826 4853093 W | 2016/11 7241 | 2 | | | MT | 0004 10 | 7276935 (Z245646) A211454 | BRWN GRVL SAND 0001 BRWN SILT CLAY 0011 BRWN SAND SILT 0012 GREY CLAY SILT 0014 |
| ARTHUR VILLAGE | 17 537956 4852944 W | 2019/01 6607 | 2.00 | | ///: | MT | 0020 5 | 7331060 (Z282668) A246146 | BRWN SAND GRVL WBRG 0005 BRWN SAND GRVL CLYY 0015 BRWN SAND GRVL SLTY 0025 |
| ARTHUR VILLAGE | 17 537670 4853074 W | 2010/05 7221 | | | | MO | | 7149905 (Z104704) A | |
| ARTHUR VILLAGE | 17 536302 4853431 W | 2010/10 7190 | 4 2 | UT 0007 | | МО | 0007 10 | 7155317 (Z103994) A076118 | BLCK LOAM 0001 BRWN CLAY SILT 0010 GREY CLAY SILT 0017 |
| ARTHUR VILLAGE | 17 537985 4852936 W | 2010/05 7221 | | | | | | 7158779 (Z125322) A | |
| ARTHUR VILLAGE | 17 538256 4853242 W | 2019/01 6607 | 2.00 | | ///: | MT | 0017 5 | 7331059 (Z282667) A246142 | BRWN LOAM 0003 BRWN SAND CLAY SLTY 0006 BRWN SILT TILL CLYY 0015 GREY SAND TILL GRVL 0022 |
| ARTHUR VILLAGE | 17 537210 4853276 W | 2010/05 7221 | 1.25 0.98 1.25 | | | МО | | 7149904 (Z104703) A | |
| ARTHUR VILLAGE | 17 536657 4854084 W | 2017/09 7366 | 1 | | | МО | 0010 5 | 7296819 (Z273336) A227263 | BLCK LOAM LOOS 0001 BRWN SILT SAND 0008 GREY SILT CLAY 0015 |
| ARTHUR VILLAGE | 17 536637 4854272 W | 2017/09 7366 | 1 | | | МО | 0010 5 | 7296818 (Z273337) A227265 | BLCK LOAM LOOS 0001 BRWN SILT SAND 0005 GREY SILT CLAY 0015 |
| ARTHUR VILLAGE | 17 536696 4854238 W | 2017/09 7366 | 1 | | | МО | 0007 10 | 7296817 (Z273335) A227264 | BLCK LOAM LOOS 0001 BRWN SILT SAND 0007 GREY SILT CLAY DNSE 0017 |

| TOWNSHIP CON LOT | UTM | DATE CNTR | CASING DIA | WATER | PUMP TEST | WELL USE | SCREEN | WELL | FORMATION |
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| ARTHUR VILLAGE con 01 029 | 17 536954 4853362 W | 2005/12 7221 | 9.84 | | | | | 6715600 (Z42942) A | |
| ARTHUR VILLAGE con 01 029 | 17 537307 4853285 W | 2005/12 7221 | 5.90 | | | | | 6715601 (Z42941) A | |
| PEEL TOWNSHIP | 17 537334 4852835 W | 2013/10 7241 | 1.5 | | | MT | 0005 10 | 7210896 (Z179157) A152549 | BRWN FILL LOOS 0002 BRWN SILT SAND LOOS 0013 BRWN TILL DNSE 0015 |
| PEEL TOWNSHIP CON 18 006 | 17 534488 4852481 W | 1962/06 1804 | 4 | FR 0168 | ///: | ST DO | | 6702123 () | LOAM 0005 YLLW MSND 0020 BLUE CLAY 0100 HPAN BLDR 0135 MSND GRVL 0160 GRVL 0168 |
| PEEL TOWNSHIP CON 18 006 | 17 534647 4852503 W | 1992/08 3518 | 6 | FR 0214 | 23/50/20/1:0 | DO | | 6711121 (105017) | BRWN CLAY STNS HARD 0080 GREY STNS BLDR CLAY 0105 GREY SILT CLAY STNS 0195 BRWN SILT SAND STNS 0210 BRWN GRVL LOOS 0214 |
| PEEL TOWNSHIP CON 19 005 | 17 534528 4853127 W | 1957/06 1705 | 4 4 | FR 0215 FR 0234 | 18/140/4/8:0 | ST DO | | 6702128 () | MSND 0038 BLUE CLAY 0064 MSND 0072 BLUE CLAY 0108 MSND 0118 HPAN STNS 0172 MSND GRVL SILT 0182 BLUE CLAY SHLE 0210 BRWN LMSN 0221 WHIT LMSN 0234 |
| PEEL TOWNSHIP CON 19 006 | 17 535058 4853059 W | 2017/12 7221 | 6.30 6.13 | UT | 30/147/5/1: | DO | | 7302852 (Z272633) A222615 | BRWN SILT CLAY 0032 GREY CLAY HARD 0053 GREY CLAY STNS 0103 GREY SILT CLAY 0116 GREY CLAY STNS 0163 BRWN CLAY HARD 0174 BRWN CLAY GRVL 0177 BRWN LMSN 0260 |
| PEEL TOWNSHIP CON 19 006 | 17 534903 4852785 L | 1999/08 6634 | 6 | FR 0255 | 24/160/15/2:0 | DO | | 6713085 (205310) | LOAM 0002 CLAY STNS 0188 LMSN 0255 |
| PEEL TOWNSHIP CON 19 007 | 17 535167 4852516 W | 2016/12 7221 | 6.30 6.13 | UT 0220 | 41/62/10/1:0 | DO | | 7278146 (Z249166) A202566 | BRWN CLAY 0011 GREY CLAY STNS 0111 BRWN CLAY STNS 0146 GREY CLAY STNS STNS 0183 BRWN SAND SILT 0188 GREY CLAY GRVL 0213 BRWN LMSN 0216 GREY LMSN 0220 |
| PEEL TOWNSHIP CON 19 007 | 17 535480 4852289 W | 2016/12 6634 | 6 | FR 0130 | 20/42/7/50: | DO ST | | 7278955 (Z243693) A213688 | LOAM 0004 CLAY STNS 0087 GREY CLAY HARD 0120 GRVL FGRD 0122 GRVL CGRD 0130 |
| PEEL TOWNSHIP CON 19 007 | 17 535160 4852524 W | 2017/06 7221 | 35.8 | | | DO | | 7288591 (Z256313) A | |
| PEEL TOWNSHIP CON 19 007 | 17 535214 4852523 W | 1971/11 1906 | 5 | FR 0180 | 20/140/3/1:0 | ST DO | | 6704100 () | PRDG 0015 BRWN CLAY BLDR 0025 BRWN STNS CLAY 0030 BRWN GRVL CLAY 0095 BRWN CLAY STNS 0110 BRWN GRVL CLAY 0150 BLUE CLAY 0170 RED SAND GRVL 0180 |
| PEEL TOWNSHIP CON 19 008 | 17 536425 4852849 W | 1988/08 1804 | 5 | FR 0088 | 17/37/20/2:20 | DO ST | 0095 3 | 6709325 (22870) | BRWN FILL 0003 BRWN CLAY 0042 GREY HPAN STNS 0081 BRWN GRVL 0098 |
| PEEL TOWNSHIP CON 19 008 | 17 536348 4852936 W | 1990/05 1804 | 5 | FR 0074 | 28/58/25/2:10 | DO | 0080 4 | 6710279 (75321) | LOAM 0003 BRWN CLAY 0035 BRWN HPAN STNS 0074 BRWN GRVL 0084 |
| PEEL TOWNSHIP CON 19 008 | 17 536287 4852879 W | 1958/04 3111 | 4 4 | FR 0403 | 30/60/12/8:0 | ST DO | | 6702129 () | BLUE CLAY 0051 GRVL CLAY 0168 BRWN SHLE 0220 LMSN 0403 |
| PEEL TOWNSHIP CON 19 008 | 17 536164 4852973 W | 1970/10 1657 | 6 | UK 0135 | 120/137/2/2:0 | ST DO | | 6703813 () | BRWN CLAY 0020 BLUE CLAY 0073 BLUE CLAY BLDR 0135 GRVL 0142 |
| PEEL TOWNSHIP CON 19 009 | 17 537265 4852774 W | 1991/02 3406 | 6 | UK 0091 UK 0182 UK 0206 | 38/90/10/72:0 | DO | | 6710893 (61709) | BRWN GRVL CLAY SAND 0060 GREY GRVL CLAY BLDR 0095 GREY CLAY GRVL SAND 0182 GRVL SAND CGRD 0206 |

| TOWNSHIP CON LOT | UTM | DATE CNTR | CASING DIA | WATER | PUMP TEST | WELL USE | SCREEN | WELL | FORMATION |
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| PEEL TOWNSHIP CON 19 009 | 17 537214 4852683 W | 1971/05 3316 | 4 4 | FR 0278 | 46/65/5/1:0 | DO | | 6703976 () | CLAY STNS 0234 GREY LMSN 0280 |
| PEEL TOWNSHIP CON 19 009 | 17 536894 4852764 W | 1989/05 1804 | 5 | FR 0093 | 25/50/25/2:20 | DO | 0094 3 | 6709739 (14069) | BRWN FILL 0003 BRWN CLAY 0028 GREY HPAN STNS 0093 BRWN GRVL 0097 |
| PEEL TOWNSHIP CON A 021 | 17 538091 4852378 W | 2002/08 6865 | 6 | | | NU | | 6714319 (242362) | BRWN CLAY SAND 0030 BRWN GRVL SAND CLAY 0072 BRWN GRVL SAND CLAY 0075 BRWN GRVL SAND SILT 0120 BRWN CLAY GRVL SAND 0152 GREY TILL 0187 BRWN SAND TILL LYRD 0200 GRVL SAND CLAY 0211 GRVL STNS CLAY 0229 GRVL SAND STNS 0268 BRWN LMSN 0271 |
| PEEL TOWNSHIP CON A 022 | 17 538057 4852423 W | 2009/07 7221 | | | | | | 7129534 (Z102432) A | |
| PEEL TOWNSHIP CON A 023 | 17 537734 4852623 W | 1969/06 1804 | 4 | FR 0248 | 48/55/15/3:0 | | | 6703367 () | LOAM 0003 YLLW CLAY MSND 0050 HPAN BLDR 0085 CLAY MSND 0160 CLAY STNS 0210 BLDR 0215 GREY MSND 0225 BRWN LMSN 0240 ROCK 0257 |
| PEEL TOWNSHIP CON A 023 | 17 537253 4852643 W | 2005/03 6865 | 6.26 | 0208 | 52/61/8/1:0 | DO | | 6715303 (Z05815) A005723 | BRWN CLAY 0013 GREY CLAY STNS ROCK 0077 GREY GRVL CLAY 0086 GREY CLAY SAND 0117 BRWN CLAY GRVL STNS 0200 BRWN GRVL SAND STNS 0208 |
| PEEL TOWNSHIP CON B 022 | 17 537883 4852412 W | 2012/07 7015 | | | 78///: | | | 7187029 (Z141378) A130727 | |
| PEEL TOWNSHIP CON B 022 | 17 537920 4852514 W | 1952/08 1723 | 4 4 | FR 0491 | 78/200/5/: | ST DO | | 6701957 () | CLAY 0030 GRVL 0090 LOAM MSND STNS 0269 GREY LMSN 0333 WHIT LMSN 0495 |
| PEEL TOWNSHIP CON B 023 | 17 537647 4852806 W | 2012/08 7221 | | | | DO | | 7187196 (Z143759) A | |
| PEEL TOWNSHIP CON B 023 | 17 537141 4852475 W | 1975/01 1804 | 4 4 | FR 0270 | 50/105/8/3:30 | DO | | 6705420 () | BLCK LOAM 0001 RED CLAY 0140 BLUE CLAY BLDR GRVL 0190 BRWN SAND GRVL CLAY 0236 BRWN ROCK 0270 GREY ROCK 0284 |
| PEEL TOWNSHIP CON B 023 | 17 537814 4852673 W | 1978/08 2332 | 4 4 | FR 0320 | 59/60/6/4:0 | DO | | 6706945 () | BRWN OBDN SAND STNS 0018 GREY CLAY 0105 GREY CLAY STNS GRVL 0150 GREY CLAY STNS 0225 BLUE UNKN 0231 HPAN 0249 WHIT STNS LYRD 0315 GREY STNS LMSN 0360 |
| PEEL TOWNSHIP CON B 023 | 17 537693 4852774 W | 1997/10 2576 | 6 | FR 0190 | 45//30/1:30 | DO | 0192 4 | 6712367 (177667) | LOAM 0001 BRWN CLAY 0008 BRWN SILT GRVL 0141 BRWN CLAY GRVL 0176 BRWN SAND GRVL CGRD 0196 |
| PEEL TOWNSHIP CON B 023 | 17 537463 4852816 W | 1950/08 4314 | 4 | FR 0101 | 34/55/6/5:0 | DO | | 6701958 () | CLAY STNS 0014 MSND 0020 CLAY HPAN STNS 0050 MSND CLAY HPAN 0090 STNS 0094 HPAN 0098 GRVL 0101 |
| PEEL TOWNSHIP CON B 023 | 17 537704 4852817 W | 1956/04 1723 | 4 4 | FR 0200 FR 0274 | 28/80/2/: | DO | | 6701959 () | CLAY STNS 0220 SHLE 0225 GREY LMSN 0283 |
| PEEL TOWNSHIP CON B 023 | 17 537589 4852504 W | 1956/05 1723 | 4 4 | FR 0242 | 54/80/6/: | DO | | 6701960 () | CLAY STNS 0094 MSND 0150 CLAY STNS 0238 SHLE 0242 |
| PEEL TOWNSHIP CON B 023 | 17 537824 4852647 W | 1989/05 1804 | 5 | FR 0206 | 52/102/16/2:10 | DO | | 6709740 (14070) | BLCK LOAM 0002 BRWN SAND CLAY 0205 BRWN SAND 0216 |

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| TOWNSHIP CON LOT | UTM | DATE CNTR | CASING DIA | WATER | PUMP TEST | WELL USE | SCREEN | WELL | FORMATION |
|------------------------------------|------------------------|--------------|----------------|--------------------|---------------|----------|---------|----------------------------------|---|
| WEST GARAFRAXA TOWNS | 17 537749 4852823 W | 2013/10 7241 | 1.5 | | | MT | 0005 10 | 7210895 (Z179158) A150688 | BRWN FILL LOOS 0002 BRWN SAND SILT DNSE 0009 BRWN TILL DNSE 0015 |
| WEST GARAFRAXA TOWNS | 17 537767 4852842 W | 2011/03 7241 | 1.58 | | | MT | 0007 10 | 7161022 (Z124018) A096285 | BLCK SOFT 0000 BRWN SAND SOFT 0013 BRWN SILT FSND SOFT 0017 |
| WEST GARAFRAXA TOWNS | 17 538813 4853031 W | 2017/01 7241 | 2 | | | TH MO | 0005 10 | 7281837 (Z211900) A181627 | BRWN GRVL FSND SOFT 0008 GREY CLAY SILT SOFT 0015 |
| WEST GARAFRAXA TOWNS | 17 537744 4852832 W | 2013/10 7241 | 1.5 | | | MT | 0005 10 | 7210893 (Z179155) A152550 | BRWN FILL LOOS 0003 BRWN SAND SILT LOOS 0012 BRWN TILL DNSE 0015 |
| WEST GARAFRAXA TOWNS | 17 537760 4852854 W | 2013/10 7241 | 1.5 | | | MT | 0005 10 | 7210891 (Z179156) A152548 | BRWN FILL LOOS 0004 GREY SAND SILT GRVL 0012 GREY SAND GRVL SILT 0015 |
| WEST GARAFRAXA TOWNS | 17 537769 4852841 W | 2011/03 7241 | 1.58 | | | MT | 0010 10 | 7161023 (Z124019) A096284 | BLCK SOFT 0000 BRWN SAND SOFT 0016 BRWN SILT FSND SOFT 0020 |
| WEST GARAFRAXA TOWNS | 17 537758 4852832 W | 2011/03 7241 | 1.58 | | | MT | 0006 10 | 7161021 (Z124017) A096345 | BLCK SOFT 0000 BRWN SAND SOFT 0013 BRWN FSND SOFT 0016 |
| WEST GARAFRAXA TOWNS | 17 537950 4852863 W | 2011/10 7366 | | | | | | 7171480 (M10955) A121250 P | |
| WEST GARAFRAXA TOWNS CON 01 025 | 17 538996 4852792 W | 2006/10 2576 | 2.35 | 0656 0709 | 67//2/1:0 | DO | | 6716013 (Z55903) A048772 | LOAM 0007 GREY CLAY GRVL 0079 BRWN CLAY SLTY GRVL 0381 BRWN GRVL SILT STNS 0528 GREY GRVL SLTY STNS 0597 BRWN GRVL STNS 0709 |
| WEST GARAFRAXA TOWNS CON 01 033 | 17 538240 4852496 W | 2007/01 2644 | 4 | | 28///: | NU | | 7044991 (Z41980) A | 0340 |
| WEST GARAFRAXA TOWNS CON 01 033 | 17 538120 4852497 W | 2007/02 2644 | 6.25 | FR 0074 | 45/60/4/2:0 | DO | | 7044990 (Z41979) A037667 | BRWN SAND CLAY 0036 BRWN SAND GRVL 0054 BRWN GRVL SLTY 0078 GREY GRVL SAND CLAY 0080 |
| WEST GARAFRAXA TOWNS CON 01 036 | 17 538834 4853143 W | 1975/10 4856 | 4 4 | FR 0203 | 49/75/30/1:30 | СО | | 6705781 () | BRWN CLAY BLDR 0014 GREY HPAN BLDR GRVL 0170 BRWN GRVL SAND CLAY 0187 BRWN FGVL 0205 |
| WEST GARAFRAXA TOWNS CON 01 036 | 17 538593 4852931 W | 2016/04 6475 | | | | | | 7263957 (Z210104) A183626 | |
| WEST GARAFRAXA TOWNS CON 01 036 | 17 538311 4852326 W | 2018/05 7643 | 6.25 6.25 6.25 | FR 0144 FR 0153 | 55/66/30/1:0 | DO IN | 0144 4 | 7315750 (Z286071) A247859 | BRWN CLAY STNS 0018 BRWN SAND SILT 0064 BRWN SAND FSND 0067 BRWN SILT SAND 0097 GREY CLAY STNS 0144 GREY SAND GRVL 0148 GREY CLAY 0153 GREY SAND GRVL 0156 GREY CLAY STNS 0220 |
| WEST GARAFRAXA TOWNS CON 01 036 | 17 538297 4852319 W | 2009/06 2644 | 6 | FR 0055 | 34/60/30/2:20 | | 0061 8 | 7129688 (Z099012) A086320 | BRWN LOAM 0001 BRWN CLAY STNS 0019 BRWN SAND SLTY 0055 BRWN SAND GRVL SLTY 0070 |

| TOWNSHIP CON LOT | UTM | DATE CNTR | CASING DIA | WATER | PUMP TEST | WELL USE | SCREEN | WEL |
|------------------------------------|------------------------|--------------|------------|-------------------------------|----------------|----------|--------|-------------------------|
| WEST GARAFRAXA TOWNS CON 01 036 | 17 538322 4852339 W | 2018/05 7643 | 6.25 6.25 | FR 0131 | 49/118/20/1:0 | DO IN | | 73157 (Z286 A2478 |
| WEST GARAFRAXA TOWNS CON 01 036 | 17 538883 4852992 W | 2006/09 2576 | 6 | 0210 | 69//15/1: | DO | | 67159 (Z488 A0249 |
| WEST GARAFRAXA TOWNS CON 01 036 | 17 538263 4852403 W | 1959/04 1705 | 4 4 | FR 0308 | 70/180/4/18:0 | ST DO | | 67028 |
| WEST GARAFRAXA TOWNS CON 01 036 | 17 538322 4852322 W | 1963/11 5416 | 4 | FR 0112 | 40/40/8/3:0 | ST DO | | 67028 |
| WEST GARAFRAXA TOWNS CON 01 036 | 17 538014 4852623 W | 1977/12 1804 | 5 | FR 0090 | 58/105/15/3:30 | DO | | 67066 |
| WEST GARAFRAXA TOWNS CON 01 037 | 17 537770 4852812 W | 2012/06 7466 | | | | | | 71839 (Z119 |
| WEST GARAFRAXA TOWNS CON 01 037 | 17 537934 4852723 W | 1968/07 1705 | 4 | FR 0217 | 68/79/7/5:0 | DO | | 67032 |
| WEST GARAFRAXA TOWNS CON 01 037 | 17 538164 4852953 W | 1969/12 2406 | 6 | FR 0210 | 22/28/10/3:0 | DO | | 67034 |
| WEST GARAFRAXA TOWNS CON 01 037 | 17 537845 4852850 W | 1952/10 2411 | 4 4 | FR 0216 | 40/44/10/5:0 | СО | | 67028 |
| WEST GARAFRAXA TOWNS CON 01 037 | 17 537873 4852775 W | 1956/10 1723 | 4 4 | FR 0244 | 70/75/15/: | DO | | 67028 |
| WEST GARAFRAXA TOWNS CON 01 037 | 17 537977 4852612 W | 1986/11 1804 | 5 | FR 0208 | 58/80/18/2:20 | DO | | 67085 (0599 |
| WEST GARAFRAXA TOWNS CON 01 037 | 17 537849 4852855 W | 1997/04 2576 | 6 6 | FR 0156 FR 0198 FR 0217 | 23//150/2:0 | DO | | 67122 (1773 |
| WEST GARAFRAXA TOWNS CON 01 037 | 17 538514 4853073 W | 1977/07 4856 | 4 4 | FR 0186 | 33/80/12/1:30 | DO | | 67064 |
| WEST GARAFRAXA TOWNS CON 01 037 | 17 538211 4852929 W | 1987/07 3740 | 5 5 | FR 0210 | 15/20/30/1: | DO | | 67088 (0607 |
| WEST GARAFRAXA TOWNS CON 01 037 | 17 537849 4852855 W | 1997/04 2576 | 5 | | | NU | | 67122 (1773 |
| WEST GARAFRAXA TOWNS CON 02 036 | 17 539237 4852883 W | 1998/12 6865 | 6 | FR 0194 | 80/81/10/1:0 | DO | | 67129 (1990 |

| WELL | FORMATION | |
|---------------------------------|---|--|
| 7315749 (Z286070) A247858 | BRWN SAND CLAY STNS 0020 BRWN SAND SILT 0062 BRWN SAND SILT 0077 BRWN SAND 0089 GREY CLAY SAND 0102 GREY CLAY STNS 0128 GREY SAND GRVL 0137 GREY GRVL SAND 0140 GREY CLAY STNS 0151 | |
| 6715955 (Z48861) A024950 | LOAM 0001 GREY CLAY GRVL 0013 BRWN GRVL CLAY 0121 BRWN SAND GRVL CLAY 0139 BRWN CLAY GRVL 0203 BRWN GRVL CSND 0216 | |
| 6702880 () | BLUE CLAY 0060 MSND STNS 0148 HPAN MSND 0245 MSND 0247 BRWN LMSN 0308 | |
| 6702881 () | BRWN CLAY 0045 MSND GRVL 0112 | |
| 6706605 () | BRWN FILL 0008 BRWN CLAY 0090 BRWN SAND HPAN STNS 0160 BRWN SAND 0195 BRWN GRVL 0208 | |
| 7183961 (Z119352) A | | |
| 6703273 () | CLAY 0018 MSND GRVL CLAY 0100 MSND 0138 CLAY 0143 MSND HPAN 0172 HPAN 0178 HPAN MSND GRVL 0207 CSND 0217 | |
| 6703483 () | BRWN CLAY BLDR 0035 BRWN CLAY STNS 0070 BRWN CLAY GRVL 0120 BRWN MSND SILT CLAY 0186 YLLW CLAY 0196 LMSN MSND 0215 | |
| 6702882 () | CLAY BLDR 0060 CLAY 0115 GRVL 0200 LMSN 0216 | |
| 6702883 () | PRDG 0012 CLAY 0228 LMSN 0244 | |
| 6708594 (05999) | BRWN FILL 0005 GREY CLAY 0066 BRWN HPAN STNS 0202 BRWN GRVL SAND 0218 | |
| 6712213 (177322) | FILL 0002 GREY CLAY STKY 0010 GREY CLAY SLTY GRVL 0049 BRWN GRVL SILT 0094 BRWN SAND GRVL WBRG 0103 GREY CLAY GRVL 0120 BRWN CLAY STNS WBRG 0156 BRWN SAND GRVL WBRG 0175 YLLW SHLE LMSN FCRD 0220 | |
| 6706459 () | BLCK LOAM 0001 BRWN CLAY GRVL 0010 GREY CLAY STNS 0029 BRWN HPAN GRVL 0070 GREY SILT STNS 0095 WHIT GRVL SAND 0122 BRWN HPAN GRVL 0170 RED CLAY 0174 BRWN GRVL 0186 | |
| 6708870 (06077) | BRWN CLAY 0040 GREY HPAN BLDR 0188 BRWN SHLE SOFT 0198 GREY LMSN 0210 | |
| 6712214 (177323) A | PRDG 0112 | |
| 6712920 (199093) | LOAM 0001 BRWN CLAY STNS 0012 GREY CLAY STNS 0056 GREY HPAN 0061 GREY CLAY GRVL 0099 GREY GRVL SLTY CLAY 0137 GREY CLAY GRVL 0190 BRWN GRVL SAND 0194 | |
| | | |

| TOWNSHIP CON LOT | UTM | DATE CNTR | CASING DIA | WATER | PUMP TEST | WELL USE | SCREEN | WELL | FORMATION |
|------------------------------------|------------------------|--------------|------------|----------------------------------|----------------|----------|--------|----------------------------------|---|
| WEST LUTHER TOWNSHIP | 17 537748 4852912 W | 2014/06 7383 | | | | | | 7228721 (C18533) A151231 P | |
| WEST LUTHER TOWNSHIP 01 003 | 17 538995 4853460 W | 2007/11 7146 | | | ///: | | | 7052875 (Z61555) _NO_TAG A | |
| WEST LUTHER TOWNSHIP 01 003 | 17 539034 4853496 W | 2007/11 7146 | | | ///: | | | 7052876 (Z61549) _NO_TAG A | |
| WEST LUTHER TOWNSHIP 02 003 | 17 538743 4855483 W | 2006/10 2644 | 2.5 | FR 0028 | 28///: | NU | | 7041846 (Z41952) A | 0062 |
| WEST LUTHER TOWNSHIP CON 01 001 | 17 537760 4853170 W | 2016/04 7557 | | | | | | 7263086 (Z218731) A | |
| WEST LUTHER TOWNSHIP CON 01 002 | 17 538443 4853154 W | 1985/05 3740 | 5 | FR 0245 FR 0255 | 30/90/6/1:45 | DO ST | | 6708240 () | BLCK LOAM 0001 BRWN CLAY 0008 GREY CLAY STNS 0037 GREY HPAN BLDR 0165 GREY HPAN GRVL 0186 BRWN SAND CLAY 0209 BRWN LMSN 0215 GREY LMSN 0255 |
| WEST LUTHER TOWNSHIP CON 01 002 | 17 538274 4853093 W | 1972/09 3737 | 4 | FR 0220 FR 0223 | 51/55/10/2:0 | DO | | 6704343 () | BRWN HPAN GRVL BLDR 0150 BRWN CLAY GRVL BLDR 0208 BRWN GRVL 0220 BLCK GRVL 0223 |
| WEST LUTHER TOWNSHIP CON 01 002 | 17 538675 4853673 W | 2007/08 6865 | 6.30 | FR 0243 FR 0269 | 52/96/7/1:0 | DO | | 7050300 (Z74787) A034736 | BRWN CLAY GRVL 0012 GREY CLAY GRVL STNS 0093 BRWN CLAY SAND 0131 GREY CLAY GRVL 0162 GREY GRVL CLAY 0228 GREY LMSN 0258 WHIT LMSN 0270 |
| WEST LUTHER TOWNSHIP CON 01 002 | 17 538863 4853233 W | 1988/10 4854 | 30 | UK 0017 | | DO | | 6709487 (39106) | BRWN CLAY 0008 BRWN SAND CLAY SNDY 0010 BRWN CLAY 0017 BRWN SAND CLAY SNDY 0020 BLUE CLAY 0033 GREY CLAY BLDR 0044 |
| WEST LUTHER TOWNSHIP CON 01 002 | 17 538514 4853173 W | 1974/06 2519 | 5 | FR 0180 | 38/60/10/2:0 | DO | | 6705119 () | BRWN CLAY 0010 GREY CLAY STNS 0165 GREY HPAN 0180 GRVL 0180 |
| WEST LUTHER TOWNSHIP CON 01 003 | 17 538964 4853513 W | 1965/03 3316 | 4 4 | FR 0315 | 40/60/10/2:0 | ST DO | | 6703000 () | GREY CLAY STNS 0040 MSND 0060 GREY CLAY MSND 0180 GRVL STNS 0215 MSND 0235 GREY CLAY STNS 0242 BLUE ROCK 0265 WHIT LMSN 0324 |
| WEST LUTHER TOWNSHIP CON 02 001 | 17 537384 4855214 W | 1980/05 3740 | 4 | FR 0405 FR 0425 | 20/80/5/1:0 | DO | | 6707276 () | BLCK LOAM 0001 BRWN CLAY STNS 0018 GREY CLAY STNS 0138 GREY LMSN 0185 BRWN LMSN 0325 WHIT LMSN 0425 |
| WEST LUTHER TOWNSHIP CON 02 001 | 17 537814 4855650 W | 1991/10 1804 | 6 | FR 0300 FR 0320 FR 0390 FR | 35/120/16/4:30 | DO | | 6710789 (109190) | BRWN CLAY STNS 0145 BRWN SAND CLAY 0150 GREY ROCK 0210 BRWN ROCK 0325 GREY ROCK 0432 |
| | | | | 0420 | | | | | |
| WEST LUTHER TOWNSHIP CON 02 002 | 17 538321 4855202 W | 2002/10 2644 | | | | NU | | 6714301 (250112) A | |
| WEST LUTHER TOWNSHIP CON 02 002 | 17 537914 4855673 W | 1978/07 3740 | 4 | FR 0340 FR 0375 FR 0390 | 26/95/5/1:0 | DO | | 6706732 () | BLCK LOAM 0001 BRWN CLAY STNS 0018 GREY CLAY STNS SAND 0141 GREY LMSN 0190 BRWN LMSN 0310 WHIT LMSN 0390 |
| WEST LUTHER TOWNSHIP CON 02 002 | 17 538306 4855092 W | 2002/05 2644 | 6 6 | FR 0164 FR 0172 | 29/58/30/1:45 | DO ST | | 6714124 (236183) | BRWN LOAM 0002 BRWN CLAY 0018 GREY CLAY STNS 0121 GREY HPAN 0157 BRWN LMSN 0164 GREY LMSN 0172 |

| TOWNSHIP CON LOT | UTM | DATE CNTR | CASING DIA | WATER | PUMP TEST | WELL USE | SCREEN | WELL | FORMATION |
|------------------------------------|------------------------|--------------|------------|-------------------------------|----------------|----------|--------|---------------------------------|---|
| WEST LUTHER TOWNSHIP CON 02 003 | 17 538640 4855867 W | 2013/11 2644 | 6 6 | FR 0195 FR 0295 FR 0415 | 27/300/30/1: | ST | | 7213881 (Z171199) A156802 | BRWN LOAM 0002 BRWN CLAY 0016 GREY CLAY STNS 0070 GREY MGVL 0076 GREY CLAY 0170 BRWN LMSN 0423 |
| WEST LUTHER TOWNSHIP CON 02 003 | 17 538694 4855900 W | 2000/06 2644 | 6 6 | FR 0249 | 25//30/1:45 | DO | | 6713426 (209888) | BRWN LOAM 0002 BRWN CLAY STNS 0018 GREY CLAY STNS 0047 GREY HPAN 0173 BRWN LMSN 0249 |
| WEST LUTHER TOWNSHIP CON 02 004 | 17 539070 4855983 W | 2018/12 6865 | | | | | | 7326247 (Z298659) A | |
| WEST LUTHER TOWNSHIP CON 03 001 | 17 537131 4856779 W | 1990/05 3740 | 5 5 | FR 0185 | 17/70/6/1: | DO | | 6710307 (34365) | BRWN CLAY 0008 GREY CLAY 0042 GREY HPAN STNS 0144 GREY LMSN 0212 |
| WEST LUTHER TOWNSHIP CON 03 003 | 17 538690 4856351 W | 1986/08 3740 | 5 5 | FR 0230 FR 0270 | 24/95/8/1:0 | DO ST | | 6708542 (NA) | BRWN CLAY 0023 GREY CLAY STNS 0090 GREY HPAN GRVL 0163 BRWN LMSN 0270 |
| WEST LUTHER TOWNSHIP CON 04 001 | 17 537074 4856972 W | 1988/05 1804 | 5 5 | FR 0160 FR 0180 | 20/100/10/1:20 | DO | | 6709243 (22690) | BLCK LOAM 0002 GREY CLAY 0090 GREY CLAY GRVL 0140 GREY ROCK 0180 |

Notes:

UTM: UTM in Zone, Easting, Northing and Datum is NAD83; L: UTM estimated from Centroid of Lot; W: UTM not from Lot Centroid DATE CNTR: Date Work Completedand Well Contractor Licence Number

CASING DIA: .Casing diameter in inches

WATER: Unit of Depth in Fee. See Table 4 for Meaning of Code

1. Core Material and Descriptive terms

| Code | Description | Code | Description | Code | Description | Code | Description | Code | Description |
|-------|----------------|-----------------|--------------|------|----------------|------|----------------|------|----------------|
| DIDD | DOUTDEDG | HODD | | TDEM | TRON BORNABION | DODO | DODOUIG | 0000 | 0.000 |
| BPDK | BOULDERS | FCRD | FRACTURED | IREM | IRON FORMATION | PORS | POROUS | SOFT | SOFT |
| BSLT | BASALT | FGRD | FINE-GRAINED | LIMY | LIMY | PRDG | PREVIOUSLY DUG | SPST | SOAPSTONE |
| CGRD | COARSE-GRAINED | \mathbf{FGVL} | FINE GRAVEL | LMSN | LIMESTONE | PRDR | PREV. DRILLED | STKY | STICKY |
| CGVL | COARSE GRAVEL | FILL | FILL | LOAM | TOPSOIL | QRTZ | QUARTZITE | STNS | STONES |
| CHRT | CHERT | FLDS | FELDSPAR | LOOS | LOOSE | QSND | QUICKSAND | STNY | STONEY |
| CLAY | CLAY | FLNT | FLINT | LTCL | LIGHT-COLOURED | QTZ | QUARTZ | THIK | THICK |
| CLN (| CLEAN | FOSS | FOSILIFEROUS | LYRD | LAYERED | ROCK | ROCK | THIN | THIN |
| CLYY | CLAYEY | FSND | FINE SAND | MARL | MARL | SAND | SAND | TILL | TILL |
| CMTD | CEMENTED | GNIS | GNEISS | MGRD | MEDIUM-GRAINED | SHLE | SHALE | UNKN | UNKNOWN TYPE |
| CONG | CONGLOMERATE | GRNT | GRANITE | MGVL | MEDIUM GRAVEL | SHLY | SHALY | VERY | VERY |
| CRYS | CRYSTALLINE | GRSN | GREENSTONE | MRBL | MARBLE | SHRP | SHARP | WBRG | WATER-BEARING |
| CSND | COARSE SAND | GRVL | GRAVEL | MSND | MEDIUM SAND | SHST | SCHIST | WDFR | WOOD FRAGMENTS |
| DKCL | DARK-COLOURED | GRWK | GREYWACKE | MUCK | MUCK | SILT | SILT | WTHD | WEATHERED |
| DLMT | DOLOMITE | GVLY | GRAVELLY | OBDN | OVERBURDEN | SLTE | SLATE | | |
| DNSE | DENSE | GYPS | GYPSUM | PCKD | PACKED | SLTY | SILTY | | |
| DRTY | DIRTY | HARD | HARD | PEAT | PEAT | SNDS | SANDSTONE | | |
| DRY | DRY | HPAN | HARDPAN | PGVL | PEA GRAVEL | SNDY | SANDYOAPSTONE | | |
| | | | | | | | | | |

| PUMP TEST: Static Water Level in Feet / | ⁷ Water Level After Pumping in Feet / | Pump Test Rate in GPM | / Pump Test Duration in Hour : Minutes |
|---|--|-----------------------|--|
| WELL USE: See Table 3 for Meaning of C | Code | | |
| SCREEN: Screen Depth and Length in fee | et | | |

WELL: WEL (AUDIT #) Well Tag . A: Abandonment; P: Partial Data Entry Only FORMATION: See Table 1 and 2 for Meaning of Code

| 2. Cor | e Color | 3 | . Well Use | | | |
|--------|-------------|-----|----------------|-----|--------------------|-----|
| Code | Description | Cod | de Description | Cod | de Description | |
| WHIT | WHITE | DO | Domestic | OT | Other | |
| GREY | GREY | ST | Livestock | TH | Test Hole | |
| BLUE | BLUE | IR | Irrigation | DE | Dewatering | |
| GREN | GREEN | IN | Industrial | MO | Monitoring | |
| YLLW | YELLOW | CO | Commercial | MT | Monitoring TestHol | . 6 |
| BRWN | BROWN | MN | Municipal | | | |
| RED | RED | PS | Public | | | |
| BLCK | BLACK | AC | Cooling And A | /C | | |
| BLGY | BLUE-GREY | NU | Not. Used | | | |

4. Water Detail

| Code | Description | Code | Description |
|------|-------------|------|-------------|
| FR | Fresh | GS | Gas |
| SA | Salty | IR | Iron |
| SU | Sulphur | | |
| MN | Mineral | | |
| UK | Unknown | | |



Appendix C

Notice to Residents

Well Survey Summary

| Well Location | Survey Result | MECP ID No. | Well Constructed | Well Depth (m) | Casing Diameter | Notes |
|---------------------------------------|-----------------------|-------------|------------------|----------------|--------------------|---|
| REFE County Road 14 | Manitaring Approvad | 6707276 | 1090 | 120 F | (inches) | Sampled for Deskton Study |
| 8505 County Road 14 | Monitoring Approved | 6707276 | 1980 | 129.5 | 4 | |
| 8566 County Road 14 - House Well | Monitoring Approved | 6710468 | 1990 | 114.3 | 5 | |
| 8566 County Road 14 - Monitoring Well | ivionitoring Approved | 7228245 | 2014 | 37.2 | 6 | Near manuare pit, for ECA |
| 8580 County Road 14 | Monitoring Approved | 6700014 | 1963 | 64.6 | 4 | used to be in a pit, made sand when pump was upgraded |
| 8590 County Road 14 | Monitoring Approved | 6708424 | 1986 | 45.7 | 5 | Makes sand during dry conditions |
| 8600 County Road 14 | Not Accessible | | | | | Under deck |
| 8616 County Road 14 | No contact | | | | | Drilled well near sandbox |
| 510 Eliza Street | Monitoring Approved | 7353747 | 2019 | 72.1 | 6 | |
| 665 Eliza Street | Not Accessible | | | | | Under deck in pit |
| Eliza Street (Field behind 510 Eliza) | Monitoring Approved | 7296818 | 2017 | 4.5 | 2 | Monitoring Well north of Domville St. |
| 8510 Highway 6 | Monitoring Approved | 6714062 | 2009 | 70.1 | 6 | Previously Monitored for Arthur Well 7 |
| 8610 Highway 6 | Monitoring Approved | 6709327 | 1988 | 56.1 | 5 | Overburden |
| 8035 Line 2 | Not Accessible | 6710789 | | 131.7 | 6 | Inside warehouse |
| 8048 Line 2 | Monitoring Approved | | 1993 | 112.8 | 6 | |
| 8061 Line 2 | Monitoring Approved | 6714124 | 2002 | 52.4 | 6 | |
| 7795 Sideroad 10 East | Monitoring Approved | 6714062 | 2002 | 70.1 | 6 | |
| 7825 Sideroad 10 East | Not Approved | 7273742 | 2016 | 98.1 | 6 | |
| 7875 Sideroad 10 East | Not Approved | 6713391 | 2000 | 102.1 | 5 | Deepened from WWR 6708191 |
| 7979 Sideroad 10 East | Monitoring Approved | 7228245 | 2016 | 37.2 | 6 | Overburden |
| 15 Wells Street | Monitoring Approved | 6705494 | 1975 | 108.2 | 4 | |
| Arthur 7B (Wells Street) | SCADA | 6712921 | 1998 | 45.5 | 10 | Arthur Supply Well |
| Arthur 8A (Jones Baseline) | SCADA | 6714775 | 2004 | 45.9 | 12 | Arthur Supply Well |
| Arthur 8B (Jones Baseline) | SCADA | 6714776 | 2004 | 61.9 | 12 | Arthur Supply Well |
| 400 Domville Street - Monitoring Well | Monitoring Approved | 7369549 | 2020 | 62.2 | 1 | North side of field |
| 211 Eliza Street - Monitoring Well | Monitoring Approved | 7331057 | 2019 | 10.63 | 2 | Monitoring Well |
| TW1/00 (Jones Baseline) | Monitored | | | | | Arthur PTTW Monitoring Well |
| 7794 Wellington Road 109 | Monitored | | | | | Arthur PTTW Monitoring Well |
| WN-MW1/00 (WR 109 and HW 6) | Monitored | | | 51.5 | 6 | Arthur PTTW Monitoring Well |
| | | | | | | |

R.J. Burnside & Associates Limited 292 Speedvale Avenue West Unit 20 Guelph ON N1H 1C4 CANADA telephone (519) 823-4995 fax (519) 836-5477 web www.rjburnside.com



June 17, 2022

Via: Hand Delivery

Dear Resident:

Re: Notification of Pumping Test - Potential New Supply Well Project No.: 300052887.0000

The Town of Wellington North has registered on the Environmental Activity and Sector Registry of Ontario (Registration No. R-011-9152754560) for the testing of a well in north Arthur. The well is located on Wells Street south of Wellington County Road 14 in north Arthur. The well is completed in the overburden above the bedrock. Most domestic wells in the area obtain water from the bedrock.

The testing activities are anticipated to start June 18, 2022 and last approximately 5 days. R.J. Burnside & Associates Limited are the engineers for the project and will be monitoring water levels during the pumping test.

If you experience any interference with your well, please contact the project representative below:

Jim Baxter, P. Eng. Groundwater Resource Engineer R.J. Burnside & Associates Limited Tel: 519-831-1747 Email: jim.baxter@rjburnside.com

Yours truly,

R.J. Burnside & Associates Limited

Josh Donkersgoed, P.Eng Project Engineer 226-962-2707 R.J. Burnside & Associates Limited 292 Speedvale Avenue West Unit 20 Guelph ON N1H 1C4 CANADA telephone (519) 823-4995 fax (519) 836-5477 web www.rjburnside.com



May 20, 2022

Via: Hand Delivery

Dear Resident:

Re: Notification of Pumping Test - Potential New Arthur Municipal Well Project No.: 300052287.0000

The Town of Wellington North has obtained approval from the Ontario Ministry of Environment, Conservation and Parks (EASR No. R-011-9152754560) for a pumping test of a well located on Wells Street south of Wellington County Road 14. The test process is designed to protect existing wells in the area and identifying the location and use of neighbouring private groundwater supply wells is part of the process.

R.J. Burnside & Associates Limited (Burnside) are the engineers for the project and will be monitoring water levels during the pumping test. With your permission, Burnside would like to collect information about your well which will assist in confirming the number and types of wells in the area.

If you would like to participate in the monitoring program or have any questions, please feel free to contact either of the contacts provided below.

Josh Donkersgoed, P.Eng. Project Engineer Tel: 226-962-2707 Email: josh.donkersgoed@rjburnside.com Jim Baxter, P. Eng. Groundwater Resource Engineer Tel: 519-831-1747 Email: jim.baxter@rjburnside.com

Participation in the survey is voluntary and any information you provide will be kept confidential.

Yours truly,

R.J. Burnside & Associates Limited

Josh Donkersgoed, P.Eng Project Engineer JD:js



Appendix D

Hydrographs, Semi Log Plots and Distance Drawdown Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test TW1-21 (DO) Hydrograph - Pumping Well



R.J. Burnside & Associates Limited Date: 9/8/2022 File: 052287_Hydrographs 1



Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test TW1-21 (DO) Detailed Hydrograph - Pumping Well

Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test MW1-21 (DO) Hydrograph - Monitoring Well (r = 7 m)





Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test MW1-21 (DO) Detailed Hydrograph - Monitoring Well (r = 7 m)

R.J. Burnside & Associates Limited Date: 9/2/2022 File: 052287_Hydrographs 1



Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test 15 Wells Street (B) Hydrograph

R.J. Burnside & Associates Limited Date: 9/2/2022 File: 052287_Hydrographs 1

Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test 15 Wells Street (B) Detailed Hydrograph



R.J. Burnside & Associates Limited Date: 9/8/2022 File: 052287_Hydrographs 1

Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test 8610 Highway 6 (DO) Hydrograph



R.J. Burnside & Associates Limited Date: 9/8/2022 File: 052287_Hydrographs 1
Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test 8610 Highway 6 (DO) Detailed Hydrograph



Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test 8048 Line 2 (B) Hydrograph



Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test 8048 Line 2 (B) Detailed Hydrograph



Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test 8061 Line 2 (B) Hydrograph





Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test 8061 Line 2 (B) Detailed Hydrograph

R.J. Burnside & Associates Limited Date: 9/8/2022 File: 052287_Hydrographs 1

Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test 7795 Sideroad 10 East (B) Hydrograph



Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test 7795 Sideroad 10 E (B) Detailed Hydrograph



Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test 7975 Sideroad 10 East (DO) Hydrograph



Precipitation -- O-- Manual Readings

R.J. Burnside & Associates Limited Date: 9/8/2022 File: 052287_Hydrographs 1

Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test 7975 Sideroad 10 E (DO) Detailed Hydrograph



R.J. Burnside & Associates Limited Date: 9/2/2022 File: 052287_Hydrographs 1

Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test PZ1 and SG1 Hydrograph



Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test PZ1 and SG1 Detailed Hydrograph



Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test MW1 (SO) Hydrograph



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Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test MW1 (SO) Detailed Hydrograph



Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test MW2 (SO) Hydrograph



Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test MW2 (SO) Detailed Hydrograph



Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test MW4 (SO) Hydrograph



R.J. Burnside & Associates Limited Date: 9/2/2022 File: 052287_Hydrographs 1

Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test MW4 (SO) Detailed Hydrograph



Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test 8580 Wellington Road 14 (B) Hydrograph



Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test 8580 Wellington Rd 14 (B) Detailed Hydrograph



R.J. Burnside & Associates Limited Date: 9/8/2022 File: 052287_Hydrographs 2

Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test 510 Eliza Street (B) Hydrograph



R.J. Burnside & Associates Limited Date: 9/8/2022 File: 052287_Hydrographs 2

Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test 510 Eliza Street (B) Detailed Hydrograph



R.J. Burnside & Associates Limited Date: 9/8/2022 File: 052287_Hydrographs 2



Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test 8566 Wellington Road 14 (B) Hydrograph

R.J. Burnside & Associates Limited Date: 9/8/2022 File: 052287_Hydrographs 2

Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test 8566 Wellington Rd 14 (B) Detailed Hydrograph



Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test 8565 Wellington Road 14 (B) Hydrograph



R.J. Burnside & Associates Limited Date: 9/2/2022 File: 052287_Hydrographs 2

Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test 8565 Wellington Rd 14 (B) Detailed Hydrograph



R.J. Burnside & Associates Limited Date: 9/8/2022 File: 052287_Hydrographs 2



Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test 8590 Wellington Road 14 (DO) Hydrograph

R.J. Burnside & Associates Limited Date: 9/8/2022 File: 052287_Hydrographs 2

Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test 8590 Wellington Rd 14 (DO) Detailed Hydrograph



Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test Arthur Well 7B (DO) Hydrograph



Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test Arthur Well 7B (DO) Detailed Hydrograph



Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test Arthur Well 7B (DO) Total Daily Pumping



R.J. Burnside & Associates Limited Date: 9/8/2022 File: 052287_Arthur Well 7B



Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test Arthur Well 8A (DO) & 8B (DO) Hydrograph

R.J. Burnside & Associates Limited Date: 9/8/2022 File: 052287_Arthur Well 8AB

Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test Arthur Well 8A (DO) Detailed Hydrograph



R.J. Burnside & Associates Limited Date: 9/8/2022 File: 052287_Arthur Well 8AB

Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test Arthur Well 8B (DO) Detailed Hydrograph



R.J. Burnside & Associates Limited Date: 9/8/2022 File: 052287_Arthur Well 8AB

Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test WN-MW1-00 (DO) Hydrograph



R.J. Burnside & Associates Limited Date: 9/8/2022 File: 052287_Hydrographs 1

Arthur Water Supply EA - Test Well TW1-21 Long Term Pumping Test WN-MW1-00 (DO) Detailed Hydrograph





Appendix E

Analytical Plots


Wellington North, Arthur Test Well TW1-21 As Constructed Variable Rate Pumping Test, November 29, 2021

R.J. Burnside & Associates Limited Date: 10/7/2022 File: Arthur Test Well - Nov 29, 2021 Steps.xlsx Figure E-1 Variable Rate Testing 300052287





Arthur Long Term Pumping Test Semilog Drawdown at TW1-21 and MW1-21



Figure E-3 Long Term Pumping Test 300054100

Arthur Long Term Pumping Test Semilog Drawdown at 8566 Wellington County Rd. 14 and 510 Eliza Street



Pacey Long Term Pumping Test Distance versus Drawdown



Arthur Test Well Estimated Long-Term Drawdown at TW1-21



• TW1-21 - TW1-21 (13.5 L/s) - TW1-21 (27 L/s)

Arthur Test Well Estimated Drawdown at 8566 Wellington County Rd. 14 and 510 Eliza Street



R.J. Burnside & Associates Limited Date: 8/26/2022 File: 052287_Arthur LTT Summary.xlsx Figure E-7 Long Term Pumping Test 300052287



Appendix F

Water Quality Results

Arthur Test Well Long Term Pumping Test TW1-21 Water Quality

| Sample Date / Time | | | | 18-Jun-22 | 19-Jun-22 | 20-Jun-22 | 21-Jun-22 | 22-Jun-22 | 23-Jun-22 | 24-Jun-22 |
|-----------------------------|---------------|-------|---------|------------|------------|------------|------------|------------|------------|------------|
| Sample Date / Time | | | | 10:10 | 16:00 | 09:15 | 16:00 | 13:55 | 11:00 | 6:55 |
| Elapsed Days | | | | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Analysis | Units | MAC | AO/OG | | | | | | | |
| E. Coli | cfu/100mL | 0 | | | 0 | 0 | 0 | 0 | 0 | |
| Total Coliform | cfu/100mL | 0 | | | 0 | 0 | 0 | 2 | 0 | |
| Alkalinity | mg/L as CaCO3 | | 30-500 | 190 | 192 | 193 | 193 | 191 | 193 | 192 |
| Bicarbonate | mg/L as CaCO3 | | | 190 | 192 | 193 | 193 | 191 | 193 | 187 |
| Carbonate | mg/L as CaCO3 | | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | 5 |
| ОН | mg/L as CaCO3 | | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Colour | TCU | | 5 | 5 | 7 | < 3 | 4 | 4 | 3 | 3 |
| Conductivity | uS/cm | | | 367 | 366 | 356 | 360 | 358 | 363 | 376 |
| рН | No unit | | 6.5-8.5 | 8.16 | 8.11 | 8.23 | 8.26 | 8.17 | 8.19 | 8.38 |
| Turbidity | NTU | 1 | 5 | | 0.74 | 0.86 | 0.63 | 0.75 | 0.76 | 0.42 |
| Ammonia+Ammonium (N) | as N mg/L | | | 0.2 | 0.2 | 0.5 | 0.2 | 0.2 | 0.2 | 0.2 |
| Phosphorus (total reactive) | mg/L | | | < 0.03 | < 0.03 | < 0.03 | < 0.03 | < 0.03 | < 0.03 | < 0.03 |
| Total Organic Carbon | mg/L | | | < 1 | < 1 | 1 | < 1 | < 1 | < 1 | 2 |
| Chloride | mg/L | | 250 | 1.2 | 1.2 | 1.3 | 1.2 | 1.1 | 1.3 | 1.4 |
| Fluoride | mg/L | 1.5 | | 0.49 | 0.48 | 0.5 | 0.54 | 0.55 | 0.55 | 0.51 |
| Bromide | mg/L | | | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 |
| Nitrite (as N) | as N mg/L | 1 | | < 0.03 | < 0.03 | < 0.03 | < 0.03 | < 0.03 | < 0.03 | 0.19 |
| Nitrate (as N) | as N mg/L | 10 | | < 0.06 | < 0.06 | < 0.06 | < 0.06 | < 0.06 | < 0.06 | < 0.06 |
| Sulphate | mg/L | | 500 | 7.3 | 6.5 | 7.1 | 6.3 | 6.3 | 6 | 5.9 |
| Mercury (total) | mg/L | 0.001 | | < 0.00001 | 0.00001 | < 0.00001 | < 0.00001 | < 0.00001 | < 0.00001 | < 0.00001 |
| Hardness | mg/L as CaCO3 | | 80-100 | 137 | 142 | 149 | 153 | 149 | 154 | 151 |
| Aluminum (total) | mg/L | | 0.1 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.002 | < 0.001 |
| Arsenic (total) | mg/L | 0.01 | | 0.0061 | 0.0067 | 0.0074 | 0.0069 | 0.0069 | 0.0063 | 0.007 |
| Boron (total) | mg/L | 5 | | 0.076 | 0.072 | 0.069 | 0.066 | 0.064 | 0.077 | 0.082 |
| Barium (total) | mg/L | 2 | | 0.0363 | 0.0348 | 0.0344 | 0.0364 | 0.035 | 0.0355 | 0.0332 |
| Beryllium (total) | mg/L | | | < 0.000007 | < 0.000007 | < 0.000007 | < 0.000007 | < 0.000007 | < 0.000007 | < 0.000007 |
| Cobalt (total) | mg/L | | | 0.000061 | 0.000046 | 0.000063 | 0.000052 | 0.000047 | 0.000052 | 0.000048 |
| Calcium (total) | mg/L | | | 28.6 | 29.9 | 30.7 | 32.2 | 30.8 | 32.9 | 30.8 |
| Cadmium (total) | mg/L | 0.005 | | < 0.000003 | < 0.000003 | < 0.000003 | 0.000003 | < 0.000003 | 0.000007 | 0.000007 |
| Copper (total) | mg/L | | 1 | 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | 0.0002 | < 0.0002 |
| Chromium (total) | mg/L | 0.05 | | 0.00014 | 0.00008 | 0.00012 | 0.00012 | 0.00015 | 0.00013 | 0.00009 |
| Iron (total) | mg/L | | 0.3 | 0.079 | 0.122 | 0.136 | 0.174 | 0.143 | 0.149 | 0.153 |
| Potassium (total) | mg/L | | | 0.819 | 0.772 | 0.809 | 0.881 | 0.849 | 0.856 | 0.799 |
| Magnesium (total) | mg/L | | | 16.1 | 16.4 | 17.5 | 17.5 | 17.4 | 17.5 | 18.1 |
| Manganese (total) | mg/L | | 0.05 | 0.0182 | 0.0161 | 0.0152 | 0.0151 | 0.0152 | 0.0155 | 0.0149 |
| Molybdenum (total) | mg/L | | | 0.00708 | 0.00591 | 0.00538 | 0.00519 | 0.00511 | 0.00533 | 0.00485 |
| Nickel (total) | mg/L | | | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | < 0.0001 | 0.0023 |
| Sodium (total) | mg/L | 20* | 200 | 26.9 | 23.3 | 24.2 | 23.4 | 22.6 | 22.4 | 23.3 |
| Phosphorus (total) | mg/L | | | < 0.003 | < 0.003 | 0.01 | < 0.003 | < 0.003 | 0.021 | < 0.003 |
| Lead (total) | mg/L | 0.01 | | < 0.00009 | < 0.00009 | < 0.00009 | < 0.00009 | < 0.00009 | < 0.00009 | < 0.00009 |
| Silicon (total) | mg/L | | | 5.61 | 5.76 | 5.27 | 6.26 | 5.8 | 6.3 | 6.57 |
| Silver (total) | mg/L | | | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Strontium (total) | mg/L | | | 0.421 | 0.414 | 0.405 | 0.432 | 0.422 | 0.394 | 0.36 |
| Thallium (total) | mg/L | | | < 0.000005 | < 0.000005 | < 0.000005 | < 0.000005 | < 0.000005 | < 0.000005 | < 0.000005 |
| Tin (total) | mg/L | | | < 0.00006 | 0.00010 | < 0.00006 | < 0.00006 | < 0.00006 | 0.00021 | < 0.00006 |
| Titanium (total) | mg/L | | | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | 0.00014 | < 0.00005 |
| Antimony (total) | mg/L | 0.006 | | < 0.0009 | < 0.0009 | < 0.0009 | < 0.0009 | < 0.0009 | < 0.0009 | < 0.0009 |
| Selenium (total) | mg/L | 0.05 | | < 0.00004 | < 0.00004 | < 0.00004 | < 0.00004 | < 0.00004 | < 0.00004 | < 0.00004 |
| Uranium (total) | mg/L | 0.02 | | 0.000309 | 0.000263 | 0.000268 | 0.000262 | 0.000247 | 0.000236 | 0.000242 |
| Vanadium (total) | mg/L | | | 0.00010 | 0.00007 | 0.00007 | 0.00008 | 0.00007 | 0.00006 | 0.00006 |
| Zinc (total) | mg/L | | 5 | 0.002 | < 0.002 | < 0.002 | 0.002 | < 0.002 | < 0.002 | < 0.002 |

ODWQS - Ontario Drinking Water Quality Standards MAC - Maximum acceptable concentration AO/OG - Aesthetic objectives/Operational Guidelines Bold indicates an exceedence of the ODWQS

Arthur Test Well Long Term Pumping Test TW1-21 Water Quality

| Samula Data / Tima | | | | 18-Jun-22 | 19-Jun-22 | 20-Jun-22 | 21-Jun-22 | 22-Jun-22 | 23-Jun-22 | 24-Jun-22 |
|-------------------------------------|--------------|-------|-------|-----------|-----------|-----------|-----------|-----------|------------|-----------|
| Sample Date / Time | | | | 10:10 | 16:00 | 09:15 | 16:00 | 13:55 | 11:00 | 6:55 |
| Elapsed Days | | | | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Analysis | Units | MAC | AO/OG | | | | | | | |
| Aluminum (dissolved) | mg/L | | 0.1 | | | | | | < 0.001 | |
| Arsenic (dissolved) | mg/L | 0.01 | | | | | | | 0.0073 | |
| Boron (dissolved) | mg/L | 5 | | | | | | | 0.077 | |
| Barium (dissolved) | mg/L | 2.00 | | | | | | | 0.0373 | |
| Beryllium (dissolved) | mg/L | | | | | | | | < 0.000007 | |
| Cobalt (dissolved) | mg/L | | | | | | | | 0.000055 | |
| Calcium (dissolved) | mg/L | | | | | | | | 33.6 | |
| Cadmium (dissolved) | mg/L | 0.005 | | | | | | | < 0.000003 | |
| Copper (dissolved) | mg/L | | 1 | | | | | | < 0.0002 | |
| Chromium (dissolved) | mg/L | 0.05 | | | | | | | 0.00015 | |
| Iron (dissolved) | mg/L | | 0.3 | | | | | | 0.147 | |
| Potassium (dissolved) | mg/L | | | | | | | | 0.875 | |
| Magnesium (dissolved) | mg/L | | | | | | | | 18.3 | |
| Manganese (dissolved) | mg/L | | 0.05 | | | | | | 0.0157 | |
| Molybdenum (dissolved) | mg/L | | | | | | | | 0.00485 | |
| Nickel (dissolved) | mg/L | | | | | | | | < 0.0001 | |
| Sodium (dissolved) | mg/L | 20* | 200 | | | | | | 23.6 | |
| Phosphorus (dissolved) | mg/L | | | | | | | | 0.003 | |
| Lead (dissolved) | mg/L | 0.01 | | | | | | | < 0.00009 | |
| Silicon (dissolved) | mg/L | | | | | | | | 6.38 | |
| Silver (dissolved) | mg/L | | | | | | | | < 0.00005 | |
| Strontium (dissolved) | mg/L | | | | | | | | 0.397 | |
| Thallium (dissolved) | mg/L | | | | | | | | < 0.000005 | |
| Tin (dissolved) | mg/L | | | | | | | | < 0.00006 | |
| Titanium (dissolved) | mg/L | | | | | | | | < 0.00005 | |
| Antimony (dissolved) | mg/L | 0.006 | | | | | | | < 0.0009 | |
| Selenium (dissolved) | mg/L | 0.05 | | | | | | | < 0.00004 | |
| Uranium (dissolved) | mg/L | 0.02 | | | | | | | 0.000244 | |
| Vanadium (dissolved) | mg/L | | | | | | | | 0.00006 | |
| Zinc (dissolved) | mg/L | | 5 | | | | | | < 0.002 | |
| Cation sum | meq/L | | | 3.97 | 3.90 | 4.1 | 4.12 | 4 | 4.11 | 4.09 |
| Anion Sum | meq/L | | | 4.01 | 4.03 | 4.06 | 4.05 | 4 | 4.04 | 4.03 |
| Anion-Cation Balance | % difference | | | -0.51 | -1.62 | 0.4 | 0.91 | -0.04 | 0.78 | 0.79 |
| Ion Ratio | | | | 0.99 | 0.97 | 1.01 | 1.02 | 1 | 1.02 | 1.02 |
| Total Dissolved Solids (calculated) | mg/L | | | 195 | 194 | 198 | 198 | 194 | 197 | 196 |
| Conductivity (calculated) | uS/cm | | | 399 | 396 | 408 | 408 | 400 | 408 | 406 |
| Langeliers Index 4° C | @ 4° C | | | -0.04 | -0.07 | 0.07 | 0.12 | 0 | 0.06 | 0.22 |
| Saturation pH 4°C | pHs @ 4°C | | | 8.20 | 8.18 | 8.16 | 8.14 | 8.17 | 8.13 | 8.16 |

ODWQS - Ontario Drinking Water Quality Standards

MAC - Maximum acceptable concentration AO/OG - Aesthetic objectives/Operational Guidelines Bold indicates an exceedence of the ODWQS

Ontario Drinking Water Quality Standards Summary TW1-21

| SCHEDULE 1 - Microbiological Standards Curi 100mL 0 0 Total Coltorm chu'100mL 0 0 SCHEDULE 2 - Chemical Standards uppL 5 2.5 0.02 <md< td=""> Machino value uppL 10 5 6.6 Arcante + NealNotan value uppL 10 5 6.6 Arcante + NealNotan value uppL 10 0.02 <md< td=""> 32.3 Barrane in uppL 10 0.05 0.004 <mdl< td=""> 32.3 Barrane in uppL 0.01 0.05 0.004 <mdl< td=""> 60.01 32.3 Barrane in uppL 0.001 0.005 0.004 <mdl< td=""> 60.01 40.01 40.02 40.03 40.01 40.02 0.005 60.004 40.01 40.01 40.01 40.01 40.01 40.01 40.01 40.01 40.1 40.01 40.1 40.01 40.1 40.01 40.1 40.01 40.01 40.01 40.01 40.01 40.01 40.01 40.01 40.01 40.01 40.01<!--</th--><th>Analysis</th><th>Units</th><th>MAC</th><th>Half MAC</th><th>AO/OG</th><th>TW1-21 23-Jun-22 11:00</th></mdl<></mdl<></mdl<></md<></md<> | Analysis | Units | MAC | Half MAC | AO/OG | TW1-21 23-Jun-22 11:00 | |
|--|--|--|-----------|---------------------|-------------------|------------------------------|--------------------------|
| E. Coli eth/100mL 0 0 SCHEDULE 2 - Chemical Standards Nachlor µq1 5 2.5 0.02 ×MDL Antimony µq1 5 2.5 0.02 ×MDL Antimony µq1 5 2.5 0.01 ×MDL Stream µq1 5 2.5 0.01 ×MDL Barvanna µq1 100 500 3.2.3 Barvanna µq1 5 2.5 0.01 ×MDL Barvanna µq1 5 2.5 0.004 ×MDL Carbary µq1 90 45 0.06 ×MDL Carbary µq1 90 45 0.02 ×MDL Choranines (calculated) µq1 50 25 0.03 ×MDL Choranines (calculated) µq1 50 25 0.0 | SCHEDULE 1 - Microbiological Standar | ds | | 1 | | | |
| Total Collitom (pu/100mL) 0 0 SOLHEDUL 2: Chemical Standards 0.02 < MDL | E. Coli | cfu/100mL | 0 | | | 0 | |
| SC/HEULE 2 - Chomeal Standards Jankinor µg/L 6 3 < 0.6 Antimony µg/L 6 3 < 0.6 Artencic µg/L 5 2.5 0.01 +MDL Barium µg/L 100 500 32.3 Benzene µg/L 1000 500 32.3 Bornon µg/L 1000 500 32.3 Bromata mg/L 0.01 0.005 0.024 eMDL Bornonyni µg/L 5 2.5 0.004 eMDL Carbon Terrachiorde µg/L 90 45 0.05 400 t Carbon Terrachiorde µg/L 90 45 0.02 4MDL Chiorata mg/L | Total Coliform | cfu/100mL | 0 | | | 0 | |
| Haddinol HpU 5 2.5 0.02 4ML Ariterio HpU 10 5 6.6 Ariterio + N-dealkylated metabolites HpU 10 5 6.7 Arizance + N-dealkylated metabolites HpU 10 50 6.8 Arizance + N-dealkylated metabolites HpU 10 50 0.32 4ML Banzon HpU 10 0.5 0.32 4ML Benzolalyzene HpU 10 0.55 0.004 4MDL Bernotan HpU 0.005 -0.005 0.004 4MDL Bernotan HpU 0.005 -0.005 0.004 Carbon HpU 0.005 -0.005 0.004 Carbon HpU 90 45 0.01 4MDL Carbon HpU 90 45 0.01 4MDL Chorate mpU 90 45 0.02 4MDL Chorate mpU 90 45 0.02 4MDL Chorate mpU 120 100 <td< td=""><td>SCHEDULE 2 - Chemical Standards</td><td></td><td></td><td>0.5</td><td></td><td></td></td<> | SCHEDULE 2 - Chemical Standards | | | 0.5 | | | |
| Dimension Data Constraint Marganices-methy µplL 5 2.5 0.01 -MDL Banum µplL 100 5.00 3.2.3 Banum µplL 100.0 5.00 3.2.3 Benzene µplL 100.0 0.05 0.024 AMDL 3.2.3 BADL 0.01 0.005 0.024 AMDL 3.2.3 BADL 0.01 0.005 0.024 AMDL 0.03 0.004 AMDL 0.01 0.005 0.004 AMDL 0.01 0.005 0.004 AMDL 0.01 AMDL 0.01 0.004 AMDL 0.01 AMDL 0.0 | Alachior | µg/L | 5 | 2.5 | | 0.02 <mdl< td=""></mdl<> | |
| Arragine + N-clealkylated metabolites pgA 2.5 0.01 eMDI Barium pgA 1000 500 32.3 Benzone pgA 0.01 0.05 0.022 eMDI. Benzone pgA 0.01 0.005 0.004 eMDI. Benzone pgA 0.01 0.005 0.004 eMDI. Benzone pgA 0.01 0.005 0.004 eMDI. Benzone pgA 5 2.5 0.004 Cathauran pgA 5 2.5 0.004 Cathauran pgA 90 45 0.01 4005 Cathauran pgA 90 45 0.02 400 Cathouran pgA 90 45 0.02 400 Chorate mgA 200 100 | Arsenic | µg/∟ μα/Ι | 10 | 5 | | <u>< 0.0</u> 6.8 | |
| Azinghos-methyl jugl. 100 500 32.3 Benzene jugl. 1 0.6 0.32 «MDL Benzolajpyrene jugl. 0.01 0.005 0.004 «MDL Bornane jugl. 0.01 0.005 0.004 «MDL Bornane jugl. 0.01 0.005 0.004 «MDL Gammum jugl. 0.01 0.005 0.004 Gammum jugl. 5 2.5 0.004 Cathor ferachloride jugl. 90 45 0.01 «MDL Cathor ferachloride jugl. 90 45 0.02 «MDL Chorate mgl. 1 0.01 «MDL 0.01 «MDL Chorate mgl. 10 0.02 «MDL 0.01 «MDL Chorate mgl. 120 100 0.42 «MDL Choratina jugl. 200 100 0.42 «MDL Choratina jugl. 200 100 0.42 «MDL Choratina jugl. 200 100 <td>Atrazine + N-dealkylated metabolites</td> <td><u>μg/L</u></td> <td>5</td> <td>2.5</td> <td></td> <td>0.01 <mdl< td=""></mdl<></td> | Atrazine + N-dealkylated metabolites | <u>μg/L</u> | 5 | 2.5 | | 0.01 <mdl< td=""></mdl<> | |
| Barium µgL 1000 500 32.3 Benzene µgL 0.01 0.005 0.004 4MDL Benzolapyrene µgL 0.01 0.005 0.004 4MDL Borna mai µgL 0.01 0.005 -0.005 e0.005 Bromavai µgL 5 2.5 0.004 4MDL Cadmium µgL 90 45 0.01 4MDL Catodium Cadmium µgL 90 45 0.01 4MDL Catodium 0.02 4MDL Catodium 0.01 Catodium 0.02 CAtodium 0.02 CAtodium 0.02 CAtodium 0.02 CAtodium 0.02 CAtodium 0.02 | Azinphos-methyl | μg/L | 20 | 10 | | 0.05 <mdl< td=""></mdl<> | |
| Benzene ug/L 1 0.5 0.32 xMDL Bernog(a)prene ug/L 6000 2500 609 Boron ug/L 6000 2500 69 Bromate mg/L 0.01 0.005 <0.005 | <2 | Barium | µg/L | 1000 | 500 | | 32.3 |
| bit dots bit dots bit dots bit dots bit dots Baron mg/L 0.000 26000 69 Bromaxe mg/L 0.01 0.005 <0.005 | Benzene | ug/L | 1 | 0.5 | | 0.32 <mdl< td=""></mdl<> | |
| Building PPL Study 2500 250 Bromaxe mg/L 0.1 0.005 - - 0.03 - 0.03 - 0.03 - 0.03 - 0.03 - 0.03 - 0.03 - 0.03 - 0.03 - 0.03 - 0.03 - 0.01 - 0.01 - 0.01 - 0.01 - 0.01 - 0.01 - 0.01 - NDL - 0.01 NDL - 0.02 - NDL - 0.03 - NDL - 0.03 NDL - NDL - NDL | Benzo(a)pyrene | μg/L | 0.01 | 0.005 | | 0.004 <mdl< td=""></mdl<> | |
| Distance ImpL Output Output Output Output Carbaryl µg/L 90 45 0.004 Carbaryl µg/L 90 45 0.01 + MDL Carbon Tetrachloride µg/L 90 45 0.01 + MDL Carbon Tetrachloride µg/L 90 45 0.01 + MDL Chorate mg/L | Biomate | | 0.01 | 2500 | | | |
| Cadmium Light 5 2.5 0.0044 Carbaryt µp/L 90 45 0.05 <mdl< td=""> Carboturan µp/L 90 45 0.01 <mdl< td=""> Carboturan µg/L 90 45 0.01 <mdl< td=""> Carboturan mg/L *** *** *** *** Choratines mg/L *** *** *** *** Choratine mg/L 90 45 0.01 <mdl< td=""> Choratine µg/L 90 45 0.02 <mdl< td=""> Choratine µg/L 120 60 0.22 <mdl< td=""> Choratine µg/L 120 60 0.22 <mdl< td=""> Choratine µg/L 5 2.5 1 0.36 <mdl< td=""> 1.2-Dichiorobenzene µg/L 50 2.5 1 0.33 <mdl< td=""> Dichoromethane µg/L 90 4.5 0.40 <mdl< td=""> 0.46 <mdl< td=""> Dichoromethane µg/L 90 4.5 0.43 <mdl< td=""> 0.40 <mdl< td=""></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<> | Bromoxvnil | | 0.01 | 0.000 | | 0.33 <mdl< td=""></mdl<> | |
| Carbayl ypL 90 45 0.05 kMDL Carbornan µg/L *** *** 0.17 <mdl< td=""> Carbor Tetrachloride µg/L *** *** *** Chioranines (calculated) mg/L *** *** *** Chiorate mg/L 90 45 0.01 <mdl< td=""> Chiorate mg/L 90 45 0.02 <mdl< td=""> Choronium µg/L 200 100 0.02 <mdl< td=""> Cynaide (tota) µg/L 200 100 0.02 <mdl< td=""> Dicamba µg/L 5 2.5 1 0.36 kMDL 1.4-Dichlorobenzene µg/L 5 2.5 1 0.36 kMDL 1.4-Dichlorobenzene µg/L 50 25 0.33 kMDL Dichlorobenzene 1.1-Dichlorobenzene µg/L 90 4.5 0.40 kMDL Dias kMDL 1.1-Dichlorobenzene µg/L 14 7 0.33 kMDL Dichlorobenzene Dias kMDL 1.1-Dichlorobenzene µg/L</mdl<></mdl<></mdl<></mdl<></mdl<> | Cadmium | <u>μg/L</u> | 5 | 2.5 | | 0.004 | |
| Carbontran ypL 90 45 0.01 +MDL Choron Tetrachoride ypL | Carbaryl | µg/L | 90 | 45 | | 0.05 <mdl< td=""></mdl<> | |
| Carbon Tetrachloride µg/L 0.1 0.1 AMDL Chiorarie mg/L 0.01 AMDL Chiorate mg/L 90 45 0.01 AMDL Chiorate µg/L 50 25 <<0.08 | Carbofuran | µg/L | 90 | 45 | | 0.01 <mdl< td=""></mdl<> | |
| Chloratines (calculated) mg/L *** *** *** Chlorate mg/L 0.01 × MDL Chlorate mg/L 0.01 × MDL Chlorate mg/L 0.01 × MDL Chromium $\mu g/L$ 90 45 0.02 × MDL Chromium $\mu g/L$ 200 100 <2 | Carbon Tetrachloride | µg/L | | | | 0.17 <mdl< td=""></mdl<> | |
| Chiorate mg/L 0.01 ×MDL Chiorate mg/L 0.01 ×MDL Chiorymfos $\mu g/L$ 90 45 0.02 ×MDL Chromium $\mu g/L$ 50 25 < 0.08 Cyanide (otal) $\mu g/L$ 200 100 < 2 Diazinon $\mu g/L$ 20 10 0.02 ×MDL Dicariba $\mu g/L$ 20 10 0.02 ×MDL Dicariba $\mu g/L$ 20 10 0.02 ×MDL Dicariba $\mu g/L$ 20 10 0.03 ×MDL 1.2-Dichlorobenzene $\mu g/L$ 5 2.5 1 0.35 ×MDL 1.2-Dichlorobenzene $\mu g/L$ 5 2.5 1 0.35 ×MDL 1.2-Dichlorobenzene $\mu g/L$ 5 2.5 0.035 ×MDL 1.2-Dichlorobenzene $\mu g/L$ 90 450 0.3 0.15 ×MDL Dichloromethane $\mu g/L$ 90 450 0.3 0.15 ×MDL Dichloromethane $\mu g/L$ 9 4.5 0.40 ×MDL Dichloromethane $\mu g/L$ 9 0.450 0.3 0.15 ×MDL 2.4-Dichlorobenzene $\mu g/L$ 120 10 0.066 ×MDL Dickloromethane $\mu g/L$ 10 0.03 ×MDL Ethylobenzene $\mu g/L$ 10 10.005 ×MDL Ethylobenzene $\mu g/L$ 10 0.03 ×MDL Ethylobenzene $\mu g/L$ 10 0.03 ×MDL Ethylobenzene $\mu g/L$ 10 0.06 ×MDL Dicklorophenol $\mu g/L$ 10 0.05 × 0.54 Glyphosate $\mu g/L$ 10 5 < 0.01 Kerture $\mu g/L$ 10 5 < 0.01 Matthion $\mu g/L$ 10 0.5 < 0.01 Matchlorophenoxyacetic acid (2,4-D) $\mu g/L$ 10 5 0.02 ×MDL Mercury $\mu g/L$ 10 5 0.02 ×MDL Mercury $\mu g/L$ 10 5 0.03 ×MDL Nitrie (as N) as N mg/L 10 5 0.03 ×MDL Nitrie (as N) as N mg/L 10 5 0.03 ×MDL Nitrie (as N) as N mg/L 10 5 0.003 ×MDL Nitrie (as N) as N mg/L 10 5 0.003 ×MDL Nitrie (as N) as N mg/L 10 5 0.003 ×MDL Nitrie (as N) as N mg/L 10 5 0.003 ×MDL Nitrie (as N) as N mg/L 10 5 0.003 ×MDL Prometryne $\mu g/L$ 10 5 0.01 ×MDL Prometryne $\mu g/L$ 10 0.5 0.01 ×MDL Prometryne $\mu g/L$ 10 0.5 0.01 ×MDL Prometryne $\mu g/L$ 10 0.5 0.01 ×MDL Nitrie (as N) as N mg/L 10 5 0.003 ×MDL Nitrie (as N) as N mg/L 10 5 0.004 ×MDL Nitrie (as N) as N mg/L 10 5 0.004 ×MDL Nitrie (as N) as N mg/L 10 5 0.004 ×MDL Nitrie (as N) as N mg/L 10 5 0.004 | Chloramines (calculated) | mg/L | *** | *** | *** | *** | |
| Linuxie Ing/L 0.01 4MDL Chlorpyrifos µg/L 90 45 0.02 4MDL Chromium µg/L 200 100 <2 | Uniorate Chlorita | mg/L | | | | 0.01 <mdl< td=""></mdl<> | |
| Display $\mu g/L$ 30 $0.02 \text{ km}L$ Cyanide (total) $\mu g/L$ 200 100 < 2 Diazinon $\mu g/L$ 200 100 $0.22 \text{ km}DL$ Diazinon $\mu g/L$ 200 100 $0.24 \text{ km}DL$ Diazinon $\mu g/L$ 200 100 $0.41 \text{ km}DL$ 1,2-Dichlorosthane $\mu g/L$ 5 2.5 1 $0.36 \text{ km}DL$ 1,1-Dichlorosthylene (vinyliden chloride) $\mu g/L$ 50 2.5 0.33 cMDL 2,4-Dichlorophenol $\mu g/L$ 900 450 0.3 0.15 cMDL Dickinomethane $\mu g/L$ 20 10 0.06 cMDL 0.03 cMDL Dickinomethane $\mu g/L$ 20 10 0.06 cMDL 0.03 cMDL Dickinomethane $\mu g/L$ 20 10 0.06 cMDL 0.03 cMDL Dickinone $\mu g/L$ 140 1 cMDL 0.03 cMDL 0.03 cMDL 0.02 cMDL < | Chlorpyrifos | Ing/L | 00 | 15 | | | |
| Line L <thl< th=""> L L L</thl<> | Chromium | μg/L μα/l | 50 | 40 25 | | 0.02 <ividl< td=""></ividl<> | |
| Diazinon $\mu g/L$ 200 100 0.02 AMDL Diazinon $\mu g/L$ 20 10 0.02 AMDL Diazinon $\mu g/L$ 20 10 0.02 AMDL Diazinon $\mu g/L$ 200 100 0.41 AMDL 1,2-Dichlorobenzene $\mu g/L$ 5 2.5 1 0.36 AMDL 1,2-Dichloroethane $\mu g/L$ 900 450 0.35 AMDL Dichloromethane $\mu g/L$ 900 450 0.36 AMDL Diconomethane $\mu g/L$ 900 450 0.36 AMDL Diconomethane $\mu g/L$ 10 0.06 AMO MDL Diavia mg/L 1.5E-08 CDL Diavia - AMOL AMOL AMDL Diavia mg/L 1.5 0.75 0.33 AMDL - AMDL Diavia mg/L 1.00 5 < 0.01 | Cvanide (total) | ua/L | 200 | 100 | | < 2 | |
| Dicamba µg/L 120 60 0.20 ANDL 1,2-Dichlorobenzene µg/L 5 2.5 1 0.36 ANDL 1,2-Dichlorobenzene µg/L 5 2.5 1 0.36 ANDL 1,2-Dichlorobytene (vinylidene chloride) µg/L 50 2.5 0.33 ANDL 1,1-Dichlorobytene (vinylidene chloride) µg/L 900 450 0.3 0.15 ANDL 2,4-Dichlorophenol µg/L 9 4.5 0.40 AND Diosin and Furan mg/L 1.8E-08 OL Dicital ug/L 70 35 1 4.MDL Diosin and Furan mg/L 1.5 0.75 0.64 MDL Dicital ug/L 20 10 0.03 & MDL Sighthase UL Diosin and Furan mg/L 1.5 0.75 0.54 Giphosate ug/L 10 5 < <dodd tr=""> Giphosate ug/L 10 0.5 <<dodd tr=""> 1.4 MDL Metrouschase<td>Diazinon</td><td>μg/L</td><td>20</td><td>10</td><td></td><td>0.02 <mdl< td=""></mdl<></td></dodd></dodd> | Diazinon | μg/L | 20 | 10 | | 0.02 <mdl< td=""></mdl<> | |
| 1.2-Dichlorobenzene $\mu g/L$ 200 100 $0.41 < MDL$ 1.4-Dichlorobenzene $\mu g/L$ 5 2.5 1 0.36 $< MDL$ 1.2-Dichloroethane $\mu g/L$ 5 2.5 0.35 $< MDL$ 1.1-Dichloroethylene (inviidene chloride) $\mu g/L$ 900 450 0.3 0.15 $< MDL$ 2.4-Dichloroethylene (inviidene chloride) $\mu g/L$ 9 4.5 0.40 $< MDL$ Dickoroethane $\mu g/L$ 9 4.5 0.40 $< MDL$ Dickoroethane $\mu g/L$ 20 10 0.06 $< MDL$ Dickoroethane $\mu g/L$ 20 10 0.03 $< MDL$ Diavin and Furan $m g/L$ 1.5E-08 $< DL$ 20 Diavin $m g/L$ 1.5 0.75 0.54 Glyphosate Glyphosate $m g/L$ 1.6 0.33 $< MDL$ $< Lad$ $\cdot Lad$ Halasthion $m g/L$ 10 5 < 0.01 A-dichlorophenoxyacetic acid (2,4-D) $\mu g/L$ 1 0.5 0.02 $< $ | Dicamba | µg/L | 120 | 60 | | 0.20 <mdl< td=""></mdl<> | |
| 1.4-Dichlorobenzene $\mu g/L$ 5 2.5 1 0.36 < MDL 1.2-Dichloroethylene (vinylidene chloride) $\mu g/L$ 5 2.5 0.33 < MDL | 1,2-Dichlorobenzene | μg/L | 200 | 100 | | 0.41 <mdl< td=""></mdl<> | |
| 1,2-Dichloroethane $\mu g/L$ 5 2.5 0.35 < MDL 11-Dichloromethylene (vinylidene chloride) $\mu g/L$ 50 25 0.33 < MDL | 1,4-Dichlorobenzene | μg/L | 5 | 2.5 | 1 | 0.36 <mdl< td=""></mdl<> | |
| 1,1-Dichloroethylene (vinylidene chloride) $\mu g/L$ 14 7 0.33 < MDL 2,4-Dichlorophenol $\mu g/L$ 900 450 0.3 0.15 < MDL | 1,2-Dichloroethane | µg/L | 5 | 2.5 | | 0.35 <mdl< td=""></mdl<> | |
| Dichloromethane $\mu g/L$ 50 25 0.38 < MDL 2.4 -Dichlorophenol $\mu g/L$ 90 4.55 0.30 < MDL | <dl< td=""> Diguat $u g/L$ 70 35 1 < MDL</dl<> | 1,1-Dichloroethylene (vinylidene chloride) | μg/L | 14 | 7 | | 0.33 <mdl< td=""></mdl<> |
| 2,4-Dichlotophenol µg/L 900 450 0.3 0.18 < MOL Dindehoate µg/L 9 4.5 0.40 < MDL | Dichloromethane | μg/L | 50 | 25 | 0.0 | 0.35 <mdl< td=""></mdl<> | |
| Distribution $\mu g/L$ 3 4.3 0.40 still L Dimethoate $\mu g/L$ 20 10 0.66 stMDL Diquat ug/L 70 36 1 stMDL Diron $\mu g/L$ 1.65 -08 O.63 stMDL Ethylbenzene ug/L 140 70 1.6 0.33 stMDL Fluoride mg/L 1.5 0.75 0.54 Glyphosate Lead mg/L 0.08 0.04 - - Lead mg/L 10 5 < 0.01 | 2,4-Dichlorophenol | <u>μg/L</u> | 900 | 450 | 0.3 | 0.15 <mdl< td=""></mdl<> | |
| Diskin and Furan $\mu g/L$ 1.5E-08 | Direction Dimethoate | <u>μg/L</u> | 20 | 4.5 | | 0.40 <mdl< td=""></mdl<> | |
| Diquat $\mu g/L$ 70 35 1 < MDL Diuron $\mu g/L$ 0.03 < MDL | Dioxin and Furan | mg/L | 1.5E-08 | 10 | | <pre>close </pre> | |
| Diuron $\mu g/L$ 0.03 <mdl< th=""> Ethylbenzene ug/L 140 70 1.6 0.33 <mdl< td=""> Ethylbenzene ug/L 180 75 0.54 Glyphosate ug/L 280 140 1 <mdl< td=""> Haloacetic acids mg/L 10 5 < 0.01</mdl<></mdl<></mdl<> | Diquat | ug/L | 70 | 35 | | 1 <mdl< td=""></mdl<> | |
| Ethylbenzene ug/L 140 70 1.6 0.33 <mdl< th=""> Fluoride mg/L 1.5 0.75 0.54 Glyphosate ug/L 280 140 1 <mdl< td=""> Haloacetic acids mg/L 0.08 0.04 - Lead µg/L 10 5 < 0.01</mdl<></mdl<> | Diuron | μg/L | | | | 0.03 <mdl< td=""></mdl<> | |
| Fluoride mg/L 1.5 0.75 0.54 Glyphosate ug/L 280 140 1 <mdl< td=""> Haloacetic acids mg/L 0.08 0.04 - Lead µg/L 10 5 < 0.01</mdl<> | Ethylbenzene | ug/L | 140 | 70 | 1.6 | 0.33 <mdl< td=""></mdl<> | |
| Glyphosate ug/L 280 140 1 <mdl< th=""> Haloacetic acids mg/L 0.08 0.04 - Lead µg/L 10 5 < 0.01</mdl<> | Fluoride | mg/L | 1.5 | 0.75 | | 0.54 | |
| Haloacetic acids mg/L 0.08 0.04 - Lead $\mu g/L$ 10 5 < < 0.01 | Glyphosate | ug/L | 280 | 140 | | 1 <mdl< td=""></mdl<> | |
| Lead µg/L 10 5 < < 0.01 Malathion µg/L 190 95 0.02 < MDL | Haloacetic acids | mg/L | 0.08 | 0.04 | | - | |
| Markunan pg/L 130 30 0.02 kMbL Wercury µg/L 1 0.5 < 0.01 | Leau Malathion | | 190 | 95 95 | | < 0.01 | |
| A-dichlorophenoxyacetic acid (2,4-D) $\mu g/L$ 0.10 0.10 AIDL Metolachlor $\mu g/L$ 50 25 0.01 < MDL | Mercury | <u>µg/L</u> ug/l | 130 | 0.5 | | < 0.02 < NIDL | |
| Metolachlor $\mu g/L$ 50 25 0.01 < MDL Metribuzin $\mu g/L$ 80 40 0.02 < MDL | 2,4-dichlorophenoxyacetic acid (2,4-D) | μg/L | | 0.0 | | 0.19 <mdl< td=""></mdl<> | |
| Metribuzin $\mu g/L$ 80 40 0.02 < MDL Microcystin (Quantitative) ug/L 1.5 0.1 < MDL | Metolachlor | µg/L | 50 | 25 | | 0.01 <mdl< td=""></mdl<> | |
| Microcystin (Quantitative) ug/L 1.5 0.1 < MDL Monochlorobenzene $\mu g/L$ 80 40 30 0.3 < MDL | Metribuzin | μg/L | 80 | 40 | | 0.02 <mdl< td=""></mdl<> | |
| Monochlorobenzene $\mu g/L$ 80 40 30 0.3 <mdl< th=""> Nitrate (as N) as N mg/L 10 5 0.006 <mdl< td=""> Nitrite (as N) as N mg/L 1 0.5 0.003 <mdl< td=""> Nitrite (as N) mg/L 0.4 0.2 0.03 <mdl< td=""> Nitritosodimethylamine (NDMA) ug/L 0.000009 <dl< td=""> Paraquat ug/L 10 5 1 <mdl< td=""> Pentachlorophenol µg/L 60 30 30 0.15 <mdl< td=""> Phorate µg/L 190 95 1 <mdl< td=""> Ploychlorinated Biphenyls (PCBs) - Total µg/L 3 1.5 0.04 <mdl< td=""> Prometryne µg/L 10 5 <0.04 <mdl< td=""> Simazine 0.03 <mdl< td=""> Simazine µg/L 10 5 <0.04 <mdl< td=""> 2.3,4,6-Tetrachlorophenol µg/L 1 0.5 <0.01 <mdl< td=""> Trialate µg/L 100 50 1 0.20 <mdl< td=""> Trichoroethylene µg/L 5 2.5</mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></dl<></mdl<></mdl<></mdl<></mdl<> | Microcystin (Quantitative) | ug/L | 1.5 | | | 0.1 <mdl< td=""></mdl<> | |
| Nitrate (as N) as N mg/L 10 5 0.006 <mdl< th=""> Nitrite (as N) as N mg/L 1 0.5 0.003 <mdl< td=""> Nitrilotriacetic Acid (NTA) mg/L 0.4 0.2 0.03 <mdl< td=""> N-Nitrosodimethylamine (NDMA) ug/L 10 5 1 <mdl< td=""> Paraquat ug/L 10 5 1 <mdl< td=""> Pentachlorophenol µg/L 60 30 30 0.15 <mdl< td=""> Phorate µg/L 2 1 0.01 <mdl< td=""> MDL Picloram µg/L 190 95 1 <mdl< td=""> Polychlorinated Biphenyls (PCBs) - Total µg/L 3 1.5 0.04 <mdl< td=""> Prometryne µg/L 1 0.5 0.03 <mdl< td=""> Simazine 0.01 <mdl< td=""> Terbufos µg/L 10 5 0.01 <mdl< td=""> 0.35 <mdl< td=""> 2,3,4,6-Tetrachlorophenol µg/L 100 50 1 0.20 <mdl< td=""> Triallate µg/L 20 110 0.36 <mdl< td=""> 0.1 <mdl< td=""> Trichlorophenol<td>Monochlorobenzene</td><td>µg/L</td><td>80</td><td>40</td><td>30</td><td>0.3 <mdl< td=""></mdl<></td></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<> | Monochlorobenzene | µg/L | 80 | 40 | 30 | 0.3 <mdl< td=""></mdl<> | |
| Nitrile (as N) as N mg/L 1 0.5 0.003 Nitrilotriacetic Acid (NTA) mg/L 0.4 0.2 0.03 MDL N-Nitrosodimethylamine (NDMA) ug/L 0.000009 <dl< td=""> Paraquat ug/L 10 5 1 1 Pentachlorophenol µg/L 60 30 30 0.15 MDL Phorate µg/L 190 95 1 <<mdl< td=""> Pictoram µg/L 10 5 0.04 Polychlorinated Biphenyls (PCBs) - Total µg/L 1 0.5 0.03 Prometryne µg/L 1 0.5 0.03 Selenium µg/L 10 5 0.01</mdl<></dl<> | Nitrate (as N) | as N mg/L | 10 | 5 | | 0.006 <mdl< td=""></mdl<> | |
| Number of the second system Imple 0.4 0.2 0.03 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.01 MDL Pentachlorophenol µg/L 10 5 1 MDL Pentachlorophenol µg/L 10 5 1 MDL Pentachlorophenol µg/L 10 5 1 MDL Phorate µg/L 190 95 1 MDL Pictoram µg/L 1 0.5 0.01 MDL Prometryne µg/L 1 0.5 0.03 MDL Selenium µg/L 10 5 0.01 MDL Selenium µg/L 10 5 0.01 MDL Selenium µg/L 10.5 0.01 MDL Terbufos µg/L 10 5 0.01 MDL 2,3,4,6-Tetrachlorophenol | NITITE (as N) | as N mg/L | 1 | 0.5 | | 0.003 <mdl< td=""></mdl<> | |
| Initial Image: Lemme (normal) | N-Nitrosodimethylamine (NDMA) | | 0.4 | 0.2 | | | |
| Pentachlorophenol $\mu g/L$ 6030300.15 < MDLPhorate $\mu g/L$ 210.01 < MDL | Paraquat | ug/L | 10 | 5 | | 1 <mdl< td=""></mdl<> | |
| Phorate $\mu g/L$ 21 $0.01 < MDL$ Picloram $\mu g/L$ 190 95 $1 < MDL$ Polychlorinated Biphenyls (PCBs) - Total $\mu g/L$ 3 1.5 $0.04 < MDL$ Prometryne $\mu g/L$ 1 0.5 $0.03 < MDL$ Selenium $\mu g/L$ 50 25 < 0.04 Simazine $\mu g/L$ 10 5 $0.01 < MDL$ Terbufos $\mu g/L$ 10 5 $0.01 < MDL$ Tetrachloroethylene (perchloroethylene) $\mu g/L$ 1 0.5 $2,3,4,6$ -Tetrachlorophenol $\mu g/L$ 100 50 1 $2,3,4,6$ -Tetrachlorophenol $\mu g/L$ 60 30 24 $2,3,4,6$ -Tetrachlorophenol $\mu g/L$ 52.5 $0.44 < MDL$ Triallate $\mu g/L$ 52.5 $0.44 < MDL$ $2,4,6$ -Trichlorophenol $\mu g/L$ 5 2.5 $0.44 < MDL$ Trifluralin $\mu g/L$ 5 2.5 $0.25 < MDL$ Trifluralin $\mu g/L$ $100 $ $0.37 < MDL$ Uranium $\mu g/L$ $100 $ $0.37 < MDL$ Uranium $\mu g/L$ $10 $ 0.245 Vinyl Chloride $\mu g/L$ 1 0.5 $0.17 < MDL$ Xylene (total) $u g/L$ 90 45 20 $0.43 < MDL$ | Pentachlorophenol | μg/L | 60 | 30 | 30 | 0.15 <mdl< td=""></mdl<> | |
| Picloram $\mu g/L$ 190951 <mdl< th="">Polychlorinated Biphenyls (PCBs) - Total$\mu g/L$31.50.04 <mdl< td="">Prometryne$\mu g/L$10.50.03 <mdl< td="">Selenium$\mu g/L$5025< 0.04</mdl<></mdl<></mdl<> | Phorate | μ <u>g</u> /L | 2 | 1 | | 0.01 <mdl< td=""></mdl<> | |
| Polychlorinated Biphenyls (PCBs) - Total $\mu g/L$ 3 1.5 0.04 < MDL Prometryne $\mu g/L$ 1 0.5 0.03 < MDL | Picloram | µg/L | 190 | 95 | | 1 <mdl< td=""></mdl<> | |
| Prometryne $\mu g/L$ 1 0.5 0.03 < MDL Selenium $\mu g/L$ 50 25 < 0.04 | Polychlorinated Biphenyls (PCBs) - Total | µg/L | 3 | 1.5 | | 0.04 <mdl< td=""></mdl<> | |
| Selenium $\mu g/L$ 50 25 < 0.04 Simazine $\mu g/L$ 10 5 0.01 < MDL | Prometryne | µg/L | 1 | 0.5 | | 0.03 <mdl< td=""></mdl<> | |
| Simazine $\mu g/L$ 105 $0.01 < MDL$ Terbufos $\mu g/L$ 10.50.01 < MDL | Selenium | µg/L | 50 | 25 | | | |
| Image: Head of S Hg/L I 0.3 0.01 < MDL Tetrachloroethylene (perchloroethylene) Hg/L 0.35 < MDL | | µg/L | 10 | | | | |
| Pointpg/L0.05 kmpl2,3,4,6-Tetrachlorophenol $\mu g/L$ 1005010.20 <mdl< td="">Tolueneug/L6030240.36 <mdl< td="">Triallate$\mu g/L$2301150.01 <mdl< td="">Trichloroethylene$\mu g/L$52.50.44 <mdl< td="">2,4,6-Trichlorophenol$\mu g/L$52.520.25 <mdl< td="">Trifluralin$\mu g/L$52.520.02 <mdl< td="">Trihalomethanes (total)$\mu g/L$100 (RAA)500.37 <mdl< td="">Uranium$\mu g/L$20100.245Vinyl Chloride$\mu g/L$10.50.17 <mdl< td="">Xylene (total)$u g/L$9045200.43 <mdl< td=""></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<> | Tetrachloroethylene (perchloroethylene) | μg/L μα/l | I | 0.0 | | | |
| Tolueneug/L6030240.36 < MDLTriallate $\mu g/L$ 2301150.01 < MDL | 2.3.4.6-Tetrachlorophenol | <u>на/г</u> | 100 | 50 | 1 | 0.20 <mdi< td=""></mdi<> | |
| Triallate $\mu g/L$ 2301150.01 < MDLTrichloroethylene $\mu g/L$ 52.50.44 < MDL | Toluene | | 60 | 30 | | 0.36 <mdl< td=""></mdl<> | |
| Trichloroethylene $\mu g/L$ 52.50.44 <mdl< th="">2,4,6-Trichlorophenol$\mu g/L$52.520.25 <mdl< td="">Trifluralin$\mu g/L$0.02 <mdl< td="">0.02 <mdl< td="">Trihalomethanes (total)$\mu g/L$100 (RAA)500.37 <mdl< td="">Uranium$\mu g/L$20100.245Vinyl Chloride$\mu g/L$10.50.17 <mdl< td="">Xylene (total)$u g/L$9045200.43 <mdl< td=""></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<> | Triallate | μg/L | 230 | 115 | | 0.01 <mdl< td=""></mdl<> | |
| 2,4,6-Trichlorophenol µg/L 5 2.5 2 0.25 <mdl< th=""> Trifluralin µg/L 0.02 <mdl< td=""> 0.02 <mdl< td=""> 0.02 <mdl< td=""> Trihalomethanes (total) µg/L 100 (RAA) 50 0.37 <mdl< td=""> Uranium µg/L 20 10 0.245 Vinyl Chloride µg/L 1 0.5 0.17 <mdl< td=""> Xylene (total) ug/L 90 45 20 0.43 <mdl< td=""></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<></mdl<> | Trichloroethylene | μ <u>g</u> /L | 5 | 2.5 | | 0.44 <mdl< td=""></mdl<> | |
| Trifluralin μg/L 0.02 <mdl< th=""> Trihalomethanes (total) μg/L 100 (RAA) 50 0.37 <mdl< td=""> Uranium μg/L 20 10 0.245 Vinyl Chloride μg/L 1 0.5 0.17 <mdl< td=""> Xylene (total) ug/L 90 45 20 0.43 <mdl< td=""></mdl<></mdl<></mdl<></mdl<> | 2,4,6-Trichlorophenol | µg/L | 5 | 2.5 | 2 | 0.25 <mdl< td=""></mdl<> | |
| Trihalomethanes (total) μg/L 100 (RAA) 50 0.37 <mdl< th=""> Uranium μg/L 20 10 0.245 Vinyl Chloride μg/L 1 0.5 0.17 <mdl< td=""> Xylene (total) ug/L 90 45 20 0.43 <mdl< td=""></mdl<></mdl<></mdl<> | Trifluralin | µg/L | | | | 0.02 <mdl< td=""></mdl<> | |
| Uranium µg/L 20 10 0.245 Vinyl Chloride µg/L 1 0.5 0.17 < MDL | Trihalomethanes (total) | µg/L | 100 (RAA) | 50 | | 0.37 <mdl< td=""></mdl<> | |
| vinyi Chioride $\mu g/L$ 10.50.17 < MDLXylene (total)ug/L9045200.43 < MDL | Uranium | µg/L | 20 | | | 0.245 | |
| Ayrene (roral) Uy/L 90 40 20 0.43 <mdl< td=""><td>vinyi Unioriae</td><td>µg/L</td><td>1</td><td>0.5</td><td>20</td><td>0.17 <mdl< td=""></mdl<></td></mdl<> | vinyi Unioriae | µg/L | 1 | 0.5 | 20 | 0.17 <mdl< td=""></mdl<> | |
| | MDL - Method detection limit | | U 3U | 45 Active / Oper | ∠∪ ation Guido | U.43 <ividl< td=""></ividl<> | |

DL - detection limit

MAC - Maximum Acceptable Concentration

Ontario Drinking Water Quality Standards Summary TW1-21

| Analysis | Units | MAC | Half MAC | AO/OG | TW1-21 23-Jun-22 11:00 | | |
|---|---------|------|----------|---------|------------------------------|--|--|
| SCHEDULE 3 - Radionuclide (Pre-Scan | Onlv) | nlv) | | | | | |
| Gross Alpha ⁽¹⁾ | Ba/L | | | | < 0.11 | | |
| Gross Beta ⁽²⁾ | Ba/l | | | | < 0.1 | | |
| Tritium | Ba/L | | | | < 100 | | |
| Chemical/Physical Objectives and Guide | lines | | | | | | |
| 1.2-Dichlorobenzene | ug/L | 200 | 100 | | 0.41 <mdl< td=""></mdl<> | | |
| 1.4-Dichlorobenzene | ua/L | 5 | 2.5 | 1 | 0.36 <mdl< td=""></mdl<> | | |
| 2,4-Dichlorophenol | µg/L | 900 | 450 | 0.3 | 0.15 <mdl< td=""></mdl<> | | |
| 2,3,4,6-Tetrachlorophenol | µg/L | 100 | 50 | 1 | 0.20 <mdl< td=""></mdl<> | | |
| 2,4,6-Trichlorophenol | µg/L | 5 | 2.5 | 2 | 0.25 <mdl< td=""></mdl<> | | |
| 2,4,5-trichlorophenoxyacetic acid (2,4,5-T) | µg/L | | | | 0.22 <mdl< td=""></mdl<> | | |
| Alkalinity (as CaCO3) | mg/L | | | 30-500 | 197 | | |
| Aluminum | µg/L | | | 100 | < 1 | | |
| Chloride | mg/L | | | 250 | 1.2 | | |
| Colour | TCU | | | 5 | < 3 | | |
| Copper | µg/L | | | 1000 | < 0.2 | | |
| Dissolved Organic Carbon | mg/L | | | 5 | 1 | | |
| Ethylbenzene | ug/L | 140 | 70 | 1.6 | 0.33 <mdl< td=""></mdl<> | | |
| Hardness (as CaCO3) | mg/L | | | 80-100 | 148 | | |
| Iron | ug/L | | | 300 | 146 | | |
| Manganese | µg/L | | | 50 | 14.6 | | |
| Methane | L/m3 | | | 3 | 0.06 | | |
| Monochlorobenzene | µg/L | 80 | 40 | 30 | 0.3 <mdl< td=""></mdl<> | | |
| Organic Nitrogen | mg/L | | | 0.15 | 0.08 | | |
| рН | No unit | | | 6.5-8.5 | 8.05 | | |
| Pentachlorophenol | μg/L | 60 | 30 | 30 | 0.15 <mdl< td=""></mdl<> | | |
| Sodium | mg/L | 20 | | 200 | 22.4 | | |
| Sulphate | mg/L | | | 500 | 6 | | |
| Sulphide | µg/L | | | 50 | < 6 | | |
| Toluene | ug/L | 60 | 30 | 24 | 0.36 <mdl< td=""></mdl<> | | |
| Total Dissolved Solids | mg/L | | | 500 | 203 | | |
| Turbidity | NTU | 1 | 0.5 | 5 | 0.89 | | |
| Xylene (total) | ug/L | 90 | 45 | 20 | 0.43 <mdl< td=""></mdl<> | | |
| Zinc | µg/L | | | 5000 | < 2 | | |

MDL - Method detection limit DL - detection limit AO/OG -Aesthetic Objective / Operation Guidelines MAC - Maximum Acceptable Concentration

Arthur Test Well Long Term Pumping Test



Arthur Test Well Long Term Pumping Test Water Quality Trends



R.J. Burnside & Associates Limited Date: 8/26/2022 File: Summary.xlsx

Arthur Test Well Long Term Pumping Test Deep Overburden Monitoring Well Water Quality

| Samp | 8590 CR14 | | | | |
|-------------------------------------|---------------|-------|-----------|------------|------------|
| Sample D | ato / Timo | | 17-Jun-22 | 23-Jun-22 | |
| Sample Da | ate / Time | | | 10:00 | 08:55 |
| Analysis | Units | MAC | AO/OG | | |
| Alkalinity | mg/L as CaCO3 | | 30-500 | 190 | 191 |
| Bicarbonate | mg/L as CaCO3 | | | 189 | 191 |
| Carbonate | mg/L as CaCO3 | | | 2 | < 2 |
| ОН | mg/L as CaCO3 | | | < 2 | < 2 |
| Colour | TCU | | 5 | 5 | 4 |
| Conductivity | uS/cm | | | 373 | 365 |
| рН | No unit | | 6.5-8.5 | 8.28 | 8.26 |
| Turbidity | NTU | 1 | 5 | 6.53 | 7.76 |
| Ammonia+Ammonium (N) | as N mg/L | | | 0.45 | 0.2 |
| Phosphorus (total reactive) | mg/L | | | < 0.03 | < 0.03 |
| Total Organic Carbon | mg/L | | | 4 | 1 |
| Chloride | mg/L | | 250 | 6.5 | 4.7 |
| Fluoride | mg/L | 1.5 | | 0.56 | 0.6 |
| Bromide | mg/L | | | <0.05 | < 0.3 |
| Nitrite (as N) | as N mg/L | 1 | | <0.03 | < 0.03 |
| Nitrate (as N) | as N mg/L | 10 | | 0.161 | < 0.06 |
| Sulphate | mg/L | | 500 | 3.8 | 3.4 |
| Mercury (total) | mg/L | 0.001 | | 0.00004 | 0.00001 |
| Hardness | mg/L as CaCO3 | | 80-100 | 112 | 109 |
| Aluminum (total) | mg/L | | 0.1 | 0.207 | < 0.001 |
| Arsenic (total) | mg/L | 0.01 | | 0.0042 | 0.0038 |
| Boron (total) | mg/L | 5 | | 0.137 | 0.135 |
| Barium (total) | mg/L | 2 | | 0.0331 | 0.0308 |
| Bervllium (total) | ma/L | | | 0.000018 | < 0.000007 |
| Cobalt (total) | ma/L | | | 0.000134 | 0.000031 |
| Calcium (total) | ma/L | | | 23.7 | 24.1 |
| Cadmium (total) | ma/L | 0.005 | | 0.000172 | 0.000005 |
| Copper (total) | ma/L | | 1 | 0.137 | 0.0002 |
| Chromium (total) | ma/L | 0.05 | | 0.0003 | 0.00011 |
| Iron (total) | mg/L | | 0.3 | 0.994 | 0.671 |
| Potassium (total) | mg/L | | | 1.07 | 0.7 |
| Magnesium (total) | mg/L | | | 12.8 | 11.9 |
| Manganese (total) | mg/L | | 0.05 | 0.042 | 0.0413 |
| Molvbdenum (total) | mg/L | | | 0.00647 | 0.00825 |
| Nickel (total) | mg/L | | | 0.0032 | < 0.0001 |
| Sodium (total) | mg/l | 20* | 200 | 50.2 | 42.5 |
| Phosphorus (total) | mg/L | | | 0.032 | 0.011 |
| Lead (total) | mg/L | 0.01 | | 0.0376 | < 0.00009 |
| Silicon (total) | mg/L | 0.01 | | 5 123 | 6 14 |
| Silver (total) | mg/L | | | <0.00005 | < 0.00005 |
| Strontium (total) | mg/L | | | 0.304 | 0.311 |
| Thallium (total) | mg/L | | | < 0.000005 | < 0.000005 |
| Tin (total) | mg/L | | | 0.00045 | 0.00117 |
| Titanium (total) | mg/L | | | 0.00371 | 0.00006 |
| Antimony (total) | mg/L | 0.006 | | < 0.0006 | < 0.00000 |
| Selenium (total) | mg/L | 0.05 | | 0.00005 | < 0.00004 |
| Uranium (total) | mg/l | 0.02 | | 0.000454 | 0.000263 |
| Vanadium (total) | mg/L | 0.02 | | 0.00009 | 0.0000200 |
| Zinc (total) | mg/l | | 5 | 0.313 | 0.005 |
| | med/l | | | 4 54 | <u> </u> |
| Anion Sum | meg/L | | | 4.09 | 4.05 |
| Anion-Cation Balance | % difference | | | 5.08 | 0.71 |
| Ion Ratio | | | | 1 11 | 1.01 |
| Total Dissolved Solids (calculated) | ma/l | | | 212 | 203 |
| Conductivity (calculated) | uS/cm | | | 213 /22 | 203 |
| Langeliers Index /° C | | | | 402 | -0.01 |
| Saturation nH /°C | | | | | -0.01 |
| | | | | | 0.27 |

ODWQS - Ontario Drinking Water Quality Standards

MAC - Maximum acceptable concentration AO/OG - Aesthetic objectives/Operational Guidelines Bold indicates an exceedence of the ODWQS

Arthur Test Well Long Term Pumping Test Shallow Monitoring Well Water Quality

| Samp | MW3 | | | | |
|-------------------------------------|---------------|-------|---------|------------|------------|
| Samplo D | ato / Timo | | | 18-Jun-22 | 24-Jun-22 |
| | | | | 08:30 | 7:15 |
| Analysis | Units | MAC | AO/OG | | |
| Alkalinity | mg/L as CaCO3 | | 30-500 | 138 | 128 |
| Bicarbonate | mg/L as CaCO3 | | | 138 | 128 |
| Carbonate | mg/L as CaCO3 | | | < 2 | < 2 |
| ОН | mg/L as CaCO3 | | | < 2 | < 2 |
| Colour | TCU | | 5 | 13 | 8 |
| Conductivity | uS/cm | | | 672 | 671 |
| рН | No unit | | 6.5-8.5 | 8.10 | 8.05 |
| Turbidity | NTU | 1 | 5 | | 0.28 |
| Ammonia+Ammonium (N) | as N mg/L | | | 0.3 | 0.3 |
| Phosphorus (total reactive) | mg/L | | | < 0.03 | < 0.03 |
| Total Organic Carbon | mg/L | | | 4 | 3 |
| Chloride | mg/L | | 250 | 110 | 100 |
| Fluoride | mg/L | 1.5 | | 0.31 | 0.27 |
| Bromide | mg/L | | | < 0.3 | < 0.3 |
| Nitrite (as N) | as N mg/L | 1 | | < 0.03 | < 0.03 |
| Nitrate (as N) | as N mg/L | 10 | | < 0.06 | < 0.06 |
| Sulphate | mg/L | | 500 | 34 | 54 |
| Mercury (total) | mg/L | 0.001 | | < 0.00001 | < 0.00001 |
| Hardness | mg/L as CaCO3 | | 80-100 | 168 | 165 |
| Aluminum (dissolved) | mg/L | | 0.1 | 0.005 | 0.018 |
| Arsenic (dissolved) | mg/L | 0.01 | | 0.0017 | 0.0021 |
| Boron (dissolved) | mg/L | 5 | | 0.144 | 0.175 |
| Barium (dissolved) | mg/L | 2.00 | | 0.0494 | 0.0452 |
| Beryllium (dissolved) | mg/L | | | < 0.000007 | 0.000007 |
| Cobalt (dissolved) | mg/L | | | 0.000156 | 0.000292 |
| Calcium (dissolved) | mg/L | | | 37.9 | 36.0 |
| Cadmium (dissolved) | mg/L | 0.005 | | 0.00007 | 0.000034 |
| Copper (dissolved) | mg/L | | 1 | 0.0002 | 0.0011 |
| Chromium (dissolved) | mg/L | 0.05 | | 0.00012 | 0.00058 |
| Iron (dissolved) | mg/L | | 0.3 | 0.012 | 0.099 |
| Potassium (dissolved) | mg/L | | | 1.670 | 1.820 |
| Magnesium (dissolved) | mg/L | | | 17.9 | 18.1 |
| Manganese (dissolved) | mg/L | | 0.05 | 0.0080 | 0.0158 |
| Molybdenum (dissolved) | mg/L | | | 0.16500 | 0.05870 |
| Nickel (dissolved) | mg/L | | | 0.0013 | 0.005 |
| Sodium (dissolved) | mg/L | 20* | 200 | 60.1 | 59.9 |
| Phosphorus (dissolved) | mg/L | | | < 0.003 | 0.007 |
| Lead (dissolved) | mg/L | 0.01 | | < 0.00009 | < 0.00009 |
| Silicon (dissolved) | mg/L | | | 2.47 | 3.44 |
| Silver (dissolved) | mg/L | | | < 0.00005 | < 0.00005 |
| Strontium (dissolved) | mg/L | | | 1.630 | 1.530 |
| Thallium (dissolved) | mg/L | | | < 0.000005 | < 0.000005 |
| Tin (dissolved) | mg/L | | | 0.00012 | 0.00015 |
| Titanium (dissolved) | mg/L | | | 0.0001 | 0.00042 |
| Antimony (dissolved) | mg/L | 0.006 | | 0.0042 | 0.0015 |
| Selenium (dissolved) | mg/L | 0.05 | | 0.00083 | 0.00171 |
| Uranium (dissolved) | mg/L | 0.02 | | 0.024500 | 0.010700 |
| Vanadium (dissolved) | mg/L | | | 0.00107 | 0.00075 |
| Zinc (dissolved) | mg/L | | 5 | < 0.002 | 0.002 |
| Cation sum | meq/L | | | 6.08 | 6.00 |
| Anion Sum | meq/L | | | 6.66 | 6.57 |
| Anion-Cation Balance | % difference | | | -4.55 | -4.52 |
| Ion Ratio | | | | 0.91 | 0.91 |
| Total Dissolved Solids (calculated) | mg/L | | | 348 | 349 |
| Conductivity (calculated) | uS/cm | | | 637 | 628 |
| Langeliers Index 4° C | @ 4° C | | | -0.14 | -0.25 |
| Saturation pH 4°C | pHs @ 4°C | | | 8.24 | 8.30 |

ODWQS - Ontario Drinking Water Quality Standards

MAC - Maximum acceptable concentration AO/OG - Aesthetic objectives/Operational Guidelines

Bold indicates an exceedence of the ODWQS

*Sodium over 20 mg/L is required to be reported to Public Health

Arthur Test Well Long Term Pumping Test Surface Water Quality

| Sample ID | | Creek at SG1 | | | |
|-------------------------------------|---------------|------------------------------|-----------------|--|--|
| | | 18-Jun-22 | 23-Jun-22 | | |
| Sample Date / Time | | 08:00 | 11:30 | | |
| Analysis | Units | | | | |
| Alkalinity | mg/L as CaCO3 | 319 | 331 | | |
| Bicarbonate | mg/L as CaCO3 | 319 | 324 | | |
| Carbonate | mg/L as CaCO3 | < 2 | 7 | | |
| ОН | mg/L as CaCO3 | < 2 | < 2 | | |
| Colour | TCU | 24 | 20 | | |
| Conductivity | uS/cm | 798 | 765 | | |
| pH | No unit | 8.12 | 8.34 | | |
| - Ammonia+Ammonium (N) | as N mg/L | < 0.1 | < 0.1 | | |
| Phosphorus (total reactive) | mg/L | 0.08 | 0.22 | | |
| Total Organic Carbon | mg/L | 4 | 4 | | |
| Chloride | mg/L | 42 | 47 | | |
| Fluoride | mg/L | 0.07 | 0.1 | | |
| Bromide | mg/L | < 0.3 | < 0.3 | | |
| Nitrite (as N) | as N mg/L | 0.24 | 0.2 | | |
| Nitrate (as N) | as N mg/L | 9.89 | 4.56 | | |
| Sulphate | mg/L | 15 | 14 | | |
| Mercury (total) | mg/L | 0.00004 | < 0.00001 | | |
| Hardness | mg/L as CaCO3 | 382 | 395 | | |
| Aluminum (total) | mg/L | 0.002 | 0.063 | | |
| Arsenic (total) | mg/L | 0.0008 | 0.0009 | | |
| Boron (total) | mg/L | 0.015 | 0.028 | | |
| Barium (total) | mg/L | 0.0302 | 0.0329 | | |
| Beryllium (total) | mg/L | < 0.000007 | 0.000008 | | |
| Cobalt (total) | mg/L | 0.000123 | 0.000168 | | |
| Calcium (total) | mg/L | 100 | 102 | | |
| Cadmium (total) | mg/L | 0.000004 | 0.000012 | | |
| Copper (total) | mg/L | 0.0028 | 0.002 | | |
| Chromium (total) | mg/L | 0.00014 | 0.00017 | | |
| Iron (total) | mg/L | 0.010 | 0.102 | | |
| Potassium (total) | mg/L | 1.57 | 2.58 | | |
| Magnesium (total) | mg/L | 32.0 | 33.9 | | |
| Manganese (total) | mg/L | 0.00318 | 0.00506 | | |
| Molybdenum (total) | mg/L | 0.00042 | 0.00045 | | |
| Nickel (total) | mg/L | 0.0006 | < 0.0001 | | |
| Sodium (total) | mg/L | 18.2 | 21.7 | | |
| Phosphorus (total) | mg/L | 0.106 | 0.322 | | |
| Lead (total) | mg/L | 0.00010 | 0.00015 | | |
| Silicon (total) | mg/L | 1.53 | 3.1 | | |
| Silver (total) | mg/L | < 0.00005 | < 0.00005 | | |
| | mg/L | 0.229 | 0.223 | | |
| Thallium (total) | mg/L | < 0.000005 | 0.000005 | | |
| Tin (total) | mg/L | < 0.00006 | 0.0001 | | |
| | mg/L | 0.00017 | 0.0019 | | |
| Antimony (total) | mg/L | < 0.0009 | < 0.0009 | | |
| Selenium (total) | mg/L | 0.00021 | 0.0002 | | |
| Uranium (total) | mg/L | 0.000836 | 0.000881 | | |
| | mg/L | 0.00064 | 0.00103 | | |
| Zinc (Iolal) | mg/L | 0.005 | < 0.002 0.01 | | |
| | meq/L | 0.4 <i>1</i> 8.0 <i>1</i> | 0.91 Q 21 | | |
| | % difforence | 0.04 | 2.0 | | |
| Ion Ratio | | 2.04 1 05 | 3.40 1.07 | | |
| Total Dissolved Solids (coloulated) | ma/l | /11 | 1.07 | | |
| Conductivity (calculated) | IIIY/L | 411 826 | 424 861 | | |
| Langeliers Index 4° C | | 020 | 001 | | |
| Saturation pH 4°C | pHs @ 4°C | 7.46 | 7.44 | | |
| · ··· · · · · · · | | | | | |



| | Chlorine Demand Test | | | | | | | | | |
|-----------------------------|----------------------|------------|-----------|--------------|------------|-------------------------|-----------|-----------|-----------|--|
| R BU | DNIC | DE | | Project: | | Arthur Well Exploration | | | | |
| DU DU | RNS | DE | | Ref. Number: | | 300052287.0000 | | | | |
| | | | | Client: | | Town of | Wellingto | n North | | |
| Well: TW1-21 | | Tested by | y: | J.D. | | Date: | | 23-Jun-2 | 23-Jun-22 | |
| Description: End of L | TT Test | Sampled | From: | Sampling | ј Тар | Sample 7 | Time: | 10:00 | | |
| | | | | | | | | | | |
| Test Method: Colorimeter/DI | | Reagent | : Hach DF | PD Free C | hlorine Re | eagent PP | • | | | |
| Equipment: Hach DR/890 Po | ortable Co | olorimeter | | Chlorine: | Dosing S | Solution Ar | npules (1 | 443 mg/L) |) | |
| | | | | | | | | | | |
| Sample Tested at: | Sample Tested at: | | | | | | | | | |
| рН 7.8 | | | | | | | | | | |
| Temperature (°C) 9.4 | | | | | | | | | | |
| Turbidity (NTU) 0.05 | | | | | | | | | | |
| | | | | | | | | | | |
| Bottle Number | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| Bottle Volume | mL | 531 | 531 | 531 | 531 | 531 | 531 | 531 | 531 | |
| Contact Time | minutes | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | |
| Chlorine Concentration | mg/L | 1443 | 1443 | 1443 | 1443 | 1443 | 1443 | 1443 | 1443 | |
| Added Dose | mL | 0.5 | 0.7 | 0.9 | 1.2 | 1.4 | 1.6 | 1.3 | 1.0 | |
| Initial Concentration | mg/L | 1.36 | 1.90 | 2.45 | 3.26 | 3.80 | 4.35 | 3.53 | 2.72 | |
| Residual Concentration | mg/L | 0.04 | 0.12 | 0.35 | 1.01 | 1.15 | 1.54 | 1.05 | 0.56 | |
| Chlorine Demand | mg/L | 1.32 | 1.78 | 2.10 | 2.25 | 2.65 | 2.81 | 2.48 | 2.16 | |

Result: Sample required a dose of 1.2 mg/L chlorine to get a free chlorine residual of 1.01 mg/L after 10 minutes at 9.4°C and pH 7.8.



R.J. Burnside & Associates Limited