D-5-4 Assessment
of the Armstrong Development
in the Community of Mansfield

Prepared for:
1000062217 Ontario Inc.

Prepared by:
Azimuth Environmental
Consulting, Inc.

January 2024

AEC 21-158

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Environmental Assessments & Approvals

January 31, 2024 AEC 21-158

1000062217 Ontario Inc.
12 Trotter Court
Barrie, ON
L4N 5S4

Attention: Mr. David Seaman
Project Manager

Re: D-5-4 Guideline Assessment
Proposed Housing Development (Armstong Estates)
937045 Airport Road, Mansfield, ON
Lot 11, Concession 7, Township of Mulmur, County of Dufferin

Dear Mr. Seaman:

Azimuth Environmental Consulting, Inc. (Azimuth) is pleased to submit a Ministry of the Environment, Conservation and Park's (MECP's) D-5-4 Guideline assessment for the above-noted property. This work supports a proposed Draft Plan of Subdivision located on Lot 11, Concession 7 (Mansfield), in the Township of Mulmur, County of Dufferin. This report has been compiled to address comments provided by R.J. Burnside & Associates Limited (Burnside). Burnside has been retained by the Township of Mulmur (the "Township") to provide technical review comments for environmental issues related to planning submissions on behalf of the Township. Burnside has requested that a formal D-5-4 Guideline study be completed for the proposed development site.

Based on the results of this study, it is concluded that the environmental conditions at the Site will allow for at least 71 residential dwellings to be developed in compliance with the MECP's D-5-4 Guideline document without adversely impacting viable ground water resources within this Community.

If you have any questions or require additional information, feel free to contact the undersigned.

Yours truly,
AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Jackie Coughlin, B.A.Sc., P.Eng.
Senior Environmental Engineer

David Ketcheson, M.A.Sc., P.Eng.
Senior Environmental Engineer

Attach:

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1.0 INTRODUCTION

Azimuth Environmental Consulting (Azimuth) was retained by 1000062217 Ontario Inc. (the "Client") to provide a sewage impact evaluation to support the creation of 71 new residential dwellings. The property on which the development is proposed is located at 937045 Airport Road in the Settlement of Mansfield, ON (the "Site") (Figures A and B[1]). The Site exists on Part of Lot 11, Concession 7, Township of Mulmur, County of Dufferin.

The Ministry of the Environment, Conservation and Parks (MECP) D-5-4 Guidance[2] document will be used to provide this environment assessment. The D-5-4 Guideline was designed as a guide for land use planning authorities on how to decide whether on-site sewage systems are appropriate for a new development (*i.e.*, sub-surface sewage systems). It is our understanding that the Township of Mulmur (the "Township") endorses the use of this guideline for this type of assessment.

The remainder of this report presents the background information and provides the results of our evaluation and associated conclusions and recommendations.

1.1 Background

The Site consists of a 21.5 ha parcel of land and is located in the northeast quadrant of the County Road 17 and Airport Road intersection in Mansfield (Figure B). The Site is currently being utilized for agricultural purposes and is surrounding by residential, commercial and agricultural land uses.

A small ephemeral creek segment exists within the Site (Figure B). For the purpose of this presentation, the lands to the north of the creek corridor will be called the 'North Precinct' and the lands to the south of the creek corridor will be called the 'South Precinct'.

The Armstrong property is proposed to be subdivided into a number of lots/ units. The South Precinct is planned to house 28 two-bedroom semi-detached bungalows. The North Precinct will house 43 single family detached homes. The North Precinct will also contain a parkland parcel.

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1 Some figures and drawings are contained within Appendix A

2 https://www.ontario.ca/page/d-5-4-individual-site-sewage-systems-water-quality-impact-risk-assessment

1.2 Regulatory Process

The D-5-4 Guideline lays out a three-step process. For clarity, it will be briefly overviewed below.

The first step is considered to be a minimum lot size assessment. The MECP suggests that if the development has lots which on average are greater than 1 hectare (ha) in size[3]; then there should be sufficient attenuative processes such that a formal hydrogeologic assessment is not required. The Armstrong Development has lot sizes smaller than 1 ha in size on average.

The second step addresses whether the development is "isolated". Specifically, the MECP states that where it can be demonstrated that the sewage effluent is hydrogeologically isolated from the existing or potential supply aquifer(s); then risk from the septic impacts for the development would be deemed low.

The D-5-4 Guidance document goes on to state that the consultant must "… *evaluate the most probable groundwater receiver for sewage effluent* …". The local and regional geologic setting will be presented below. The geologic setting establishes the framework for the hydrogeologic setting which is also presented. It is our opinion that there is merit for this consideration. However, it has not been presented for this evaluation.

According to the D-5-4 Guidance document "… *[w]here it cannot be demonstrated that the sewage effluent is hydrogeologically isolated from all existing or potential supply aquifers, a hydrogeologic study is required to assess the risk that the development's individual on-site systems will cause concentrations of nitrate-nitrogen in groundwater to exceed 10 mg/L, at the downgradient property boundary* …", (*i.e.,* the third step).

This assessment will provide a predictive assessment based on this third option.

2.0 GEOLOGIC SETTING

The hydrogeologic setting for the proposed development is founded on the regional geology. By establishing the geologic setting, it will be possible to assess the hydrostratigraphic units present. The regional geology of the Nottawasaga watershed has been recently studied by the Ontario Geological Survey (OGS) and summarized in published literature including Mulligan *et al.* (2018). Mulligan *et al.* (2018) in their article indicate that "… detailed sedimentological analysis of these glaciolacustrine deposits will enhance understanding of the three-dimensional (3D) distribution and

[3] Subject to several other requirements.

character of sediments within the shallow subsurface, … information that is essential for future hydrogeological investigations in the region …".

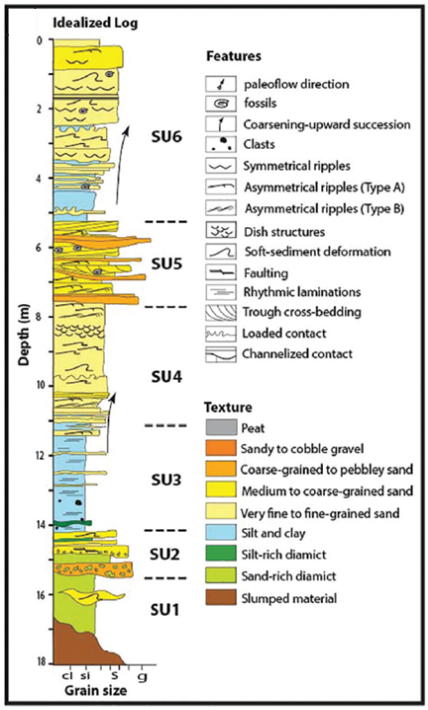
2.1 Regional Geology

2.1.1 Regional Geologic Overview

Much of the regional geology discussion will make reference to this recent OGS research initiative within the Nottawasaga River basin. However, the geologic profile beneath the Site and beyond, (as it pertains to the D-5-4 Guideline); consists of an upper sediment package overlying a regionally continuous aquitard layer called the Newmarket Till. Below this aquitard and primarily to the east of the Site are deeper sediments which provide a potable water supply for residential purposes. This deeper sediment package overlies a shale bedrock which is also extensively used for potable water supplies in Mulmur Township. The majority of the upper sediment package at the Site is unsaturated. A glaciolacustrine silt layer which lies immediately over the upper Newmarket Till is saturated; but does not provide an adequate resource for potable supply.

2.1.2 Detailed Regional Geology

According to Mulligan *et al.* (2018), "… eight stratigraphic units … represent a record of changing environmental conditions during deglaciation and exhibit strong controls on shallow groundwater flow in the region …". The stratigraphic succession presented by Mulligan *et al.* (2018) begins with the Newmarket Till as a base unit which is identified as stratigraphic unit 1 (SU1). The Newmarket Till was "… locally overlain by ice-proximal debris flow deposits (SU2). These glacial sediments are overlain by glaciolacustrine silt rhythmites (SU3) that pass upwards into deltaic sand (SU4) and channelized fluviodeltaic sand and gravel (SU5). Lying above the fluvial deposits is widespread interbedded glaciolactrine sands and silt (SU6), which coarsen up-section toward the ground surface. The succession is locally capped by glaciofluvio-deltaic (SU7) and younger fluvial (SU8) deposits …", (Mulligan *et al.*, 2018). The idealized stratigraphic log presented in Mulligan *et al.* (2018) is depicted to the left (Figure 1).

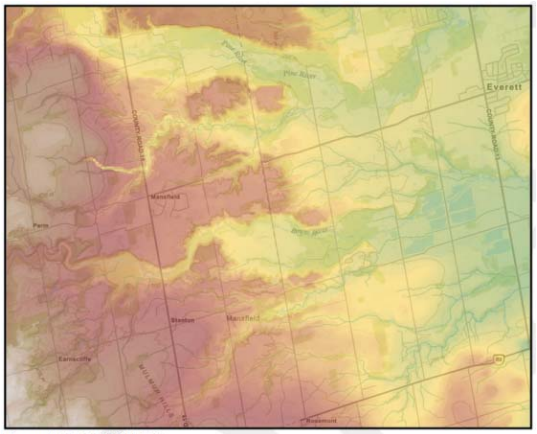


from Mulligan (2018)

Figure 1 - Idealized Borehole Log

Not all of these stratigraphic units are present in the Mansfield area. At the Site, SU1, SU3 and SU4 are present. Mansfield exists on the flank of the Niagara Escarpment and the extreme western extent of the Mulligan *et al.* (2018) study area. However, the Mulligan *et al.* (2018) paper illustrates the interpreted glacial progression over a larger scale than their identified study area which incorporates the Mansfield area.

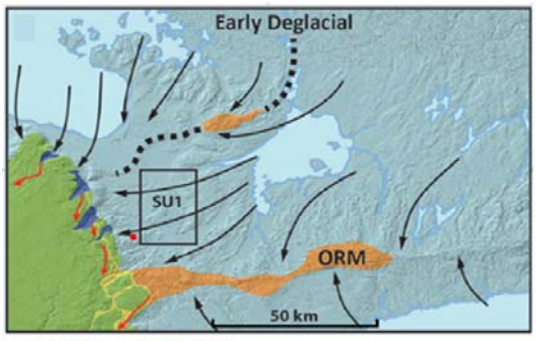
The Niagara Escarpment was created by differential erosion of thick successions of soft shales underlying more resist dolostones. The Niagara Escarpment is punctured by a series of northeast trending re-entrant valleys that were incised by fluvial and glacial erosion (Straw 1968). The Mansfield area is situated between two of these more significant features that contribute to Boyne and Pine River valleys. These incised stream corridors are evident on the digital elevation mapping (DEM) shown above (Figure 2). The on-Site stream corridor in the southern portion of the property represents one of these more minor erosional features which also can be seen in the DEM mapping.



from ORMGP (2023)
Figure 2 - Digital Elevation Map of the Mansfield Area

The main channel for the Pine River valley cuts across County Road 17 about 800 m west of the main intersection at Mansfield in a northeasterly direction and cuts across Airport Road about 500 m north of the main intersection. Thus the Site lies in close proximity to this re-entrant valley feature.

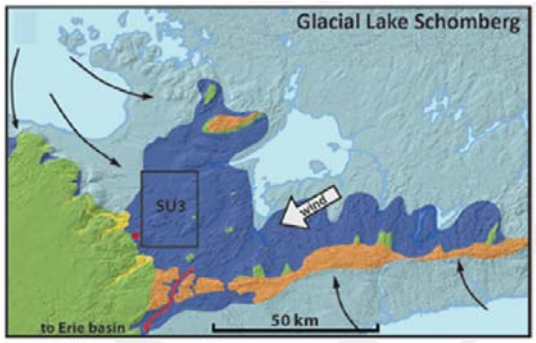
The Paleozoic bedrock surface is overlain by Quaternary sediments. These deposits across Southern Ontario are attributed primarily to the Wisconsin Episode. The early- to mid-Wisconsin Episode deposited the deeper sediment layers. During the late Wisconsin Episode, the Laurentide Ice Sheet advanced into the Mansfield area (see red dot on Figure 3) from the north and northeast and deposited the Newmarket Till. In fact, the Newmarket Till was deposited over most of Southern Ontario and measures over 60 m in thickness at some locations (Gerber, 1999).



from Mulligan et al (2018)
Figure 3 - Laurentide Ice Sheet (~16 kyrs)

During the early stages of ice recession, the margin of the Laurentide Ice Sheet thinned and became lobate (see Figure 3). Interlobate deposition allowed for thick accumulations of glaciofluvial and glaciolacustrine sediments forming the Oak Ridges Moraine (ORM) to the south of the Site between the Simcoe ice lobe and the Ontario ice lobe. However, a succession of shoreline features and associated glaciolacustrine and lacustrine deposits occurred in a series of lakes in the Nottawasaga watershed during the later phases of deglaciation.

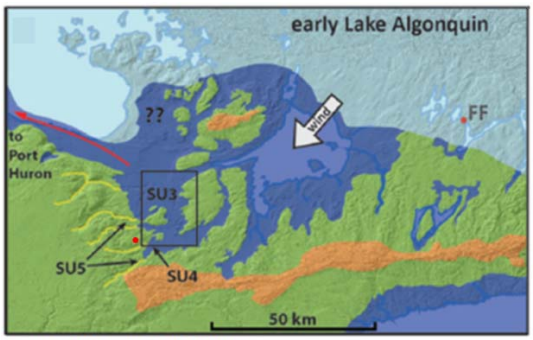
The first of these lakes to develop north of the ORM was Glacial Lake Schomberg as meltwaters were dammed between the Niagara Escarpment to the west, the Simcoe ice lobe to the north and the ORM to the south (see Figure 4). Mulligan *et al.* (2018) assert "… [t]he overall fine-grained texture of SU3 suggests a low-energy, subaqueous (glaciolacustrine) depositional environment, consistent with an ice-marginal lake …". Unit thicknesses logged along the Nottawasaga River were locally exceeding 12 m thick. The rhythmites were felt to record annual deposition cycles, although other factors were also identified. Silt and clay couplets ranged from a few millimeters up to 4 cm thick. Near the top of the SU3, coarser-grained sediments are more abundant. Mulligan *et al.* (2018) explains that the "… gradational up-section textural changes combined with the consistency of northward paleocurrent directional indicators in sands within SU3 suggest continuous sedimentation patterns, consistent with gradual ice retreat from the Nottawasaga watershed.



from Mulligan *et al* (2018)
Figure 4 - Laurentide Ice Sheet (~15.6 kyrs)

There is a gradual transition from the silt and clay rhythmites with sand interbeds of SU3 into a thick unit of rippled, cross stratified, very fine- to fine-grained sand with silt interbeds comprising SU4.

The "… [s]ubsequent retreat of the Simcoe ice lobe from the Niagara Escarpment in the north allowed waters of Lake Schomberg to partially drain and coalesce with those occupying the Lake Huron basin forming Lake Algonquin (see Figure 5). The expectation is that the Mansfield area was above the estimated ~260 metres above the mean sea level (masl) shoreline elevation for



from Mulligan et al (2018)
Figure 5 - Laurentide Ice Sheet (~15 kyrs)

the early Lake Algonquin water level. Over time this water elevation decreased to ~200 masl during the Kirkfield low; but then rebounded slowly to ~240 masl during the main Lake Algonquin period. In all cases, the reported surface water elevation of Lake Algonquin never approached the Mansfield topographic elevation.

2.2 Geologic Setting in Mansfield area

The regional geologic interpretation provides for a sound understanding of the depositional processes that have resulted in the local geologic setting. The information presented below is intended to focus on the local interpretation and reconcile the Site specific drilling information with that presented in the regional interpretation.

2.2.1 Sub-Regional Geologic Database Source

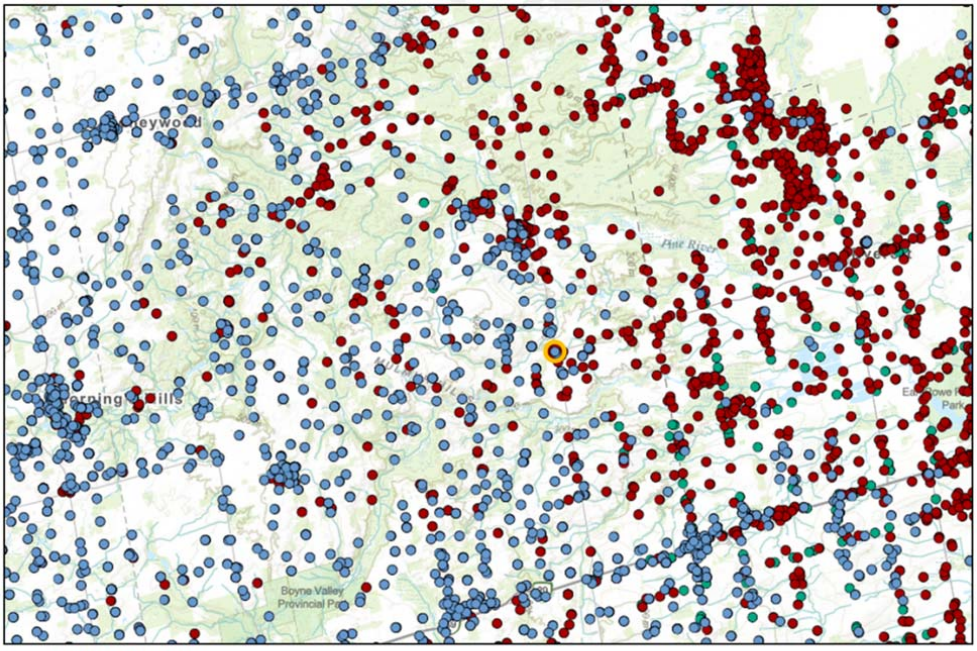
The evaluation of the Mansfield geologic setting will rely on a sub-provincial database called the Oak Ridges Moraine Groundwater Program (ORMGP, 2023). The development of this database began with a coalition of 14 government agencies in southern Ontario. More recently, consulting companies are working collaboratively to better understand and manage water resources. With the ORM as a central landscape feature, the program's database and interpretations stretch from the Halton and Nottawasaga Watersheds in the west to the Trent River in the east and reach from the shores of Lake Ontario northwards to beyond Lake Simcoe and the Kawartha Lakes.

The ORMGP has built upon an original geological interpretation of the ORM sediments undertaken during the 1990s by the Geological Survey of Canada (GSC). Between 2001 and 2010, five key phases of renewed geological interpretation have led to the development of interpreted digital geological layers across different parts of the ORMGP area. The focus has been on the unconsolidated glacial sediments that, in places, can extend around 200 m in thickness. In all cases, geological layers were developed using visual interpretation of well records on three dimensional dynamic cross-sections.

For all of the phases of the geological interpretation, key aspects of the work included expert interpretation of geologic data and data integration across the ORMGP study area. Geological 'picks' of the main regional geological layers are made at boreholes on cross sections. These are stored in the ORMGP database and used as the main input in the kriging or interpolation of the geological surfaces. Higher quality PQ cored wells, as well as consultant logged wells are evaluated first, followed by lower quality water wells from the provincial database (*i.e.,* MECP water well records). Three-dimensional digital geological contact lines are also used to constrain the interpolation of layers between boreholes. Geological contact lines are used to define layer pinch-outs, subglacial erosion on top of and through confining aquitards (*e.g.* tunnel channels), and to reflect

conditions where a well drilled into a layer provides evidence that the bottom of the layer exists at some depth below the well bottom ("pushdown").

The ORMGP database for the Mansfield area is illustrated below (Figure 6). Each of the dots represents a borehole log contained within the database. The orange circle near the central of the figure depicts the Mansfield crossroad. It is important to appreciate the size of the database being used for the geologic interpretation rendered by the ORMGP consortium.



from ORMGP (2023)

Figure 6 - Geologic borehole database

The blue dots represent bedrock wells. The dark red dots represent overburden wells. Scattered within this database are other borehole logs (*ex.* MTO holes, *etc.*) that are presented as green dots on the figure.

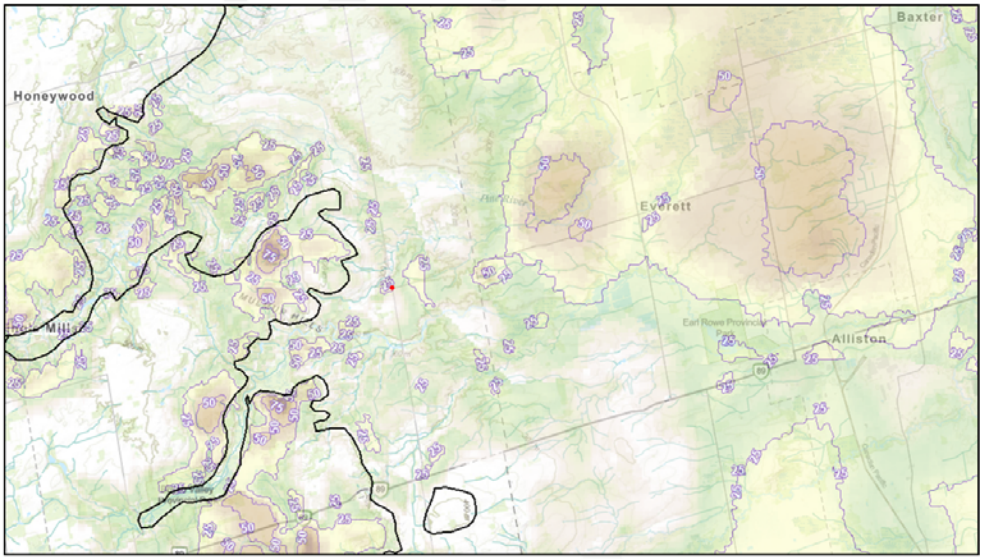
The geological interpretation illustrates the importance of integrating all data types in the geologic/ hydrostratigraphic interpretation process. Effective database querying allows for the identification of complex patterns and correlations between the lithology and other hydrogeologic indicators (*e.g.*, well screen placement) helping to at least partly overcome data quality deficiencies in driller's logs.

Since 2010, several Source Water Protection studies have also seen consultants incorporate changes/ refinements to the ORMGP digital geological surfaces. Where

appropriate, these changes are now being incorporated into an updated geological framework. In addition to the above, the geological interpretation is continually evolving. With the addition of new wells (both from the MECP as well as other consultant BHs) to the database, geological interpretations can subtly change as new wells are reviewed and additional geological picks are incorporated into the database and used in re-interpretations.

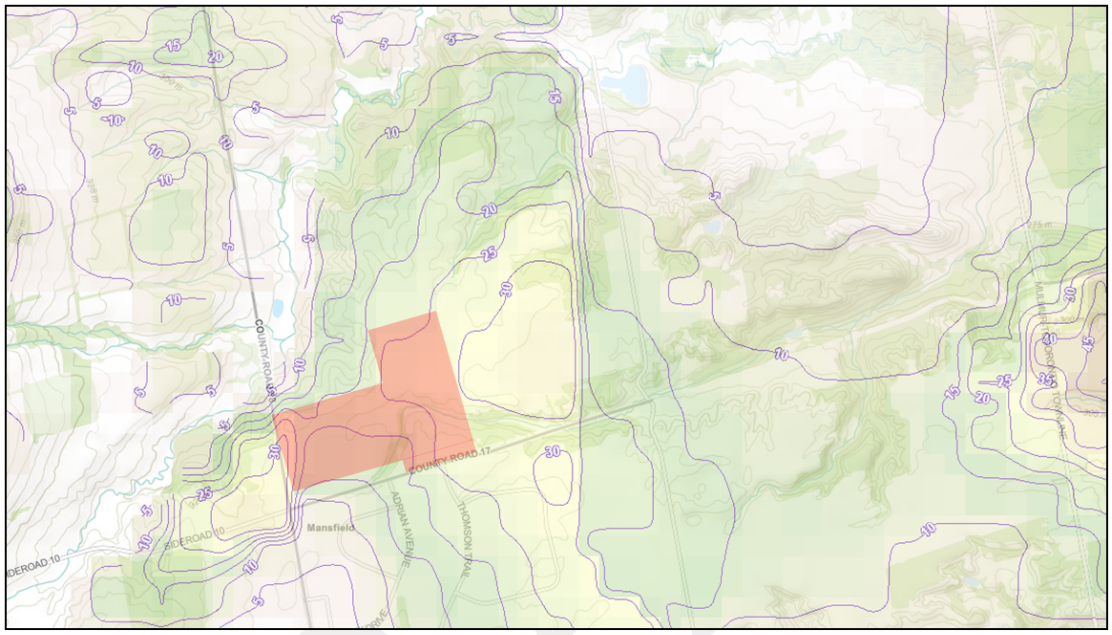
2.2.2 Extent of the Newmarket Till

The first stratigraphic unit discussed by Mulligan *et al.* (2018) was the Newmarket Till. This regionally extensive aquitard separates the upper sediment package from the deeper sediment package which lies above the shale bedrock (*i.e.*, Georgian Bay Formation). An isopach map of this unit from the ORMGP database in the Nottawasaga watershed is shown below (Figure 7). The values on the map represent metres of formation thickness. The red dot on this map reflects the location of Mansfield. The black line represents the edge of the Niagara Escarpment.



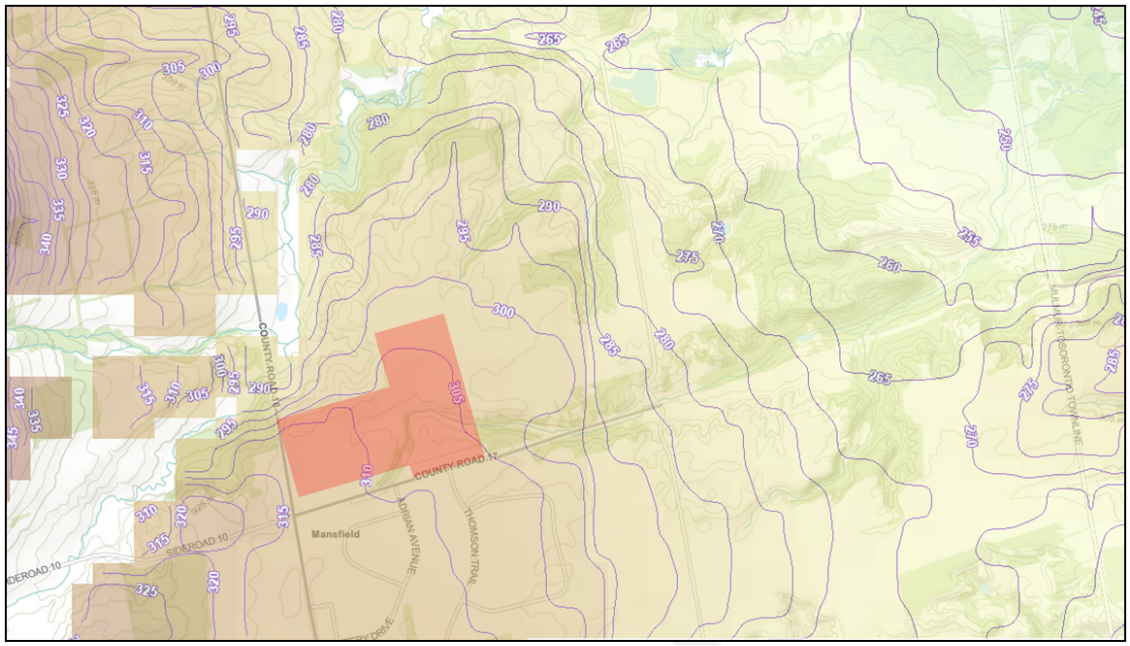
from ORMGP (2023)
Figure 7 - Newmarket Till Isopach

This isopach map illustrates the stratigraphic thickness of the Newmarket Till formation. A more regional representation is being provided before a more local segment is presented so that a better sense of the information at a local level can be construed. The same isopach of the Newmarket Till is presented below for the Mansfield area along with a map of the topographic surface of the Newmarket Till (Figures 8 and 9 [overleaf], respectively). Once again the values on the map represent metres of formation thickness. The isopach mapping indicates that there is a considerable thickness of the Newmarket Till in the general vicinity of the Site.



from ORMGP (2023)

Figure 8 - Newmarket Till Isopach in Mansfield Area



from ORMGP (2023)

Figure 9 - Newmarket Till Surface Elevation

To the west of the Site, this reach of the Pine River valley has cut through the overburden deposition down to the bedrock contact as it flows northeast (see Figures 15 and 16). This is one of the numerous re-entrant valleys cut into the Niagara Escarpment.

Mulligan *et al.* (2018) indicated that these stream corridors continued to provide fluvial sediments into the Nottawasaga River basin once the glacial lake levels had declined to the Lake Algonquin levels. The same is evident for the Boyne River valley south of Mansfield. Northeast of the Site in the next concession, the Newmarket Till is shown to locally thin east of the 7th Line. However, a more apt description would be to suggest that this thinning of the isopach is correlated to this reach of the Pine River valley.

The contour map of the upper Newmarket Till surface shows the surface topography in metres above mean sea level (Figure 9). The upper Newmarket Till contact map shows that this regional aquitard unit continues to the east throughout the study area. The Site drilling program illustrates a greater incline in the upper Newmarket Till at the eastern extent of the Site than that shown regionally (Figures 9 and 10 [below]). The contoured surface contact of the upper Newmarket Till is sloped to the east (*i.e.,* ENE - Figure 10). Therefore, ground water percolating vertically down in the upper sediment package to this aquitard would coalesce at the till contact and then flow laterally along the surface to the ENE.

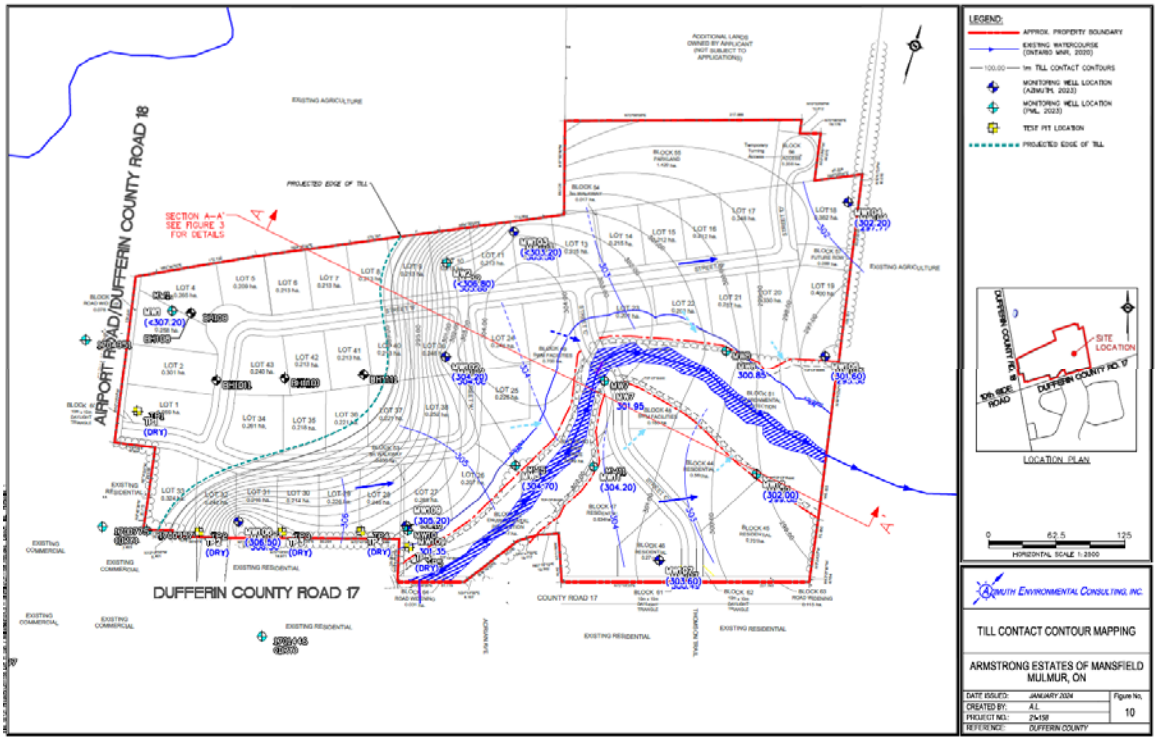


Figure 10 - Till Contact Elevation

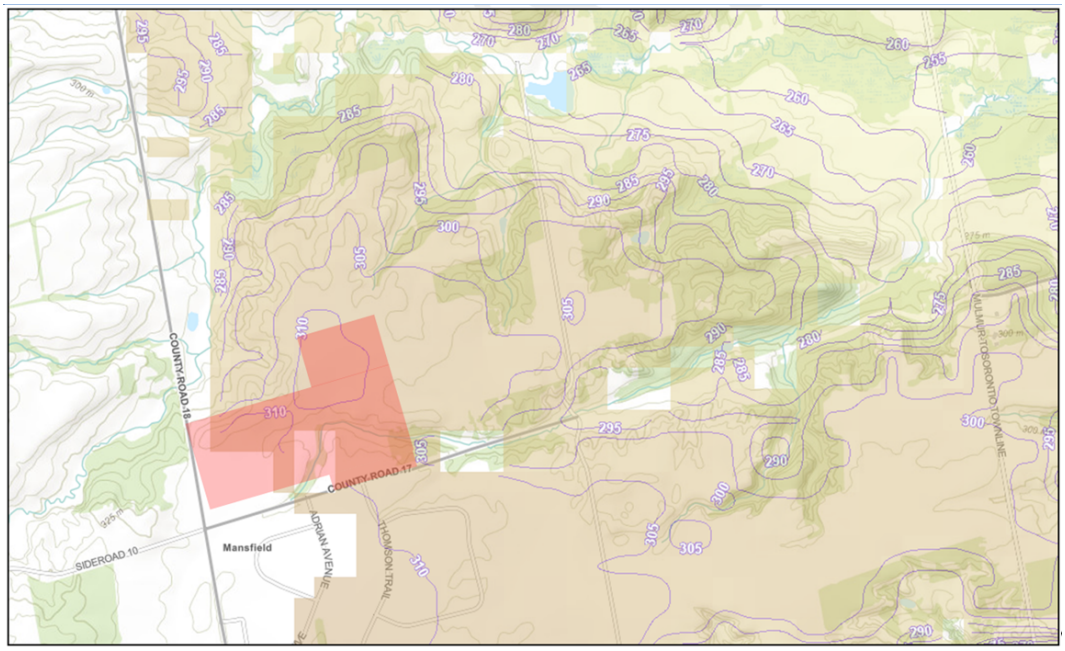
As noted above, the unit is absent within the Pine River corridor located west of the Site and traversing to the northeast. During the 2023 drilling program, the upper Newmarket Till was also shown to be lost toward the western extent of Site (Figure 10). This

unconformity is presumed to have resulted from the glacial Pine River corridor extended into the Site on the western and northwest limits of the property and partially scoured this feature from the original Site setting. However, this absence to the west is inconsequential to the regional integrity of the Newmarket Till unit beneath the Site and further east (*i.e.*, down gradient of the Site).

The loss of the entire overburden thickness to the west in the Pine River valley creates a sub-watershed boundary which is discussed in greater detail below (Section 3.2).

2.2.3 Extent of Glacial Lake Schomberg Unit (Upper Sediment Package - SU3)

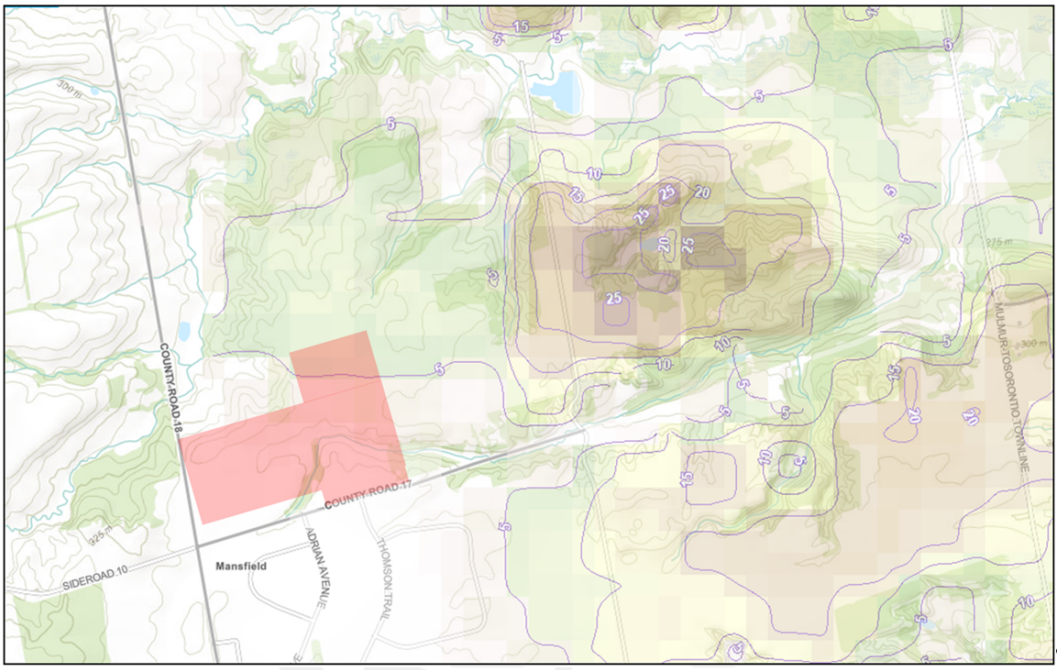
Overlying the Newmarket Till is the glacial Lake Schomberg deposition (Stratigraphic Unit 3 [SU3 - Mulligan *et al.*, 2018]). The surface contact of the glacial Lake Schomberg sediments is provided in Figure 11 (below). The surface elevation is shown in metres above the mean sea level and reflects the surface topography.



from ORMGP (2023)
Figure 11 - Glacial Lake Schomberg Surface Elevation

The ORMGP isopach of this sediment package shows that the surface "lows" in the upper Newmarket Till contact were filled by this glacial lake deposition and accounts in part for the isopach thicknesses where the upper Newmarket Till was thinned in the past (Figure 12 [overleaf]). The Newmarket Till is known to have been eroded/ scoured elsewhere in the province. Much more significant erosional features in the Newmarket Till contact are described by the Geological Survey of Canada (GSC) in their multi-year

investigation into the origins of the ORM (Russell *et al.*, 2002; Russell *et al.*, 2000; Pugin *et al.*, 1996; Sharpe *et al.*, 1996).



from ORMGP (2023)
Figure 12 - Glacial Lake Schomberg Isopach Thickness in Mansfield Area

The 2023 drilling program indicates that the upper sediment package is thicker toward the east as the upper Newmarket Till declines in this direction. It is 14.3 m thick at MW105; but tends to be ~9 to 10 m thick over the eastern half of the Site. The creek valley cutting through the Armstrong property is 9 m deep at the eastern extent of the creek. The upper sediment package shallows to the west as it approaches the western terminus end of the upper Newmarket Till midway through the Site. The upper sediment package is ~5 m thick in this area of the Site.

The sediment package is estimated to be ~30 m thick where the upper Newmarket Till is absent on the western third of the Site. Materials were described as being a fine sand below the surficial sand unit and down to ~20 m depth. The expectation is that the glacial Lake Schomberg deposited materials in the former Pine River valley including the western portion of the Site. As the glacial lake retreated into the Nottawasaga Basin the Pine River has re-established its flow pathway and appears to have scoured any materials temporarily deposited in the current river alignment.

According to Mulligan *et al.* (2018) there is no evidence of unconformities that could be attributed to rapid changes in water level in the SU3 deposition (*i.e.*, glacial Lake

Schomberg). This has also prevented the identification of depositional differences between glacial Lake Schomberg sediments (SU3) and the early Lake Algonquin sediments (SU4).

Mulligan *et al.* (2018) do note that there was up-section increase in sand within SU3. This was attributed to the declining water level and/ or increasing influence of fluviodeltaic systems during gradual or stepwise water level fall from 300 masl (glacial Lake Schomberg) to below 250 masl (early Lake Algonquin) as ice withdrew from the Nottawasaga area. This upward coarsening was seen in the on-Site boreholes drilled to the Till surface.

The geologic descriptions provided from this literature review appear to accurately match the depositional environment that was encountered during the Peto MacCallum Limited (PML) field exploration program (2021) and the subsequent drilling program in 2023 (Section 2.3). According to the PML (2021) report, "… [b]elow the topsoil and/ or fill, a sand/silty sand/ sand and gravel unit was encountered in all boreholes …", (page 6, Section 4.2.1, 3rd paragraph). The PML (2021) report goes on to state "… [b]elow the upper sand/silty sand/sand and gravel unit … a sandy/silt/silt unit was encountered …" (page 6, Section 4.2.1, 4th paragraph). An even finer soil was encountered below the silt unit being a sandy clayey silt/clayey silt/clay silt till unit which represents the Newmarket Till (page 7, Section 4.2.1, 1st paragraph). Thus, the vertical soil profile is considered to be downward fining as has been described above.

2.3 Supplemental 2023 Drilling Program

In May 2023, eleven (11) boreholes were advanced to various depths on the Site in order to better determine the extent of the Newmarket Till beneath the Site (Figure 10). Within the western third of the Site, the upper Newmarket Till was not encountered. Coincidentally, the drilling program commenced at MW103 which encountered the till unit and proceeded east in a clock-wise manner. Thus, the absence of the upper Newmarket Till was not revealed until the end of the drilling program. BH101 was bored to a depth of 18.9 metres below ground surface (*i.e.,* 282.6 masl) before the hole was terminated (Figure 10). The same general finding occurred at BH108 which was in proximity to MW1. A series of exploration holes at BH110 and BH111 stepped toward MW102 which had encountered the upper Newmarket Till at a depth of 4.6 metres below ground surface (*i.e.,* 304.1 masl). Neither of these final two holes encountered the upper Newmarket Till when drilled to 11.3 m depth (*i.e.,* <300 masl).

As noted above, the absence of the upper Newmarket Till locally in the western third of the Site was associated with the historical presence of the Pine River valley and its scouring of the upper Newmarket Till in this portion of the Site. It was interpreted that

the history Pine River valley scoured the Newmarket Till into the west and northwest portion of the Site.

The Newmarket Till was proven to be located on the Site in the central and eastern sections and the specific depths can be found in the Table A.

Table A: Newmarket Till Contact

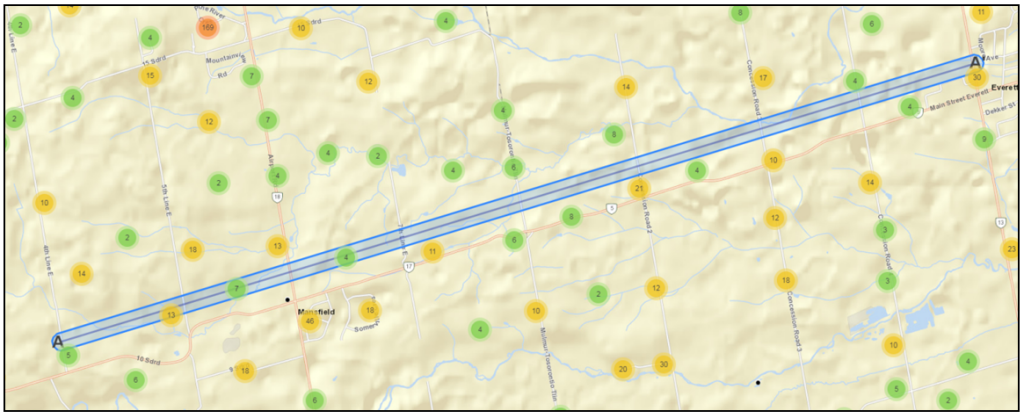
Borehole/Monitoring Well ID	Newmarket Till Contact (mbgs/ masl)
MW101	18.9 / 282.6 missing
MW102	4.6 / 304.1
MW103	10.9 / 303.6
MW104	12.2 / 297.8
MW105	14.5 / 295.4
MW106	4.6 / 306.5
MW107	9.1 / 300.5
MW108	14.3 / 299.2 missing
MW109	9.1 / 301.4
MW110	11.3 / 299.7 missing
MW111	11.3 / 298.2 missing

Notes: mbgs - metres below ground surface
masl - metres above the mean sea level

The other noticeable observation with the exploration holes that did not encounter the upper Newmarket Till is that the soils were dry throughout the profile. Moist to wet soil conditions were encountered immediately above the upper Newmarket Till (Appendix D).

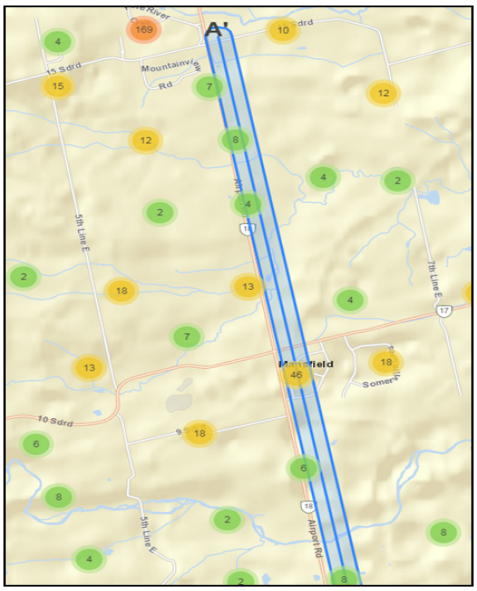
2.4 Geologic Cross Sections

The ORMGP database permits the construction of representative cross-sections.



from ORMGP (2023)
Figure 13 - West-East Cross Section Alignment

A long west to east cross section through the Site was constructed from 4th Line E through to Regional Road 13 and running parallel to the 10th Sideroad[4] (see Figure 13 [above]).



from ORMGP (2023)
Figure 14 - South-North Cross Section Alignment

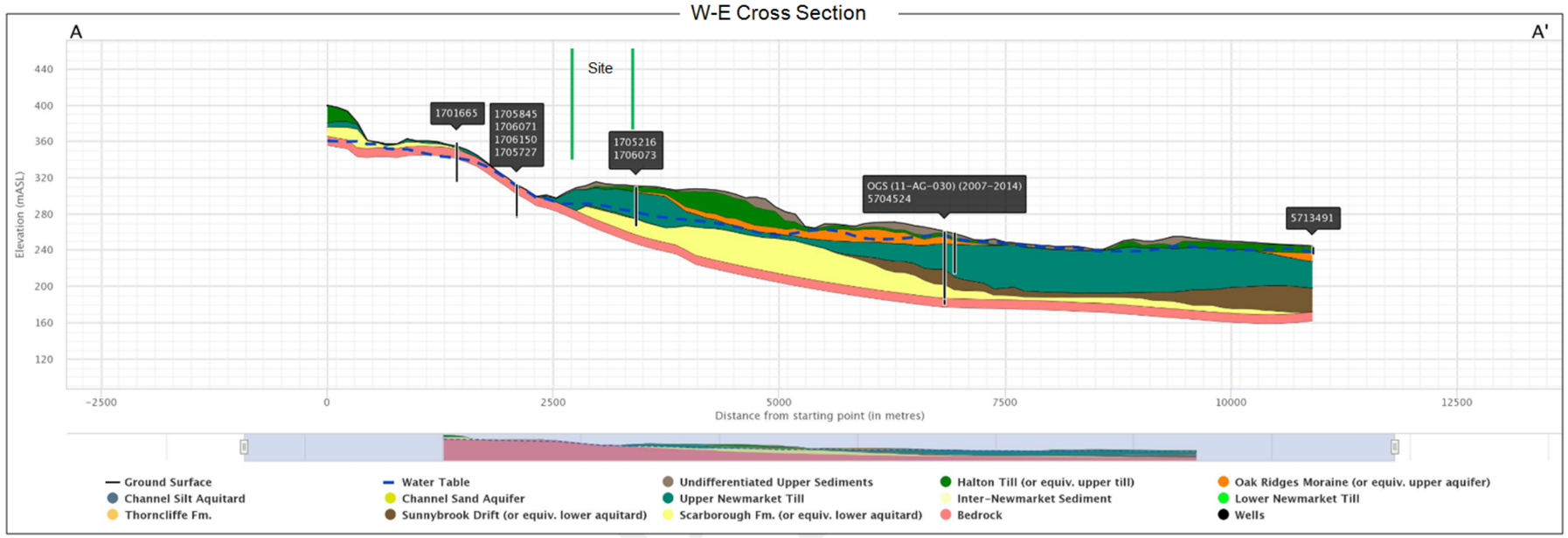
The numbers shown on the graphic are the geologic data points in the vicinity of the cross section line. Similarly, a long north to south cross section through the Site was constructed from the 5th Sideroad through to 15th Sideroad and running parallel to Airport Road (see Figure 14).

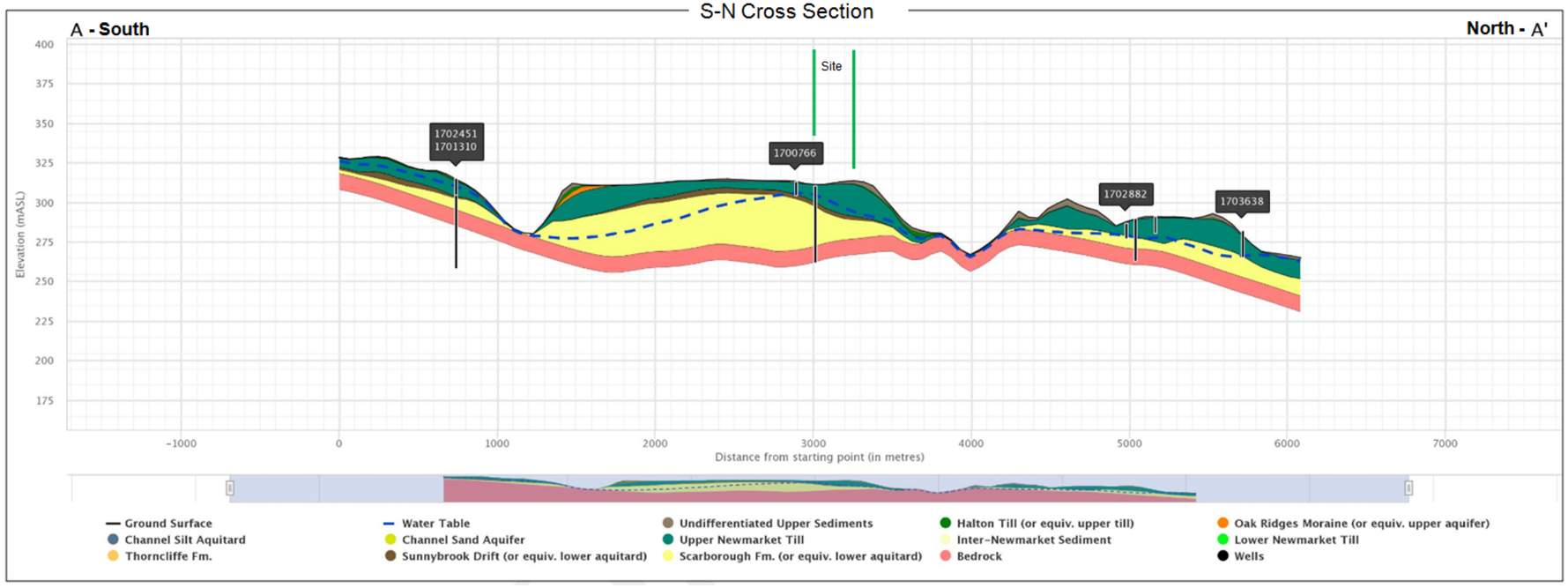
The resulting W-E and S-N cross sections (Figures 15 & 16 - overleaf) are illustrated below and are based on the geological surfaces that have been interpolated from the borehole logs present throughout the Mansfield area.

Considerable expertise has gone into the selection of these geologic surfaces (Kassenaar *et al.*, 2003) and as highlighted previously. Thus the geologic information being presented is considered representative of the geologic setting. It is also consistent with that encountered during the Site drilling programs. The cross sections illustrate the location of selected MECP water well records that exist in proximity to the section lines.

The ORMGP utilizes a standard naming convention which needs to be described for the Site setting and geologic presentation provided above. For the west-east cross-section, the bedrock contact is the basal layer shaded red (Figure 15 [above]). It represents the Paleozoic strata associated with the Niagara Escarpment (*i.e.*, Georgian Bay Formation). The cross section displays a dark green strata being described as the upper Newmarket Till. This is equivalent to the first stratigraphic unit described by Mulligan *et al.* (2018) or the SU1. Overlying this are three layers described as the Halton Till, Oak Ridges Moraine deposits and Undifferentiated Upper Sediments. For this Site, these layers represent the glacial Lake Schomberg deposition or the SU3 from Mulligan *et al*. (2018).

[4] 10th Sideroad is also referred to as Regional Road 17 and/or County Road 17


W-E Cross Section
A
A'
Site
1701665
1705845
1706071
1706150
1705727
1705216
1706073
OGS (11-AG-030) (2007-2014)
5704524
5713491
Elevation (mASL)
440
400
360
320
280
240
200
160
120
-2500
0
2500
5000
7500
10000
12500
Distance from starting point (in metres)
Ground Surface
Channel Silt Aquitard
Thorncliffe Fm.
Water Table
Channel Sand Aquifer
Sunnybrook Drift (or equiv. lower aquitard)
Undifferentiated Upper Sediments
Upper Newmarket Till
Scarborough Fm. (or equiv. lower aquitard)
Halton Till (or equiv. upper till)
Inter-Newmarket Sediment
Bedrock
Oak Ridges Moraine (or equiv. upper aquifer)
Lower Newmarket Till
Wells


S-N Cross Section
A - South
North - A'
Site
1702451
1701310
1700766
1702882
1703638
Elevation (mASL)
400
375
350
325
300
275
250
225
200
175
-1000
0
1000
2000
3000
4000
5000
6000
7000
Distance from starting point (in metres)
Ground Surface
Channel Silt Aquitard
Thorncliffe Fm.
Water Table
Channel Sand Aquifer
Sunnybrook Drift (or equiv. lower aquitard)
Undifferentiated Upper Sediments
Upper Newmarket Till
Scarborough Fm. (or equiv. lower aquitard)
Halton Till (or equiv. upper till)
Inter-Newmarket Sediment
Bedrock
Oak Ridges Moraine (or equiv. upper aquifer)
Lower Newmarket Till
Wells

The geologic model must retain all identified strata and therefore when specific units appear absent they are assigned an inconsequential thickness (*i.e.,* >0.1 m) which will not show up in the interpreted surfaces; but preserves the continuity of the geologic model. This accounts for the orange layer which is described as the *equivalent upper aquifer sediments* and the olive layer described as the *equivalent upper till*. In essence, borehole log describing a sandier material will be assign into the orange layer and finer grained sediments will be assigned into the olive layer.

A basal Quaternary unit is shown in the cross section illustrations and named the *equivalent lower aquitard* (*i.e.,* Scarborough Formation). This may represent the "slumped material" layer described by Mulligan *et al.* (2018) in the first stratigraphic unit or it could also represent the remnants of older sediments deposited during the early- and mid-Wisconsin glaciation. Intuitively, the same geologic sequencing is present in the south-north cross section (Figure 16 [above]).

Returning to the west-east cross section through the Site and paralleling the 10th Sideroad, there are several key findings presented in this illustration. As indicated previously, the Pine River exists just west of the Site and Airport Road. The river valley falls to northeast and this reach crosses Airport Road north of the Site. Given the absence of the Newmarket Till on the western area of the Site, it can be suggested that the Pine River historically scoured out the Newmarket Till and the lower sediment package as the glacial retreat commenced resulting in the loss of the Newmarket Till formation on the west and northwest area of the Site. The expectation is that the glacial Lake Schomberg then deposited the upper sediment package across the Site and into the Pine River valley over the next 2,000 to 3,000 years. Mulligan *et al.* (2018) noted that the Lake Schomberg glaciolacustrine deposition exceeded 12 m and infilled valleys present over the Newmarket Till surface.

Subsequent scouring of the Pine Valley re-entrant valley is indicated by Mulligan *et al.* (2018) by noting that "… [t]he thick packages of rippled and deformed sands of SU4 suggest relatively high rates of sediment supply, delivered by sediment-laden streams reworking glacial deposits along elevated ground to the south and west …". In essence these stream corridors provided much of the SU4 sediments spread into the Nottawasaga basin.

The elevation drop into the Pine River valley in proximity to the Airport Road is shown to be more than 20 m. The cross section representation indicates that the Quaternary sediments have been removed in the river valley (Figure 16 [above]).

This is consistent with the fluvialdeltaic contribution indicated by Mulligan *et al.* (2018) during the latter depositional stage of the SU3 and into SU4. Sediment laden flow into the Nottawasaga watershed was occurring as the glacial lake elevation declined from 300 masl to the early Algonquin Lake elevation below 250 masl. Mulligan *et al.* (2018) indicates that this fluvial contribution continues throughout the Late Wisconsin retreat as the waters drained to the Kirkfield low and later to the Stanley low.

As noted these re-entrant valley features were incised during and prior to the Quaternary (Straw, 1968; Kor and Cowell, 1998; Eyles, 2012); but served as fluvial corridors during the final glacial retreat. As such, the overburden sediments have been scoured from these Escarpment drainage features. In terms of the Site condition, it represents a flow divide between up gradient lands and those down gradient of the river valley. As a result, the Site is at a sub-watershed boundary location. The Site receives no up gradient ground water contribution in the upper sediment package/ units which overlie the upper Newmarket Till. This accounts for the absence of a water table condition or the minimal saturated soil condition reported by PML while monitoring the upper sediment sequence (PML, 2022).

A two kilometer geologic section through Mansfield along the 10th Sideroad is presented in Figure 17 [overleaf]. The section shows the presence of the upper Newmarket Till along the eastern half of the section. The upper sediment package exists above this unit as encountered in the Site drilling program. However, the upper Newmarket Till was lost just east of Airport Road on the Site. Along 10th Sideroad, the till sheet extends further west than that seen on the Site.

West of the Site, the sediments are thought to consist of diamict beds created by the glacier retreat and/ or glaciofluvial/ glaciolacustrine deposition during the Lake Schomberg period.

The west to east cross section also shows a relatively thick Newmarket Till aquitard lying beneath the Site and extending to the east. As shown above with the isopach mapping, this sequence thins to the east; but then thickens further east. The aquitard feature is regionally continuous to the east of the Site. The Site drilling shows the till sequence was encountered between ~5 m below ground surface (mbgs) to the west and up to ~14 mbgs along the eastern property boundary.

Beneath the intact till sequence is a deeper sedimentary package described in the regional cross-sections of consisting of three units being the Thorncliffe, Sunnybrook and Scarborough formations (see Figures 15 and 16 [above]). These have been called the lower sediment package and were deposited before that last Wisconsin advance.

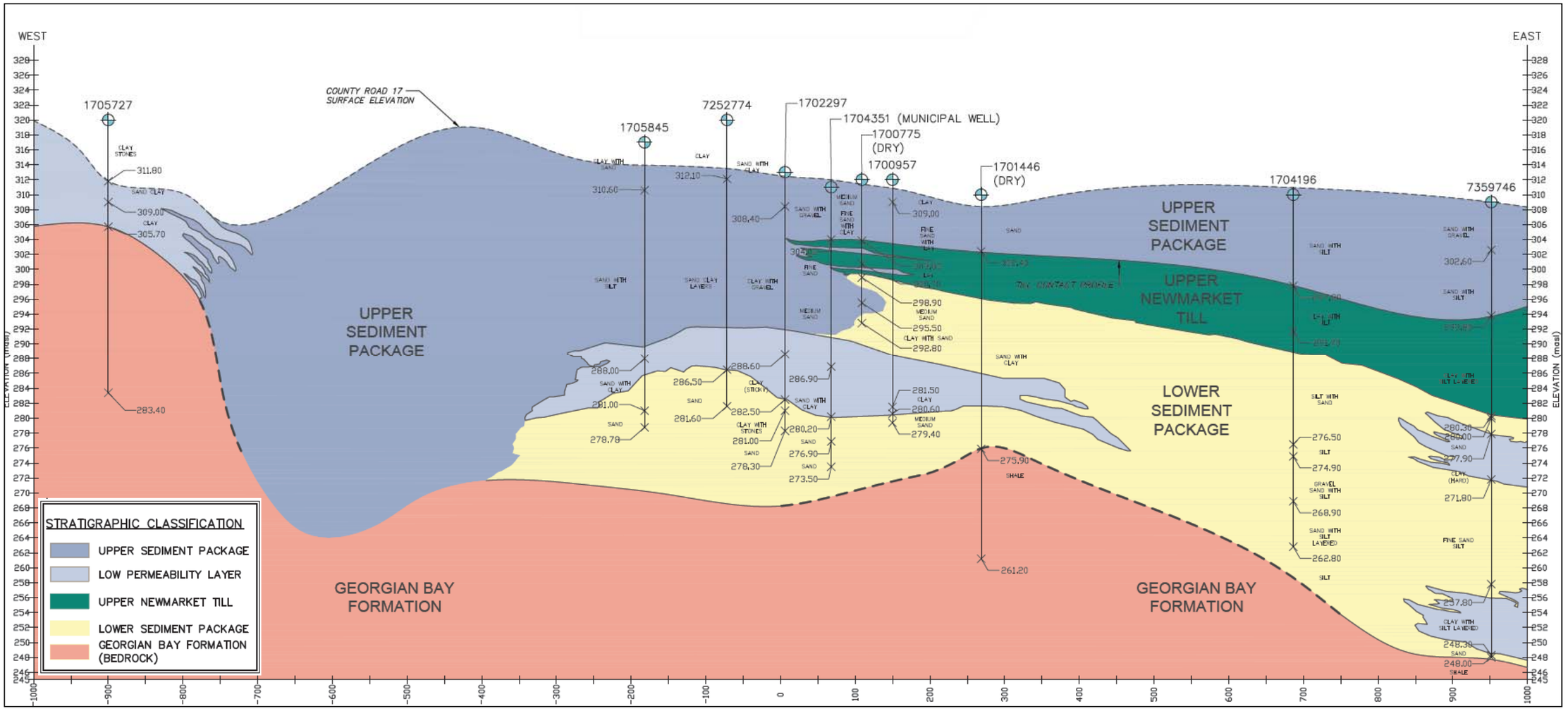


Figure 17 - West to East Section along 10th Sideroad

The same general condition appears to exist at the Boyne River as depicted in the south to north cross section. The overburden soils appear to have been scoured from the stream alignment. The sequence generally shows a till cap (*i.e.,* Newmarket Till - SU1 - Mulligan *et al.* [2018]) that overlies a lower sediment package deposited from the early- to mid-Wisconsin glaciation. This basal unit marginally thickens to the south.

Beyond the Site to the north, the Pine River valley is encountered and illustrates the same general profile. The river appears to have scoured out the overburden sediment in this depiction and also suggests that a portion of the bedrock was plucked or scoured (Figure 16). The Newmarket Till is draped into the river valley from both directions; but pinches out at the base of the river valley. This occurs because the till overrode the re-entrant valleys when deposited; but then was scoured during the glacial retreat.

3.0 HYDROGEOLOGIC SETTING

3.1 Regional Hydrogeologic Setting

The regional hydrogeologic setting is controlled in a large part by the Niagara Escarpment. The Niagara Escarpment is a layered limestone feature with ground water flow primarily through laterally continuous bedding plane fractures. The ground water being discharged from the Niagara Escarpment via these conductive bedding plane fractures is typically masked at the face where a weathered/ eroded/ stress relieved talus feature facilitates vertical interconnection and discharge from the base of the feature. Where conductive overburden soils exist immediately adjacent to the escarpment, the ground water discharge from the bedrock feature will flow into these units. Where the soil permeability is insufficient to convey the waters, a head water stream will exist.

Flow from the Niagara Escarpment is not uniformly consistent along its lateral face. This accounts for the sporadic nature of the headwater streams associated with this contribution. Since the ground water is conveyed along various lateral bedding plane fractures, it will emerge at different horizons from the Niagara Escarpment. As such, bedrock contributions can also occur away from the upper edge of the escarpment owing to the presence of layered limestone as it exits into the Nottawasaga watershed.

3.2 Local Hydrogeologic Setting

The Site is situated immediately down gradient of the Pine River valley as depicted in the west to east cross section above and presented in the digital elevation map below (Figures 15, 17 and 18 [overleaf]).

from ORMGP (2023)

Figure 18 - Digital Elevation Map - 10 m contour interval

Two critical elements occur in the Mansfield area. First, the Pine River valley effectively intercepts any up gradient ground water flow in the overburden sediments, especially the upper sediment package. The western edge of the Site therefore exists at a sub-watershed boundary. In fact, the Boyne River valley to the south and the Pine River valley to the north pinch together west of the 5th Line which limits any ability of ground water flow in the upper reaches of the overburden profile to be conveyed eastward.

As indicated above, the Site is believed to exist in proximity to the shoreline of glacial Lake Schomberg. Mulligan *et al.* (2018) indicated that the water surface was believed to exist at ~300 masl. The Site drilling program reported an upper sediment package of between 5 to 14 m thick for a Site with a surface elevation of ~310 masl. The loss of the upper Newmarket Till part way through the Site limits any ground water flow in the upper sediment package east of this unconformity. West of this unconformity, the overburden thickness is quite deep (*i.e.*, >30 m). The Site drilling program showed that the sediments west of the unconformity are dry to at least 18 m depth and likely much deeper.

As noted above, the Pine River valley intercept at the bedrock contact does not connect to the upper sediment package. The upper Newmarket Till separates the upper sediment package from the lower sediment package and the lower sediment package is draped over the bedrock. Thus, base flow from the escarpment discharge is routed to the lower sediment package below the upper Newmarket Till.

At the Site, infiltrating precipitation will percolate vertical down to the first impervious boundary which is considered to be the upper Newmarket Till east of the unconformity and coalesces in the unit immediately above this barrier. At some distance down gradient of the Pine River valley, a permanent water table condition may develop in the conductive surficial sediments of the upper sediment package; but it would exist down gradient of the Site. This was illustrated in the ground water monitoring data collected at the Site.

3.2.1 Ground Water Elevation Data

The PML (2021) report provided information on the ground water regime encountered at the Site during and following the field investigations. In their report, PML provides a summary table which is presented below (Table B - overleaf) with some supplemental information. The Site data indicated that there were a couple of dry wells higher in the upper sediment profile. It is now known that several of these wells were located west of the unconformity. The water table is anticipated to be more than 30 mbgs in this area of the Site.

The PML data (2021) also indicates that the ground water encountered east of the unconformity was below the more granular materials in all but one borehole (*i.e.*, MW5). The water elevation for MW7 is taken in the till unit and thus represents a potentiometric value as opposed to the overlying water table condition.

PML have also conducted monthly water level monitoring on the ground water wells that they installed in 2021. In their letter report entitled "Ground Water Level Monitoring - Proposed Residential Development - 937045 Airport Road, Mansfield, Ontario" and dated July 18, 2022; monthly ground water measurements from May 2021 to May 2022 were provided as summarized in Table C (overleaf).

The underlying till unit "perches" the water table condition in the silt unit of the upper sediment package. However, the limited infiltration at this headwater location results in a minimal saturated soil condition.

In lower permeability units, the topography of the soils dictates the water table setting and it is anticipated that this would be true for this Site. Infiltrating ground waters following the path of least resistance will drain vertically down through the granular materials and into the basal silt unit above the upper Newmarket Till. The till unit limits further vertical percolation and "perches" the water in the basal silt unit which then drains according to the topographic relief of the till contact which slopes to the northeast (see Figures 9 and 10 - above).

Table B: Ground Water Monitoring Data

Borehole ID	Elevation of sandy unit base (mASL)	Elevation of silty unit base (mASL)	First Strike during drilling (mASL)	Upon completion of augering (mASL)	Elevation of monitoring well base (mASL)	Water Level Elevation	
						20-May-21 (mASL)	11-Jun-21 (mASL)
1	310.3	<306.7	No water	No water	307.2	<307.2	<307.2
2	309.9	<306.3	No water	No water	306.8	<306.8	<306.8
3	<305.6		No water	No water		--	--
4	307.2	<304.3	307.8	No water		--	--
5	303.7	<302.7	304.6	304.9	303.1	305.0	304.9
6	304.3	301.4	303.7	303.3		--	--
7	302.7	302.7	303.3	307.2	300.4	303.1	302.8
8	304.4	300.9	303.5	305.3	302.4	302.7	302.7
9	309.3	<306.4	308.3	No water		--	--
10	307.6	<304.0	307.4	306.2	304.4	306.3	306.2
11	307.0	<302.6	304.5	303.6	303.0	304.5	304.3
12	305.1	299.0	305.7	No water	301.3	302.3	302.2

Table C1: Ground Water Monitoring Data - Elevations

Borehole ID	Ground Elevation (mASL)	Elevation of monitoring well base (mASL)	Water Level Elevation												
			May-21 (mASL)	Jun-21 (mASL)	Jul-21 (mASL)	Aug-21 (mASL)	Sep-21 (mASL)	Oct-21 (mASL)	Nov-21 (mASL)	Dec-21 (mASL)	Jan-22 (mASL)	Feb-22 (mASL)	Mar-22 (mASL)	Apr-22 (mASL)	May-22 (mASL)
1	313.20	307.2	<307.2	<307.2	<307.2	<307.2	<307.2	<307.2	<307.2	<307.2	<307.2	<307.2	<307.2	<307.2	<307.2
2	312.80	306.8	<306.8	<306.8	<306.8	<306.8	<306.8	<306.8	<306.8	<306.8	<306.8	<306.8	<306.8	<306.8	<306.8
5	309.20	303.1	305.0	304.9	304.7	304.2	304.7	304.7	304.8	305.1	305.0	304.8	305.0	305.2	305.0
7	304.05	300.4	303.1	302.8	303.3	302.8	302.9	303.0	303.1	303.1	303.1	302.9	302.9	303.1	303.1
8	309.85	302.4	302.7	302.7	302.6	302.5	302.4	302.5	302.5	302.5	302.6	302.5	302.5	303.8	302.7
10	310.50	304.4	306.3	306.2	306.0	306.0	306.1	305.8	305.6	305.2	305.6	305.9	305.9	306.1	306.2
11	309.05	303.0	304.5	304.3	304.1	304.3	304.0	304.1	304.3	304.1	304.3	304.3	304.4	304.5	304.5
12	308.00	301.3	302.3	302.2	302.0	301.9	301.8	301.8	301.9	301.8	302.0	302.4	302.3	302.4	302.2

Table C2: Ground Water Monitoring Data - Depth to Water

Borehole ID	Ground Elevation (mASL)	Depth of monitoring well base (mbgl)	Water Level Depth												
			May-21 (mbgl)	Jun-21 (mbgl)	Jul-21 (mbgl)	Aug-21 (mbgl)	Sep-21 (mbgl)	Oct-21 (mbgl)	Nov-21 (mbgl)	Dec-21 (mbgl)	Jan-22 (mbgl)	Feb-22 (mbgl)	Mar-22 (mbgl)	Apr-22 (mbgl)	May-22 (mbgl)
1	313.20	6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0
2	312.80	6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0	>6.0
5	309.20	6.1	4.2	4.3	4.5	5.0	4.5	4.5	4.4	4.1	4.2	4.4	4.2	4.0	4.2
7	304.05	3.7	1.0	1.3	0.8	1.3	1.2	1.1	1.0	1.0	1.0	1.2	1.2	1.0	1.0
8	309.85	7.5	7.2	7.2	7.3	7.4	7.5	7.4	7.4	7.4	7.3	7.4	7.4	6.1	7.2
10	310.50	6.1	4.2	4.3	4.5	4.5	4.4	4.7	4.9	5.3	4.9	4.6	4.6	4.4	4.3
11	309.05	6.1	4.6	4.8	5.0	4.8	5.1	5.0	4.8	5.0	4.8	4.8	4.7	4.6	4.6
12	308.00	6.7	5.7	5.8	6.0	6.1	6.2	6.2	6.1	6.2	6.0	5.6	5.7	5.6	5.8

The ground water monitoring data reinforces the hydrogeologic model presented above. The infiltrating precipitation percolates to depth and wets the basal silt unit. This wetted condition does not change substantially throughout the year. Thus, no seasonality was observed in the collected data (Appendix E). This likely occurs because the depth of the basal silt unit is sufficiently deep enough to mitigate evapotranspiration influences and there is no substantial lateral recharge from up gradient source(s). At the up gradient sub-watershed boundary the wetted condition is limited.

3.2.2 2023 Supplemental Drilling Ground Water Elevation Data

Seven (7) additional monitoring wells were installed as part of the 2023 drilling program (Figure 10). The initial water level data for these new monitoring wells is presented in Table D (below). The monitoring results are similar to the findings presented in the PML (2021) report.

Table D: 2023 Supplemental Drilling Ground Water Data

Borehole/ Monitoring Well ID	Ground Elevation (masl)	Depth to Till Contact (mbgs/ masl)	Depth of Monitoring Well Base (mbgs/ masl)	Water Level Depth		
				Jun-23 (mbgs/ masl)	Jul-23 (mbgs masl)	Aug-23 (mbgs/ masl)
102	308.7	4.6 304.1	4.6 304.1	4.3 304.4	-	4.5 304.2
103	314.5	10.7 303.8	10.6 303.9	>10.6 <303.9	-	>10.6 <303.9
104	310.0	12.2 297.8	11.4 298.6	7.8 302.2	7.8 302.2	7.8 302.2
105	309.9	14.3 295.6	14.6 295.3	8.1 301.8	8.1 301.8	8.2 301.7
106	311.1	4.6 306.5	4.8 306.3	4.4 306.7	-	4.6 306.5
107	309.6	9.1 300.5	9.3 300.3	5.8 303.8	5.9 303.7	6.0 303.6
109	310.5	9.1 301.4	9.1 301.4	4.6 305.9	4.7 305.8	4.8 305.7

The water elevation data reaffirms the conceptual geologic setting. The upper sediment package east of the unconformity possesses a limited degree of saturation since it represents a subwatershed divide. A water table condition is absent immediately east of this unconformity and is minimally saturated further east of the divide.

A pressure transducer was installed in November 2022 to monitor the water table condition in the upper sediment package. The transducer was instrumented to record water pressure in MW5 on a five minute frequency and the saturated condition has been monitored for the past year (Figure 19 [below]). The purpose of the detailed monitoring was to determine whether regional storm events, the Spring freshet or other significant climatic events resulted in a response that would not be seen during routine monthly monitoring.

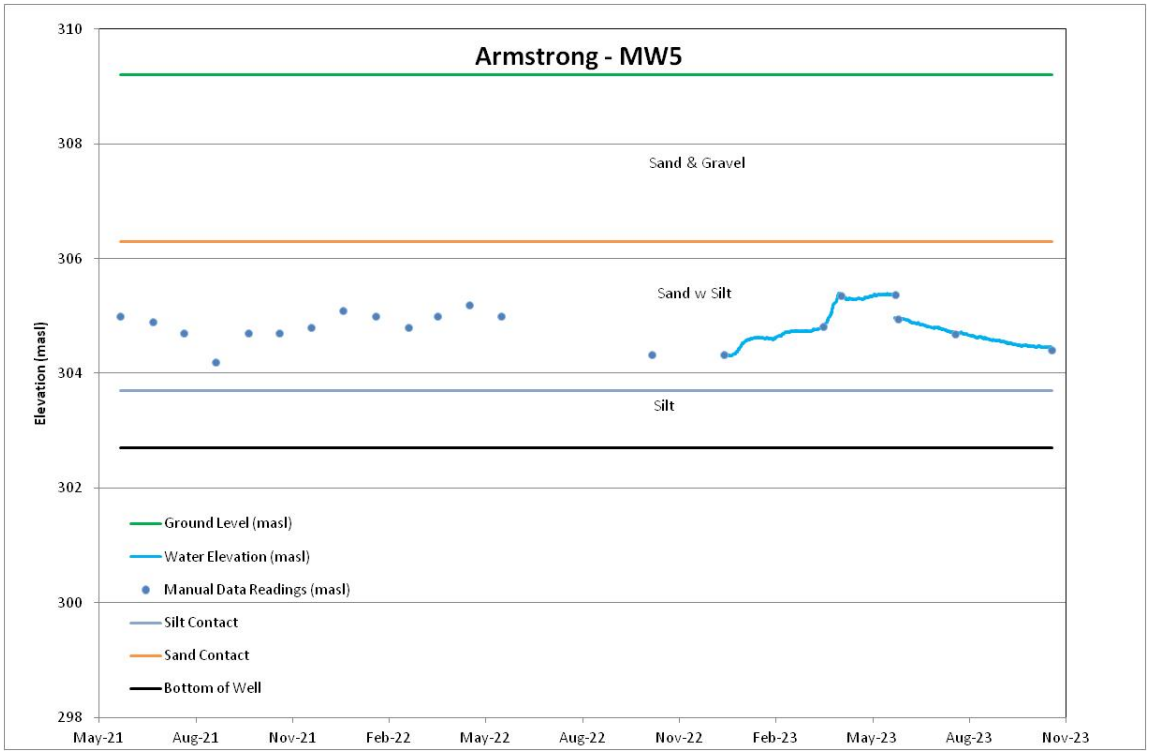


Figure 19 - Pressure Transducer Monitoring Data

As anticipated, the detailed water level monitoring did not reveal short-term temporal influences which would alter the original interpretation of the data. A small seasonal increase occurs over the Spring freshet; but it was not deemed to be significant. With a better understanding of the local geologic setting, the interpretation of the water level monitoring data is more evident and reflects the headwater condition present at the Site.

3.2.3 Ground Water Flow

The PML (2021) report estimated the lateral hydraulic conductivity of the three soil units which were described in the soil profile at the Site (Table E - [overleaf]). These estimates were based on grain size analyses; but should provide a "ball park" estimate of the unit properties. Any in-situ testing of the unsaturated soils would tend to over-

estimate the bulk hydraulic properties since it would be more representative of a wetting curve condition.

Table E: Permeability Estimate

Soil Description	*Estimated Hydraulic Conductivity (m/s)*	*"T" - Time (min/cm)*
Sand Unit	10^{-6} to 10^{-7}	12 to 20
Silt Unit	10^{-7} to 10^{-8}	20 to 50
Till Unit	10^{-9} to 10^{-10}	>50

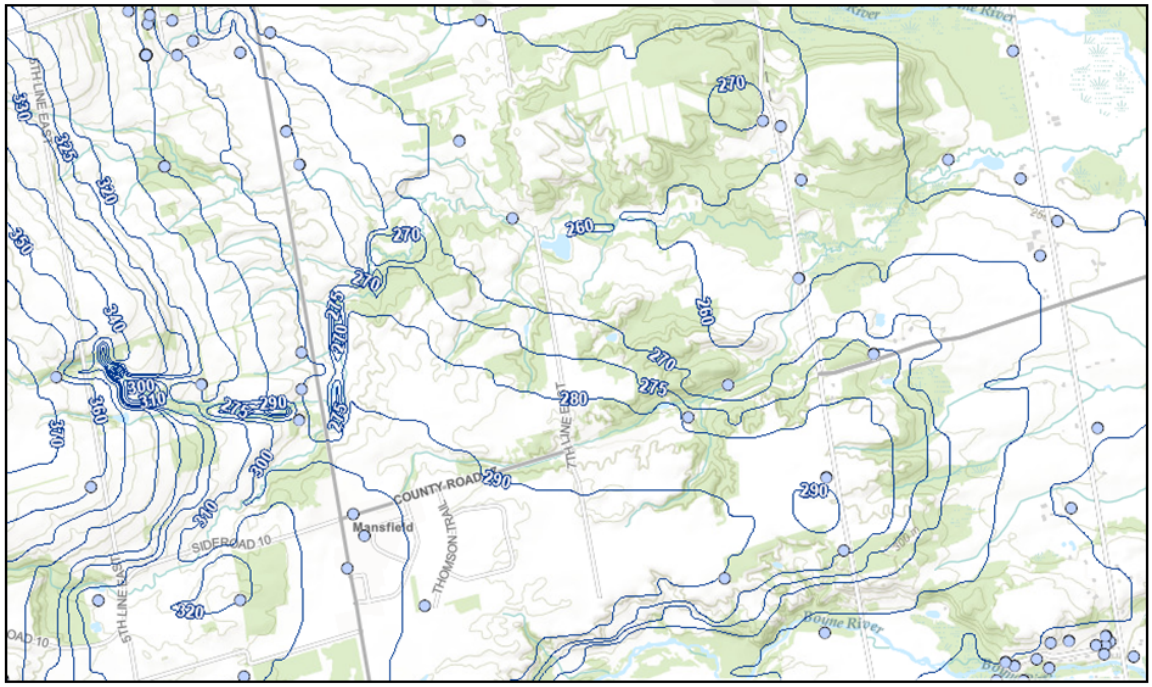
The slope of the upper Newmarket Till surface provides the lateral hydraulic gradient for the ground water movement. The relative slope of the till surface as kriged from the borehole data should be reasonably accurate for these purposes. Using the elevation data presented in Figure 10 yields a surface slope of ~0.0275 m/m and translates to average linear velocity of $9x10^{-9}$ m/s or ~0.3 m/a. At this estimated rate, the ground water movement is limited and accounts for the basal saturation since the soils are not rapidly draining in the direction of flow.

The low ground water flow rate is also reflected in the seasonal flow of the adjacent creek which cuts through the Site. The creek's base elevation at the outflow location from the Site is reported to be ~297 masl. If the ground surface at the Site in the vicinity of MW12 (*i.e.,* adjacent to the creek corridor) is ~308 masl; then the till contact will be about ~299 masl based on the borehole log provided in the PML (2021) report. This till surface elevation is equal to or above the creek's base elevation at the outflow from the Site (*i.e.,* ~297 masl).

The Site monitoring data suggests that the saturated condition persists year round in the silt unit (PML, 2022). Thus, flow into the creek from the adjacent silt soils should occur year round given the elevation data; but the creek is deemed to be dry over the majority of the year. In reality, seepage into the stream corridor is likely occurring; but at a very low rate which does not support a "flowing" condition as inferred in the above-noted flow calculation.

An interpreted regional water table map is illustrated below (Figure 20 - overleaf). This kriged surface is based on the boreholes showed in Figure 20 and larger stream corridors present/ mapped on the landscape. The borehole database is selected by using borehole information from locations that are less than 20 m in depth. As can be seen, two shallow

water wells are denoted near the Airport Road and 10th Sideroad intersection which will be discussed in greater detail in Section 3.3 (below).



from ORMGP (2023)

Figure 20 - Water Table Contour Map

The topography of the Pine River valley has been imposed on this water table interpretation and this influence is seen in the contouring immediately northwest of the Site. This makes sense from a hydrogeologic perspective and depresses the water table condition owing to this sub-watershed divide. However, the topography of creek corridor on the Site does not appear to be imposed on this depiction. The expectation is that the creek corridor should have some local influence.

The purpose of presenting this regional perspective is to gain an understanding of the direction of the regional flow regime in which the Site resides. Thus, the regional ground water trend toward the northeast is important in this context as opposed to the specific water table elevation results.

The water table condition in this regional depiction is roughly 10 m lower than that observed using the Site ground water monitoring wells. This occurs because of the influence of the upper Newmarket Till and possibly the low permeability of the basal silt unit which will "mound" the water table.

The regional ground water flow is shown to be northeast of the Site. The water table elevation reflects the regional Newmarket Till topography (Figure 9) which controls the shallow ground water at the Site and beyond. As is illustrated on Figure 20, there are no shallow boreholes down gradient of the Site for an appreciable distance. This does not mean that there are no boreholes. As illustrated on Figure 6, there are many boreholes; but few that are shallow in nature due to the limited ground water resource.

The interpreted shallow ground water flow based on Site specific readings is presented on Figure 21 (overleaf). In proximity to the unconformity, there is no saturated condition. Soils were noted to be moist immediately above the upper Newmarket Till contact; but a saturated water table condition was not encountered.

East of the unconformity, a water table condition was measured in the upper sediment package immediately above the till contact. As noted above, finer-grained soils were predominant just above the upper Newmarket Till contact.

The shallow ground water flow east of the unconformity is easterly. There is an expectation that localized flow into the on-Site creek would occur from both sides of the creek valley. It is possible that all of the shallow ground water flow in the South Precinct flows to the creek.

3.3 Water Well Data

3.3.1 Water Well Survey

A door-to-door well survey was conducted in early July. The residences identified in Figure 22 were surveyed as part of this effort. Where no direct contact was made, a letter requesting information was left at the residence. In total, five (5) residence responses were received. No shallow wells were found in this survey.

Information provided by one resident revealed the existence of the "Mansfield Water Works By-law (No.: 25-2010)" which requires mandatory municipal hookup to the potable water supply of all buildings within the Community of Mansfield[5]. The By-law provided the need to eventually hook-up to the municipal water works by 2020 (*i.e.,* Part 4 of the By-law).

When initially introduced, the Municipality reportedly required that residents to abandon their private well when arranging for the municipal hook-up. One respondent acknowledged they had filled their drilled well with sand on their property in order to comply with that municipal requirements at that time.

[5] https://mulmur.ca/content/live/mansfield-water/25-2010-consolidated-mansfield-waterworks-by-law-1.pdf

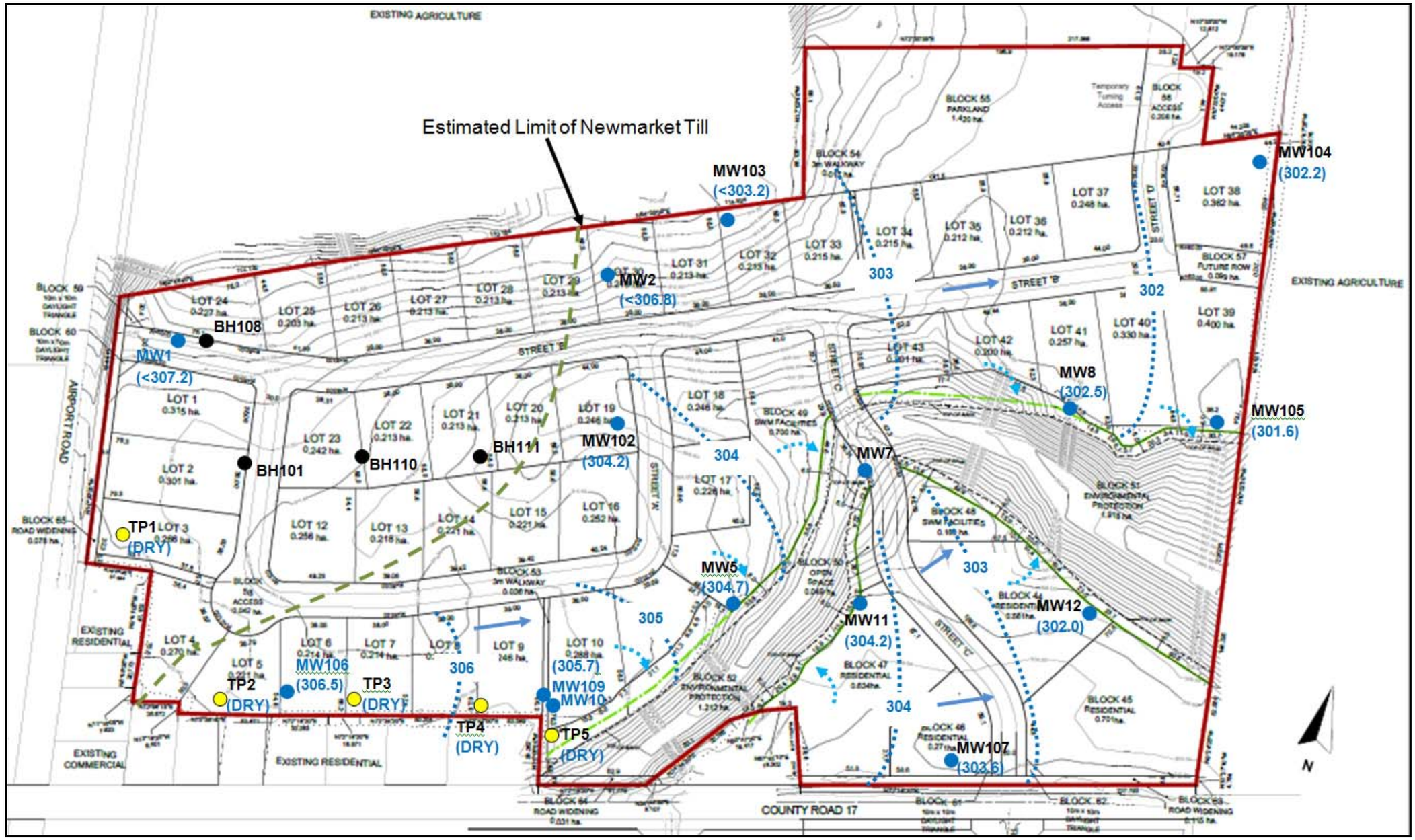


Figure 21 - Shallow Ground Water Flow Regime

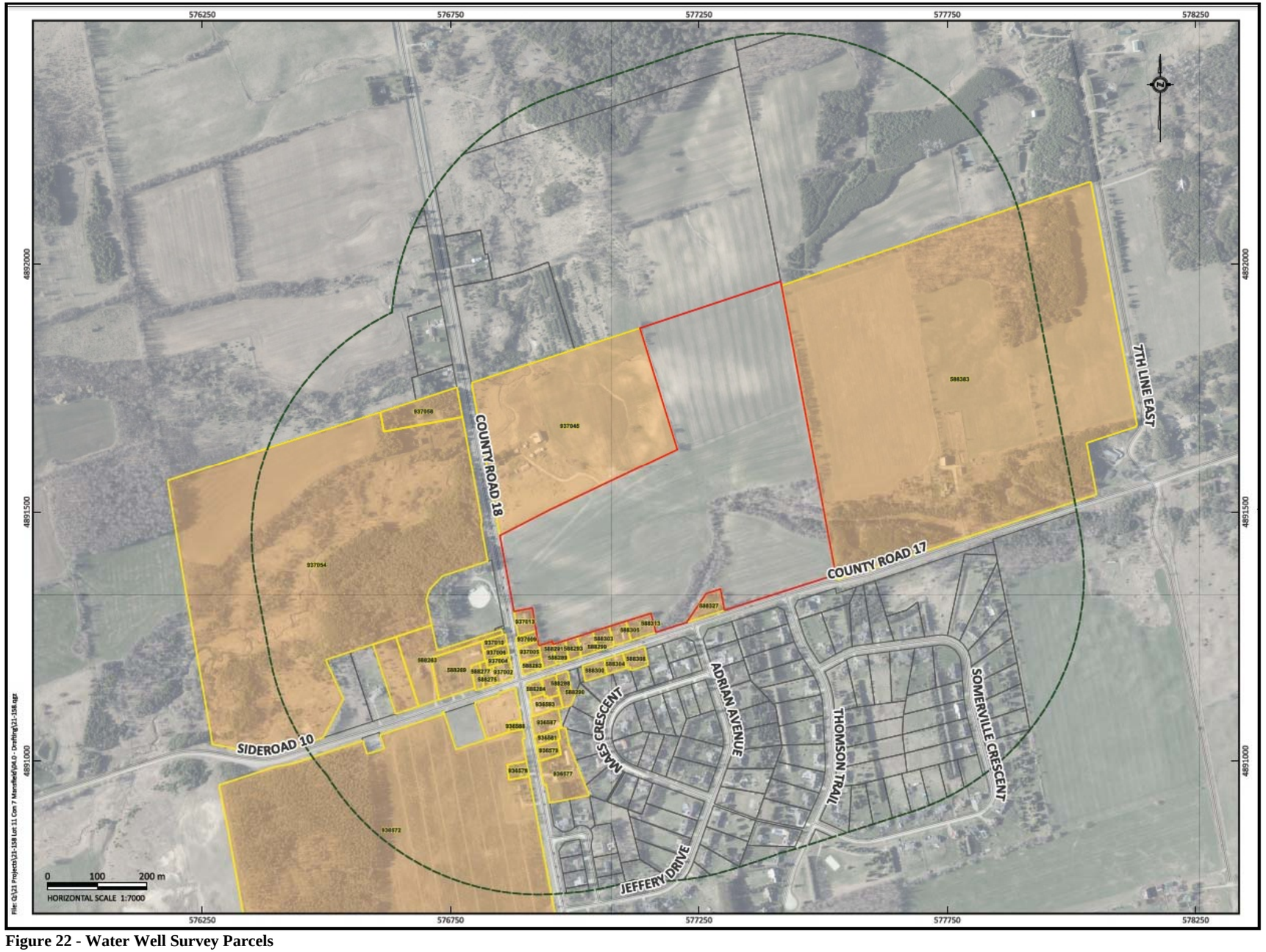
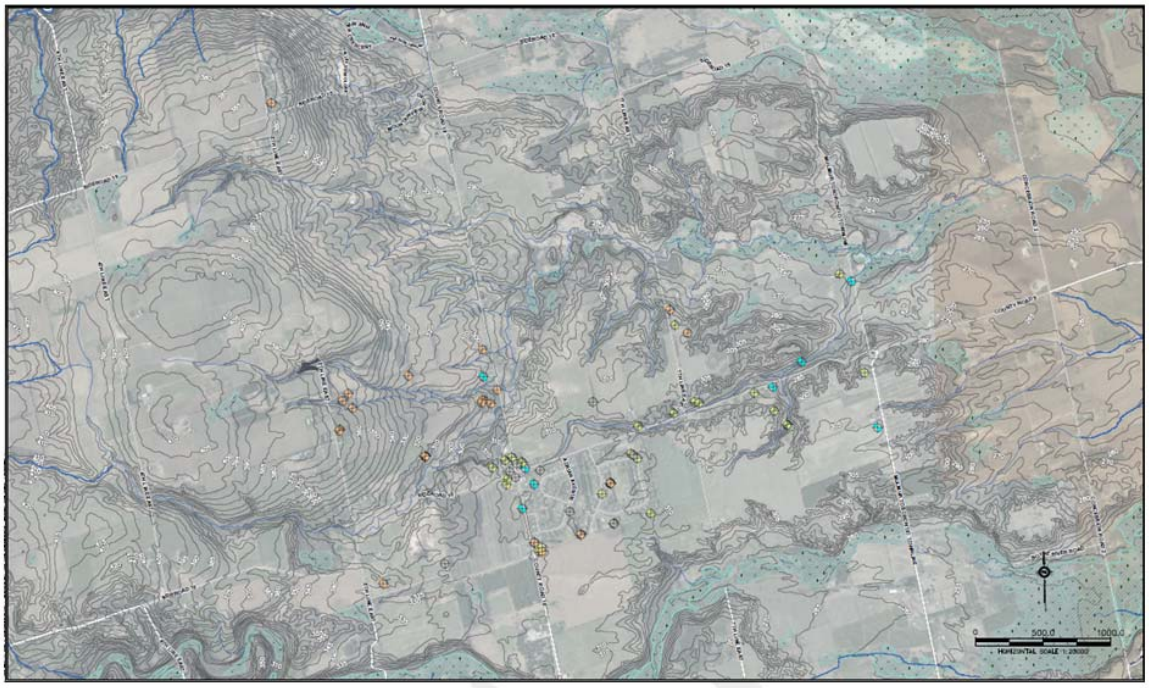


Figure 22 - Water Well Survey Parcels

Based on this information, it is our impression that all properties within the Community of Mansfield are likely to be municipally serviced.

3.3.2 MECP Water Well Records

The known MECP water wells for the Mansfield area were evaluated to assess the potential to influence down gradient wells as a result of the Site development. Our evaluation found 72 water wells in the nine Township lots surrounding the Site location (Figure 23 - below). The MECP water wells existing in Lots 10, 11 and 12 within Concessions 6, 7 and 8 were compiled. This collection of water wells extend well beyond the 500 m radius that had been advocated for the assessment.



from WWIS database (2023)

Figure 23 - MECP Water Wells

Of the 72 water wells compiled (Appendix B), 14 well records were identified as abandoned wells and have a gray colouring on Figure 23. Of the remaining 58 water wells, 23 were identified as bedrock wells and have an orange colouring on Figure 23. The remaining 35 water wells were constructed in the overburden.

As highlighted above, a disproportionate number of the bedrock wells were found to the west of the Site where the overburden sediments thin toward the brow of the Niagara Escarpment. Only two bedrock wells exist to the east (*i.e.,* Concession 8) and four were located to the south (*i.e.,* Lot 10, Concession 7). The remaining 17 bedrock water wells

exist to the west in Concession 6. These water wells were not considered to be significant for the water table discussion at the Site.

Finally of the 35 overburden water wells identified within the search area, it is noted that 27 wells had a depth greater than 20 m and have a yellow colouring on Figure 23. These wells were considered to collect a potable supply within a deeper confined aquifer system which lies beneath the upper Newmarket Till. Eight overburden wells were reported to have been constructed shallower than 20 m depth and have a light blue colouring on Figure 23. These wells are tabulated below.

Table F: Shallow Water Well Records

Well ID	Distance from Site centroid (m)	Direction from Site centroid	Water Bearing Zone (mbgl)	Pumping Rate (L/min)	Drilling Date
17-00766	399	SW	3.7	4.5	Oct-61
17-02588	656	NW	6.4	1.1	Aug-79
17-00767	326	SW	8.7	0.5	Nov-61
17-02494	1,915	E	9.1	9.1	Aug-78
17-00739	598	SW	13.4	2.3	Jan-64
17-03120	1,665	SE	14.0	9.1	Aug-84
17-05058	2,477	E	18.6	31.8	Aug-97
17-02015	2,404	SE	18.7	9.1	Nov-75

Four of these eight shallow wells exist a significant distance east of the Site and would not be influenced by the Site development in any significant manner. Similarly, two of these shallow wells (*e.g.,* 17-02588 & 17-00739) are considered to be offset from the Site and tangential to the shallow ground water flow at the Site. These wells would not be influenced by the Site development (Figure 23).

The remaining two wells are considered to be situated on the historical lots existing along 10th Sideroad east of Airport Road. The sketches on the water well records would suggest these wells are within a couple of residential lots of the intersection on either side of the road.

Given the construction dates in 1961, these wells are relatively old and were used prior to the municipal servicing of the Community. The water well record (WRR) No.: 17-00766 was drilled in 1961 to increase the depth of an existing well from 3.7 mbgl to 4.5 mbgl. However, a sandy clay unit was encountered at the base of the existing well and therefore the operation only created a reservoir for the existing well. With a till contact at 3.7 mbgl (~307.3 masl), it is interpreted that this well location is up gradient in terms of the till contact topography (Figure 10). Any effluent discharge from the proposed development

would vertically percolate to a greater depth. Ground water movement upslope to this well location is not anticipated given the upper Newmarket Till topography.

In contrast and as presented above, WWR No.: 17-00767 encountered a downward fining stratigraphy. A sandy clay unit was encountered from 4.9 mbgl (~306.1 masl) to the well base at 8.7 mbgl. Water was encountered in the sandy clay unit starting at 7.0 mbgl. The results mirror the findings from the PML (2021) and Azimuth (2023) field investigations and attest to the consistency of the hydrogeologic setting over decades.

The reader is also cautioned in reviewing this water well record to correctly interpret the information presented (Appendix B). It is known that only a limited pumping rate can be sustained from the upper sediment package in a "sandy clay" unit. Thus, it is our opinion that the information presented should be interpreted to mean that 50 gallons were extracted from the well over an 8 hour test period which translates to a pumping rate of 0.5 L/min. This rate is in keeping with the other hydrogeologic data presented.

Finally, the inability to collect ground water from the silt unit in the upper sediment package was also observed when attempting to capture water quality samples from the existing Site monitoring well network (see Section 3.4).

The residences along the 10th Sideroad are considered to be up gradient of the Site given the surface slope of the upper Newmarket Till unit (Figures 9 and 10). Ground water flow in the saturated silt unit is limited. This is substantiated by the dry creek conditions present throughout the majority of the year as highlighted above. The potential for influence from the Site development on the surrounding residences is unlikely given the environmental setting.

The MECP literature recommends that a potable water well yield should be 13.7 L/min at a minimum to be considered a viable potable water supply (MECP, 2016[6]). As presented in Table F (above), only one of the eight shallow overburden wells meets this standard. Furthermore, most of these reported well yields are significantly under this water quantity threshold. This data attests to the inadequacy of the upper sediment package providing a viable residential water supply in the vicinity of the Mansfield community. In fact, the absence of a viable water supply in the upper sediment package accounts for the fact that most water wells within the provincial database have been constructed into the deeper overburden sediments below the Newmarket Till or the underlying shale bedrock.

[6] D-5-5 Guideline - Section 4.3.2
https://www.ontario.ca/page/d-5-5-private-wells-water-supply-assessment

According to the Township, all residences along the 10th Sideroad are connected to the municipal supply. This makes sense; especially if the residence had originally relied upon the shallow water table condition. The shallow water table condition does not provide a viable water resource for potable supply given its orientation at the edge of the Pine River valley and the loss of the upper permeable horizon to the west owing to the depositional circumstances affecting the Mansfield area.

The geologic and hydrogeologic information presented above illustrate that the upper sediment package (*i.e.,* silt unit) is not a viable ground water supply for potable use in the Community of Mansfield as defined by MECP guidance (*i.e.,* D-5-5 Guideline).

3.4 Ground Water Chemistry Data

The D-5-4 Guideline requires that the background nitrate concentration be determined and the source(s) of the background nitrate concentration. This has been completed for the Site and included both inorganic and isotopic evaluation of the Site ground water condition.

3.4.1 Inorganic Ground Water Chemistry Data

All ground water monitoring wells capable of yielding a volumetric sample have been collected and evaluated for an inorganic suite of parameters (Table G - [overleaf]). At several monitoring well locations, inorganic parameters have been collected on several occasions. The westernmost monitoring wells which encountered the upper Newmarket Till did not yield a sufficient sample volume (*i.e.,* MW102, MW103 and MW106).

In general, the ground water samples contain a considerable quantity of suspended solids which would further impair the potable water quality. A sample from MW10 which was allowed to sit; resulted in half the volume collected in a sampling bottle being composed of sediment/ "fines". As noted in Table G, turbidity measurements were typically above 10,000 NTU.

Only two of the original wells (*i.e.,* MW7 & MW10) were sampled during the PML (2021) Site investigation because an insufficient quantity of water existed in most of the monitoring wells at the Site. While not all of the PML (2021) wells were constructed to the upper Newmarket Till contact; it does show that there was a limited ground water regime in the upper sediment package. In addition, the monitoring wells once evacuated/ purged did not readily flow back into the well screens such that a sample could be collected.

The background nitrate concentration distribution measured across the Site is discussed below (Section 3.4.3).

Table G: Inorganic Ground Water Sampling Results

	Client ID:		Stream	Stream	MW 11	MW 11	MW 11	MW 11	MW 12	MW 12	MW 12	MW 12	MW5	MW5	MW 5	MW 5	MW7	MW7	MW 7	MW 8	MW 8
	Sample ID:		23-008116-1	23-012737-2	23-008114-1	23-013532-4	23-016745-1	23-019884-5	23-008114-2	23-013532-5	23-016745-2	23-019884-6	22-32089-2	22-35405-1	23-013532-1	23-019884-1	21-17964-1	22-32089-3	23-019884-2	23-013532-2	23-019884-3
	Date Collected:		21-Apr-23	5-Jun-23	21-Apr-23	8-Jun-23	7-Jul-23	2-Aug-23	21-Apr-23	8-Jun-23	7-Jul-23	2-Aug-23	14-Oct-22	29-Nov-22	8-Jun-23	2-Aug-23	11-Jun-21	14-Oct-22	2-Aug-23	8-Jun-23	2-Aug-23
Parameter	**Units**	**R.L.**																			
Alkalinity(CaCO3) to pH4.5	mg/L	5	253	279	220	232		215	226	236		225			238	219			322	194	191
Bicarbonate (as CaCO3)	mg/L	5	253	279	220			215	226			225				219			322		191
Carbonate (as CaCO3)	mg/L	5	<5	<5	<5			<5	<5			<5				<5			<5		<5
Hydroxide	mg/L	5	<5	<5	<5			<5	<5			<5				<5			<5		<5
pH @25°C	pH units		8.1	7.9	8.1	8.0		7.9	8.0	8.0		7.7			8.1	7.4	7.8		7.6	8.0	7.6
Conductivity @25°C	µmho/cm	1	1080	596	478	496		455	573	572		537			528	514			778	541	573
Colour	TCU	2	11	4	<2	<2		<2	<2	<2		<2			3	3			<2	<2	<2
Turbidity	NTU	0.1	1.2	144	57400	22300		3170	22300	9010		13100			26800	17600			18900	949	34600
Bromide	mg/L	0.4	<0.4	<0.4	<0.4	0.4		<0.4	<0.4	0.4		<0.4			0.4	<0.4			<0.4	0.4	<0.4
Fluoride	mg/L	0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	0.1		<0.1			<0.1	<0.1			<0.1	<0.1	<0.1
Chloride	mg/L	0.5	191	26.7	4.1	4.8	5.4	4.8	8.8	6.9	7.7	7.3		7.9	4.6	5.2			54.2	10.7	14.8
Nitrate (N)	mg/L	0.05	0.1	0.8	7.1	6.3	6.3	6.8	14.1	13.6	13.5	13.3	18.0	17.2	11.2	11.3	1.6	2.3	2.8	17.5	19.5
Nitrite (N)	mg/L	0.05	<0.05	<0.05	<0.05	<0.05		<0.05	<0.05	<0.05		<0.05			<0.05	0.48	<0.05		<0.05	<0.05	<0.05
Sulphate	mg/L	1	16	13	6	6	6	6	13	15	13	9		8	8	7			11	14	17
BOD_5	mg/L	3	<3	<3	<3	<3		<3	<3	<3		<3			<3	<3			<3	3	<3
Phosphorus (Total)	mg/L	0.01	0.03	0.21	0.02	0.02		0.02	0.03	0.02		0.01			0.02	0.09	0.08		0.02	0.02	0.01
Total Kjeldahl Nitrogen	mg/L	0.1	0.5	0.8	0.2	0.1		0.2	0.2	0.2		0.1			0.2	0.8			0.2	0.2	0.2
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	<0.05	<0.05	<0.05	<0.05		<0.05	0.06	<0.05		<0.05			<0.05	<0.05			<0.05	<0.05	<0.05
Ammonia (N)-unionized	mg/L	0.01				<0.01				<0.01					<0.01					<0.01	
o-Phosphate (P)	mg/L	0.002	0.009	0.111	0.010	<0.002		<0.002	0.012	0.007		<0.002			0.002	0.004			0.007	0.029	0.004
Dissolved Organic Carbon	mg/L	0.2	1.9	4.0	0.9	2.7		2.6	1.0	2.7		2.3			2.6	2.8			2.6	2.6	2.9
COD	mg/L	5	24	29	<5	<5		9	<5	<5		6			<5	13			9	<5	13
Hardness (as CaCO3)	mg/L	0.02	288	275	264	260		243	266	258		272			272	265	435		401	278	285
Aluminum	mg/L	0.01	0.073	0.05	0.059	0.04		0.04	0.104	0.04		0.04			0.04	0.04	0.07		0.06	0.04	0.06
Aluminum (Total)	mg/L	0.01															0.84				
Barium	mg/L	0.001	0.016	0.022	0.019	0.02		0.019	0.021	0.023		0.017			0.026	0.029			0.026	0.031	0.034
Boron	mg/L	0.005	0.012	0.006	0.013	0.009		0.006	0.009	0.006		0.005			<0.005	0.006	0.01		0.008	0.006	0.006
Calcium	mg/L	0.02	102	96	92	91		85	87	83		91			92	90			124	91	93
Iron	mg/L	0.005	<0.005	<0.005	<0.005	<0.005		<0.005	0.061	<0.005		<0.005			<0.005	<0.005	0.809		<0.005	<0.005	<0.005
Magnesium	mg/L	0.02	8	9	8	8		7	12	13		11			10	10			22	13	13
Manganese	mg/L	0.001	0.072	0.027	<0.001	<0.001		<0.001	0.003	<0.001		<0.001			0.001	0.064			0.117	0.001	<0.001
Potassium	mg/L	0.1	1.4	1.2	0.5	0.7		0.4	0.6	0.9		0.2			1.1	1			1.2	1	0.8
Silica	mg/L	0.02	3.3	6.1	7.2	7.3		4.7	11.2	12.0		6.5			7.7	5.1			8.2	10.1	7.0
Sodium	mg/L	0.2	113	19	1	1		1	19	20		3			2	2			12	2	2
Strontium	mg/L	0.001	0.20	0.16	0.15	0.14		0.13	0.15	0.18		0.13			0.12	0.12			0.24	0.15	0.14
Tin	mg/L	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
Titanium	mg/L	0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005		<0.005			<0.005	<0.005			<0.005	<0.005	<0.005
Zinc	mg/L	0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005		<0.005			0.006	0.007	0.062		<0.005	0.007	<0.005
Antimony	mg/L	0.0001	0.0002	0.0005	0.0001	<0.0001		0.0002	0.0003	0.0001		0.0002			0.0001	0.0003	0.0005		0.0002	0.0002	0.0003
Arsenic	mg/L	0.0001	0.0002	0.0001	<0.0001	0.0001		<0.0001	0.0002	0.0002		0.0002			<0.0001	0.0001	0.0002		0.0001	0.0001	0.0001
Beryllium	mg/L	0.002															<0.002				
Cadmium	mg/L	0.000015	<0.000015	<0.000015	<0.000015	<0.000015		<0.000015	<0.000015	<0.000015		<0.000015			<0.000015	<0.000015	0.00011		0.000017	<0.000015	<0.000015
Chromium	mg/L	0.001	<0.001	<0.001	0.001	<0.001		<0.001	<0.001	<0.001		<0.001			<0.001	<0.001	0.002		<0.001	0.001	0.001
Chromium (VI)	mg/L	0.001															<0.001				
Cobalt	mg/L	0.0001															0.0004				
Copper	mg/L	0.0001	0.001	0.0008	0.0005	0.0004		0.0004	0.0006	0.0004		0.0004			0.0005	0.0009	0.0054		0.0007	0.0008	0.0006
Lead	mg/L	0.00002	0.00004	<0.00002	<0.00002	<0.00002		<0.00002	0.00011	0.00006		<0.00002			<0.00002	<0.00002	0.00056		<0.00002	0.00004	<0.00002
Mercury	mg/L	0.00002															<0.00002				
Molybdenum	mg/L	0.0001	0.0002	<0.0001	<0.0001	<0.0001		<0.0001	0.0003	0.0003		<0.0001			0.0001	0.0001	0.0004		0.0003	0.0001	<0.0001
Nickel	mg/L	0.0002	0.0003	0.0009	<0.0002	<0.0002		<0.0002	<0.0002	<0.0002		<0.0002			<0.0002	0.0003	0.0104		0.0006	0.0003	<0.0002
Selenium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001		<0.001			<0.001	<0.001	<0.0001		<0.001	<0.001	<0.001
Silver	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001		<0.0001			<0.0001	<0.0001	0.0005		<0.0001	<0.0001	<0.0001
Thallium	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005		<0.00005	<0.00005	<0.00005		<0.00005			<0.00005	<0.00005	<0.00005		<0.00005	<0.00005	<0.00005
Tungsten	mg/L	0.01															<0.01				
Uranium	mg/L	0.00005	0.00025	0.0002	0.00012	0.00011		0.0001	0.00103	0.00212		0.00028			0.00015	0.00014	0.00037		0.00042	0.0002	0.00021
Vanadium	mg/L	0.0001	0.0002	0.0005	0.0003	0.0003		0.0003	0.0006	0.0005		0.0004			0.0003	0.0003	0.0013		0.0004	0.0005	0.0004
Zirconium	mg/L	0.003															0.003				
TDS (Calc. from Cond.)	mg/L	3				257				297					273					280	
Anion Sum	meq/L		10.8	6.7	5.1	5.4		5.0	6.1	6.2		5.8			5.9	5.5			8.4	5.7	6.0
Cation Sum	meq/L		10.7	6.3	5.3	5.3		4.9	6.2	6.0		5.6			5.6	5.4			8.6	5.7	5.8
% Difference	%		0.3%	2.7%	2%	1%		113%	1%	1%		209%			3%	106%			102%	1%	138%
Ion Ratio	-		101.000%	106.000%	96%	102%		102%	98%	103%		104%			1.1	1.0			1.0	1.0	1.0
Sodium Adsorption Ratio	-		2.90	0.49	0.03	0.03		0.04	0.51	0.53		0.09			0.05	0.05			0.25	0.05	0.06
TDS (Ion Sum Calc)	mg/L	1	600	335	300	280		264	300	339		315			310	298			429	325	342
TDS(calc.)/EC(actual)	-		0.5		0.6	0.6		0.6	0.6	0.6		0.6			0.6	0.6			0.6	0.6	0.6
Conductivity Calc	µmho/cm		1080	607	498	502		474	585	581		548			542	522			794	561	585
Conductivity Calc / Conductivity						1.01				1.02					1.03					1.04	
Langelier Index(25°C)	-		1.0	0.9	0.9	0.9		0.7	0.8	0.8		0.6			1.0	0.3			0.8	0.8	0.4
Saturation pH (25°C)	-		7.1		7.1	7.1		7.2	7.2	7.2		7.1			7.1	7.2			6.9	7.2	7.2

Table G: Inorganic Ground Water Sampling Results

	Client ID:		MW10	MW10	MW10	MW 10	MW 10	MW 104	MW 104	MW 104	MW 105	MW 105	MW 105	MW 107	MW 107	MW 107	MW 109	MW 109	MW 109
	Sample ID:		21-17964-2	22-32089-1	22-35405-2	23-013532-3	23-019884-4	23-013532-6	23-016745-3	23-019884-7	23-013532-7	23-016745-4	23-019884-8	23-013532-8	23-016745-5	23-019884-9	23-013532-9	23-016745-6	23-019884-10
	Date Collected:		11-Jun-21	14-Oct-22	29-Nov-22	8-Jun-23	2-Aug-23	8-Jun-23	7-Jul-23	2-Aug-23	8-Jun-23	7-Jul-23	2-Aug-23	8-Jun-23	7-Jul-23	2-Aug-23	8-Jun-23	7-Jul-23	2-Aug-23
Parameter	**Units**	**R.L.**																	
Alkalinity(CaCO3) to pH4.5	mg/L	5				295	285	215		207	223		223	253		251	283		277
Bicarbonate (as CaCO3)	mg/L	5					285			207			223			251			277
Carbonate (as CaCO3)	mg/L	5					<5			<5			<5			<5			<5
Hydroxide	mg/L	5					<5			<5			<5			<5			<5
pH @25°C	pH units		8.0			8.0	7.8	8.0		7.7	8.0		7.8	8.0		7.7	8.0		7.8
Conductivity @25°C	µmho/cm	1				733	826	572		537	643		628	750		754	895		979
Colour	TCU	2				<2	<2	<2		<2	<2		<2	<2		<2	<2		<2
Turbidity	NTU	0.1				32800	7550	31700		18500	47700		4000	13300		12800	13900		10800
Bromide	mg/L	0.4				0.4	<0.4	0.4		<0.4	0.4		<0.4	<0.4		<0.4	0.4		<0.4
Fluoride	mg/L	0.1				<0.1	<0.1	<0.1		<0.1	<0.1		<0.1	<0.1		<0.1	<0.1		<0.1
Chloride	mg/L	0.5			137	57.7	84.3	7.2	7.6	7.3	14.8	15.6	16.3	80	90.2	87.8	88.9	108	108
Nitrate (N)	mg/L	0.05	13.6	14.6	11.1	2.8	4.1	19.7	20.6	17.6	17.4	17.5	18.9	3.2	2.7	2.4	7.1	6.5	6.4
Nitrite (N)	mg/L	0.05	<0.05			<0.05	<0.05	<0.05		<0.05	<0.05		<0.05	<0.05		<0.05	<0.05		0.14
Sulphate	mg/L	1			14	10	10	8	8	7	31	33	21	10	9	8	28	56	53
BOD_5	mg/L	3				<3	<3	<3		<3	<3		<3	<3		<3	<3		<3
Phosphorus (Total)	mg/L	0.01	6.95			0.01	0.02	0.01		0.02	0.02		0.02	0.02		0.01	0.02		0.01
Total Kjeldahl Nitrogen	mg/L	0.1				0.3	0.3	0.1		0.2	0.2		0.2	0.1		0.1	0.3		0.3
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05				<0.05	<0.05	<0.05		<0.05	<0.05		<0.05	<0.05		<0.05	<0.05		<0.05
Ammonia (N)-unionized	mg/L	0.01				<0.01		<0.01			<0.01			<0.01			<0.01		
o-Phosphate (P)	mg/L	0.002				<0.002	0.004	<0.002		0.003	0.005		<0.002	<0.002		0.004	<0.002		0.019
Dissolved Organic Carbon	mg/L	0.2				1.5	2.6	2.3		2.1	2.2		3.3	1.0		4.0	1.4		3.4
COD	mg/L	5				<5	9	<5		12	<5		12	<5		7	<5		14
Hardness (as CaCO3)	mg/L	0.02	336			265	288	289		269	311		312	257		246	299		318
Aluminum	mg/L	0.01	0.05			0.04	0.05	0.04		0.05	0.05		0.06	0.04		0.04	0.04		0.06
Aluminum (Total)	mg/L	0.01	23.4																
Barium	mg/L	0.001				0.025	0.032	0.024		0.023	0.044		0.037	0.052		0.041	0.085		0.068
Boron	mg/L	0.005	0.065			0.084	0.147	0.012		0.01	0.008		0.007	0.007		0.008	0.03		0.033
Calcium	mg/L	0.02				90	99	101		94	102		103	85		81	96		102
Iron	mg/L	0.005	44.7			<0.005	<0.005	<0.005		<0.005	<0.005		<0.005	<0.005		<0.005	<0.005		0.06
Magnesium	mg/L	0.02				10	10	9		9	14		13	11		11	15		15
Manganese	mg/L	0.001				<0.001	<0.001	0.002		0.001	0.006		0.001	0.001		<0.001	0.009		0.007
Potassium	mg/L	0.1				2	1.8	0.8		0.7	1.3		0.7	1.1		0.7	3.1		1.8
Silica	mg/L	0.02				5.9	3.9	7.7		5.2	9.8		6.5	9.1		6.1	8.8		6.8
Sodium	mg/L	0.2				46	64	4		4	11		5	59		62	71		86
Strontium	mg/L	0.001				0.17	0.18	0.14		0.14	0.18		0.17	0.15		0.14	0.20		0.20
Tin	mg/L	0.05				<0.05	<0.05	<0.05		<0.05	<0.05		<0.05	<0.05		<0.05	<0.05		<0.05
Titanium	mg/L	0.005				<0.005	<0.005	<0.005		<0.005	<0.005		<0.005	<0.005		<0.005	<0.005		<0.005
Zinc	mg/L	0.005	0.102			<0.005	<0.005	<0.005		<0.005	<0.005		<0.005	<0.005		<0.005	<0.005		<0.005
Antimony	mg/L	0.0001	<0.0001			0.0001	0.0002	<0.0001		0.0003	<0.0001		0.0001	<0.0001		0.0003	0.0001		0.0002
Arsenic	mg/L	0.0001	0.0006			<0.0001	<0.0001	<0.0001		<0.0001	0.0001		0.0001	0.0001		0.0001	0.0002		0.0002
Beryllium	mg/L	0.002	<0.002																
Cadmium	mg/L	0.000015	0.000042			<0.000015	<0.000015	<0.000015		<0.000015	<0.000015		<0.000015	<0.000015		<0.000015	<0.000015		<0.000015
Chromium	mg/L	0.001	0.003			<0.001	<0.001	<0.001		<0.001	<0.001		0.001	0.001		0.001	<0.001		0.001
Chromium (VI)	mg/L	0.001	0.001																
Cobalt	mg/L	0.0001	0.002																
Copper	mg/L	0.0001	0.0067			0.0009	0.0008	0.0003		0.0003	0.0004		0.0004	0.0002		0.0009	0.0005		0.0005
Lead	mg/L	0.00002	0.0021			<0.00002	<0.00002	<0.00002		<0.00002	<0.00002		<0.00002	<0.00002		<0.00002	<0.00002		0.00005
Mercury	mg/L	0.00002	0.00004																
Molybdenum	mg/L	0.0001	<0.0001			0.0001	0.0001	0.0015		0.0009	0.0009		0.0003	0.0002		<0.0001	0.0009		0.0004
Nickel	mg/L	0.0002	0.0035			0.0004	0.0003	<0.0002		<0.0002	0.0002		<0.0002	<0.0002		<0.0002	0.0003		0.0003
Selenium	mg/L	0.001	<0.0001			<0.001	<0.001	<0.001		<0.001	0.001		<0.001	<0.001		<0.001	0.002		0.002
Silver	mg/L	0.0001	<0.0001			<0.0001	<0.0001	<0.0001		<0.0001	<0.0001		<0.0001	<0.0001		<0.0001	<0.0001		<0.0001
Thallium	mg/L	0.00005	<0.00005			<0.00005	<0.00005	<0.00005		<0.00005	<0.00005		<0.00005	<0.00005		<0.00005	<0.00005		<0.00005
Tungsten	mg/L	0.01	<0.01																
Uranium	mg/L	0.00005	0.00021			0.00016	0.00014	0.0003		0.00028	0.00277		0.00061	0.00064		0.00022	0.00062		0.00181
Vanadium	mg/L	0.0001	0.0044			0.0003	0.0003	0.0003		0.0003	0.0003		0.0004	0.0004		0.0004	0.0003		0.0005
Zirconium	mg/L	0.003	0.036																
TDS (Calc. from Cond.)	mg/L	3				382		297			334			392			474		
Anion Sum	meq/L					8.0	8.6	6.1		5.7	6.8		6.7	7.8		7.8	9.3		10.2
Cation Sum	meq/L					7.4	8.6	6.0		5.6	6.7		6.5	7.7		7.7	9.2		10.2
% Difference	%					4%	7%	1%		153%	0.4%		163.0%	0.1%		102.0%	0.5%		5%
Ion Ratio	-					1.1	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0		1.0
Sodium Adsorption Ratio	-					1.23	1.64	0.10		0.11	0.26		0.13	1.61		1.73	1.80		2.10
TDS (Ion Sum Calc)	mg/L	1				406	459	346		323	385		377	412		411	503		562
TDS(calc.)/EC(actual)	-					0.6	0.6	0.6		0.6	0.6		0.6	0.5		0.5	0.6		0.6
Conductivity Calc	µmho/cm					726	829	588		553	655		644	754		757	890		984
Conductivity Calc / Conductivity						0.991		1.03			1.02			1.01			0.994		
Langelier Index(25°C)	-					1.0	0.7	0.9		0.5	0.9		0.7	0.9		0.6	1.0		0.7
Saturation pH (25°C)	-					7.0	7.0	7.1		7.2	7.1		7.1	7.1		7.2	7.0		7.0

In 2021, MW7 and MW10 were sampled. Both results report elevated metal constituents, which was assumed to represent sediment entrapment in the ground water samples. For example, the iron concentration in the MW10 sample was reported to be 44.7 mg/L. This value suggests the water sample was quite turbid since it suggests the iron concentration is well above the saturation limit for ground water alone. Similarly, an elevated manganese concentration was noted for the MW7 sample among other minor metal constituents which is also indicative of sediment entrainment. However, neither would influence the nitrate concentration present in the samples.

Since then Azimuth has collected numerous samples including the newest monitoring wells constructed in 2023. In general, the major ion chemistry indicates a calcium carbonate geochemical signature which is indicative of the host geology. Magnesium is present from 10% to 20%. A minor halite signature is evident in down gradient wells and represents up to 35% of the major ion total. This is attributed to a road salt influence at this headwater location.

3.4.2 Nitrate Fertilizer Use

The agricultural field was fertilized on May 5, 2023. A fertilizer mixture of three products was applied to the field being:

• pelletized urea product (46-0-0)[7]	199.26 lbs/acre;
• pelletized mono ammonium phosphate (11-52-0)	25.92 lbs/acre;
• pelletized potassium-magnesium sulfate (0-0-21)	122.85 lbs/acre
	348.03 lbs/acre

This same formulation was used the previous two years and applied on May 20, 2021 and May 9, 2022. In total, ~1,000 kg/a of nitrogen as N is applied across the agricultural fields for each of these applications. In comparison, the proposed residential development would discharge roughly half of this annual loading rate (*i.e.,* 519 kg/a).

In general, the applied phosphate and potassium volumes will be sorbed onto the upper topsoil where root uptake will occur. In contrast, the nitrogen is not as readily sorbed and thus a portion will percolate with the rainwater deeper into the soil profile. This accounts for the elevated nitrate concentrations detected in the monitoring wells across the Site. The urea base product is also nitrified as it percolates vertically through the soil profile. As a result, the dominant nitrogen species detected in the ground water is nitrate.

[7] The values in parenthesis represent the percent of nitrogen, phosphorus and potassium present in the product.

3.4.3 Nitrate Ground Water Chemistry Data

An elevated nitrate concentration is evident in the shallow ground water collected from the upper sediment package. Nitrate is the dominant nitrogen species present based on the water quality sampling results (see Table G). The ground water quality data is summarized below (Table H). The elevated nitrate concentration measured across the Site is attributed to agricultural inputs as is presented in Section 3.4.4.

Table H Ground Water Nitrate Data

Sampling Location	NO^3 as N (mg/L)
MW5	
October 2022	18.0
November 2022	17.2
June 2023	11.2
August 2023	11.3
MW8	
June 2023	10.7
August 2023	14.8
MW10	
June 2021	13.6
October 2022	14.6
November 2022	11.1
June 2023	2.8
August 2023	4.1
MW11	
April 2023	7.1
June 2023	6.3
July 2023	5.4
August 2023	6.8
MW12	
April 2023	14.1
June 2023	13.6
July 2023	13.5
August 2023	13.3
MW104	
June 2023	19.7
July 2023	20.6
August 2023	17.6
MW105	
June 2023	17.4
July 2023	17.5
August 2023	18.9
MW107	
June 2023	3.2
July 2023	2.7
August 2023	2.4

Table H Ground Water Nitrate Data

Sampling Location	NO^3 as N (mg/L)
MW109	
June 2023	7.1
July 2023	6.5
August 2023	6.4
MW7 - Newmarket Till	
June 2021	1.6
October 2022	2.3
August 2023	2.8

The nitrate concentrations appear to be consistent at sampling locations over time. The difference in the MW10 data is likely due to the presence of the ground water pedestal which was avoided in the 2022 agricultural year and presumable with the agricultural application in this area in the Spring of 2023. This situation would also be reflected in the MW109 sampling data. This finding is significant since the nitrate concentration is rapidly depleted when fertilizer applications are curtailed in this corner of the agricultural field. However, the nitrate attenuation could require a couple of years to fully dissipate as seen in the deeper MW109 results from 2023.

Similarly, the lower nitrate concentration at MW107 is considered to reflect the up gradient boundary of the agricultural field adjacent to 10th Sideroad. The same would be true for those monitoring wells located close to the up gradient edge of an agricultural field (*i.e.,* MW11).

The water quality results are important to the evaluation of the hydrogeologic setting. The water quality in the upper Newmarket Till unit does not appear to be experiencing downward percolation of the elevated nitrate waters. The consistent sample results of the nitrate concentration at ~2 mg/L as N at MW7 are much lower than those concentrations reported in the overlying silt unit of the upper sediment package (see Table G).

Agricultural pursuits in the Mansfield vicinity have been present for over a century. This time should be more than sufficient to permit percolation of the elevated nitrate waters vertically down into the upper Newmarket Till unit even with a low hydraulic conductivity value. The absence of the elevated nitrate concentration in the upper Newmarket Till unit indicates that other factors are in play with this environmental setting. Denitrification is most likely occurring in the till since anaerobic conditions could exist in this aquitard, along with access to labile organic carbon (Robertson *et al.*, 1996; Rodvang & Simpkins, 2001).

According to Rudolph (1997) "… [n]itrate is usually limited to the upper portion of the aquifer and concentrations tend to diminish with depth (Trudell *et al.*, 1986; Geyer *et al.*, 1992; Starr and Gilham, 1993). This layering of nitrate can be referred to as stratified

contamination (Akindunni *et al.*, 1995) …". While this process is dependent on specific aquifer properties, it is reasonable to suggest that most Southern Ontario aquifers/ aquitards possess these characteristics.

In the absence of vertical nitrate migration due to denitrification, the lateral migration becomes the main migration pathway along the surface contact of the upper Newmarket Till (or in proximity to this feature), albeit at the diminished flow rate as highlighted above.

3.4.4 Isotopic Ground Water Chemistry Data

All ground water monitoring wells with a suitable sample volume were collected on July 7, 2023 for isotope analyses. Six ground water monitoring wells were sampled (*i.e.,* MW11, MW12, MW104, MW105, MW107 & MW109). Sample bottles were filled to capacity and then placed on ice in a cooler and transport to our office for processing.

The captured water was decanted and then transferred to a clean, new 500 mL plastic bottle which was filled to capacity by partially crushing the bottle and then freezing the contents. Once frozen the samples were transported to the isotope laboratory. A sufficient sample volume was collected so that the same water could be evaluated for key inorganic parameters requested by the isotope laboratory (*i.e.,* nitrate, sulphate, chloride) at a commercial analytical laboratory. The results of the isotopic analysis are presented in Table I (below).

The isotope sampling measured a negative $\delta^{18}O$ value and a $\delta^{15}N$ result between 6 and 8. These results are graphically presented as point data in Figure 24 (overleaf - blue diamonds).

Table I: Isotope Chemistry Results

	$\delta^{18}O$		$\delta^{15}N$		Water Chemistry		
	VSMOW		Air		N	SO_4	Cl
					mg/L	mg/L	mg/L
July 2023							
MW11	-9.5	-10.0	6.4		6.3	6.0	5.4
MW12	-9.1		8.0		13.5	13.0	7.7
MW104	-9.9		6.0	6.7	20.6	8.0	7.6
MW105	-10.8		6.8		17.5	33.0	15.6
MW107	-9.8		7.5	7.5	2.7	9.0	90.2
MW109	-9.1		6.0		6.5	56.0	108.0

The graphical representation was taken from Senger (2016)[8]. Senger (2016) derived this graphical representation using precipitation data from Birks *et al* (2004). Atmospheric nitrate data was taken from Kendall *et al.* (2007). Manure and septic data was derived from Aravena *et al.* (1993), Wassenaar (1995), Girard & Hillaire-Marcel (1997), Kendall (1998), Choi & Ro (2002), Griggs & Kump (2003), Curt *et al.* (2004), Kellman (2005), and Katz *et al.* (2009). Data for ammonium in fertilizer was taken from Wassenaar (1995), Vitoria *et al.* (2004), Bateman & Kelly (2007), and Flood (2011). Soil data was derived from Kendall (1998).

The 2023 results show a negative $\delta^{18}O$ value which is indicative of a precipitation source. The Canadian Network for Isotopes in Precipitation has calculated amount-weighted mean annual values $\delta^{18}O$-H_2O at Egbert, Ontario. Between October 1998 and September 2002 the averaged values were -10.6 ‰ (Birks *et al.*, 2004).

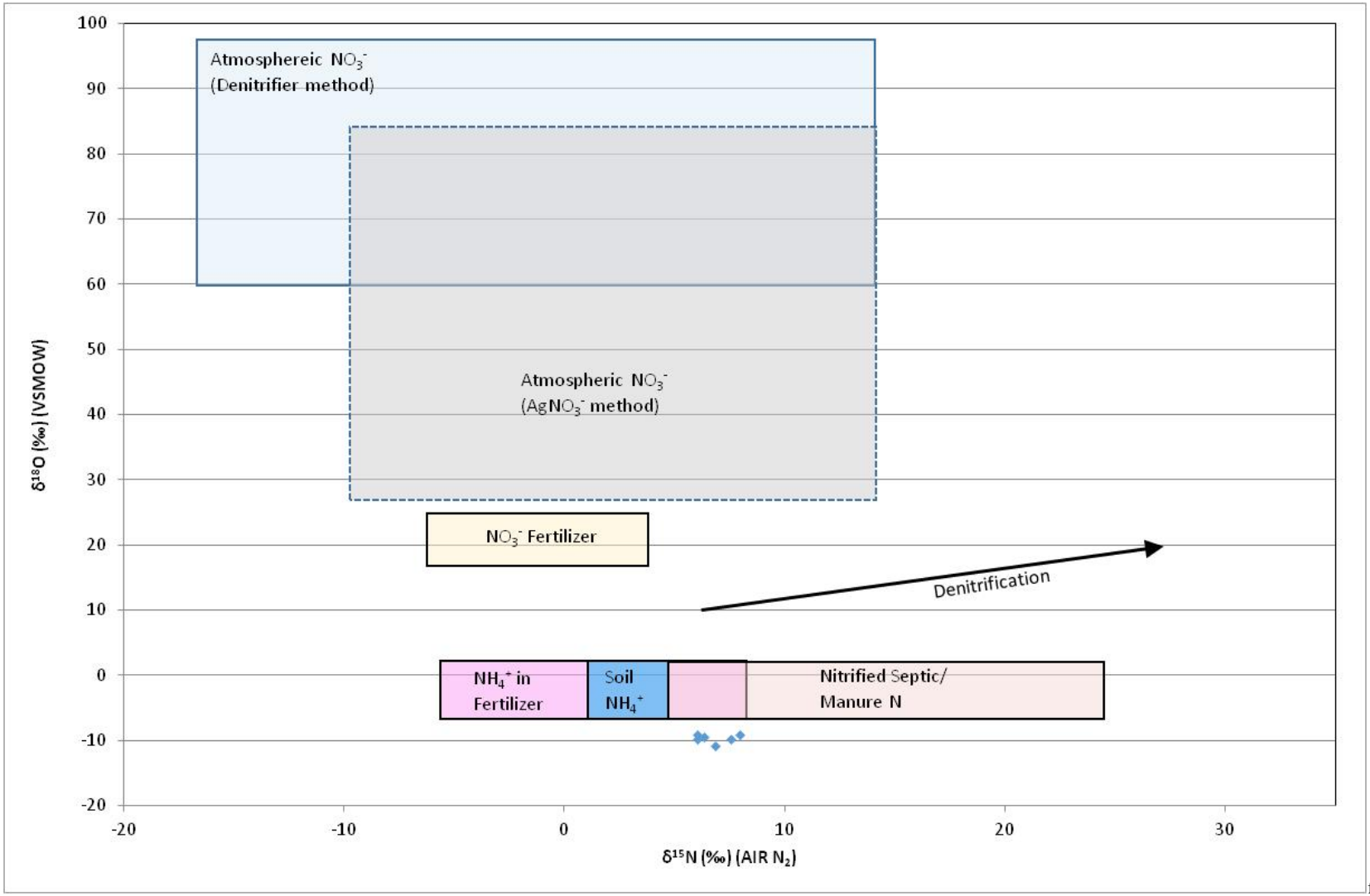
The July 2023 isotope data are tightly grouped as portrayed in the figure above and indicative of a single source. The negative $\delta^{18}O$ values coupled with the $\delta^{15}N$ results are interpreted to represent the urea signature associated with the May 2023 fertilizer application which was highlighted above. The percolation of this recently applied source was measured in the July 2023 ground water sampling events.

It is reported that no manure application has occurred on the Site for the past decade. As noted above, a similar chemical formulation has been used over the past three years on this agricultural field.

The percolation of the urea fertilizer source through the unsaturated zone to the wetted silt layer has oxygenated the nitrogen source so that the dominant nitrogen species in the ground water is nitrate. As noted above, the nitrate concentration in the wetted silt layer is highest at the down gradient property boundary (*i.e.*, the eastern property boundary) and was lowest along the up gradient property boundary (*i.e.*, the southwestern property boundary). The nitrate concentration increase measured across the agricultural field is attributed to the fertilizer application. Since the isotope signature is consistent at all sampling points, the nitrate concentration measured is ascribed to the fertilizer source.

Once the agricultural activities cease on these lands, it is assumed that the nitrate concentration would diminish to traditional background levels (*i.e.*, 0.2 mg/L as N). In light of this situation, it is assumed that the background nitrate concentration can be set to this traditional level for the purposes of assessing the residential development.

[8] Senger, N., 2016
Multi-decade comparison of groundwater nitrate in the Nottawasaga River Watershed
M.Sc. Thesis, UWaterloo



from Senger (2016)

Figure 24 - $\delta^{15}N$ vs $\delta^{18}O$ Comparison

3.4.5 Surface Water Chemistry Data

The on-Site creek channel is considered to be a remnant of the deglaciation processes from the late-Wisconsin retreat. The creek channel is deeply incised from past glacial flow and subsequently vegetated. Site evaluation confirmed the watercourse on the Site receives flow from the south through a 1.7 m wide by 0.9 m high corrugated steel pipe (CSP) culvert at the 10th Sideroad. This culvert accepts a combination of roadside ditch drainage and drainage from the adjacent residential neighbourhood.

Although sections of the Pine River are classified as coldwater, temperature monitoring by NVCA summarized in the Integrated Watershed Management Plan resulted in 'cool' classifications in the southern portion of the subwatershed by Airport Road (in proximity to the Site), and 'cool/warm' classifications just downstream (NVCA, 2018). On the Site, conditions in the tributary are considered marginal and unsuitable for most fish species including salmonids (Azimuth, 2021). Given the small size of the channel and muck, and densely vegetated channel conditions with limited flow, the creek presents more as a warm water system. Given Site conditions and lack of any notable barriers to fish movement (aside from lack of flow and seasonal inundation), the creek is conservatively considered to provide seasonal, direct fish habitat; however, the habitat quality is considered low (Azimuth, 2021). The report also described the creek channel substrate consisted of muck/organic soils with sparse gravel.

The Site study did comment that "… visible minimal spring flows were noted, while the channel was mainly dry (with no visible flow) by the summer …", (Azimuth, 2021). Based on field observations, the wetland area within the creek channel was generally dry by late Spring and no evening calling amphibians were found during the field program. Based on these feature attributes, unique ecological functions would not be attributed to the wetland on the Site.

The creek was not considered significant or sensitive; but the findings do provide a few important points from a hydrogeologic perspective. Baseflow from the silt unit into the creek is considered to be present; but insignificant to the feature. Seepage occurs; but is inconsequently by the summer when the channel is described as "dry". The other notable point made is that the creek channel substrate is mucky and organic rich. This substrate condition is anticipated to mitigate any nitrate migration to the creek. Robertson *et al.* (1999) documented that vigorous denitrification occurred in the riverbed sediment as a result of the development of anaerobic conditions. In this environment, nitrate can be converted to nitrogen gas by a reaction involving organic matter. The nitrate concentration decreased from about 20 mg/L to less than 0.5 mg/L in the last meter of the flow path before discharging into a river. The process was attributed to the increased availability of organic carbon in the riverbed sediments. The substrate conditions described by Robertson *et al.* (1999) replicate those described at the on-Site creek. Puckett *et al.* (2008) indicated that sites having longer residence times through the

streambed sediments provided a greater opportunity for biogeochemical reactions such as denitification to occur. The slow ground flow/ seepage from the silt unit would cater to a longer residence time which is anticipated to address the nitrate issue in terms of the river channel.

This hypothesis appears to fit well this the stream data collected for the creek. Two water quality samples were collected from the creek at the exit point from the Site in the Spring 2023 (Table G). In both cases the nitrate concentration in the captured samples was minimal. The second sample reported a diminishing flow in the creek by early June and three weeks later the stream flow was not observed and no sample could be collected.

Based on this information, it is our opinion that the elevated nitrate concentration in the ground water at the Site is having a no meaningful impact on the adjacent creek tributary. The same negligible influence would be anticipated when the proposed development is constructed.

3.5 Hydrogeologic Interpretation

The ground water percolation into the basal silt unit of the upper sediment package east of the unconformity is considered the receiving formation for the majority of treated effluent from the proposed Armstrong development. As noted above, this basal silt unit lies directly above the regional aquitard (*i.e.,* upper Newmarket Till). The geologic and hydrogeologic information presented above have substantiated this conceptual understanding. The underlying upper Newmarket Till will effectively isolate shallow ground water flow in the upper sediment package.

Similarly, the information presented shows that the treated effluent would reside in the basal silt unit; not unlike the agricultural fertilizers that have been applied to these lands for decades. As shown, the underlying Newmarket Till unit would minimize further vertical percolation from occurring. Minor vertical percolation into the underlying Newmarket Till will not pose a significant threat to underlying ground water resources. Furthermore, research has shown that aquitard systems effectively mitigate nitrate migration (Robertson *et al.*, 1996; Rodvang & Simpkins, 2001). The fertilizer applications that have historically occurred on these lands provide a precedent to understand the nitrate movement in this system.

Lateral migration of the ground water in the silt unit of the upper sediment package becomes the critical pathway for nitrate migration. Within the silt unit, lateral migration is effectively negated since the estimated rate of flow is inconsequential. Even if a worst case approach were employed, where the rate of flow was increased tenfold; the net overall effect would not be significant.

All of the evidence presented attests to the fact that the receiving formation is not a viable potable water supply. The geologic setting indicates that a finer grained material was deposited in the Nottawasaga watershed by the glacial Lake Schomberg. The geologic research also indicates that the deposition was found to be downward fining as revealed in the Site drilling program and in various water well records. Finally, the presence of the Pine River valley a short distance up gradient of the Site also plays a pivotal role in the hydrogeologic setting by having eroded the overburden cover and preventing any up gradient flow from occurring in the shallow sediment package east of the unconformity. This re-entrant stream course creates a sub-watershed boundary condition which contributes to the minimal saturated condition at the Site and beyond.

The historic water well database reveals virtually no use of this silt unit in the upper sediment package as a viable potable supply within the Mansfield Community. Reported well yields from the documented shallow wells confirm the inability of the upper sediment package to provide a viable potable supply as defined by MECP literature (*i.e.,* D-5-5 Guideline). The water well database also confirmed that there are no shallow well users down gradient of the Site for distances greater than 500 m.

It is reasonable to presume that when presented with a more reliable water supply via a municipal system that the sporadic users of this shallow unit within the Mansfield Community would opt for this alternative. Municipal records confirm that all residences in proximity to the 10th Sideroad and Airport Road intersection are connected to the municipal supply as required by the Township By-law. The net result is that the geologic setting and hydrgeologic environment create a shallow system which is impractical for domestic supply or agricultural use. The shallow system is effectively isolated from deeper ground water resources east of the unconformity and the nitrate migration is limited to the shallow system.

The soils west of the unconformity are dry for an appreciable depth. Site exploration wells demonstrated that the fine grained soils encountered to depths in excess of 18 m showed no evidence of any soil moisture content. There is an expectation that nitrate rich waters percolation to depth in this area of the Site will be subject to denitrifying processes. It is suggested that oxygen is likely to be limited deep within the overburden profile and if so then denitrification is anticipated by facilitative bacteria which will scavenge the oxygen from the nitrate.

Rivett *et al.* (2008) in their evaluation of nitrate attenuation in ground water noted that "… [d]enitrification is focused upon as the dominant nitrate attenuation process in groundwater. As denitrifying bacteria are essentially ubiquitous in the subsurface, the critical limiting factors are oxygen and electron donor concentration and availability. Variability in other environmental conditions such as nitrate concentration, nutrient

availability, pH, temperature, presence of toxins and microbial acclimation appears to be less important, exerting only secondary influences on denitrification rates …".

However, the percolating liquid will also have a Dissolved Organic Carbon (DOC) signature which reportedly aids in denitrifying processes. Buss *et al* (2005) indicated that "… [t]he rate of denitrification is most often related to the amount of DOC in porewater or groundwater, or the amount of soluble organic carbon rather than the total amount of solid organic carbon present (though the two may correlate) …". This environmental setting above the deep till unit which covers the municipal aquifer should effectively attenuate the nitrate source.

As noted above, the current agricultural application rate on the Site (*i.e.*, ~1,000 kg/a) is twice the residential loading rate for the proposed development. Thus, the expectation is that if the agricultural pursuits on this Site over the past 100 year could influence the deep aquifer system it would have occurred by now.

Annual reporting on the Mansfield municipal supply has documented a background nitrate concentration of ~2 mg/L as N (see Table J).

Table J Municipal Well Testing Results

Year	Nitrate Concentration (mg/L as N)
2017	1.5
2018	2.0
2019	1.8
2020	2.2
2021	2.0

The raw water data would indicate that the aquifer which supplies the municipal well at Mansfield is not being significantly impacted by the historical agricultural practices in the Mansfield area. The hydrogeologic setting is anticipated to aid in this situation. The municipal well lies east of the Pine River valley and is up gradient of all agricultural lands observed to be in production at the present time that are east of the Pine River valley. With ground water flow easterly from the Niagara Escarpment, the well head is anticipated to draw the majority of its resource from the ground water discharge being emitted from the Niagara Escarpment. However, as portrayed in Figure 17 (above), the municipal well is also covered by a deep till unit which would mitigate any nitrate seepage in a manner similar to that observed in the upper Newmarket Till for this Site (*i.e.*, MW7 data - Table G).

4.0 D-5-4 GUIDELINE REQUIREMENTS

4.1 Step Three Assessment - Nitrate Attenuation - Predictive Assessment

For convenience, a nitrate attenuation assessment is being used to evaluate the proposed development's influence on the environment. The assessment below demonstrates that the proposed development will not create an adverse risk where the concentrations of nitrate-nitrogen in ground water is expected to exceed 10 mg/L at the down gradient property boundary.

4.2 Proposed Development Layout

As described above, the Armstrong property is proposed to be subdivided into a number of lots/ units, but more generally will be split into a north section and a south section. A tributary cutting through the Armstrong property divides the southeast corner (the "South Precinct") of the Armstrong property from the remainder of the property (the "North Precinct"). The South Precinct is planned to house 28 two-bedroom semi-detached bungalows. The North Precinct will house 43 single family detached homes (Figures 25 and 26 [overleaf]).

4.3 Soil Suitability for Septic Systems

Review comments from Burnside dated April 5, 2023 questioned the suitability of these permeable soils for on-Site sewage treatment. As has been discussed previously, the surficial soils are quite permeable.

The tertiary sewage treatment system[9] to be used for this development converts the nitrogen species in the septic tank effluent to a nitrate source. The effluent from the septic tank is percolated through a moist, but unsaturated porous media; which aerates the process water and allows a microbial community to nitrify the percolating water in the biofilter unit.

This nitrate-rich water is partially re-circulated back into the septic tank and facilitative bacteria use the available oxygen from the nitrate to process the septage. This process releases the nitrogen as a gas (N_2) from the septic tank. In doing so, it denitrifies the septic waters, which inevitably reduces the overall nitrate concentration from the tertiary treatment system. As a result, the effluent from the tertiary treatment system is fully nitrified and released as nitrate to the dispersal bed. The importance of this is that an unsaturated vertical column of soil is not required to nitrify the sewage discharge as is necessary for a conventional septic system.

[9] CAN/BNQ 3680-600, "Onsite Residential Wastewater Treatment Technologies"

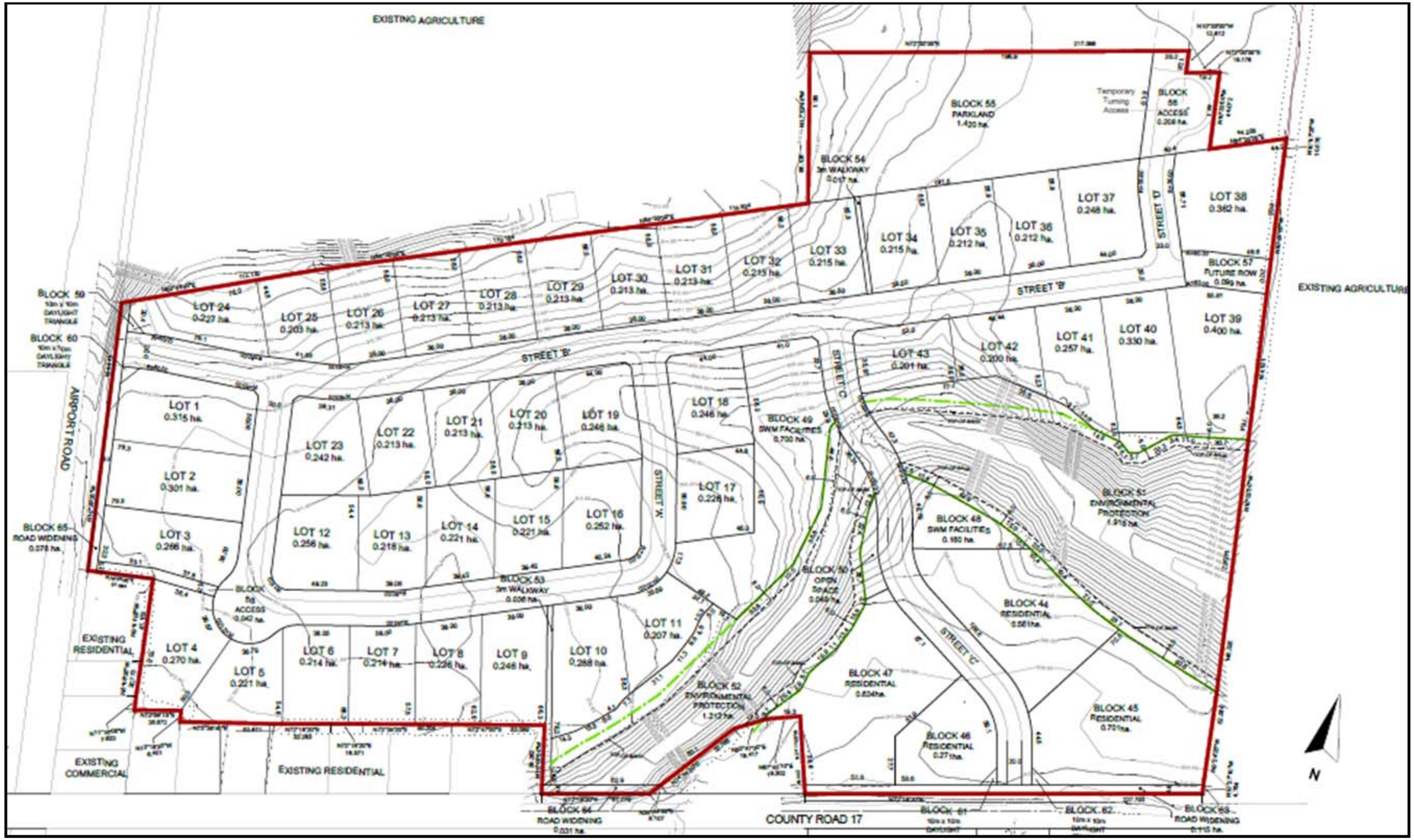


Figure 25 - North Precinct Lot Layout

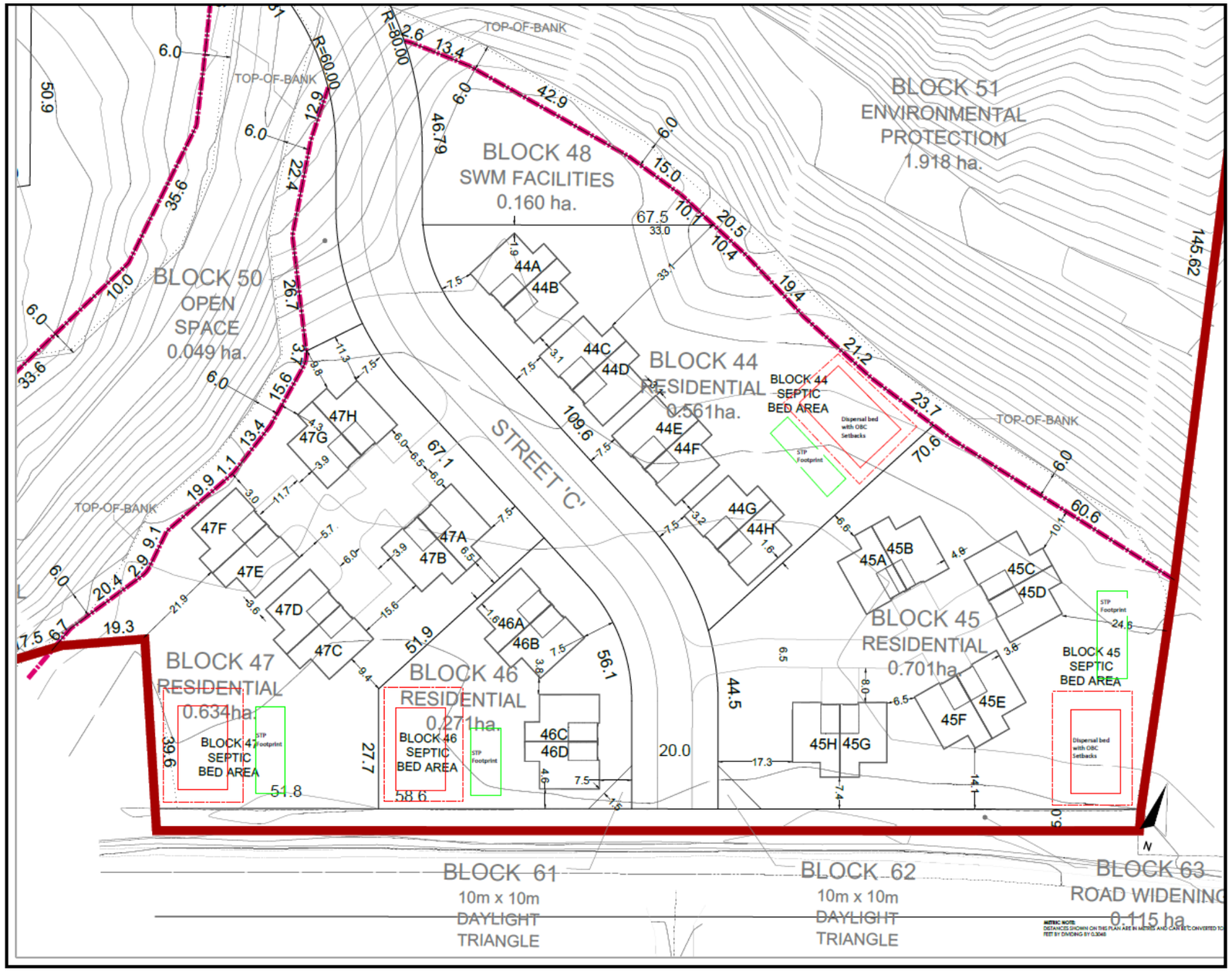


Figure 26 - South Precinct Lot Layout

Regardless, the soil profile of the upper sediment package encountered during the Site drilling programs is downward fining. The Burnside concerns about rapid vertical percolation of the treated effluent from a conventional septic system would not be realized in this downward fining deposition.

As has been previously noted, the upper sediment package is considered to be a lake-lain deposition. The coarser surficial sediments are associated with a near shore deposition as Glacial Lake Schomberg retreated northeast into the Nottawasaga Basin (Mulligan *et al.*, 2018). The fine sand and silty soils encountered below the upper sand unit represent the lake lain sediments when the water elevation in Glacial Lake Schomberg was initially established (Mulligan *et al.*, 2018).

These finer sediments in the upper sediment package would dissipate the rapid vertical percolation and allow the aerobic conversation of the urea to nitrate, if conventional septic system were employed. In fact, a granular urea based agricultural fertilizer has been historically used on these lands. The expectation is that its dispersion into the environment is equivalent to that occurring with a septic discharge. All of the ground water sampling conducted on the Site has shown that the dominant nitrogen species in the shallow ground water owing to the fertilizer application is nitrate (Table G). Thus, Azimuth does not have any meaningful concern about this situation as it pertains to the Armstrong property.

4.4 Predictive Nitrate Attenuation Assessment

The nitrate attenuation in the natural environment is achieved through several processes described in the D-5-4 Guidance document including absorption, denitrification, filtration and biodegradation. However, the D-5-4 Guidance document only considers dilution in order to provide a conservative assessment.

The D-5-4 Guidance document cites a contaminant source of at least 40 grams/lot/day per residential dwelling unit (*i.e.,* Section 5.6.2). This value is based on a daily residential flow of 1,000 L/day and a minimum value of 40 mg/L nitrate (*i.e.,* NO_3 as N) from the discharge of a conventional septic system.

The Waterloo Biofilter is a CAN/BNQ 3680-600 certified treatment technology and is classified as a Level IV system (OBC s.8.6.2.2). The Waterloo Biofilter system typically removes 50 to 65% total nitrogen (TN) in a recirculation mode of operation even during winter months. This treatment efficiency is based on years of verification testing of the system. The biofilter operation also reduces total suspended solids (TSS) and biochemical oxygen demand (BOD). All of this is achieved by dispersing septic tank effluent over an unsaturated (but moist) column of foam filter media composed of porous foam cubes. The unsaturated percolation of the septic tank effluent aerates the effluent and the total nitrogen (TN) is converted to nitrate using the biomass sorbed to the porous

foam cubes. The aeration also addresses BOD demands and the filtration through the foam media also improves the water quality in terms of TSS.

As noted above, recirculation of half this aerated liquid back through the septic tank provides an oxygen source for facultative bacteria and in doing so the nitrogen is released as N_2 gas. All of the nitrate introduced back into the septic tank will be exploited for microbial processes which accounts for the ability to remove 50% to 65% of the TN.

The portion of the treated effluent which is not returned to the septic tank is fully aerated and present as nitrate. This effluent is conveyed to an appropriate sized dispersal bed for release into the environment. The dispersal beds are sized to address the hydraulic dissipation of the effluent since further subsurface treatment in the soil profile is not required. For this evaluation a nitrate load rate of 20 grams/residence/day will be used[10].

Any concerns associated with the use of tertiary treatment systems can be addressed through one or more of the various types of agreements (*e.g.,* occupancy permit, subdivision agreement, purchase and sale agreement, registration on the deed, and/ or septic maintenance agreement) as is typically used for other municipalities.

4.4.1 Infiltration Rate

Burnside in their April 5, 2023 correspondence indicate that the proposed value of infiltration of 235.6 mm/yr is considered representative of the coarse grained material described in the Peto MacCallum Limited report (PML, 2021).

4.4.2 South Precinct

The South Precinct on the Armstrong property is 6.161 ha in size (Table K - overleaf). This precinct includes four residential blocks. Blocks 44, 45 & 47 each contain eight (8) two-bedroom semi-detached bungalows and Block 46 contains four (4) two-bedroom semi-detached bungalows (Figure 26 [above]). In total, there are 28 two-bedroom semi-detached bungalows proposed.

These two-bedroom semi-detached bungalows are to be marketed as "aging in place" homes. The footprint of each bungalow dwelling is 111.52 m^2. This accounts for the impervious surface allocated to each of the residential blocks (see Table K). Notwithstanding, runoff from rooftops (typically 75%) from each of the dwellings would be available for infiltration over lawns area, thus our evaluation is conservative since all impervious area (*e.g.,* dwelling, walkways, internal roadways) have been excluded from the dilution calculation.

[10] 20 mg/L - NO_3 (as N) * 1,000 L/lot/day = 20 g/residence/day

Table K: South Precinct Area

Parcel ID	Description	Total Area (ha)	Impervious Surface (ha)	Pervious Surface (ha)
Block 44	2-Bedroom Bungalow	0.561	0.089	0.472
Block 45	2-Bedroom Bungalow	0.701	0.089	0.611
Block 46	2-Bedroom Bungalow	0.271	0.045	0.226
Block 47	2-Bedroom Bungalow	0.634	0.089	0.544
Block 48	SWMP	0.160		0.160
Block 50	Unused block	0.049		0.049
Block 51	EP lands	1.918		1.918
Block 52	EP lands	1.212		1.212
Block 61	Corner Triangle	0.005	0.005	-
Block 62	Corner Triangle	0.005	0.005	-
Block 63	Road Widening	0.115	0.115	-
Block 64	Road Widening	0.031	0.031	-
Street 'C'		0.500	0.500	-
Total		6.161	0.969	5.192

Each of the four development blocks in the South Precinct will house their own communal tertiary sewage treatment system. According to the Ontario Building Code (OBC - O.Reg. 332/12 [as amended]), each two-bedroom semi-detached bungalow will generate a peak sewage design flow of 1,100 L/day. The communal tertiary sewage treatment system would be sized to handle this peak volume.

This peak sewage volume is unlikely to ever actually occur since it would require all residences within the block(s) to generate this peak volume simultaneously. Regardless, the peak daily design volume for a shared tertiary treatment system on each block will be <10,000 L/day. The maximum peak daily flow on any of the blocks will be 8,800 L/day. Sewage volumes that are <10,000 L/day do not require approval from the MECP. Rather, the approval process is governed under the OBC and through the Township.

4.4.2.1 Sewage Treatment and Disposal

For the purposes of this evaluation, the proposed septic system will consist of a tertiary treatment unit (*e.g.,* Waterloo Biofilter or approved equivalent) with discharge to an in-ground Type A Dispersal Bed designed with an estimated percolation rate (T-time) of ≤12 to 15 min/cm. The minimum volume of the septic tank is estimated to be <20,000 L (*i.e.,* twice the estimated design volume).

The Type A Dispersal Bed will be constructed in a manner consistent with that stipulated in OBC (Section 8.7.7.1). The Dispersal Bed system requires even distribution of the treated effluent over an adsorption system consisting of a 300 mm stone layer overlying 300 mm of an unsaturated sand layer. The sand layer is sized so that its area (A) is equivalent to the product of the peak flow (Q) and the native soil percolation rate (T) divided by 850 (*i.e.,* A = QT/850 for t ≤15 min/cm).

The overlying stone layer is designed to provide an area equal to 50 L of treated water per square meter of stone (A = Q/50 for Q>3,000 L/day).

The preliminary design details for a Dispersal Bed and a sewage layout plan (including OBC setbacks and STP footprint) for each block is provided on the above noted figure and the example calculations are provided below:

<u>Stone Layer</u>

The calculation for the stone area layer is based on the following OBC formula:

$A = \frac{Q}{50}$, where:

A = area of the stone layer (m^2);
Q = peak daily septic discharge = 8,800 L/day;

Loading rate = 50 L/m^2/day for Q>3,000 Lpd

Therefore,

$A = \frac{8{,}800}{50} = 196$ m^2 (effective area illustrated is 200 m^2)

Sand Layer

The calculation for the sand layer is based on the following OBC formula:

$A = \frac{QxT}{850}$, where,

Q = peak daily septic discharge = 8,800 L/day;
T = infiltration rate for underlying soils = ≤15 min/cm;

$A = \frac{8{,}800x15}{850} =$ 155.3 m^2 (effective area illustrated is 160 m^2)

Based on the above, the minimum required area of the stone layer is 200 m^2 and the minimum required area of sand filter medium is 160 m^2. A conceptual design drawing for the Dispersal Bed is provided in Appendix A (Drawing E).

4.4.2.2 Average Daily Flow

The average daily volume for a two-bedroom semi-detached bungalow is typically between 750 and 1,000 L/day. The D-5-4 Guidance document cites a 1,000 L/day sewage volume. The D-5-4 Guidance document suggests the sewage volume should not exceed 1,000 L/day when evaluating contaminant attenuation for residential development (*i.e.,* Section 5.6.2.(b)(v)). For the purposes of the analysis a value of 1,000 L/day will be used.

4.4.2.3 Nitrate Dilution Calculation

As noted above, the D-5-4 Guidance document only allows dilution as a quantifiable attenuation mechanism for nitrate. No dilution consideration for up gradient flow will be used in the assessment. The assumptions utilized in this dilution evaluation for the South Precinct are as follows:

- the area contributing to ground water flow is based on the size of the property (exclusive of hard surfaces);
- annual dilution infiltration rate of 235.8 mm/a;
- septic effluent average concentration of 20 mg/L (tertiary treatment); and
- average daily flow of 1,000 L/day (average flow per dwelling, [MECP, 2016]).

The standard mass balance calculation is outlined below:

$$C_T = \frac{Q_1 C_1 + Q_2 C_2}{Q_T}$$, where

Q_1 = (contribution from property) = total area (m^2) * infiltration (m/a) (5.192 ha *235.8 mm/a infiltration = 12,243 m^3/a);

C_1 = (background nitrate concentration from precipitation) ~0.2 mg/L;

Q_2 = (contribution from the dispersal bed) = 1,000 L/day per dwelling = 28,000 L/day for the precinct;

C_2 = (septic effluent nitrate concentration) = 20 mg/L (tertiary treatment);

Q_T = (total off-Site discharge) = Q_1+Q_2; and

C_T = nitrate criteria at down gradient evaluation point.

The predicted concentration in the shallow ground water regime at the down gradient property boundary using tertiary treatment is 9.2 mg/L (as NO_3-N). The calculations are provided in Appendix C.

4.4.3 North Precinct

The North Precinct on the Armstrong property represents the precinct north of the creek and is 15.344 ha in size (Table L - overleaf). This precinct includes 43 four-bedroom single family homes (Figure 25 - above).

The conceptual footprint of each four-bedroom single family dwelling is 350 m^2. This accounts for the impervious surface allocated to each of the residential lots. Notwithstanding, runoff from rooftops (typically 75%) from each of the dwellings would be available for infiltration over lawns area, thus our evaluation is conservative since all impervious area (*e.g.,* dwelling, walkways, internal roadways) have been excluded from the dilution calculation.

Each estate lot will house their own private tertiary septic bed system. According to the Ontario Building Code (OBC - O.Reg. 332/12 [as amended]), each four-bedroom home will generate a peak sewage design flow of 3,500 L/day.

4.4.3.1 Sewage Treatment and Disposal

For the purposes of this evaluation, the proposed septic system will consist of a tertiary treatment unit (*e.g.,* Waterloo Biofilter or approved equivalent) with discharge to an in-ground filter bed designed with an estimated percolation rate (T-time) of ≤12 to 15 min/cm. The minimum volume of the septic tank is estimated to be ≤7,000 L (*i.e.,* twice the estimated design volume).

Table L: North Precinct Area

Parcel ID	Total Area (ha)	Impervious Surface (ha)	Pervious Surface (ha)
Lot 1	0.315	0.035	0.280
Lot 2	0.301	0.035	0.266
Lot 3	0.266	0.035	0.231
Lot 4	0.270	0.035	0.235
Lot 5	0.221	0.035	0.186
Lot 6	0.214	0.035	0.179
Lot 7	0.214	0.035	0.179
Lot 8	0.226	0.035	0.191
Lot 9	0.246	0.035	0.211
Lot 10	0.288	0.035	0.253
Lot 11	0.207	0.035	0.172
Lot 12	0.256	0.035	0.221
Lot 13	0.218	0.035	0.183
Lot 14	0.221	0.035	0.186
Lot 15	0.221	0.035	0.186
Lot 16	0.252	0.035	0.217
Lot 17	0.226	0.035	0.191
Lot 18	0.246	0.035	0.211
Lot 19	0.246	0.035	0.211
Lot 20	0.213	0.035	0.178
Lot 21	0.213	0.035	0.178
Lot 22	0.213	0.035	0.178
Lot 23	0.242	0.035	0.207
Lot 24	0.227	0.035	0.192
Lot 25	0.203	0.035	0.168
Lot 26	0.213	0.035	0.178
Lot 27	0.213	0.035	0.178
Lot 28	0.213	0.035	0.178
Lot 29	0.213	0.035	0.178
Lot 30	0.213	0.035	0.178
Lot 31	0.213	0.035	0.178
Lot 32	0.213	0.035	0.178
Lot 33	0.215	0.035	0.180
Lot 34	0.215	0.035	0.180
Lot 35	0.212	0.035	0.177
Lot 36	0.212	0.035	0.177
Lot 37	0.248	0.035	0.213

Table L: North Precinct Area

Parcel ID	Total Area (ha)	Impervious Surface (ha)	Pervious Surface (ha)
Lot 38	0.362	0.035	0.327
Lot 39	0.400	0.035	0.365
Lot 40	0.330	0.035	0.295
Lot 41	0.257	0.035	0.222
Lot 42	0.200	0.035	0.165
Lot 43	0.201	0.035	0.166
Block 49 - SWM	0.701		0.701
Block 53 - Sidewalk	0.036	0.036	-
Block 54 - Sidewalk	0.017	0.017	-
Block 55 - Parkland	1.420		1.420
Block 56 - ROW	0.208	0.208	-
Block 57 - ROW	0.099	0.099	-
Block 58 - Access Corridor	0.042	0.042	-
Block 59 - Corner Δ	0.005	0.005	-
Block 60 - Corner Δ	0.005	0.005	-
Block 65 - Road Widening	0.078	0.078	-
Street 'A'	1.224	1.224	-
Street 'B'	1.012	1.012	-
Street 'C'	0.078	0.078	-
Street 'D'	0.113	0.113	-
Total	15.344	4.421	10.922

The filter bed will be constructed in a manner consistent with that stipulated in OBC (Section 8.7.5). The filter bed system requires even distribution of the treated effluent over an adsorption system consisting of a 300 mm stone layer overlying 300 mm of an unsaturated sand layer. The sand layer is sized so that its area (A) is equivalent to the product of the peak flow (Q) and the native soil percolation rate (T) divided by 850 (*i.e.,* $A = QT/850$ for $t \leq 15$ min/cm). The overlying stone layer is designed to provide an area equal to 50 L of treated water per square meter of stone
($A = Q/50$ for $Q > 3{,}000$ L/day).

The preliminary design details for a Dispersal Bed and a sewage layout plan for a representative lot is provided on Figure 27 (overleaf) and the example calculations are provided below.

Stone Layer

The calculation for the stone area layer is based on the following OBC formula (Section 8.7.5.2.(5)):

$A = \frac{Q}{100}$, where:

A = area of the stone layer (m^2);
Q = peak daily septic discharge = 3,500 L/day;

Therefore,

$$A = \frac{3{,}500}{100} = 35 \text{ m}^2$$

Sand Layer

The calculation for the sand layer is based on the following OBC formula:

$A = \frac{QxT}{850}$, where,

Q = peak daily septic discharge = 3,500 L/day;
T = infiltration rate for underlying soils = ≤15 min/cm;

$A = \frac{3{,}500x15}{850} =$ 61.8 m^2 (effective area illustrated is 64 m^2)

Based on the above, the minimum required area of the stone layer is 35 m^2. The conceptual design provides an area which is 7 m by 5 m. The required area of sand filter medium has been conceptually designed as an 8 m by 8 m plot (Appendix A - Figure D).

4.4.3.2 Average Daily Flow

The average daily volume for a single residential lot is typically between 800 and 1,000 L/day. The D-5-4 Guidance document cites a 1,000 L/day sewage volume. The D-5-4 Guidance document suggests the sewage volume should not exceed 1,000 L/day when evaluating contaminant attenuation for residential development (*i.e.*, Section 5.6.2.(b)(v)). For the purposes of the analysis a value of 1,000 L/day will be used.

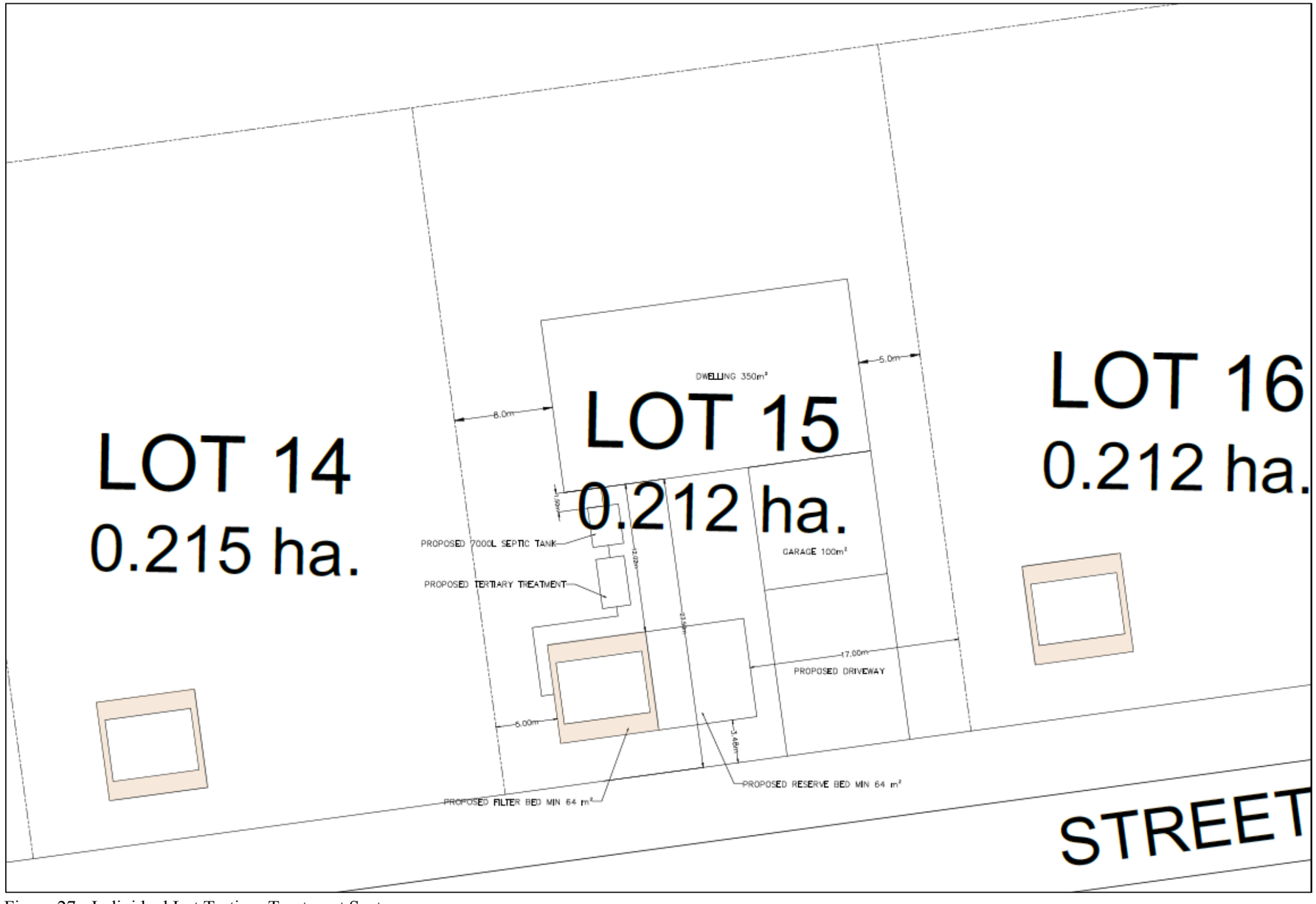


Figure 27 - Individual Lot Tertiary Treatment System

4.4.3.3 Nitrate Dilution Calculation

The Design Guidelines for Sewage Works (MECP 2008 - Section 22.5.14) state "… *where it can be shown that the uppermost subsurface unit(s) at an infiltration facility have a vertical hydraulic conductivity of 10^{-5} cm/sec or less, is at least 10 m (33 feet) thick and extends at least 100 m (330 ft) downgradient of the infiltration area, attenuation calculations may not be required* …". The lower silt unit in the upper sediment package meets the permeability requirements and is greater than 10 m thick on the western third of the precinct.

The point being made by the MECP is that slow moving formations pose minimal environmental concern. This occurs because the mass flux of the source in a low permeability unit becomes insignificant for the ground water migration. Thus if conditions similar to that identified above exist; then this should factor into the overall assessment.

The assumptions utilized in this dilution evaluation for the severed parcel are as follows:

- the area contributing to ground water flow is based on the size of the property (exclusive of hard surfaces);
- annual dilution infiltration rate of 235.8 mm/a;
- septic effluent average concentration of 20 mg/L (tertiary treatment); and
- average daily flow of 1,000 L/day (average flow per dwelling, [MECP, 2016]).

The standard mass balance calculation is outlined below:

$$C_T = \frac{Q_1 C_1 + Q_2 C_2}{Q_T}$$, where

Q_1 = (contribution from property) = total area (m^2) * infiltration (m/a) (10.922 ha *235.8 mm/a infiltration = 25,754 m^3/a);

C_1 = (background nitrate concentration from precipitation) ~0.2 mg/L;

Q_2 = (contribution from the dispersal bed) = 1,000 L/day per dwelling = 43,000 L/day for the precinct;

C_2 = (septic effluent nitrate concentration)= 20 mg/L (tertiary treatment);

Q_T = (total off-Site discharge) = Q_1+Q_2; and

C_T = nitrate criteria at down gradient evaluation point.

The predicted concentration in the shallow ground water regime at the down gradient property boundary using tertiary treatment is 7.7 mg/L (as NO_3-N). The calculations are provided in Appendix C.

5.0 CONCLUSION

Based on the results of the sewage impact study, it is concluded that the environmental conditions upon the Site will allow at least 71 residential dwellings to be developed without adverse impact to the local ground water regime. The results of the nitrate dilution calculation show that the net loading of the property is as high as 9.2 mg/L provided that tertiary treatment technology is used. The use of tertiary treatment technology is sufficient to protect the natural environment and will not result in any negative impact on the ground water quality.

The footprint of an individual filter bed has been provided to illustrate that the individual lots are sufficiently sized to accommodate a disposal bed, reserve bed and associated buildings (*e.g.,* dwelling, garage and driveway) while meeting all OBC setbacks in the final design. Similarly, the footprint of a tertiary treatment unit and dispersal bed is also provided to illustrate that the blocks are sufficiently sized for a shared system and the system capabilities have been properly assessed. The exact location of each disposal bed system and the percolation rate used in the final design should be confirmed during the permitting approvals process.

Any concerns associated with the use of tertiary treatment systems can be addressed through one or more of the various types of agreements (*e.g.,* occupancy permit, subdivision agreement, purchase and sale agreement, registration on the deed, and/ or septic maintenance agreement) as is typically used at other municipalities. For the 'shared' tertiary treatment units, it is noted that the number of bedrooms cannot exceed 16 bedrooms / block which can be enforced through the building permit process and/ or the Subdivision Agreement.

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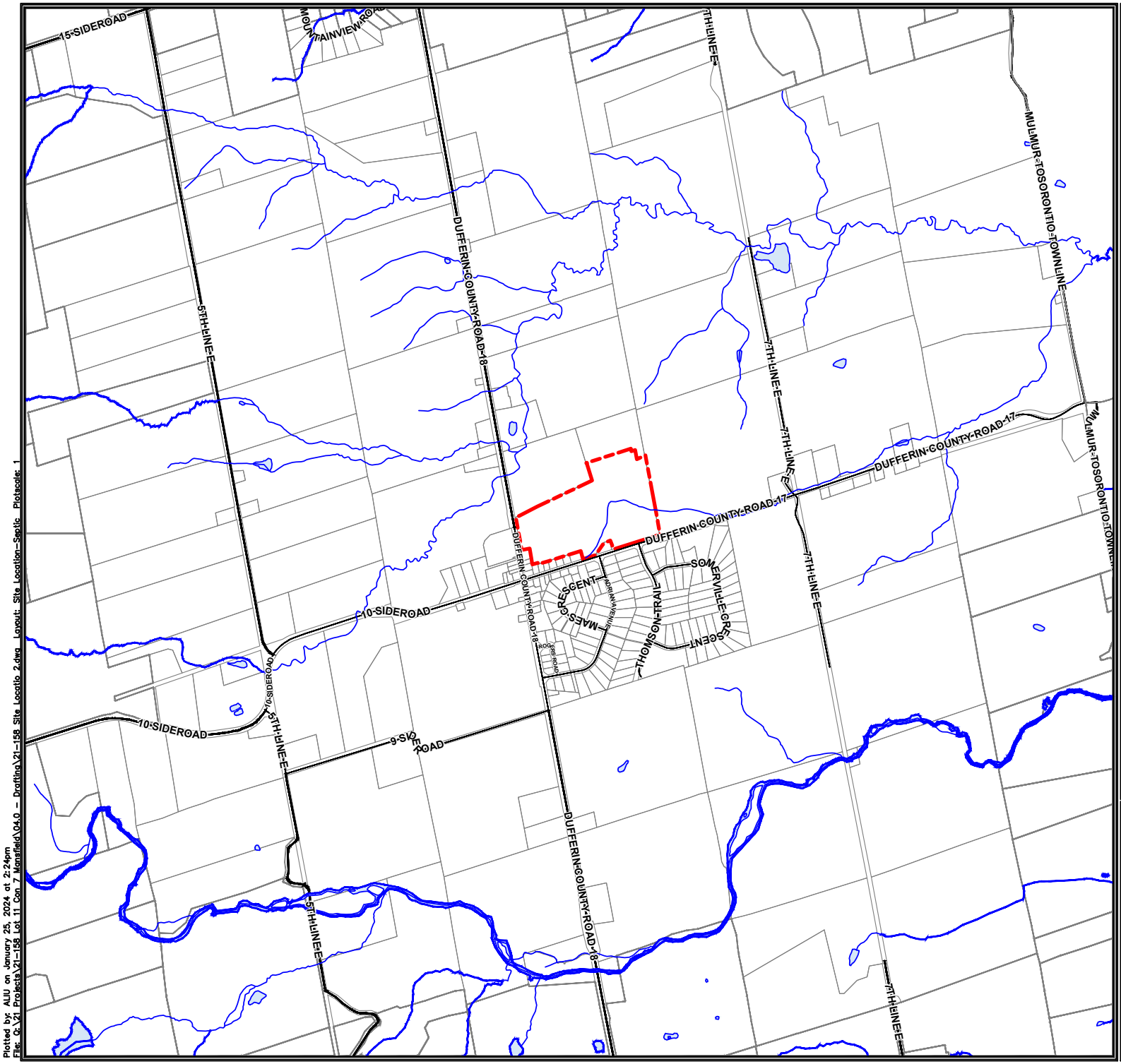
APPENDICES

Appendix A: **Figures and Drawings**
Appendix B: **MECP Water Well Records**
Appendix C: **Nitrate Calculation**
Appendix D: **Soil Logs**
Appendix E: **Ground Water Hydrographs**

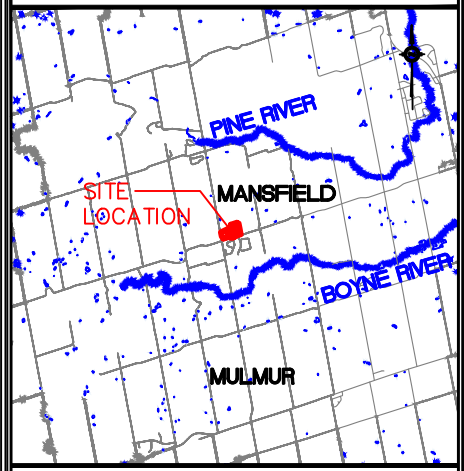
APPENDIX A

Figures and Drawings



LEGEND:

APPROX. PROPERTY BOUNDARY



REGIONAL MAP

SCALE 1: 250000

0 625 1250

HORIZONTAL SCALE 1: 25000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

STUDY AREA LOCATION

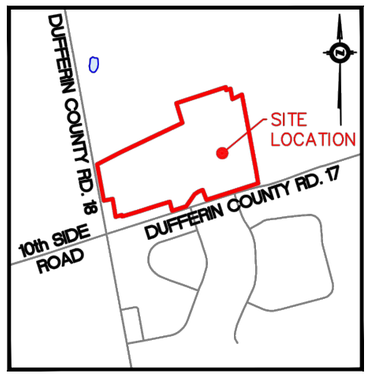
ARMSTRONG ESTATES OF MANSFIELD
MULMUR, ON

DATE ISSUED: *JANUARY 2024*	Figure No.
CREATED BY: *A.L.*	
PROJECT NO.: *21-158*	A
REFERENCE: *DUFFERIN COUNTY*	

Plotted by: ALIU on January 25, 2024 at 2:24pm
File: O:\21 Projects\21-158 Lot 11 Con 7 Mansfield\04.0 - Drafting\21-158 Site Location 2.dwg Layout: Site Location-Septic Plotscale: 1

LEGEND:

- APPROX. PROPERTY BOUNDARY
- WATERCOURSE (NDMNRF, 2020)
- 100.00 — 5m CONTOURS (Dufferin County, 2017)



LOCATION PLAN

0 62.50 125.0

HORIZONTAL SCALE 1:2500

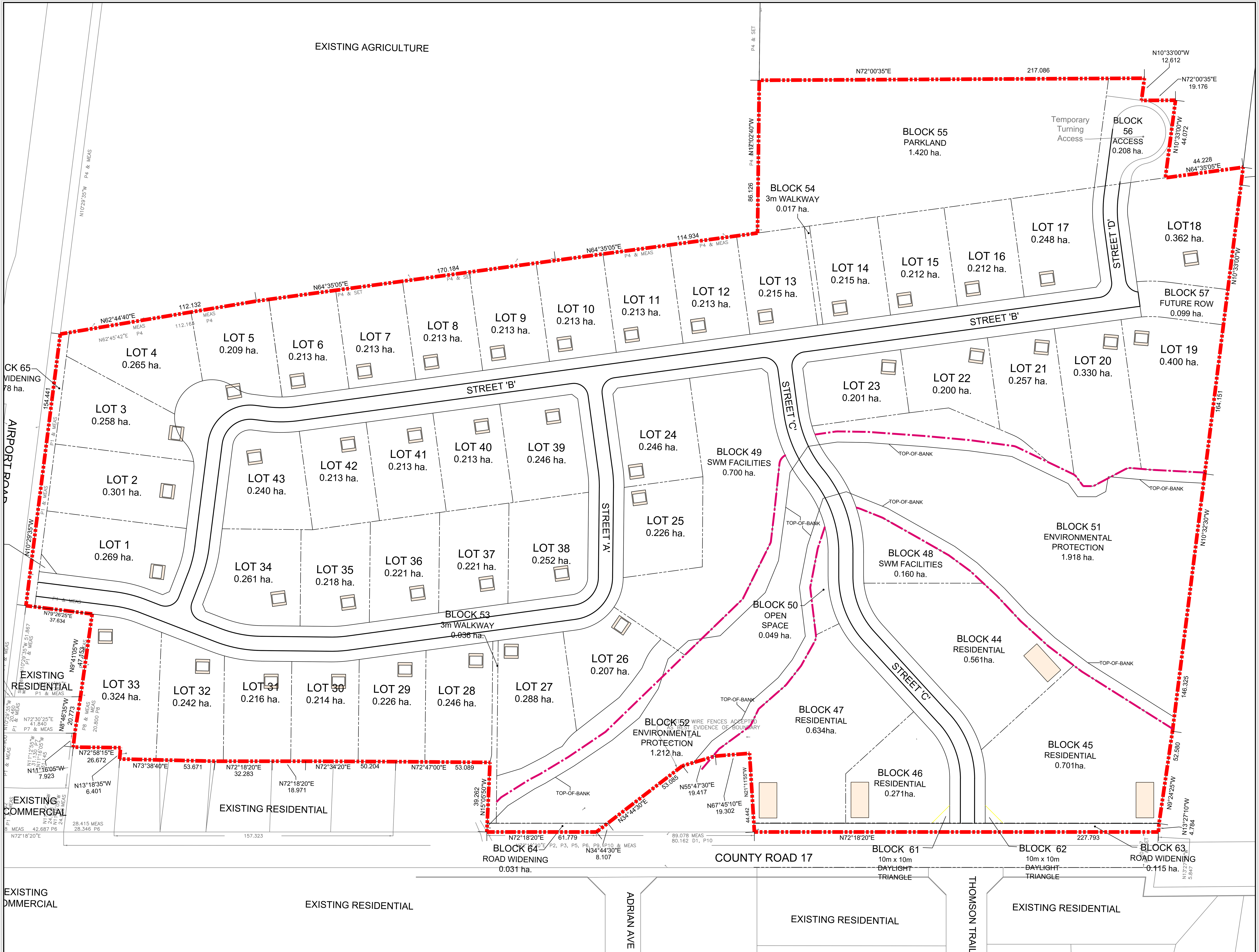
AZIMUTH ENVIRONMENTAL CONSULTING, INC.
ENVIRONMENTAL ASSESSMENTS & APPROVALS

SITE LAYOUT

ARMSTRONG ESTATES OF MANSFIELD
MULMUR, ON

DATE ISSUED:	JANUARY 2024	Figure No.
CREATED BY:	A.L.	B
PROJECT NO.:	21-158	
REFERENCE:	DUFFERIN COUNTY	

Plotted by: ALU on January 25, 2024 at 2:25pm
File: Q:\21 Projects\21-158 Lot 11 Con 7 Mansfield\04.0 - Drafting\21-158 Site Layout.dwg Layout: Site Layout - Septic Plotscale: 1



LEGEND:

- PROPERTY BOUNDARY
- LOT LINE
- 6.0m SETBACK FROM TOP-OF-BANK (IPS, SEPT. 2021)
- INDIVIDUAL SEPTIC BED FOOTPRINT ($64m^2$)
- COMMUNAL SEPTIC BED FOOTPRINT ($200m^2$)

NOTES:

1. FINAL LOCATION OF SEPTIC FOOTPRINT TO BE CONFIRMED DURING DETAILED DESIGN APPROVALS.

25m 0 50m
HORIZONTAL SCALE 1:1,000

NO.	DESCRIPTION	DATE	BY
2	SITE PLAN UPDATE	10/14/2021	J.C.
1	ISSUED FOR SITE PLAN APPROVAL	09/17/2021	J.C.

DESIGN BY / APPROVED:

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

PRELIMINARY SEPTIC SYSTEM LAYOUT PLAN

ARMSTRONG ESTATES OF MANSFIELD MULMUR, ON

DATE ISSUED:	JANUARY 2024	DWG NO.
CREATED BY:	A.L.	C
PROJECT NO.:	21-158	
REFERENCE:	DUFFERIN COUNTY	

Plotted by: AJU on January 25, 2024 at 2:35pm
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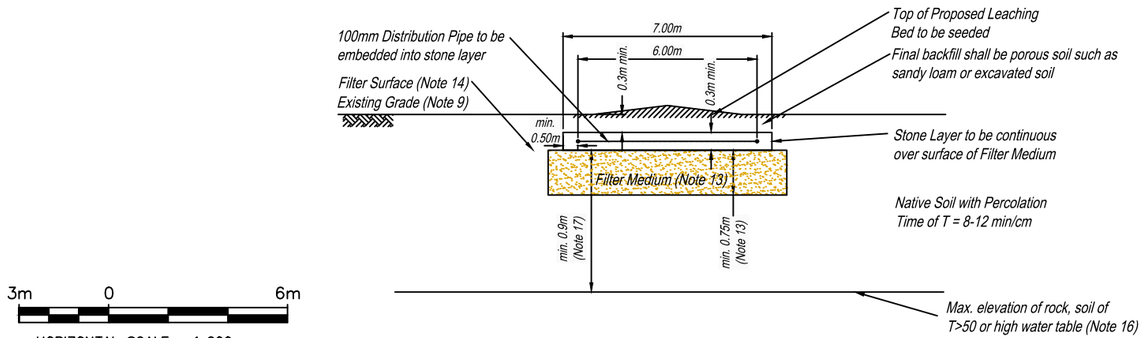
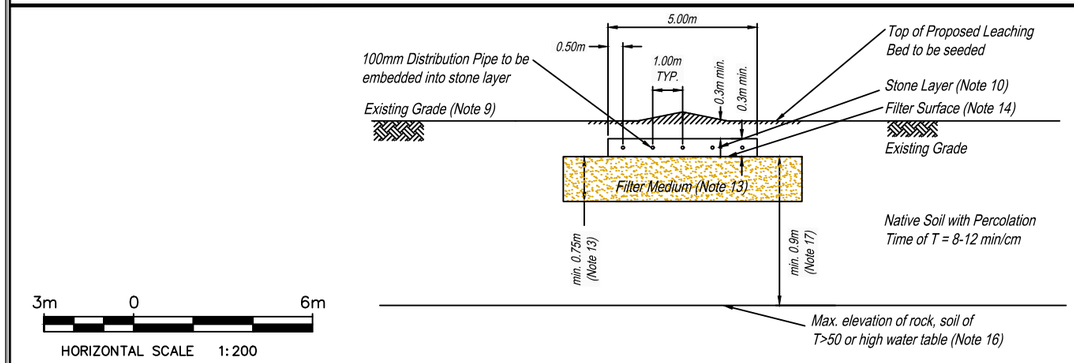
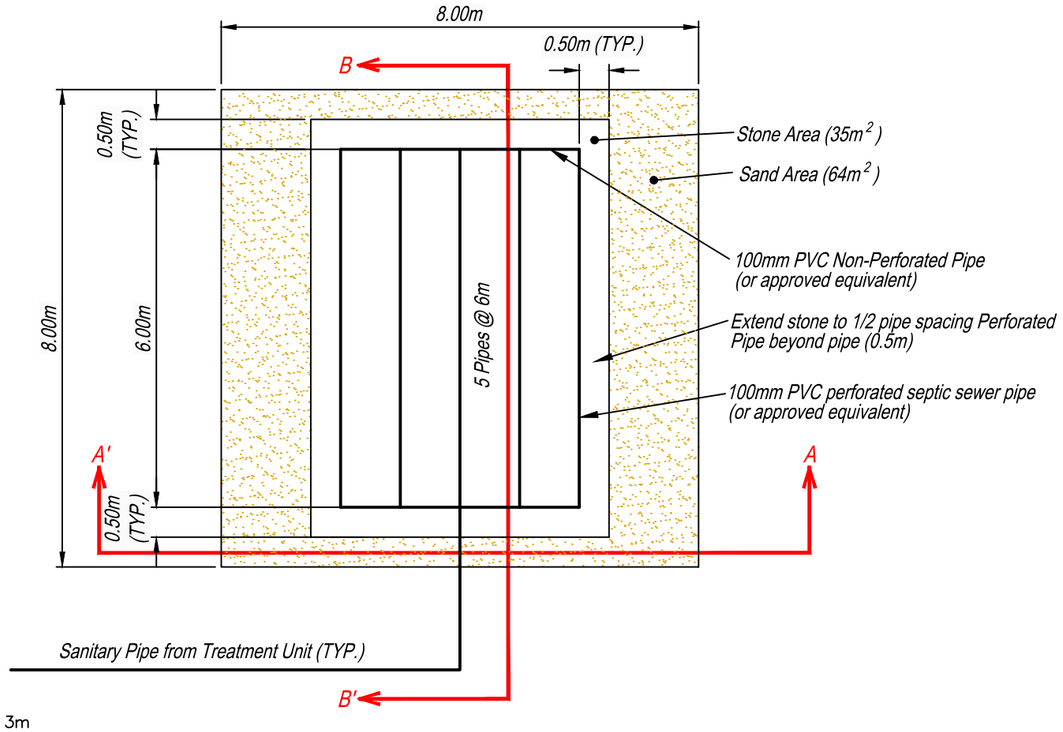


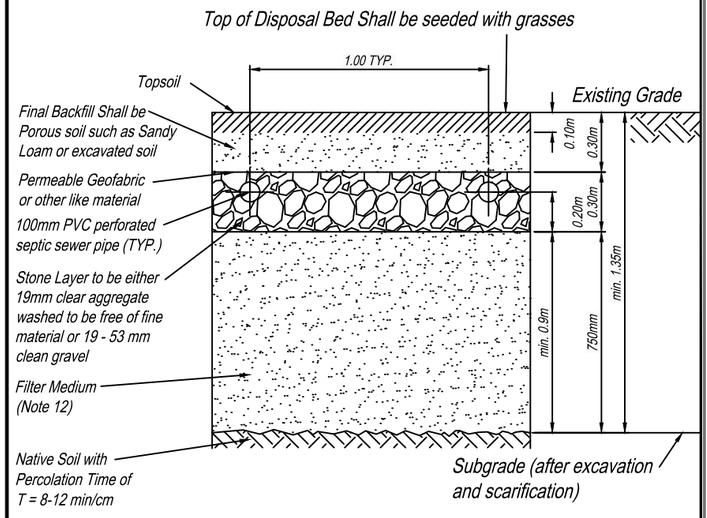
Section B-B'
2x Vertical Exaggeration



Section A-A'
2x Vertical Exaggeration



Plan View (TYP.)



Disposal Bed Cross-Section (TYP.)

N.T.S.

SEWAGE DESIGN BASIS (TYPICAL)

DESIGN FLOW:

Total Design Flow (Q) = 3,500 Lpd (4 bedrooms)

TREATMENT - FILTER BED

1) Surface Area of Filter Medium (stone layer)= Q/100 (with tertiary treatment)

A= 35.0 m^2

Effective Area provided = 35.0 m^2

Area= 5 x 7 m

2) Filter Sand Layer Area QT/850

Percolation Rate (T) = 8-12 min/cm (PML, 2021)

Design Percolation Rate (T) = 15 min/cm

A= 61.8 m^2

Effective Area Provided = 64 m^2

Area= 8 x 8 m

SEPTIC TANK VOLUME:

Volume= Qx2

Total Design Flow (Q) = 3500 L

Tank Volume Required = 7000 L

Notes

1 Percolation rate to be confirmed on a lot by lot basis during detailed design approvals

2 Final location of bed, treatment tanks and dwelling to be confirmed during detailed design

3 Tertiary treatment technology to be confirmed during detail design approvals

General Notes for Leaching Filter Bed

1. *All piping and plumbing materials must conform to the Plumbing Code.*
2. *All pipe installations must conform to the Plumbing Code.*
3. *All pipe connections shall be flexible and watertight.*
4. *The distribution pipe shall be sloped not less than 30mm and not greater than 50mm for each 10m of distribution pipe.*
5. *An adequate soil covering that is crowned and sheds water from the area bed is required.*
6. *The Filter bed shall not be constructed in a manner that can adversely affect the performance of the system such as compacting or smearing the native soils.*
7. *The filter bed shall not be constructed in a location that can adversely affect the performance of the system such as flood-prone areas or inappropriate slopes.*
8. *The side slope of the leaching bed fill shall be sloped to meet existing grade if applicable (to be confirmed in field).*
9. *Bed elevations assumed; elevation of bed(s) to be verified in the field by contractor/owner.*
10. *The stone layer in which the distribution pipe is set is continuous over the surface of the filter medium, and is comprised of stone which is either 19mm clear aggregate washed to be free of fine material, or clean gravel screened to be between 19 and 53mm*
11. *The stone layer shall be protected from clogging by an appropriate geotextile fabric covering.*
12. *Only filter material meeting grading requirements acceptable to the MECP for filter bed construction may be used.*
13. *The filter medium shall have a minimum depth of 750 mm below the stone layer and shall be clean sand comprised of particles ranging in size between the limits of,*
    - *(a. an effective size of 0.25 mm with a uniformity coefficient not less than 3.5,*
    - *(b. an effective size of 2.5 mm with a uniformity coefficient not greater than 1.5, and*
    - *(c. having a uniformity coefficient not greater than 4.5.*
14. *Maximum area of filler surface is 50m².*
15. *Contact area between the filter and underlying soil must not be less than the Area =QT/850 where Q is the daily sewage flow and T is the percolation rate of the soil.*
16. *The surface of the filter medium must be 0.9m above rock, or soil with a T>50 min/cm or the high ground water table.*
17. *The minimum distance between septic tank and dwelling is 5m.*
18. *Percolation rate used in the design of the septic bed is based on the grain size analysis from soil sample provided by the PML (2021).*

No.	Description	Date	By
2	Site Plan Update	14-10-2021	JC
1	Issued For Site Plan Approval	07-09-2021	JC

Designed By:

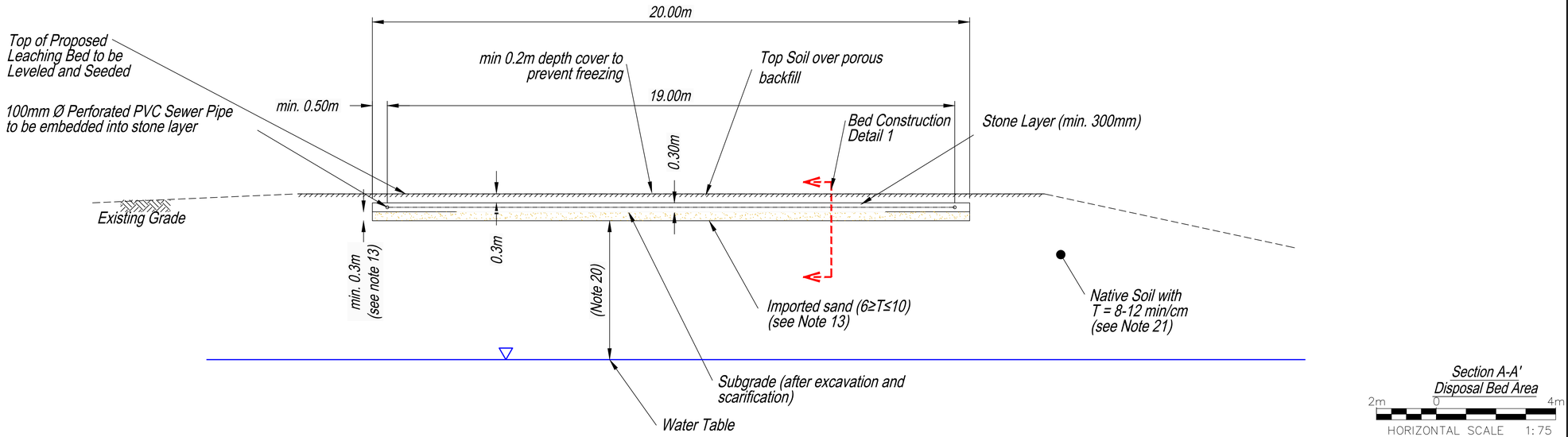
AZIMUTH ENVIRONMENTAL CONSULTING, INC.

TYPICAL FILTER BED DESIGN LOTS 1-43

ARMSTRONG ESTATES OF MANSFIELD MULMUR, ON

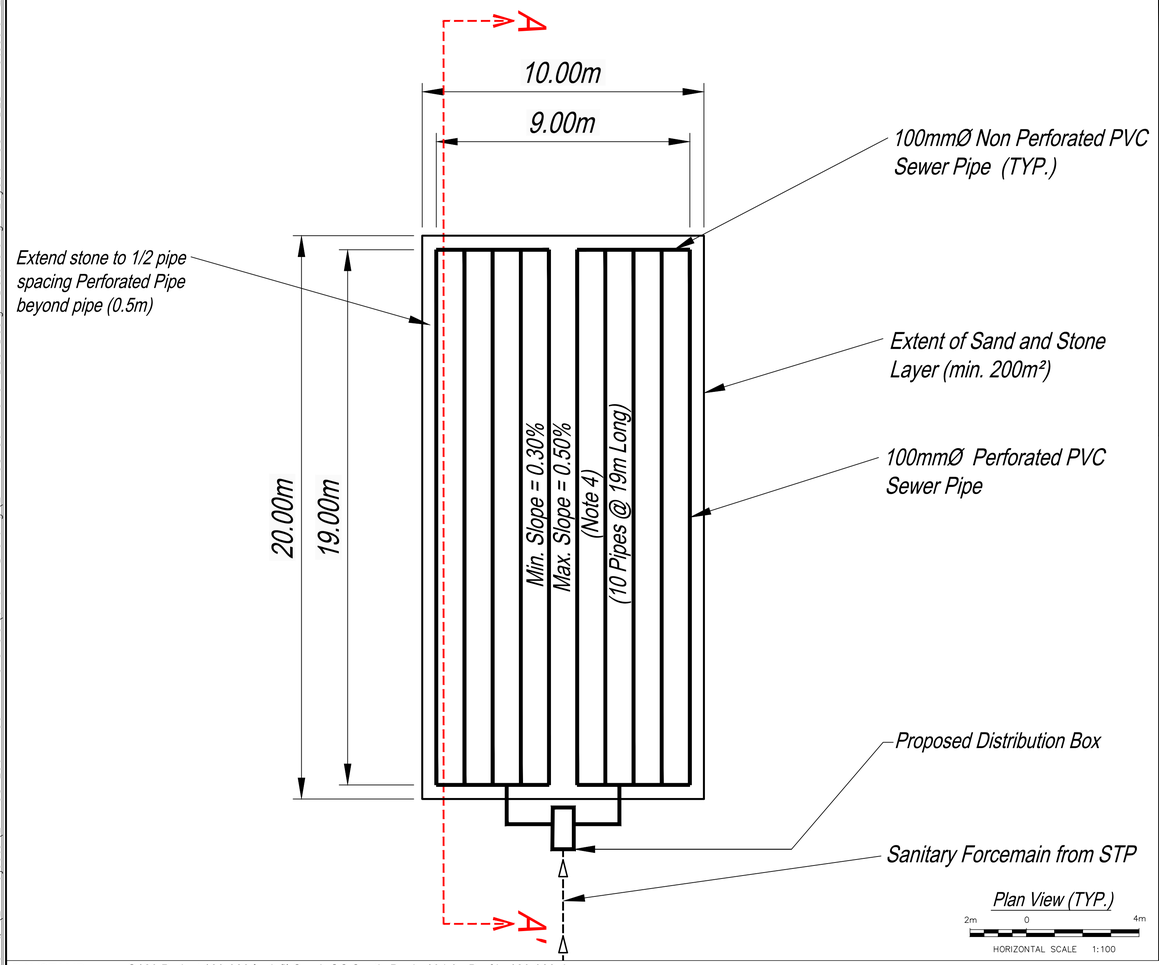
DATE ISSUED:	JANUARY 2024	Drawing No.
CREATED BY:	A.L.	D
PROJECT NO.:	21-158	
REFERENCE:		

DAYSTAMP: Q:\21 Projects\21-049 Molenhuis House Tiny Township\drafting\21-049.dwg



Section A-A'
Disposal Bed Area

2m 0 4m
HORIZONTAL SCALE 1:75



Plan View (TYP.)

2m 0 4m
HORIZONTAL SCALE 1:100

COMMUNAL SYSTEM SEWAGE DESIGN BASIS (TYPICAL)

DESIGN FLOW:

Total Design Flow (Q) < 9,900 Lpd

TYPE A DISPERSAL BED

1) Surface Area of Filter Medium (stone layer)= Q/50 (with tertiary treatment)

A= 198.0 m^2
Effective Area provided = 200.0 m^2
Area= 10 x 20 m

2) Filter Sand Layer Area QT/850

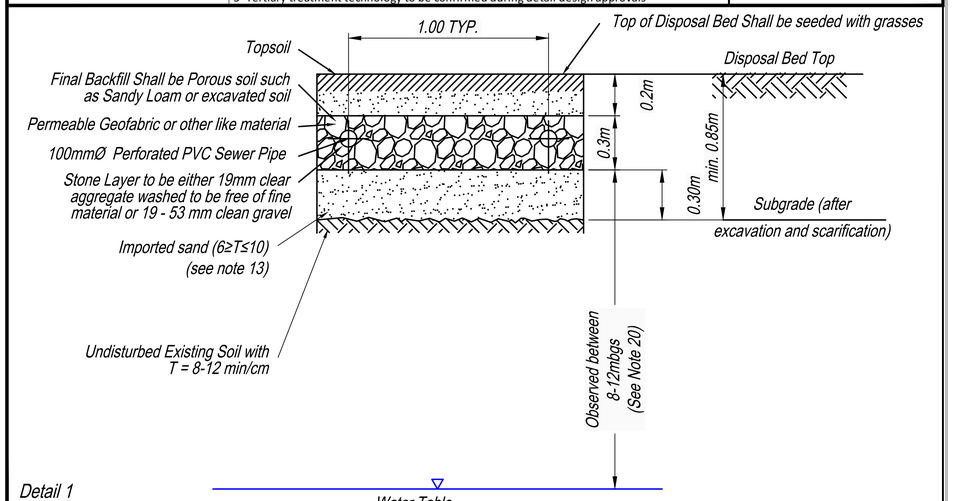
Percolation Rate (T) = 8-12 min/cm (PML 2021)
Design Percolation Rate (T) = 15 min/cm
A= 174.7 m^2
Effective Area Provided = 200 m^2
Area= 10 x 20 m

SEPTIC TANK VOLUME:

Volume= Qx2
Total Design Flow (Q) = 9,900 L
Tank Volume Required = 19,800 L

Notes

1 Percolation rate to be confirmed on a lot by lot basis during detailed design approvals
2 Final location of bed and treatment tanks to be confirmed during detailed design approvals
3 Tertiary treatment technology to be confirmed during detail design approvals



Detail 1
Dispersal Bed Construction Detail (TYP.)

N.T.S.

General Notes for Disposal Bed

1. All piping and plumbing materials must conform to the Plumbing Code.
2. All pipe installations must conform to the Plumbing Code.
3. All pipe connections shall be flexible and watertight.
4. The distribution pipe shall be sloped not less than 30mm and not greater than 50mm for each 10m of distribution pipe.
5. The distribution pipe shall be covered with the stone to a height of at least 50mm above the top of the distribution pipe.
6. An adequate soil covering that is crowned and sheds water from the area bed is required.
7. The Disposal bed shall not be constructed in a manner that can adversely affect the performance of the system such as compacting or smearing the native soils.
8. The disposal bed shall not be constructed in a location that can adversely affect the performance of the system such as flood-prone areas or inappropriate slopes.
9. Bed elevations assumed based on topographic survey (by others); all elevations to be verified in the field by septic installer/contractor.
10. The stone layer in which the distribution pipe is set is continuous over the surface of the disposal medium, and is comprised of stone which is either 19mm clear aggregate washed to be free of fine material, or clean gravel screened to be between 19 and 53mm
11. The stone layer shall be protected from clogging by an appropriate geotextile fabric covering.
12. Only disposal material meeting grading requirements acceptable to the MECP for disposal bed construction may be used.
13. As per OBC section 8.7.7.1(4), the sand layer must be comprised of sand that has a percolation rate of at least 6 and not more than 10 min/cm, not more than 5% fines passing through a 0.074 mm (No. 200) sieve, and a minimum thickness of 300 mm.
14. Construction of the disposal bed must adhere to requirements outlined in OBC Section 8.7.7 (Type A Dispersal Bed).
15. Contact area between the disposal and underlying soil must not be less than the Area =QT/850 where Bed Q is the daily sewage flow and T is the percolation rate of the soil.
16. Sanitary Pipes/Forcemains shall be insulated under roadways and walkways at a depth great enough to ensure protection against frost and crushing.
17. All gravity connections shall have a minimum 2% grade, unless otherwise specified.
18. Side slopes (if applicable) vary to a max of 4:1 or 3:1 if measures are taken to prevent erosion and ensure stability of leaching bed.
19. Location of disposal bed to be confirmed during detailed design.
20. Bottom of stone layer 0.6m above bedrock or highwater table or soil with T ≥ 50min/cm.
21. Percolation rate 8-12 min/cm (PML, 2021).

No.	Description	Date	By
2	Site Plan Update	14-10-2021	JC
1	Issued For Site Plan Approval	07-09-2021	JC

Designed By:

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

TYPICAL TYPE A DISPERSAL BED (COMMUNAL SYSTEM)

ARMSTRONG ESTATES OF MANSFIELD
MULMUR, ON

Date Issued:	JANUARY 2024	Drawing No.
Created By:	J.L.M., A.L.	E
Project No.	21-158	
Reference:		

DAYSTAMP: Q:\20 Projects\20-328 Innisfil Creek GC Septic Design\04.0 - Drafting\20-328.dwg

LOT 14
0.215 ha.

DWELLING 350m²

LOT 15
0.212 ha.

LOT 16
0.212 ha.

8.0m
5.0m
1.50m
12.02m
23.56m
17.00m
5.00m
3.48m

PROPOSED 7000L SEPTIC TANK
PROPOSED TERTIARY TREATMENT
GARAGE 100m²
PROPOSED DRIVEWAY
PROPOSED FILTER BED MIN 64 m²
PROPOSED RESERVE BED MIN 64 m²

STREET

LEGEND:

- PROPERTY BOUNDARY
- LOT LINE
- INDIVIDUAL SEPTIC BED FOOTPRINT (64m²)

NOTES

1. FINAL LOCATION OF SEPTIC FOOTPRINT TO BE CONFIRMED DURING DETAILED DESIGN APPROVALS.
2. MIN SETBACK BETWEEN FILTER BED AND PROPERTY LINE IS 3M AND 5M TO DWELLING.
3. MIN. SETBACK BETWEEN SEPTIC/ TREATMENT TANKS AND DWELLING IS 1.5M AND 3M TO PROPERTY LINE.
4. MIN. FRONT AND REAR SETBACK IS 7.5M
5. MIN. INTERIOR SIDE YARD SETBACK IS 1.5M

2m 0 4m
HORIZONTAL SCALE 1:150

NO.	DESCRIPTION	DATE	BY
3	INDIVIDUAL LOT PLAN UPDATE	06/14/2022	J.C.
2	SITE PLAN UPDATE	10/14/2021	J.C.
1	ISSUED FOR SITE PLAN APPROVAL	09/17/2021	J.C.

DESIGN BY / APPROVED:

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

INDIVIDUAL LOT LAYOUT PLAN

ARMSTRONG ESTATES OF MANSFIELD
MULMUR, ON

DATE ISSUED:	JANUARY 2024	DWG NO. F
CREATED BY:	A.L.	
PROJECT NO.:	21-158	
REFERENCE:	DUFFERIN COUNTY	

LOT 24
0.246 ha.

LOT 25
0.226 ha.

BLOCK 49
SWM FACILITIES
0.700 ha.

BLOCK 48
SWM FACILITIES
0.160 ha.

BLOCK 51
ENVIRONMENTAL
PROTECTION
1.918 ha.

BLOCK 50
OPEN
SPACE
0.049 ha.

BLOCK 52
ENVIRONMENTAL
PROTECTION
1.212 ha.

BLOCK 44
RESIDENTIAL
0.561ha.

BLOCK 47
RESIDENTIAL
0.634ha.

BLOCK 46
RESIDENTIAL
0.271ha.

BLOCK 45
RESIDENTIAL
0.701ha.

BLOCK 61
10m x 10m
DAYLIGHT
TRIANGLE

BLOCK 62
10m x 10m
DAYLIGHT
TRIANGLE

BLOCK 63
ROAD WIDENING
0.115 ha.

STREET 'C'

COUNTY ROAD 17

TOP-OF-BANK

30.0m Wetland Buffer

N10°32'30"W

146.325

N9°24'25"W

52.580

N13°27'10"W

4.784

N72°18'20"E

227.793

N34°44'30"E

53.085

N55°47'30"E

19.417

N67°45'10"E

19.302

N21°11'55"W

44.442

18.23m

3.0m

4.5m

6.7m

7.9m

8.1m

8.0m

89.078 MEAS
80.162 D1, P10

LEGEND:

- PROPERTY BOUNDARY
- LOT LINE
- 6.0m SETBACK FROM TOP-OF-BANK (IPS, SEPT. 2021)
- COMMUNAL SEPTIC BED FOOTPRINT ($200m^2$)
- SEWAGE TREATMENT PLANT FOOTPRINT

NOTES:

1. FINAL LOCATION OF SEPTIC FOOTPRINT TO BE CONFIRMED DURING DETAILED DESIGN APPROVALS.
2. WBS TERTIARY UNIT (OR APPROVED EQUIVALENT) TO BE CONFIRMED DURING DETAILED DESIGN

10m 0 20m
HORIZONTAL SCALE 1:500

NO.	DESCRIPTION	DATE	BY
3	INDIVIDUAL LOT PLAN UPDATE	06/14/2022	J.C.
2	SITE PLAN UPDATE	10/14/2021	J.C.
1	ISSUED FOR SITE PLAN APPROVAL	09/17/2021	J.C.

DESIGN BY / APPROVED:

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

TERTIARY TREATMENT SEPTIC SYSTEM LAYOUT PLAN

ARMSTRONG ESTATES OF MANSFIELD
MULMUR, ON

DATE ISSUED:	JANUARY 2024	DWG NO. G
CREATED BY:	A.L.	
PROJECT NO.:	21-158	
REFERENCE:	DUFFERIN COUNTY	

APPENDIX B

MECP Water Well Records

Lot 10

Concession 6

31

UTM 17 | 5 | 4 | | | | | E 1050

C 5 R VI | | | | | | N

Elev. 4 R 1003 5

Basin 22

The Ontario Water Resources Commission Act

WATER WELL RECORD

County or District Dufferin Township, Village, Town or City Mulmur

Date completed 4 (day) Jan. (month) 1964 (year)

[redacted]ress Mansfield Ont.

Casing and Screen Record

Inside diameter of casing 30"

Total length of casing 44

Type of screen

Length of screen

Depth to top of screen

Diameter of finished hole 3"

Pumping Test

Static level 37

Test-pumping rate ½ G.P.M.

Pumping level 76'

Duration of test pumping 1 Hour

Water clear or cloudy at end of test Clear

Recommended pumping rate ½ G.P.M.

with pump setting of 46' feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
			37 ft	Fresh
Sandy Brown Clay	0	6	44	
Gravel	6	9		
Very Sandy Brown Clay	9	24		
Sandy Brown Clay & Boulders	24	28		
Brown Sand	28	44		
Sandy Brown Clay	44			

For what purpose(s) is the water to be used? House

Is well on upland, in valley, or on hillside? Upland

Drilling or Boring Firm M. S. Babuik Well Boring

Address 126 Laurel Ave. Islington, Ont.

Licence Number 1240

Name of Driller or Borer M. S. Babuik

Address Same as above

Date

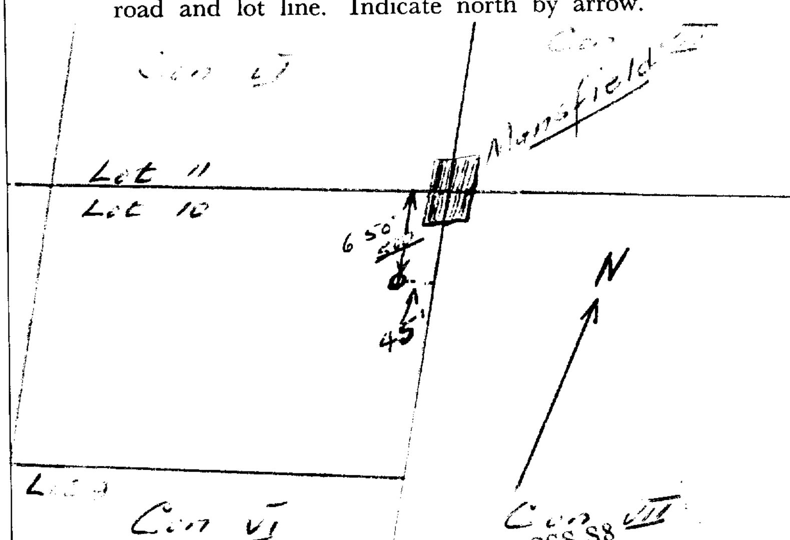
M. S. Babuik
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M-60-4138

OWRC COPY

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



CSS.S8

Ministry of Environment and Energy
Ontario

The Ontario Water Resources Act
WATER WELL RECORD

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

11 1705200

Municipality 17006 Con. HS 5 Part Lot 16 06

County or District	Township/Borough/City/Town/Village	Con	block	tract	survey, etc.	Lot
Duff.	Mulmur	6				10

Address 467 EDGELEY BLVD. #14, CONCORD

Date completed 10 day 9 month 98 year

Northing RC Elevation RC Basin Code ii iii iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth – feet From	Depth – feet To
Red	Clay			0	10
Red	Shale			10	90
Blue	Shale			90	95

41 WATER RECORD

Water found at – feet	Kind of water
75	1 ☑ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
95	1 ☐ Fresh 2 ☑ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth – feet From	Depth – feet To
6	1 ☑ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	188	0	20
	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			
	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			

SCREEN

Sizes of opening (Slot No.)	Diameter inches	Length feet

Material and type | Depth at top of screen feet

61 PLUGGING & SEALING RECORD

☐ Annular space ☐ Abandonment

Depth set at – feet From	Depth set at – feet To	Material and type (Cement grout, bentonite, etc.)

71 PUMPING TEST

Pumping test method 1 ☐ Pump 2 ☑ Bailer | Pumping rate 3 GPM | Duration of pumping 2 Hours Mins

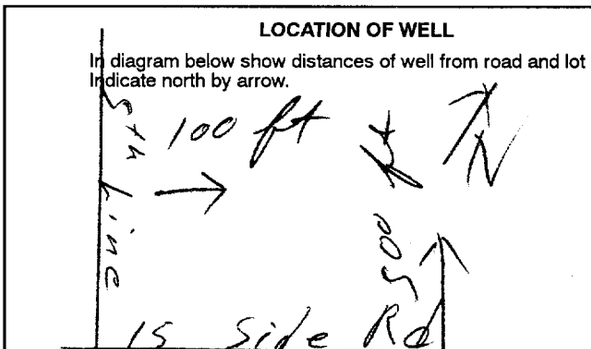
Static level	Water level end of pumping	Water levels during 1 ☑ Pumping 2 ☐ Recovery			
50 feet	91 feet	15 minutes 75 feet	30 minutes 90 feet	45 minutes 90 feet	60 minutes 90 feet

If flowing give rate	Pump intake set at	Water at end of test
GPM	feet	☐ Clear ☑ Cloudy

Recommended pump type	Recommended pump setting	Recommended pump rate
☐ Shallow ☑ Deep	92 feet	2 GPM

LOCATION OF WELL

In diagram below show distances of well from road and lot line.
Indicate north by arrow.



191271

FINAL STATUS OF WELL 54

1 ☑ Water supply 2 ☐ Observation well 3 ☐ Test hole 4 ☐ Recharge well 5 ☐ Abandoned, insufficient supply 6 ☐ Abandoned, poor quality 7 ☐ Abandoned (Other) 8 ☐ Dewatering 9 ☐ Unfinished 10 ☐ Replacement well

WATER USE 55-56

1 ☑ Domestic 2 ☐ Stock 3 ☐ Irrigation 4 ☐ Industrial 5 ☐ Commercial 6 ☐ Municipal 7 ☐ Public supply 8 ☐ Cooling & air conditioning 9 ☐ Not used 10 ☐ Other

METHOD OF CONSTRUCTION 57

1 ☑ Cable tool 2 ☐ Rotary (conventional) 3 ☐ Rotary (reverse) 4 ☐ Rotary (air) 5 ☐ Air percussion 6 ☐ Boring 7 ☐ Diamond 8 ☐ Jetting 9 ☐ Driving 10 ☐ Digging 11 ☐ Other

Name of Well Contractor	Well Contractor's Licence No.
B McCaul	3561
Address 156 Mill St. Newmarket	
Name of Well Technician	Well Technician's Licence No.
D Miller	4-0298
Signature of Technician/Contractor	Submission date day mo yr

MINISTRY USE ONLY

Data source 58	Contractor 59-62	Date received 63-68
	3561	SEP 21 1998
Date of inspection	Inspector	
Remarks		

CSS. S9

0506 (07/94) Front Form 9

2 - MINISTER OF ENVIRONMENT & ENERGY COPY

Options

ID: 240492267
Easting: 576,895.0
Drill Method:
Water Level Count: 0
Ground Level: 312.1
Screen 1 Depth (m): -

Well/BH Name: 7258925
Northing: 4,891,117.0
Primary Purpose: Unknown
Water Quality Count: 0
Bottom Depth (m):

Original Name: 7258925
Date Completed: 09/29/2015
Secondary Purpose: Unknown
Rec Pumping Rate:
Total Screens: 1

Elev. (masl)	Depth. (m)	Mat 1		Mat 2		Mat 3		Description

Options

ID: 240975850
Easting: 576,825.0
Drill Method:
Water Level Count: 0
Ground Level: 315.3
Screen 1 Depth (m): -

Well/BH Name: 7267967
Northing: 4,891,116.0
Primary Purpose: Unknown
Water Quality Count: 0
Bottom Depth (m):

Original Name: 7267967
Date Completed: 05/19/2016
Secondary Purpose: Unknown
Rec Pumping Rate:
Total Screens: 1

Elev. (masl)	Depth. (m)	Mat 1		Mat 2		Mat 3		Description

Ontario — Ministry of the Environment and Climate Change

Measurements recorded in: [X] Metric [ ] Imperial

Well Tag No. (Place Sticker and/or Print Below)
Tag#: A201327
A201324

Well Record

Regulation 903 Ontario Water Resources Act

Page 1 of 1

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	[ ] Well Constructed by Well Owner
	Jamieson Construction		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
12 County Meadows Drive	Amaranth	ON	L9W 3T6	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
	Mulmur	10	6

County/District/Municipality	City/Town/Village	Province	Postal Code
Dufferin		Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 8 3	17	575807	4991036.5		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
Brown	Sand	Clay	Trace Gravel	0	8.53
	Gravel/Sand	Trace Clay		8.53	11.59
Grey	Clay/Gravel			11.59	17.07
Brown	Fine Sand	Silt		17.07	17.68
Grey	Clay	Gravel		17.68	22.26
Grey	Silt			22.26	24.70
	Gravel	Cobbles		24.70	26.93
Blue	Shale		Soft	26.93	32.93
Blue	Shale		Hard	32.93	90.55

Annular Space

Depth Set at (m/ft) From	Depth Set at (m/ft) To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0	6.1	Bentonite	0.22

Method of Construction

[ ] Cable Tool [ ] Diamond
[X] Rotary (Conventional) [ ] Jetting
[ ] Rotary (Reverse) [ ] Driving
[ ] Boring [ ] Digging
[ ] Air percussion
[ ] Other, specify

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
15.24	Steel	0.477	+0.45	34.45
15.24	Open		34.45	90.55
10.23	PVC	~~0.635~~ 0.66	32.62	90.55

Construction Record - Screen

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

Status of Well

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

Water Details

Water found at Depth	Kind of Water	Hole Diameter Depth (m/ft) From	Hole Diameter Depth (m/ft) To	Hole Diameter (cm/in)
90.5 (m/ft) [ ] Gas	[ ] Fresh [X] Untested [ ] Other, specify	0	6.1	25.4
(m/ft) [ ] Gas	[ ] Fresh [ ] Untested [ ] Other, specify	6.1	90.55	15.24
(m/ft) [ ] Gas	[ ] Fresh [ ] Untested [ ] Other, specify			

Results of Well Yield Testing

After test of well yield, water was:
[ ] Clear and sand free
[ ] Other, specify

If pumping discontinued, give reason:

Pump intake set at (m/ft): 60.0

Pumping rate (l/min / GPM): 13.62

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 40.23

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

Recommended pump depth (m/ft): 60.0

Recommended pump rate (l/min / GPM): 13.62

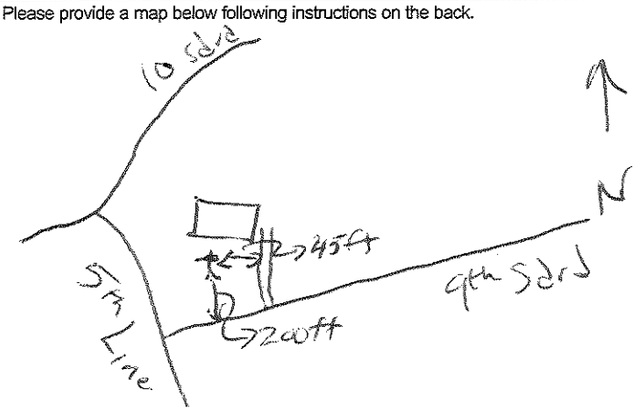
Well production (l/min / GPM): ok

Disinfected? [X] Yes [ ] No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	16.89		
1	17.99	1	
2	18.18	2	
3	18.38	3	
4	18.60	4	
5	19.91	5	39.41
10		10	37.78
15	25.11	15	36.87
20	28.34	20	36.61
25	29.48	25	34.98
30	31.71	30	33.97
40	34.94	40	32.48
50	38.20	50	30.97
60	40.23	60	30.02

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Gerrits Drilling 2014 Inc	7516

Business Address (Street Number/Name)	Municipality
215154 10th Line	Amaranth

Province	Postal Code	Business E-mail Address
ON	L9W 0G8	

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
	Liam Franklin

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
36914		2016/12/08

Well owner's information package delivered: [X] Yes [ ] No

Date Package Delivered: 2016/12/08

Date Work Completed: 2016/12/08

Ministry Use Only

Audit No. Z228671

Received DEC 15 2016

0506E (2014/11) — Ministry's Copy

Ontario — Ministry of the Environment, Conservation and Parks

Measurements recorded in: ☐ Metric ☑ Imperial

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

Well Record

Regulation 903 Ontario Water Resources Act

Page _____ of _____

[redacted]

Well Location

Address of Well Location (Street Number/Name): 568211 9th Side Rd	Township: Mulmur	Lot: 10	Concession: 6
County/District/Municipality: Dufferin	City/Town/Village: Mansfield	Province: Ontario	Postal Code:
UTM Coordinates: Zone 17, Easting 576344, Northing 4890501 (NAD 83)	Municipal Plan and Sublot Number	Other	

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
	Topsoil			0	1
Brown	Silty	Sand		1	27
Gray	Sand	silt		27	73
Gray	Sand	clay silt		73	119
Gray	Sand		Lime	119	123
Gray	Shale			123	278

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0	20	Benseal Grout	7.1 ft³

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To

Construction Record - Screen

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

Status of Well

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

Water Details

Water found at Depth	Kind of Water	Hole Diameter Depth From	Depth To	Diameter (cm/in)
268 (m/ft) ☐ Gas	☐ Fresh ☒ Untested ☐ Other, specify	0	20	10
(m/ft) ☐ Gas	☐ Fresh ☐ Untested ☐ Other, specify	20	278	6
(m/ft) ☐ Gas	☐ Fresh ☐ Untested ☐ Other, specify			

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at (m/ft)

Pumping rate (l/min / GPM)

Duration of pumping _____ hrs + _____ min

Final water level end of pumping (m/ft)

If flowing give rate (l/min/GPM)

Recommended pump depth (m/ft)

Recommended pump rate (l/min/GPM)

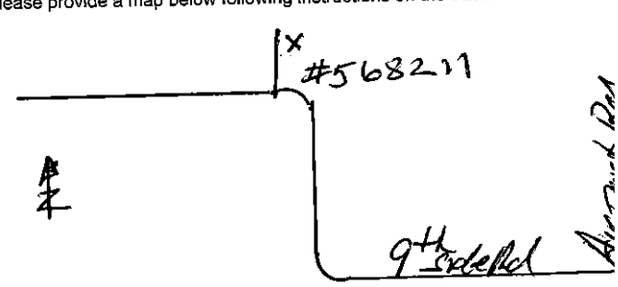
Well production (l/min/GPM)

Disinfected? ☐ Yes ☐ No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level		91		
1			1	
2			2	
3			3	
4			4	
5			5	
10			10	
15			15	
20			20	
25			25	
30			30	
40			40	
50			50	
60			60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments: Less than 1/4gpm not used

Well Contractor and Well Technician Information

Business Name of Well Contractor: Highland Water Wells

Well Contractor's Licence No.: 2576

Business Address (Street Number/Name): 225 Elm St Durham

Municipality: Grey

Province: Ont

Postal Code: N0G 1R0

Business E-mail Address: highlanddrilling@bmts.com

Bus. Telephone No. (inc. area code): 5193696363

Name of Well Technician (Last Name, First Name): Wilson E.

Well Technician's Licence No.: 2113

Signature of Technician and/or Contractor

Date Submitted: 2021/02/23

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

Date Package Delivered

Date Work Completed: 2021/02/04

Ministry Use Only

Audit No. Z356796

Received MAR 01 2021

0506E (2020/06)

Ministry's Copy

Lot 10

Concession 7

34

UTM Z E
5 R N
Elev. 5 R 1030
Basin 22

The Ontario Water Resources Commission Act

WATER WELL RECORD

GROUND WATER BRANCH
17 No
DEC 19 1961
ONTARIO WATER RESOURCES COMMISSION

County or District Dufferin
Township, Village, Town or City Mulmur
Con. VIII Lot 10
Date completed 10 (day) Oct (month) 1961 (year)
[redacted] dress Mansfield Ont.

Casing and Screen Record

Inside diameter of casing 30"
Total length of casing
Type of screen Well was Deeped using
Length of screen 22 inch Calvert stock.
Depth to top of screen
Diameter of finished hole

Pumping Test

Static level 10'
Test-pumping rate 1 G.P.M.
Pumping level
Duration of test pumping
Water clear or cloudy at end of test Clear
Recommended pumping rate 1 G.P.M.
with pump setting of feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
Boxed Hole	0	12	10'	Fresh.
Sandy Brown Clay.	12	29		

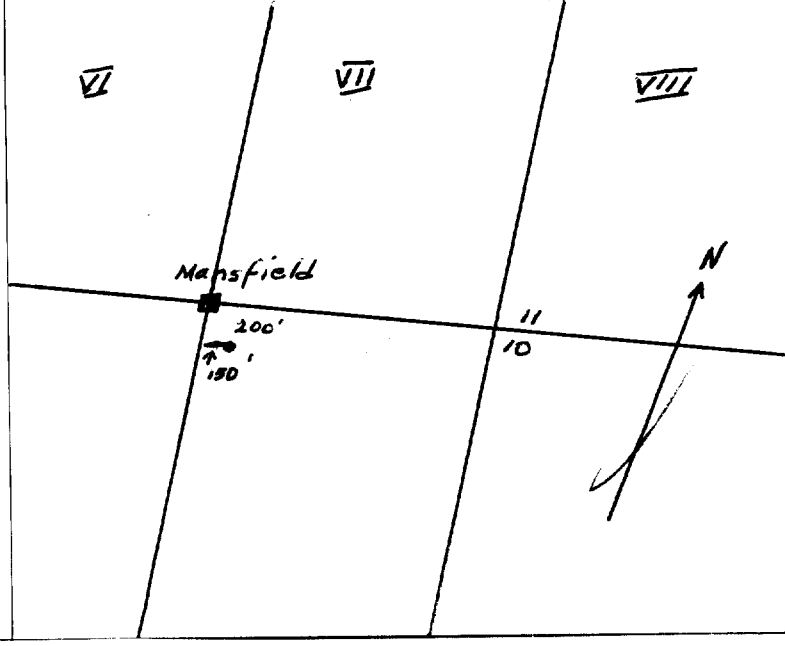
For what purpose(s) is the water to be used?
Greenhouse.
Is well on upland, in valley, or on hillside? Upland.
Drilling or Boring Firm Babuik Well Boring
Address 126 Laurel Ave.
Islington, Ont.
Licence Number 8
Name of Driller or Borer Mike S. Babuik
Address Same as above.
Date Nov 30 1961
M S Babuik
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M Sets 60-5930

OWRC COPY

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



41 A/1 E

The Ontario Water Resources Commission Act

WATER WELL RECORD

Water management in Ontario

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 | 1701046 | MUNICIP. 17006 | CON. CON 07

COUNTY OR DISTRICT: DUFFERIN
TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: MULMUR EAST
CON., BLOCK, TRACT, SURVEY, ETC.: VII
LOT: 010
DATE COMPLETED: DAY 20 MO. SEPT YR 69
[redacted] MANSFIELD
RC. 4 | ELEVATION 1014 10 | RC. 5 | BASIN CODE 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH FROM	DEPTH TO
BROWN	SAND		FINE	0	20
"	SANDY CLAY			20	100
"	FINE SAND & GRAVEL			100	120
"	FINE SAND & COURSE GRAVEL		(DIRTY) RUNNY CLAY	120	140
"	HARD PAN.		HARD	140	143
"	SAND (COURSE) TO PEA GRAVEL.			143	149

31 | 0 0 2 2 6 0 8 | 0 1 0 0 6 0 5 7 0 9 | 0 1 2 1 6 0 8 1 1 1 | 0 1 4 4 6 0 8 1 1 1 0 5 | 0 1 4 4 3 6 1 4 | 0 1 4 4 3 6 2 0 1 1

32

41 WATER RECORD

WATER FOUND FEET	KIND OF WATER
0143	1 ☒ FRESH 3 ☐ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL
~~149~~ DRY.	1 ☐ FRESH 3 ☐ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH FROM	DEPTH TO
~~6~~ 6	1 ☒ STEEL; 2 ☐ GALVANIZED; 3 ☐ CONCRETE; 4 ☐ OPEN HOLE	.188	0	0143
	1 ☐ STEEL; 2 ☐ GALVANIZED; 3 ☐ CONCRETE; 4 ☐ OPEN HOLE			
	1 ☐ STEEL; 2 ☐ GALVANIZED; 3 ☐ CONCRETE; 4 ☐ OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.): 030 | DIAMETER: 04.000 INCHES | LENGTH: 06 FEET
MATERIAL AND TYPE: ~~Course sand~~ & pea gravel | DEPTH TO TOP OF SCREEN: 0143 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT FROM	DEPTH SET AT TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

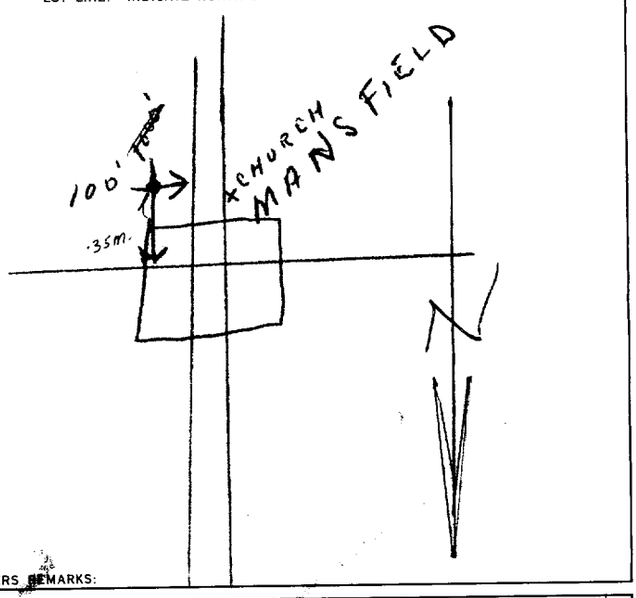
PUMPING TEST METHOD: 1 ☐ PUMP 2 ☒ BAILER
PUMPING RATE: 0018 GPM.
DURATION OF PUMPING: 04 HOURS 00 MINS.

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☒ PUMPING 2 ☐ RECOVERY	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
075' FEET	075' FEET		075 FEET	075 FEET	075 FEET	075 FEET

IF FLOWING, GIVE RATE: GPM.
PUMP INTAKE SET AT: FEET
WATER AT END OF TEST: 1 ☐ CLEAR 2 ☒ CLOUDY
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP
RECOMMENDED PUMP SETTING: 120 FEET
RECOMMENDED PUMPING RATE: 0020 GPM.
50-53: 036.0 GPM./FT SPECIFIC CAPACITY

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

FINAL STATUS OF WELL (54)
1 ☒ WATER SUPPLY; 2 ☐ OBSERVATION WELL; 3 ☐ TEST HOLE; 4 ☐ RECHARGE WELL; 5 ☐ ABANDONED, INSUFFICIENT SUPPLY; 6 ☐ ABANDONED, POOR QUALITY; 7 ☐ UNFINISHED

WATER USE (55-56) 01
1 ☒ DOMESTIC; 2 ☐ STOCK; 3 ☐ IRRIGATION; 4 ☐ INDUSTRIAL; ☐ OTHER; 5 ☐ COMMERCIAL; 6 ☐ MUNICIPAL; 7 ☐ PUBLIC SUPPLY; 8 ☐ COOLING OR AIR CONDITIONING; 9 ☐ NOT USED

METHOD OF DRILLING (57)
1 ☒ CABLE TOOL; 2 ☐ ROTARY (CONVENTIONAL); 3 ☐ ROTARY (REVERSE); 4 ☐ ROTARY (AIR); 5 ☐ AIR PERCUSSION; 6 ☐ BORING; 7 ☐ DIAMOND; 8 ☐ JETTING; 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: KEN MICHTON | LICENCE NUMBER: 3404
ADDRESS: ~~KENNETT~~ STAYNER
NAME OF DRILLER OR BORER: KEN & TERRY MICHTON | LICENCE NUMBER: 3404
SIGNATURE OF CONTRACTOR: Kenneth M. Michton | SUBMISSION DATE: DAY 8 MO. 1 YR 70

OFFICE USE ONLY

DATA SOURCE (58): 1 | CONTRACTOR (59-62): 3602 | DATE RECEIVED (63-68): 120170
DATE OF INSPECTION | INSPECTOR
REMARKS: CSS.S8 J.B.

OWRC COPY

41AIE

The Ontario Water Resources Commission Act

WATER WELL RECORD

Water management in Ontario

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 1701179 MUNICIP. 17006 CON. HS E c 07

COUNTY OR DISTRICT: DUFFERIN

TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: MULMUIR

CON., BLOCK, TRACT, SURVEY, ETC.: 7 EHS.

LOT: 010

DATE COMPLETED: DAY 01 MO. DEC YR. 70

[redacted] MHNS FIELD

G 90350 RC. 4 ELEVATION 1035 RC. 5 BASIN CODE 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH – FEET FROM	TO
Brown	SAND			0	20
"	SANDY clay.			20	100
"	FINE SAND & GRAVEL			100	120
"	FINE SAND & COURSE GRAVEL		(DIRTY RUNNY CLAY)	120	140
"	HARD PAN			140	143
				1	
"	SAND (COURSE) to FINE gravel. (Rea)			143	146½

31 0020603 0100605 09 0120608 11 0126608 11 05 0143614 0148610 11

32

41 WATER RECORD

WATER FOUND AT – FEET	KIND OF WATER
0143	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
[illegible]	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH – FEET FROM	TO
04	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	.144	0	146½
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.): 012 DIAMETER: 04.000 INCHES LENGTH: 03 FEET

MATERIAL AND TYPE: COURSE SAND & gravel DEPTH TO TOP OF SCREEN: 0145 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT – FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☒ PUMP 2 ☐ BAILER

PUMPING RATE: 0012 GPM. DURATION OF PUMPING: 04 HOURS 00 MINS.

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
075 FEET	090 FEET	090 FEET	090 FEET	090 FEET	090 FEET

1 ☒ PUMPING 2 ☐ RECOVERY

IF FLOWING, GIVE RATE: GPM. PUMP INTAKE SET AT: FEET

WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP

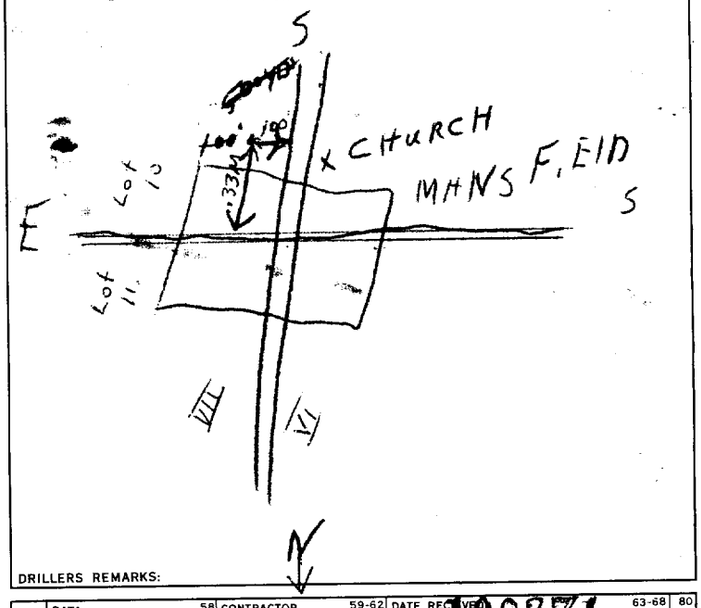
RECOMMENDED PUMP SETTING: 130 FEET

RECOMMENDED PUMPING RATE: 0012 GPM.

50-53 000.8 GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

FINAL STATUS OF WELL

54

1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED

WATER USE

55-56 01

1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED

METHOD OF DRILLING

57

1 ☒ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: KEN MIGHTON & SONS LICENCE NUMBER: 3602

ADDRESS: Stayner

NAME OF DRILLER OR BORER: Leroy Mighton LICENCE NUMBER: 3643

SIGNATURE OF CONTRACTOR: Kenneth M. Mighton SUBMISSION DATE: DAY 26 MO. 1 YR. 71

OFFICE USE ONLY

DATA SOURCE 58: 1 CONTRACTOR 59-62: 3602 DATE RECEIVED 63-68: 100271 80

DATE OF INSPECTION: INSPECTOR: P/E 2

REMARKS: CSS.S8

OWRC COPY

MINISTRY OF THE ENVIRONMENT

The Ontario Water Resources Act

WATER WELL RECORD

Ontario

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 — 1702104 — MUNICIP 17006 — CON 175 E — LOT 07 — 41A/1E

COUNTY OR DISTRICT: DUFFERIN [redacted]

TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: MULMUR

CON., BLOCK, TRACT, SURVEY, ETC.: [illegible]

LOT: 010

DATE COMPLETED: DAY 21 MONTH 05 YR 76

[redacted] ANS FIELD

UTM ZONE 17 — 290350 — RC 5 — ELEVATION 1040 — RC 5 — BASIN CODE 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
BROWN	TOP SOIL			6	1
"	CLAY			1	10
GREY	SHALE	CLAY	SHALE WITH CLAY LAYERS	10	20
"	"		HARD SLABS	20	139

31 — 0001602 — 0010605 — 0020217057 — 0133217 73

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0030	1 ☒ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
0080	1 ☒ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. - INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
08	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	.188	0	0023
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET	MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	DEPTH SET AT - FEET TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☒ BAILER

PUMPING RATE: 0002 GPM — DURATION OF PUMPING: 01 HOURS 00 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☐ PUMPING 2 ☒ RECOVERY	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
020 FEET	100 FEET		100 FEET	105 FEET	105 FEET	105 FEET

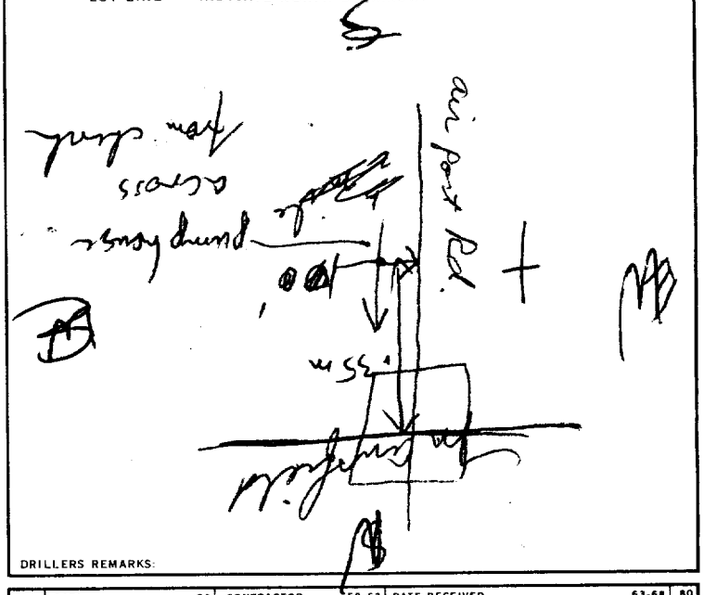
IF FLOWING, GIVE RATE: GPM — PUMP INTAKE SET AT: FEET — WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP — RECOMMENDED PUMP SETTING: 120 FEET — RECOMMENDED PUMPING RATE: 0002 GPM

GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

FINAL STATUS OF WELL 54: 1 ☒ WATER SUPPLY; 2 ☐ OBSERVATION WELL; 3 ☐ TEST HOLE; 4 ☐ RECHARGE WELL; 5 ☐ ABANDONED, INSUFFICIENT SUPPLY; 6 ☐ ABANDONED, POOR QUALITY; 7 ☐ UNFINISHED

WATER USE 55-56: 01 — 1 ☒ DOMESTIC; 2 ☐ STOCK; 3 ☐ IRRIGATION; 4 ☐ INDUSTRIAL; ☐ OTHER; 5 ☐ COMMERCIAL; 6 ☐ MUNICIPAL; 7 ☐ PUBLIC SUPPLY; 8 ☐ COOLING OR AIR CONDITIONING; 9 ☐ NOT USED

METHOD OF DRILLING 57: 2 — 1 ☐ CABLE TOOL; 2 ☒ ROTARY (CONVENTIONAL); 3 ☐ ROTARY (REVERSE); 4 ☐ ROTARY (AIR); 5 ☐ AIR PERCUSSION; 6 ☐ BORING; 7 ☐ DIAMOND; 8 ☐ JETTING; 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: [illegible] Drilling Ltd — LICENCE NUMBER: 3602

ADDRESS: [illegible]

NAME OF DRILLER OR BORER: [illegible] — LICENCE NUMBER:

SIGNATURE OF CONTRACTOR: [illegible] — SUBMISSION DATE: DAY 8 MO. 7 YR 76

OWR

MINISTRY OF THE ENVIRONMENT COPY

OFFICE USE ONLY

DATA SOURCE 58: 1 — CONTRACTOR 59-62: 3602 — DATE RECEIVED 63-68: 130776

DATE OF INSPECTION: June 13/77 — INSPECTOR: EJ

REMARKS: CSS SS

P

WI

FORM 7 MOE 07-091

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 — 1704164 — MUNICIP 17006 — CON. HS E — 07

COUNTY OR DISTRICT: [redacted] — TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: MULMAR — CON — BLOCK, TRACT, SURVEY, ETC: 7 — LOT 10

[redacted] Box 70 ALLISTON ONT LOM 1A0

DATE COMPLETED: DAY 29 MO 03 YR 90

21 — T M — RC — ELEVATION — RC — BASIN CODE — II — III — IV

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
	TOP SOIL			0	3
	SAND + GRAVEL			3	170
			TOTAL		170'

31

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
10-13: 0	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS — 14
15-18	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS — 19
20-23	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS — 24
25-28	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS — 29
30-33	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS — 34 80

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
10-11: 8	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☒ OPEN HOLE 5 ☐ PLASTIC — 12		0	170 — 13-16
17-18	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC — 19			20-23
24-25	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC — 26			27-30

SCREEN

SIZE(S) OF OPENING (SLOT NO.) 31-33	DIAMETER 34-38 INCHES	LENGTH 39-40 FEET
MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN 41-44 FEET	30

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER, ETC.)
10-13	14-17	
18-21	22-25	
26-29	30-33	80

71 PUMPING TEST

PUMPING TEST METHOD 10: 1 ☐ PUMP 2 ☐ BAILER

PUMPING RATE 11-14 GPM — DURATION OF PUMPING 15-16 HOURS 17-18 MINS

STATIC LEVEL 19-21 FEET	WATER LEVEL END OF PUMPING 22-24 FEET	WATER LEVELS DURING 25: 1 ☐ PUMPING 2 ☐ RECOVERY	15 MINUTES 26-28 FEET	30 MINUTES 29-31 FEET	45 MINUTES 32-34 FEET	60 MINUTES 35-37 FEET

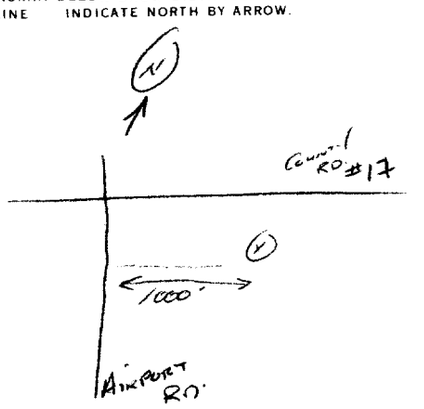
IF FLOWING, GIVE RATE 38-41 GPM — PUMP INTAKE SET AT FEET — WATER AT END OF TEST 42: 1 ☐ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☐ DEEP — RECOMMENDED PUMP SETTING 43-45 FEET — RECOMMENDED PUMPING RATE 46-49 GPM

50-53

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE INDICATE NORTH BY ARROW.



73098

DRILLERS REMARKS

FINAL STATUS OF WELL 54

1 ☐ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☒ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED ☐ DEWATERING

WATER USE 55-56

1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED

METHOD OF CONSTRUCTION 57

1 ☐ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☒ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING ☐ DIGGING ☐ OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: HANLON WELL DRILLING LTD. — WELL CONTRACTOR'S LICENCE NUMBER: 2663

ADDRESS: R.R. #5 GUELPH ONT. N1H 6J2

NAME OF WELL TECHNICIAN: JENAY K. HANLON — WELL TECHNICIAN'S LICENCE NUMBER: T-0590

SIGNATURE OF TECHNICIAN/CONTRACTOR — SUBMISSION DATE: DAY 01 MO 05 YR 90

OFFICE USE ONLY

DATA SOURCE 58 — CONTRACTOR 59-62: 2663 — DATE RECEIVED 63-68: MAY 08 1990 — 80

DATE OF INSPECTION — INSPECTOR

REMARKS

CSS.ES

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/86) FORM 9

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 | 1704196 | MUNICIP 17006 | CON HS E | LOT 10

COUNTY OR DISTRICT [redacted] | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE MULMER | CON | BLOCK, TRACT, SURVEY, ETC EHS 7 | LOT 10

ALLISTON

DATE COMPLETED DAY 24 MO 04 YR 90

ELEVATION | RC | BASIN CODE

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
BROWN	SAND	SILT	—	0	5
BROWN	GRAVEL	SAND	LOOSE	5	116
BROWN	SAND	SILT GREY CLAY RIBBONS	—	116	40
GREY	CLAY	SILT	COMPACTED	40	50
BROWN	CLAY	SILT	COMPACTED	50	600
BROWN	SILT	SAND CLAY	SOFT	600	110
BROWN	SAND	SILT	MEDIUM	110	115
BROWN	GRAVEL	SAND SILT CLAY		115	135
BROWN	SAND	SILT	LAYERED MED. TO FINE	135	155
GREY	SILT	—	SOFT	155	—

31

32 | RIM 4 1/2"

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
150	1 ☑ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
6 1/4	1 ☑ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.188	+2	140
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET
20	6	8

MATERIAL AND TYPE: STAINLESS | DEPTH TO TOP OF SCREEN: 142 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	DEPTH SET AT - FEET TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
138	142	K PACKER & 4X5" PROD PIPE.

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☐ BAILER — AIR

PUMPING RATE: 20 GPM | DURATION OF PUMPING: 4 HOURS ____ MINS

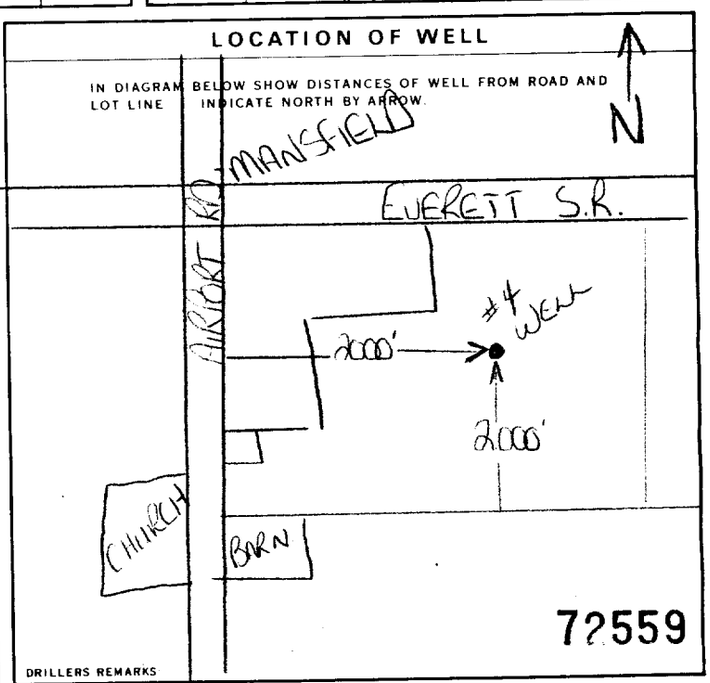
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☐ PUMPING 2 ☐ RECOVERY	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
83 FEET	140 FEET		140 FEET	140 FEET	140 FEET	140 FEET

IF FLOWING, GIVE RATE: ____ GPM | PUMP INTAKE SET AT: ____ FEET | WATER AT END OF TEST: 1 ☐ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☑ DEEP | RECOMMENDED PUMP SETTING: 140 FEET | RECOMMENDED PUMPING RATE: 20' GPM

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS: 72559

FINAL STATUS OF WELL

1 ☑ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED ☐ DEWATERING

WATER USE

1 ☑ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED

METHOD OF CONSTRUCTION

1 ☑ CABLE TOOL 2 ☑ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING ☐ DIGGING ☐ OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: R & B WELL DRILLING LTD | WELL CONTRACTOR'S LICENCE NUMBER: 4695

ADDRESS: RR#2 BEETON L0G 1A0

NAME OF WELL TECHNICIAN: CARL M. COMER | WELL TECHNICIAN'S LICENCE NUMBER: 0088

SIGNATURE OF TECHNICIAN/CONTRACTOR: [signature] | SUBMISSION DATE: DAY 26 MO 04 YR 90

OFFICE USE ONLY

DATA SOURCE | CONTRACTOR 4645 | DATE RECEIVED JUN 26 1990

DATE OF INSPECTION | INSPECTOR

REMARKS

CSS.ES

FORM NO. 0506 (11/86) FORM 9

MINISTRY OF THE ENVIRONMENT COPY

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 | 1704197 | MUNICIP. 17006 | CON. HS E | 07

COUNTY OR DISTRICT [redacted] | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE MULMER ALLISTON | CON. EHS 7 | BLOCK, TRACT, SURVEY, ETC | LOT 10

DATE COMPLETED DAY 16 MO 04 YR 90

ELEVATION | RC | BASIN CODE

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
BROWN	TOPSOIL	—	—	0	2
BROWN	SAND	GRAVEL	LOOSE	2	15
BROWN	SILT	SAND GRAVEL	COMPACTED	15	35
GREY	CLAY	SILT	—	35	50
BROWN	SAND	GRAVEL SILT	—	50	70
GREY	SILT	SAND CLAY	COMPACTED	70	135
GREY	CLAY	SILT	—	135	140
BROWN	SILT	COARSE SAND	—	140	160
GREY	CLAY	SILT SAND	COMPACTED	160	190
BROWN	SAND	SILT GRAVEL	SOFT	190	198
GREY	SHALE	—	—	198	—

31 | 32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
198	1 ☑ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
6 1/4	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.188	+2	190
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET
20	6	8

MATERIAL AND TYPE: STAINLESS | DEPTH TO TOP OF SCREEN: 190 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER ETC.)
180	190	'K' PACKER & 4" DROP PIPE

71 PUMPING TEST

PUMPING TEST METHOD 1 ☐ PUMP 2 ☐ BAILER: AIR | PUMPING RATE: 4 GPM | DURATION OF PUMPING: 8 HOURS ___ MINS

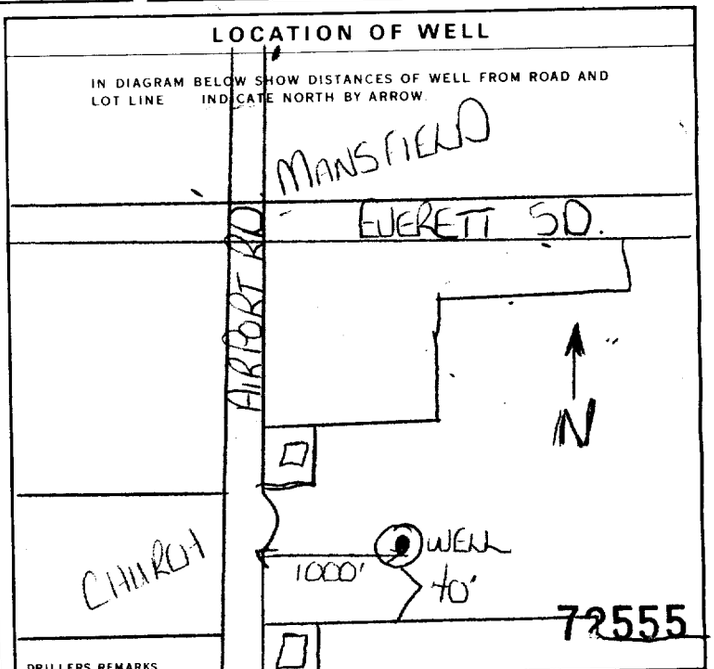
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☑ PUMPING 2 ☐ RECOVERY	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
82 FEET	190 FEET		190 FEET	190 FEET	190 FEET	190 FEET

IF FLOWING, GIVE RATE: ___ GPM | PUMP INTAKE SET AT: ___ FEET | WATER AT END OF TEST: 1 ☐ CLEAR 2 ☑ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☑ DEEP | RECOMMENDED PUMP SETTING: 190 FEET | RECOMMENDED PUMPING RATE: 4 GPM

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS: 72555

FINAL STATUS OF WELL

1 ☑ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED ☐ DEWATERING

WATER USE

1 ☑ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED

METHOD OF CONSTRUCTION

1 ☐ CABLE TOOL 2 ☑ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING ☐ DIGGING ☐ OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: R&B WELL DRILLING LTD | WELL CONTRACTOR'S LICENCE NUMBER: 4045

ADDRESS: RR#2 BEETON LOG 1A0

NAME OF WELL TECHNICIAN: CARL M. COMER | WELL TECHNICIAN'S LICENCE NUMBER: 0008

SIGNATURE OF TECHNICIAN/CONTRACTOR: [signature] | SUBMISSION DATE: DAY 19 MO 04 YR 90

OFFICE USE ONLY

DATA SOURCE | CONTRACTOR 4645 | DATE RECEIVED JUN 26 1990

DATE OF INSPECTION | INSPECTOR

REMARKS

CSS.ES

FORM NO. 0506 (11/86) FORM 9

MINISTRY OF THE ENVIRONMENT COPY

The Ontario Water Resources Act

WATER WELL RECORD

Ontario Ministry of the Environment

1704198

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11

MUNICIP 17006 | CON. HS E 07 | LOT 10

COUNTY OR DISTRICT [redacted] | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: MULMUR, Allistan | CON, BLOCK, TRACT, SURVEY, ETC: EHS 7

DATE COMPLETED: DAY 18 MO 04 YR 90

RC | ELEVATION | RC | BASIN CODE

21

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
BROWN	TOPSOIL	—	—	0	2
BROWN	GRAVEL	STONE	—	2	8
BROWN	SILT	SAND GRAVEL	COMPACTED	8	38
GREY	CLAY	SILT SAND	DENSE	38	55
BROWN	SILT	SAND	LOOSE	55	65
BROWN	SILT	SAND	COMPACTED	65	95
GREY	SILT	SAND CLAY	LAYERED	95	140
BROWN	SAND	SILT	LOOSE	140	150
GREY	CLAY	—	—	150	—

31

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
150	1 ☑ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
6'14	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.188	+2	140
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET
20	6	8

MATERIAL AND TYPE: STAINLESS | DEPTH TO TOP OF SCREEN FEET: 142

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	DEPTH SET AT - FEET TO	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER ETC.)
138	142	K PACKER & 4½" DRIVE PIPE.

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☐ BAILER — AIR

PUMPING RATE: 20 GPM | DURATION OF PUMPING: 5 HOURS — MINS

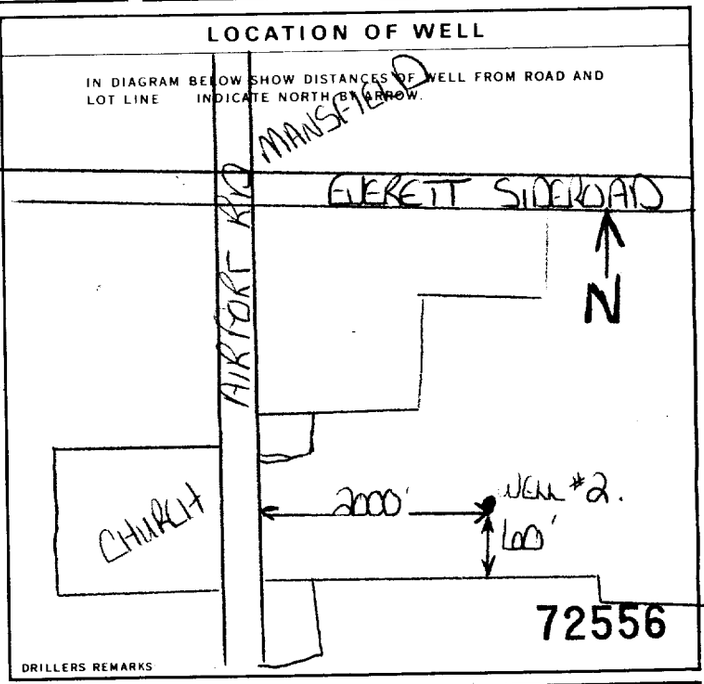
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☑ PUMPING 2 ☐ RECOVERY	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
82 FEET	140 FEET		140 FEET	140 FEET	140 FEET	140 FEET

IF FLOWING GIVE RATE: — GPM | PUMP INTAKE SET AT: — FEET | WATER AT END OF TEST: 1 ☑ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☑ DEEP | RECOMMENDED PUMP SETTING: 140 FEET | RECOMMENDED PUMPING RATE: 20 GPM

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



72556

DRILLERS REMARKS

FINAL STATUS OF WELL

1 ☑ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED ☐ DEWATERING

WATER USE

1 ☑ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED

METHOD OF CONSTRUCTION

1 ☐ CABLE TOOL 2 ☑ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING ☐ DIGGING ☐ OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: K&B WELL DRILLING LTD | WELL CONTRACTOR'S LICENCE NUMBER: 4645

ADDRESS: RR#2 BEETON LOG 1A0

NAME OF WELL TECHNICIAN: CARL M COMER | WELL TECHNICIAN'S LICENCE NUMBER: 0028

SIGNATURE OF TECHNICIAN/CONTRACTOR: [signature] | SUBMISSION DATE: DAY 19 MO 04 YR 90

OFFICE USE ONLY

DATA SOURCE | CONTRACTOR: 4645 | DATE RECEIVED: JUN 26 1990

DATE OF INSPECTION | INSPECTOR

REMARKS

CSS.ES

FORM NO. 0506 (11/86) FORM 9

MINISTRY OF THE ENVIRONMENT COPY

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 — 1704199 — MUNICIP 1700,6 — CON. H,S E — 07

COUNTY OR DISTRICT [redacted] — TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: MULMER — CON — BLOCK, TRACT, SURVEY, ETC: EHS 7 — LOT: 10

ALLISTON — DATE COMPLETED: DAY 20 MO 04 YR 90

21 — ELEVATION — BASIN CODE

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
BROWN	GRAVEL	SAND STONE	LOOSE	0	18
BROWN	SAND	SILT	COARSE	18	30
BROWN	SILT	SAND CLAY RIBBONS	—	30	60
BROWN	CLAY	—	DENSE	60	65
GREY	CLAY	—	DENSE	65	70
BROWN	SILT	SAND CLAY	SOFT	70	90
GREY	SILT	SAND CLAY	LAYERED	90	142
BROWN	SAND	SILT	MED. TO FINE	142	152

31

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
150	1 ☒ FRESH 2 ☐ SALTY — 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY — 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY — 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY — 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY — 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
6¼	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.188	+2	140
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
20	6 INCHES	8 FEET

MATERIAL AND TYPE: STAINLESS — DEPTH TO TOP OF SCREEN: 142 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
138	142	4" PACKER &
		4"x5" DROP PIPE

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☐ BAILER — AIR — PUMPING RATE: 18 GPM — DURATION OF PUMPING: 6 HOURS ___ MINS

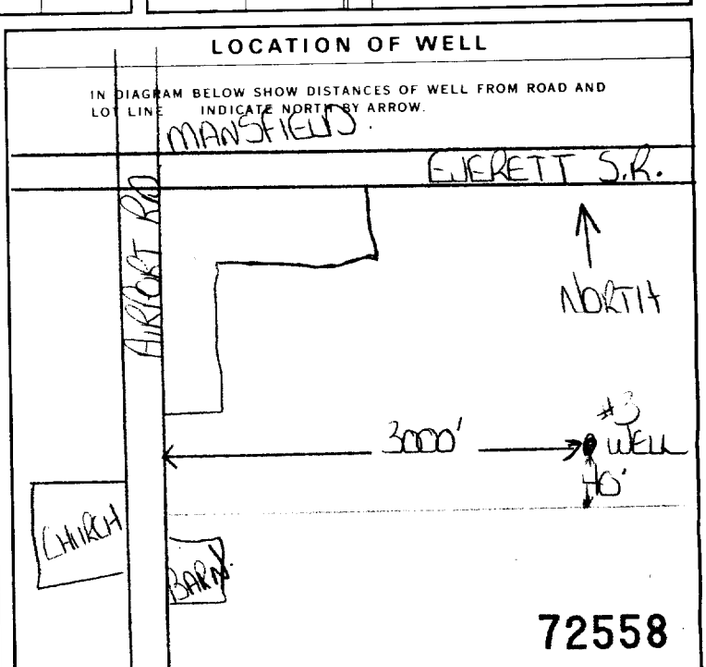
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☐ PUMPING 2 ☐ RECOVERY	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
83 FEET	140 FEET		140 FEET	140 FEET	140 FEET	140 FEET

IF FLOWING, GIVE RATE: ___ GPM — PUMP INTAKE SET AT: ___ FEET — WATER AT END OF TEST: 1 ☐ CLEAR 2 ☒ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP — RECOMMENDED PUMP SETTING: 140 FEET — RECOMMENDED PUMPING RATE: 18 GPM

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS: 72558

FINAL STATUS OF WELL

1 ☒ WATER SUPPLY — 2 ☐ OBSERVATION WELL — 3 ☐ TEST HOLE — 4 ☐ RECHARGE WELL — 5 ☐ ABANDONED, INSUFFICIENT SUPPLY — 6 ☐ ABANDONED, POOR QUALITY — 7 ☐ UNFINISHED — ☐ DEWATERING

WATER USE

1 ☒ DOMESTIC — 2 ☐ STOCK — 3 ☐ IRRIGATION — 4 ☐ INDUSTRIAL — ☐ OTHER — 5 ☐ COMMERCIAL — 6 ☐ MUNICIPAL — 7 ☐ PUBLIC SUPPLY — 8 ☐ COOLING OR AIR CONDITIONING — 9 ☐ NOT USED

METHOD OF CONSTRUCTION

1 ☐ CABLE TOOL — 2 ☒ ROTARY (CONVENTIONAL) — 3 ☐ ROTARY (REVERSE) — 4 ☐ ROTARY (AIR) — 5 ☐ AIR PERCUSSION — 6 ☐ BORING — 7 ☐ DIAMOND — 8 ☐ JETTING — 9 ☐ DRIVING — ☐ DIGGING — ☐ OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: R & B WELL DRILLING LTD — WELL CONTRACTOR'S LICENCE NUMBER: 4645

ADDRESS: RR#2 BEETON, LOG 1A0

NAME OF WELL TECHNICIAN: CARL M. COMER — WELL TECHNICIAN'S LICENCE NUMBER: C0038

SIGNATURE OF TECHNICIAN/CONTRACTOR — SUBMISSION DATE: DAY 26 MO 04 YR 90

OFFICE USE ONLY

DATA SOURCE — CONTRACTOR: 4645 — DATE RECEIVED: JUN 26 1990

DATE OF INSPECTION — INSPECTOR

REMARKS: CSS.ES

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/86) FORM 9

Ontario **Ministry of the Environment**

The Ontario Water Resources Act
WATER WELL RECORD

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

11 **1705655** Municipality 17006 Con. HS E 07

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot
[redacted]	Mulmur Mansfield	7 HSE	10

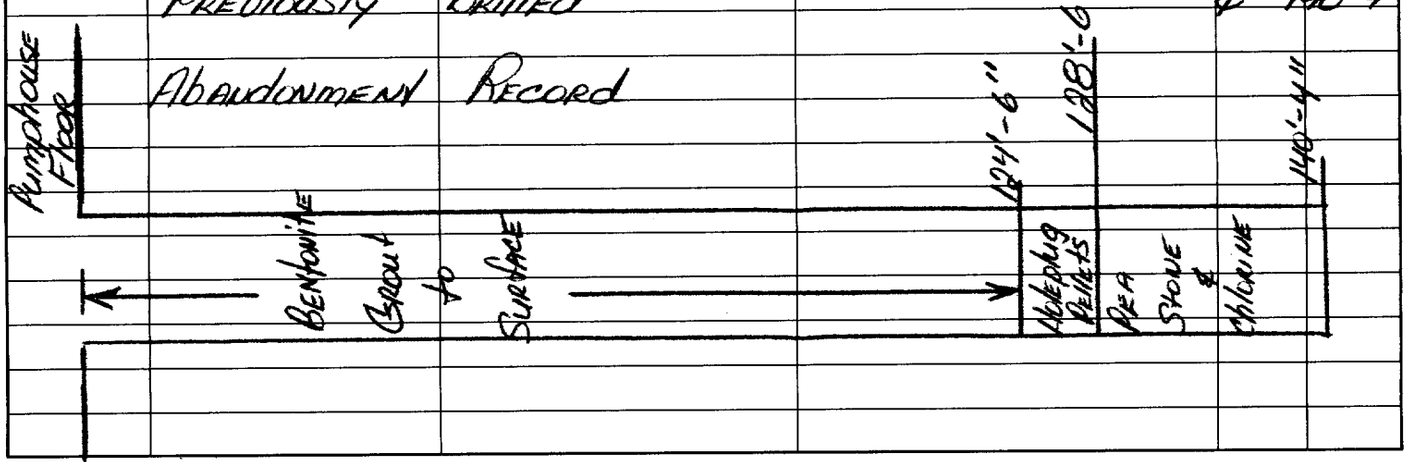
Address: 15 Town Line Orangeville

Date completed: 29 day 09 month 00 year

21 UTM Northing RC Elevation RC Basin Code

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
	Previously	Drilled		0	140'-4"
	Abandonment	Record			



31

32

41 WATER RECORD

Water found at - feet	Kind of water
10-13	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas
15-18	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas
20-23	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas
25-28	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas
30-33	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
10-11 006	1 ☑ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	188	0	? 13-16
17-18	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			20-23
24-25	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			27-30

SCREEN

Sizes of opening (Slot No.) 31-33	Diameter 34-38 inches	Length 39-42 feet
Material and type	Depth at top of screen 41-44 feet	30

61 PLUGGING & SEALING RECORD

☐ Annular space ☐ Abandonment

Depth set at - feet From	Depth set at - feet To	Material and type (Cement grout, bentonite, etc.)
0 10-13	124'-6" 14-17	Bentonite Grout
124'6" 18-21	128'6" 22-25	Holeplug Pellet
128'6" 26-29	140'-4" 30-33 80	Pea Stone

71 PUMPING TEST

Pumping test method 10: 1 ☐ Pump 2 ☐ Bailer

Pumping rate 11-14 GPM

Duration of pumping 15-16 Hours 17-18 Mins

25 Water levels during: 1 ☐ Pumping 2 ☐ Recovery

Static level 19-21 feet	Water level end of pumping 22-24 feet	15 minutes 26-28 feet	30 minutes 29-31 feet	45 minutes 32-34 feet	60 minutes 35-37 feet

If flowing give rate 38-41 GPM

Pump intake set at feet

Water at end of test 42: ☐ Clear ☐ Cloudy

Recommended pump type: ☐ Shallow ☐ Deep

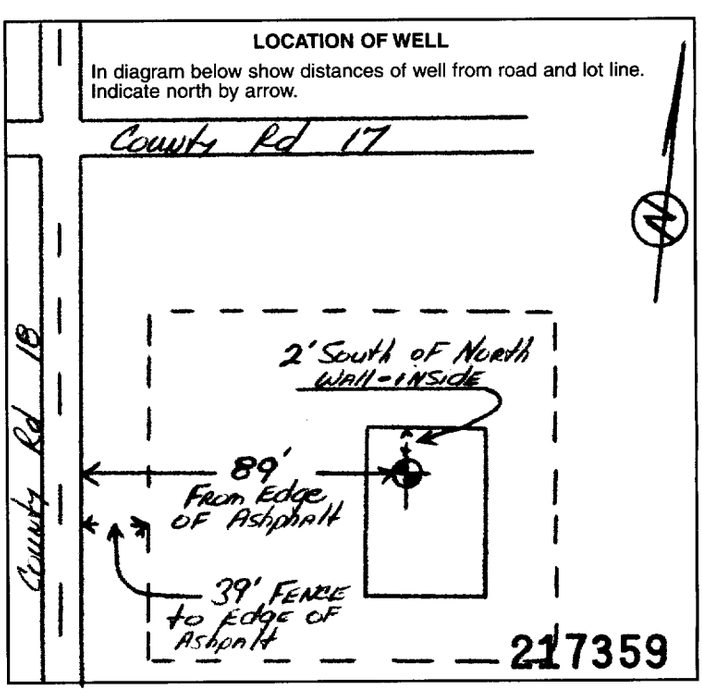
Recommended pump setting 43-45 feet

Recommended pump rate 46-49 GPM

50-53

LOCATION OF WELL

In diagram below show distances of well from road and lot line.
Indicate north by arrow.



FINAL STATUS OF WELL 54

1 ☐ Water supply 2 ☐ Observation well 3 ☐ Test hole 4 ☐ Recharge well 5 ☐ Abandoned, insufficient supply 6 ☐ Abandoned, poor quality 7 ☑ Abandoned (Other) 8 ☐ Dewatering 9 ☐ Unfinished 10 ☐ Replacement well

WATER USE 55-56

1 ☐ Domestic 2 ☐ Stock 3 ☐ Irrigation 4 ☐ Industrial 5 ☐ Commercial 6 ☐ Municipal 7 ☐ Public supply 8 ☐ Cooling & air conditioning 9 ☑ Not use 10 ☐ Other

METHOD OF CONSTRUCTION 57

1 ☐ Cable tool 2 ☐ Rotary (conventional) 3 ☐ Rotary (reverse) 4 ☐ Rotary (air) 5 ☐ Air percussion 6 ☐ Boring 7 ☐ Diamond 8 ☐ Jetting 9 ☐ Driving 10 ☐ Digging 11 ☑ Other Tremie Line & Grout Pump

Lumney Well Drilling

Name of Well Contractor	Well Contractor's Licence No.
D.V. of Geerts Well Drilling Inc	3406
Address: RR# 1 Grand Valley	
Name of Well Technician: Theo Geerts	Well Technician's Licence No. T-0080
Signature of Technician/Contractor	Submission date: 29 day 09 mo 00 yr

MINISTRY USE ONLY

Data source 58 | Contractor 59-62: 3406 | Date received 63-68: MAR 22 2001 80

Date of inspection | Inspector

Remarks: CSS.ES1

0506 (11/98) Front Form 9

2 - MINISTRY OF THE ENVIRONMENT COPY

Ontario Ministry of the Environment

The Ontario Water Resources Act
WATER WELL RECORD

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

11 — 1705656 — Municipality 17006 — Con. HS E — 07

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot
DUFFERIN	Mulmur - Mansfield	7 HSE	10

Address: 15 Townline Orangeville

Date completed: 29 day 09 month 00 year

21 — UTM — Northing — RC — Elevation — RC — Basin Code

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
	Previously drilled			0	143'4"
	Abandonment	Record			

132'4" 143'4" Pea Stone & Chlorine Holeplug 126'8" Bentonite Grout to Surface Below Ice

31

32

41 WATER RECORD

Water found at - feet	Kind of water
	1 Fresh 2 Salty 3 Sulphur 4 Minerals 5 Gas
	1 Fresh 2 Salty 3 Sulphur 4 Minerals 5 Gas
	1 Fresh 2 Salty 3 Sulphur 4 Minerals 5 Gas
	1 Fresh 2 Salty 3 Sulphur 4 Minerals 5 Gas
	1 Fresh 2 Salty 3 Sulphur 4 Minerals 5 Gas

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
006	1 Steel 2 Galvanized 3 Concrete 4 Open hole 5 Plastic	188	+6"	?
	1 Steel 2 Galvanized 3 Concrete 4 Open hole 5 Plastic			
	1 Steel 2 Galvanized 3 Concrete 4 Open hole 5 Plastic			

SCREEN

Sizes of opening (Slot No.)	Diameter inches	Length feet
Material and type	Depth at top of screen feet	

61 PLUGGING & SEALING RECORD

☐ Annular space ☑ Abandonment

Depth set at - feet From	Depth set at - feet To	Material and type (Cement grout, bentonite, etc.)
0	126'8"	Bentonite Grout
126'8"	132'4"	Bentonite Holeplug
132'4"	143'	4" Pea Stone

71 PUMPING TEST

Pumping test method	Pumping rate	Duration of pumping
1 Pump 2 Bailer	GPM	Hours Mins

Static level	Water level end of pumping	Water levels during 1 Pumping 2 Recovery			
		15 minutes	30 minutes	45 minutes	60 minutes
feet	feet	feet	feet	feet	feet

If flowing give rate	Pump intake set at	Water at end of test
GPM	feet	☐ Clear ☐ Cloudy

Recommended pump type	Recommended pump setting	Recommended pump rate
☐ Shallow ☐ Deep	feet	GPM

FINAL STATUS OF WELL

1 ☐ Water supply 2 ☐ Observation well 3 ☐ Test hole 4 ☐ Recharge well 5 ☐ Abandoned, insufficient supply 6 ☐ Abandoned, poor quality 7 ☑ Abandoned (Other) 8 ☐ Dewatering 9 ☐ Unfinished 10 ☐ Replacement well

WATER USE

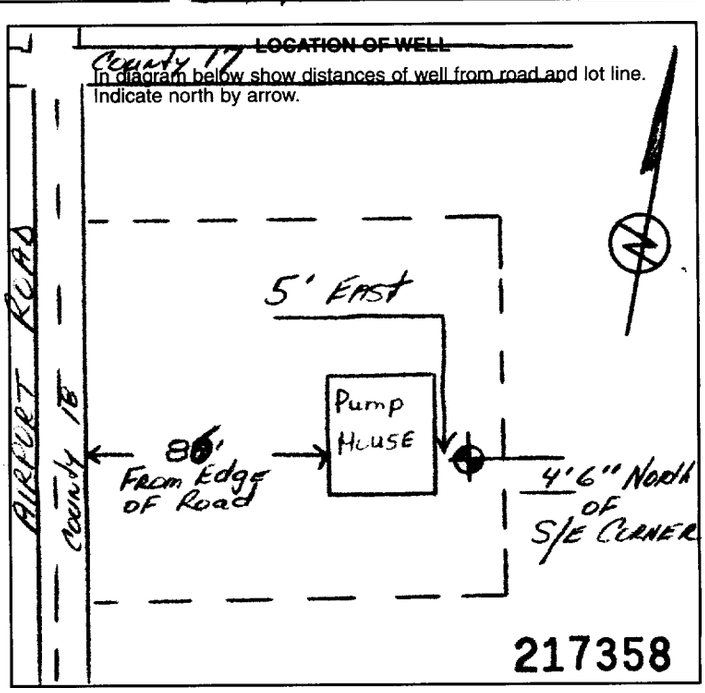
1 ☐ Domestic 2 ☐ Stock 3 ☐ Irrigation 4 ☐ Industrial 5 ☐ Commercial 6 ☐ Municipal 7 ☐ Public supply 8 ☐ Cooling & air conditioning 9 ☑ Not use 10 ☐ Other

METHOD OF CONSTRUCTION

1 ☐ Cable tool 2 ☐ Rotary (conventional) 3 ☐ Rotary (reverse) 4 ☐ Rotary (air) 5 ☐ Air percussion 6 ☐ Boring 7 ☐ Diamond 8 ☐ Jetting 9 ☐ Driving 10 ☐ Digging 11 ☑ Other Tremie Line & Grout Pump

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate north by arrow.



217358

Lunney Well Drilling

Name of Well Contractor: Div. of Gerrits Well Drilling Inc. — Well Contractor's Licence No.: 3406

Address: RR#1 Grand Valley

Name of Well Technician: Theo Gerrits — Well Technician's Licence No.: T-0080

Signature of Technician/Contractor — Submission date: 29 day 09 mo 00 yr

MINISTRY USE ONLY: Data source 58 — Contractor 3406 (59-62) — Date received MAR 2 2 2001 (63-66) 80 — Date of inspection — Inspector — Remarks

CSS.ES1

0506 (11/98) Front Form 9

2 - MINISTRY OF THE ENVIRONMENT COPY

STRUDWICK

Ontario Ministry of the Environment

Well Tag Number (Place sticker and print number below): DECOM / NO-TAG

Well Record

Regulation 903 Ontario Water Resources Act

page 1 of 1

Instructions for Completing Form

- For use in the **Province of Ontario** only. This document is a permanent **legal** document. Please retain for future reference.
- All Sections **must** be completed in full to avoid delays in processing. Further instructions and explanations are available on the back of this form.
- Questions regarding completing this application can be directed to the Water Well Management Coordinator at 416-235-6203.
- **All metre measurements shall be reported to 1/10th of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only

MUN | CON | LOT

Well Owner's Information and Location of Well Information

[redacted]

RR#/Street Number/Name	City/Town/Village	Site/Compartment/Block/Tract etc.
DUFFERIN	MULMER	10 EHS 1

GPS Reading	NAD	Zone	Easting	Northing	Unit Make/Model	Mode of Operation
	83	17	577358	4890691	MAP 410	☐ Undifferentiated ☑ Averaged ☐ Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Depth To (Metres)
	DECOMMISSION		T.D. FOUND	15	M
YELLOW	BENTONITE HOLE PLUG			15	13
BROWN	SAND			13	6
YELLOW	BENTONITE HOLE PLUG			6	2
BROWN	SAND		NATIVE	2	0
		CASING REMOVED		2	0

Hole Diameter

Depth From	Depth To (Metres)	Diameter (Centimetres)

Water Record

Water found at ___ Metres / Kind of Water

___ m ☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:

___ m ☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:

___ m ☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:

After test of well yield, water was ☐ Clear and sediment free ☐ Other, specify

Chlorinated ☑ Yes ☐ No

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Depth To (Metres)
Casing				
15.2	☑ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	.188	0	15
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
Screen				
Outside diam	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	Slot No. P	O.K.	
No Casing or Screen	☐ Open hole			

Test of Well Yield

Pumping test method	Draw Down Time (min)	Draw Down Water Level (Metres)	Recovery Time (min)	Recovery Water Level (Metres)
Pump intake set at - (metres)	Static Level	15		
Pumping rate - (litres/min)	1		1	
Duration of pumping ___hrs +___ min	2		2	
Final water level end of pumping ___metres	3		3	
Recommended pump type. ☐ Shallow ☐ Deep	4		4	
Recommended pump depth. ___metres	5		5	
Recommended pump rate. (litres/min)	10		10	
	15		15	
If flowing give rate - (litres/min)	20		20	
	25		25	
If pumping discontinued, give reason.	30		30	
	40		40	
	50		50	
	60		60	

Plugging and Sealing Record

☐ Annular space ☑ Abandonment

Depth set at - Metres From	Depth set at - Metres To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
15	0	AS ABOVE	

Method of Construction

☐ Cable Tool ☐ Rotary (air) ☐ Diamond ☑ Digging
☐ Rotary (conventional) ☐ Air percussion ☐ Jetting ☐ Other
☐ Rotary (reverse) ☐ Boring ☐ Driving

Water Use

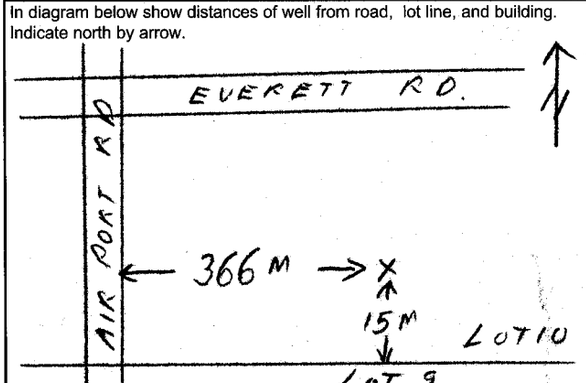
☐ Domestic ☐ Industrial ☐ Public Supply ☐ Other
☐ Stock ☐ Commercial ☑ Not used
☐ Irrigation ☐ Municipal ☐ Cooling & air conditioning

Final Status of Well

☐ Water Supply ☐ Recharge well ☐ Unfinished ☑ Abandoned, (Other)
☐ Observation well ☐ Abandoned, insufficient supply ☐ Dewatering NOT REQUIRED
☐ Test Hole ☐ Abandoned, poor quality ☐ Replacement well

Location of Well

In diagram below show distances of well from road, lot line, and building. Indicate north by arrow.



Audit No. Z 36795

Date Well Completed: 2006 / 4 / 18

Was the well owner's information package delivered? ☐ Yes ☐ No

Date Delivered

Well Contractor/Technician Information

Name of Well Contractor: FRED CONSTABLE & SON LTD — Well Contractor's Licence No.: 1663

Business Address (street name, number, city etc.): 3519 5TH LINE BRADFORD

Name of Well Technician (last name, first name): KEVIN CONSTABLE — Well Technician's Licence No.: T0830

Signature of Technician/Contractor: X [signature] — Date Submitted: 2006 / 5 / 10

Ministry Use Only

Data Source — Contractor: 1663

Date Received: JUN 19 2006 — Date of Inspection

Remarks — Well Record Number

0506E (09/03) Contractor's Copy ☐ Ministry's Copy ☐ Well Owner's Copy ☐

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Ontario Ministry of the Environment

c/o STRUDWICK

Well Tag Number (Place sticker and print number below)
DECOM
NO-TAG

3

Well Record
Regulation 903 Ontario Water Resources Act

page 1 of 1

Instructions for Completing Form

- For use in the **Province of Ontario** only. This document is a permanent **legal** document. Please retain for future reference.
- All Sections **must** be completed in full to avoid delays in processing. Further instructions and explanations are available on the back of this form.
- Questions regarding completing this application can be directed to the Water Well Management Coordinator at 416-235-6203.
- **All metre measurements shall be reported to 1/10th of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only

[redacted]

Address of Well Location (County/District/Municipality): DUFFERIN
Township: MULMER
Lot: 10
Concession: 7 E.H.S.
RR#/Street Number/Name:
City/Town/Village: MANSFIELD
Site/Compartment/Block/Tract etc.:

GPS Reading: NAD 83 | Zone 17 | Easting 577596 | Northing 4890766
Unit Make/Model: MAP 410
Mode of Operation: ☐ Undifferentiated ☑ Averaged ☐ Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Depth To (Metres)
	DECOMMISSION		T.D.	45	M
BROWN	SAND			45	41
YELLOW	BENTONITE	HOLE PLUG		41	39
BROWN	SAND			39	6
YELLOW	BENTONITE	HOLE PLUG		6	2
BROWN	SAND		NATIVE	2	0
	CASING REMOVED			2	0

Hole Diameter

Depth From	Depth To (Metres)	Diameter (Centimetres)

Water Record

Water found at ___ Metres / Kind of Water

- ___ m ☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☑ Minerals ☐ Other:
- ___ m ☐ Fresh ☐ Sulphur ☐ Gas ☑ Salty ☐ Minerals ☐ Other:
- ___ m ☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:

After test of well yield, water was
☐ Clear and sediment free
☐ Other, specify

Chlorinated ☑ Yes ☐ No

Construction Record

Inside diam (centimetres)	Material	Wall thickness (centimetres)	Depth From	Depth To (Metres)
Casing				
15.2	☑ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	.188	45	0
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
Screen				
Outside diam	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	Slot No. ?	UK	

No Casing or Screen
☐ Open hole

Test of Well Yield

Pumping test method	Draw Down Time min	Draw Down Water Level Metres	Recovery Time min	Recovery Water Level Metres
Pump intake set at - (metres)	Static Level	25M		
Pumping rate - (litres/min)	1		1	
Duration of pumping ___hrs +___ min	2		2	
Final water level end of pumping ___metres	3		3	
Recommended pump type. ☐ Shallow ☐ Deep	4		4	
Recommended pump depth. ___metres	5		5	
Recommended pump rate. (litres/min)	10		10	
If flowing give rate - (litres/min)	15		15	
If pumping discontinued, give reason.	20		20	
	25		25	
	30		30	
	40		40	
	50		50	
	60		60	

Plugging and Sealing Record
☐ Annular space ☑ Abandonment

Depth set at - Metres From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
45	0	AS ABOVE	

Method of Construction
☐ Cable Tool ☐ Rotary (air) ☐ Diamond ☑ Digging
☐ Rotary (conventional) ☐ Air percussion ☐ Jetting ☐ Other
☐ Rotary (reverse) ☐ Boring ☐ Driving

Water Use
☐ Domestic ☐ Industrial ☐ Public Supply ☐ Other
☐ Stock ☐ Commercial ☑ Not used
☐ Irrigation ☐ Municipal ☐ Cooling & air conditioning

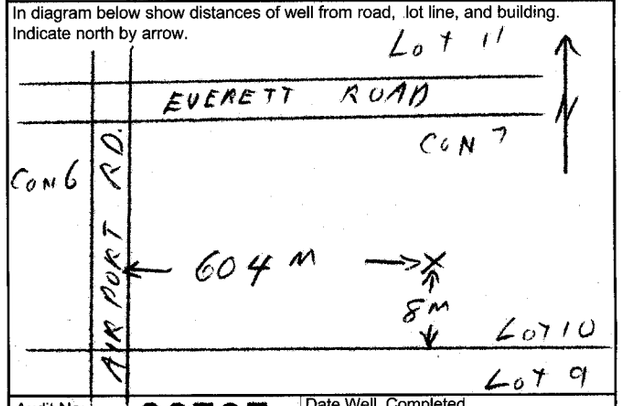
Final Status of Well
☐ Water Supply ☐ Recharge well ☐ Unfinished ☑ Abandoned, (Other) N/R
☐ Observation well ☐ Abandoned, insufficient supply ☐ Dewatering
☐ Test Hole ☐ Abandoned, poor quality ☐ Replacement well

Well Contractor/Technician Information

Name of Well Contractor: FRED CONSTABLE & SON LTD
Well Contractor's Licence No.: 1663
Business Address (street name, number, city etc.): 3519 5TH LINE BRADFORD
Name of Well Technician (last name, first name): KEVIN CONSTABLE
Well Technician's Licence No.: 10230
Signature of Technician/Contractor: x Kevin Constable
Date Submitted: 2006 | 5 | 10

Location of Well

In diagram below show distances of well from road, lot line, and building. Indicate north by arrow.



Audit No.: Z 36797
Date Well Completed: YYYY 2006 | MM 04 | DD 18
Was the well owner's information package delivered? ☐ Yes ☐ No
Date Delivered: YYYY | MM | DD 2

Ministry Use Only

Data Source:
Contractor: 1663
Date Received: YYYY JUN 19 2006 | MM | DD
Date of Inspection: YYYY | MM | DD
Remarks:
Well Record Number:

0506E (09/03) Contractor's Copy ☐ Ministry's Copy ☐ Well Owner's Copy ☐ *Cette formule est disponible en français*

Ontario Ministry of the Environment

c/o STRUDWICK

Well Tag Number (Place sticker and print number below): DECOMMISSION / NO TAG

Well Record

Regulation 903 Ontario Water Resources Act

page 1 of 1

Instructions for Completing Form

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- Questions regarding completing this application can be directed to the Water Well Management Coordinator at 416-235-6203.
- **All metre measurements shall be reported to 1/10th of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only

MUN | CON | LOT

[redacted]

Address of Well Location (County/District/Municipality): DUFFERIN

Township: MULMER

Lot: 10

Concession: 7EHS

RR#/Street Number/Name:

City/Town/Village: MANSFIELD

Site/Compartment/Block/Tract etc.:

GPS Reading: NAD 83 | Zone 17 | Easting 577277 | Northing 4890862

Unit Make/Model: MP 410

Mode of Operation: ☐ Undifferentiated ☑ Averaged ☐ Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Depth To (Metres)
	DECOMMISSION		T.D.	44	M
BROWN	SAND			44	41
YELLOW	BENTONITE	HOLE PLUG		41	40
BROWN	SAND			40	15
YELLOW	BENTONITE	HOLE PLUG		15	14
BROWN	SAND			14	6
YELLOW	BENTONITE	HOLE PLUG		6	2
BROWN	SAND CLAY			2	0
	CASING REMOVED			2	0

Hole Diameter

Depth From	Depth To (Metres)	Diameter (Centimetres)

Water Record

Water found at ___ Metres / Kind of Water

- ___ m ☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:
- ___ m ☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:
- ___ m ☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:

After test of well yield, water was ☐ Clear and sediment free ☐ Other, specify

Chlorinated ☑ Yes ☐ No

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Depth To (Metres)
Casing				
15.2	☑ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	.188	44	0
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
Screen				
Outside diam	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	Slot No. ?	UK	
No Casing or Screen				
	☐ Open hole			

Test of Well Yield

Pumping test method	Draw Down Time min	Draw Down Water Level Metres	Recovery Time min	Recovery Water Level Metres
Pump intake set at - (metres)	Static Level	25		
Pumping rate - (litres/min)	1		1	
Duration of pumping ___hrs +___ min	2		2	
Final water level end of pumping ___metres	3		3	
Recommended pump type. ☐ Shallow ☐ Deep	4		4	
Recommended pump depth. ___metres	5		5	
Recommended pump rate. (litres/min)	10		10	
If flowing give rate - (litres/min)	15		15	
If pumping discontinued, give reason.	20		20	
	25		25	
	30		30	
	40		40	
	50		50	
	60		60	

Plugging and Sealing Record

☐ Annular space ☑ Abandonment

Depth set at - Metres From	Depth set at - Metres To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
44	0	AS ABOVE	

Method of Construction

☐ Cable Tool ☐ Rotary (air) ☐ Diamond ☑ Digging
☐ Rotary (conventional) ☐ Air percussion ☐ Jetting ☐ Other
☐ Rotary (reverse) ☐ Boring ☐ Driving

Water Use

☐ Domestic ☐ Industrial ☐ Public Supply ☐ Other
☐ Stock ☐ Commercial ☑ Not used
☐ Irrigation ☐ Municipal ☐ Cooling & air conditioning

Final Status of Well

☐ Water Supply ☐ Recharge well ☐ Unfinished ☑ Abandoned, (Other)
☐ Observation well ☐ Abandoned, insufficient supply ☐ Dewatering N/R
☐ Test Hole ☐ Abandoned, poor quality ☐ Replacement well

Well Contractor/Technician Information

Name of Well Contractor: FRED CONSTABLE SON LTD

Well Contractor's Licence No.: 1663

Business Address (street name, number, city etc.): 3519 5TH LINE BRADFORD

Name of Well Technician (last name, first name): KEVIN CONSTABLE

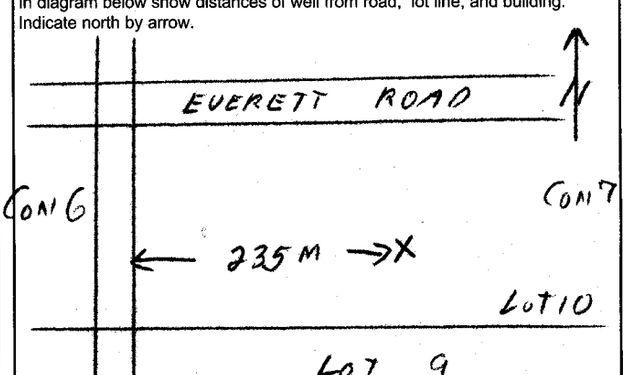
Well Technician's Licence No.: TO230

Signature of Technician/Contractor: X Kevin Constable

Date Submitted YYYY MM DD: 2006 5 10

Location of Well

In diagram below show distances of well from road, lot line, and building. Indicate north by arrow.



Audit No.: Z 36798

Date Well Completed YYYY MM DD: 2006 4 18

Was the well owner's information package delivered? ☐ Yes ☐ No

Date Delivered YYYY MM DD:

Ministry Use Only

Data Source:

Contractor: 1663

Date Received YYYY MM DD: JUN 19 2006

Date of Inspection YYYY MM DD:

Remarks:

Well Record Number:

0506E (09/03)

Contractor's Copy ☐ Ministry's Copy ☐ Well Owner's Copy ☐

Cette formule est disponible en français

Ontario — Ministry of the Environment

Well Ta... (Place Sticker and/or Print Below)

Tag#: A140255

Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: ☐ Metric ☐ Imperial

Page ____ of ____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
MULMUR	TOWNSHIP		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
	MULMER	10	7

County/District/Municipality	City/Town/Village	Province	Postal Code
DUFFERIN		Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 8 3		5171009	4891041		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
BLACK	TOPSOIL	—	SOFT	0	1
BROWN	GRAVEL	STONE	LOOSE	1	4
BROWN	SILT	SAND	FINE	4	20
BROWN	CLAY	—	HARD	20	100
BROWN	SAND	SILT, CLAY	LAYERED	100	125
BROWN	SAND	—	LOOSE	125	135
BROWN	CLAY	—	SOFT	135	138
BRN/GREY	SAND	GRAVEL	LOOSE	138	149
GREY	SHALE	—	CRISP	149	150

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
140	0	BENSEAL	
		EZ MUD	8 APPROX.

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
6¼	STEEL	.188	+2	140

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To
5½	STAINLESS	12¼	142	150

Status of Well

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

Water Details

Water found at Depth	Kind of Water	Hole Diameter Depth From	Depth To	Diameter (cm/in)
150 (m/ft) ☐ Gas	☑ Fresh ☐ Untested ☐ Other, *specify*	0	140	8 3/4
(m/ft) ☐ Gas	Kind of Water: ☐ Fresh ☐ Untested ☐ Other, *specify*	140	150	6 1/8
(m/ft) ☐ Gas	Kind of Water: ☐ Fresh ☐ Untested ☐ Other, *specify*			

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at (m/ft): 138 FT

Pumping rate (l/min / GPM): 20 GPM

Duration of pumping: 1 hrs + ____ min

Final water level end of pumping (m/ft): 112.2

If flowing give rate (l/min / GPM)

Recommended pump depth (m/ft): 138

Recommended pump rate (l/min / GPM): 20 GPM

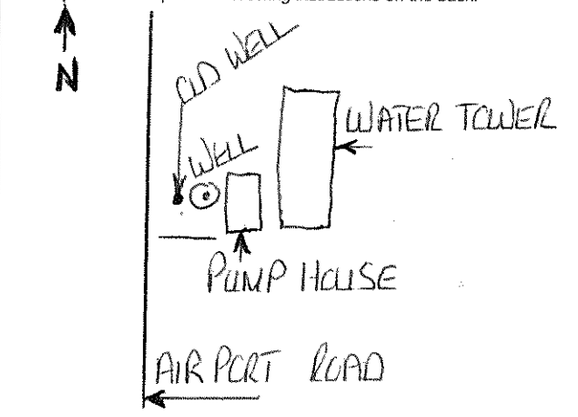
Well production (l/min / GPM): 30 GPM (APPROX)

Disinfected? ☑ Yes ☐ No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	75.5		
1	88.0	1	110
2	93.8	2	97.8
3	98.3	3	88.3
4	102.0	4	86.2
5	103.8	5	84.1
10	108.8	10	82.0
15	110.4	15	77.8
20	111.2	20	76.8
25	111.4	25	76.6
30	111.5	30	76.3
40	111.7	40	76.2
50	111.9	50	76.1
60	112.2	60	75.7

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
R & B WELL DRILLING LTD	4645

Business Address (Street Number/Name)	Municipality
569 SIDEROAD 10, BEETON	NEW TECUMSETH.

Province	Postal Code	Business E-mail Address
ON	L0G1A0	RBWELL DRILLING @ COM.

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
1 0 5 7 1 2 9 2 9 1 5 0	KWALSKI, ROBERT.

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
2415		2013/05/27

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☑ Yes ☐ No	2013/05/27	2013/05/23

Ministry Use Only

Audit No. Z159728

Received JUN 24 2013

Ministry's Copy

Ontario — Ministry of the Environment

Well Tag No. *(Place Sticker and/or Print Below)*: ABANDONMENT

Well Record

Regulation 903 Ontario Water Resources Act

Page _____ of _____

Measurements recorded in: ☐ Metric ☐ Imperial

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
MULMER	TOWNSHIP		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
	MULMER	10	7

County/District/Municipality	City/Town/Village	Province	Postal Code
DUFFERIN		Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 8 3		577009	4890641		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To

Annular Space

Depth Set at (m/ft) From	Depth Set at (m/ft) To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
-8	130	HOLEPLUG	25 BAG APP
130	148	WASHED PEA STONE	25 GAL APPROX.

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
6 1/4	STEEL	.188	+2	140 APPROX

Construction Record - Screen

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

Status of Well

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

Water Details

Water found at Depth (m/ft)	Kind of Water	Hole Diameter Depth (m/ft) From	Hole Diameter Depth (m/ft) To	Diameter (cm/in)
☐ Gas	☐ Fresh ☐ Untested ☐ Other, *specify*			
☐ Gas	☐ Fresh ☐ Untested ☐ Other, *specify*			
☐ Gas	☐ Fresh ☐ Untested ☐ Other, *specify*			

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at *(m/ft)*

Pumping rate *(l/min / GPM)*

Duration of pumping _____ hrs + _____ min

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

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

Recommended pump depth *(m/ft)*

Recommended pump rate *(l/min / GPM)*

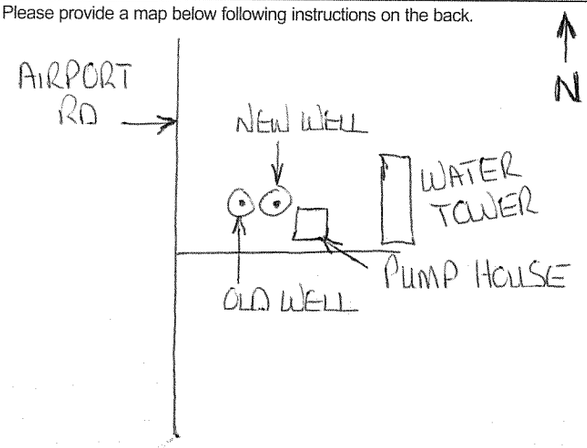
Well production *(l/min / GPM)*

Disinfected? ☐ Yes ☐ No

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

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
R&B WELL DRILLING LTD	4645

Business Address (Street Number/Name)	Municipality
569 SIDEROAD 10, BEETON	NEW TECUMSETH

Province	Postal Code	Business E-mail Address
ON	L0G 1A0	RBWELLDRILLING.COM

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
9057292950	KOWALSKI, ROBERT

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
2415		2013/11/15

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☐ Yes ☑ No	2013/11/15	2013/06/03

Ministry Use Only

Audit No. Z176618

Received JAN 21 2014

0506E (2007/12)

Ministry's Copy

ID: 1007882221 **Well/BH Name:** 7359746 **Original Name:** 7359746
Easting: 577,739.0 **Northing:** 4,891,277.0 **Date Completed:** 05/06/2020
Drill Method: **Primary Purpose:** Unknown **Secondary Purpose:** Unknown
Water Level Count: 14 **WL Start Date:** 05/06/2020 **WL End Date:** 05/06/2020
Water Quality Count: 0 **Rec Pumping Rate:** 55.0 **Ground Level:** 310.0
Bottom Depth (m): 61.0 **Total Screens:** 1 **Screen 1 Depth (m):** 257.3 - 249.3

Elev. (masl)	Depth. (m)	Mat 1		Mat 2		Mat 3		Description
310.0	0.0		Sand		Gravel			
307.6	2.4							
305.2	4.8							
302.8	7.2		Sand		Silt			
300.4	9.6							
298.0	12.0							
295.6	14.4		Clay		Silt			
293.2	16.8							
290.8	19.2		Clay		Silt			
288.4	21.6							
286.0	24.0							
283.6	26.4							
281.2	28.8		Clay					
278.8	31.2		Fine Sand		Silt			
276.4	33.6							
274.0	36.0		Clay		Silt			
271.6	38.4							
269.2	40.8							
266.8	43.2							
264.4	45.6							
262.0	48.0							
259.6	50.4		Sand					
257.2	52.8							
254.8	55.2							
252.4	57.6							

Ontario

Ministry of the Environment, Conservation and Parks

Measurements recorded in: ☐ Metric ☐ Imperial

Well Tag No. *(Place Sticker and/or Print Below)* ABANDONMENT

Well Record

Regulation 903 Ontario Water Resources Act

Page _____ of _____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
MULMUR	TOWNSHIP		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
	MULMUR	10	7 HSE

County/District/Municipality	City/Town/Village	Province	Postal Code
DUFFERIN		Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 8 3		577756	4891267		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used *(Material and Type)*	Volume Placed (m^3/ft^3)
-15	175	HOLE PLUG	39 BAGS
175	193	SAND	6 BAGS

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
6 1/4	STEEL	1.88	-10	180
				APPROX.

Construction Record - Screen

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

Status of Well

☐ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☐ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☑ Abandoned, other, *specify* HOLE IN PIPE
☐ Other, *specify* _____

Water Details

Water found at Depth (m/ft)	☐ Gas	Kind of Water: ☐ Fresh ☐ Untested ☐ Other, *specify*
Water found at Depth (m/ft)	☐ Gas	Kind of Water: ☐ Fresh ☐ Untested ☐ Other, *specify*
Water found at Depth (m/ft)	☐ Gas	Kind of Water: ☐ Fresh ☐ Untested ☐ Other, *specify*

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at (m/ft)

Pumping rate (l/min / GPM)

Duration of pumping _____ hrs + _____ min

Final water level end of pumping (m/ft)

If flowing give rate (l/min / GPM)

Recommended pump depth (m/ft)

Recommended pump rate (l/min / GPM)

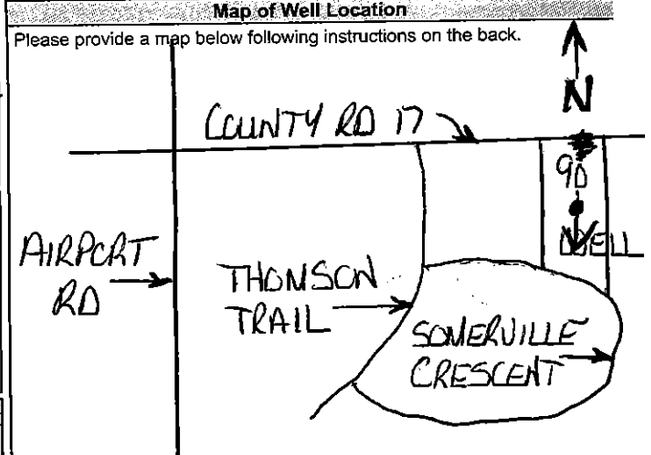
Well production (l/min / GPM)

Disinfected? ☐ Yes ☐ No

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

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
K&B WELL DRILLING LTD	4614 5

Business Address (Street Number/Name)	Municipality
3569 10TH SIDE RD BEETON	NEW TECUMSETH

Province	Postal Code	Business E-mail Address
ON	L0G1A0	KBWELLDRILLING.COM

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
905 729 2950	KAWALSKI, ROBERT.

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
2425		2020 05 11

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☐ Yes ☑ No	2020 05 11	2020 05 08

Ministry Use Only

Audit No. Z336501

Received MAY 25 2020

0506E (2018/12)

Ministry's Copy

Options

ID: 1007885568
Well/BH Name: 7359755
Original Name: 7359755
Easting: 577,785.0
Northing: 4,891,243.0
Date Completed: 04/25/2020
Drill Method:
Primary Purpose: Unknown
Secondary Purpose: Unknown
Water Level Count: 0
Water Quality Count: 0
Rec Pumping Rate:
Ground Level: 310.6
Bottom Depth (m): 42.1
Total Screens: 1
Screen 1 Depth (m): 268.8 - 268.5

Elev. (masl)	Depth. (m)	Mat 1		Mat 2		Mat 3		Description

Lot 10

Concession 8

MINISTRY OF THE ENVIRONMENT

The Ontario Water Resources Act

WATER WELL RECORD

41A/1E

Ontario

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 | 1702015 | MUNICIP. 17006 | CON. HS E 08

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT
Dufferin County	Mulmur Township	Con. 8	PT LOT

[redacted] | ADDRESS: R.R.#1, Mansfield, Ont. | DATE COMPLETED: DAY 05 MO. 11 YR. 75

21 | UTM ZONE 17 | EASTING 519550 | NORTHING 4891200 | RC 5 | ELEVATION 0980 | RC 5 | BASIN CODE 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
Brown	Top Soil			0	1
Brown	Sand			1	42
Grey	Sand			42	53
Brown	Sand			53	61½

31 | 0001602 | 0042628 | 0053128 | 0062628

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0052	1 ☐ FRESH 3 ☐ SULPHUR — #5 NOT TESTED; 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
30	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☒ CONCRETE 4 ☐ OPEN HOLE	3	0	0042
30	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	16 Gauge	42	0062 61½
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET

MATERIAL AND TYPE | DEPTH TO TOP OF SCREEN FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	DEPTH SET AT - FEET TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☒ BAILER

PUMPING RATE: 0002 1½ GPM. | DURATION OF PUMPING: 01 HOURS 00 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☐ PUMPING 2 ☒ RECOVERY			
		15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
053 52½ FEET	059 FEET	058 FEET	057 FEET	056 FEET	056 55½ FEET

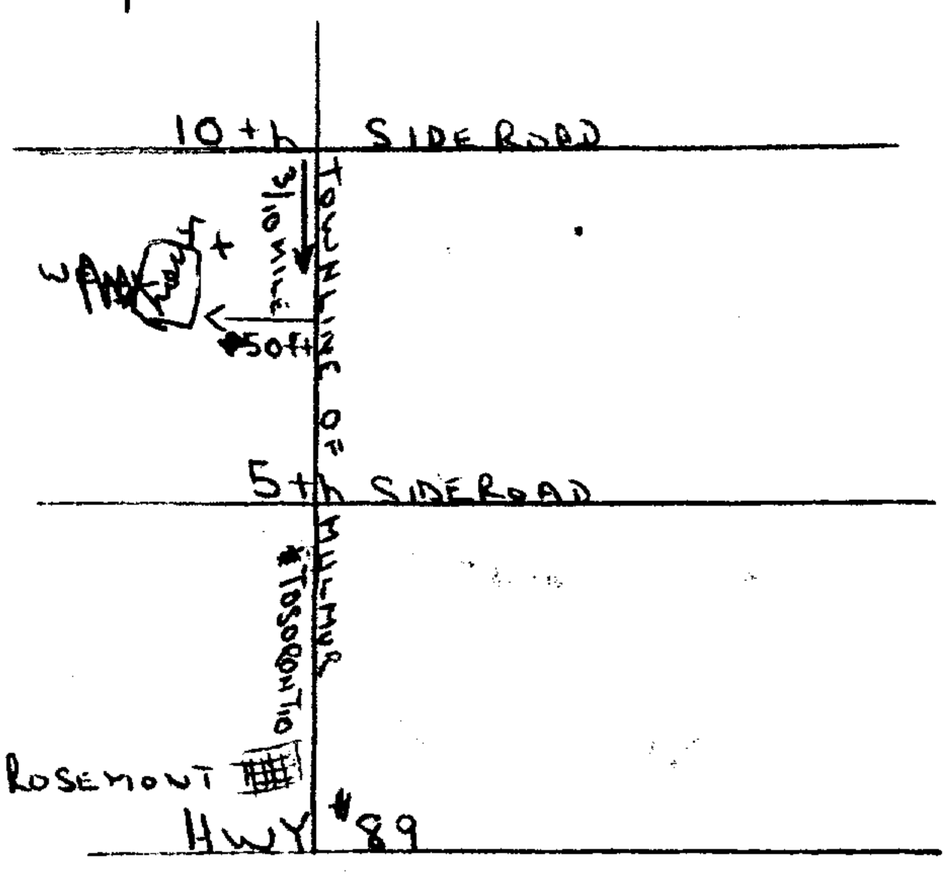
IF FLOWING, GIVE RATE: GPM. | PUMP INTAKE SET AT: FEET | WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP | RECOMMENDED PUMP SETTING: 059 FEET | RECOMMENDED PUMPING RATE: 0002 1½ GPM.

GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

FINAL STATUS OF WELL: 1

1 ☒ WATER SUPPLY; 2 ☐ OBSERVATION WELL; 3 ☐ TEST HOLE; 4 ☐ RECHARGE WELL; 5 ☐ ABANDONED, INSUFFICIENT SUPPLY; 6 ☐ ABANDONED, POOR QUALITY; 7 ☐ UNFINISHED

WATER USE: 01

1 ☒ DOMESTIC; 2 ☐ STOCK; 3 ☐ IRRIGATION; 4 ☐ INDUSTRIAL; ☐ OTHER; 5 ☐ COMMERCIAL; 6 ☐ MUNICIPAL; 7 ☐ PUBLIC SUPPLY; 8 ☐ COOLING OR AIR CONDITIONING; 9 ☐ NOT USED

METHOD OF DRILLING: 6

1 ☐ CABLE TOOL; 2 ☐ ROTARY (CONVENTIONAL); 3 ☐ ROTARY (REVERSE); 4 ☐ ROTARY (AIR); 5 ☐ AIR PERCUSSION; 6 ☒ BORING; 7 ☐ DIAMOND; 8 ☐ JETTING; 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: Melvin Mason | LICENCE NUMBER: 3612

ADDRESS: R.R.#1 Holgan, Ont.

NAME OF DRILLER OR BORER: Melvin Mason | LICENCE NUMBER: 3612

SIGNATURE OF CONTRACTOR: Melvin Mason | SUBMISSION DATE: DAY 24th MO. 11th YR. 75

OFFICE USE ONLY

DATA SOURCE: 1 | CONTRACTOR: 3612 | DATE RECEIVED: 091275

DATE OF INSPECTION: June 7/77 | INSPECTOR: EJ

REMARKS: CSS.S8

P

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FORM 7 MOE 07-091

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Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 (1 2) **1703120** MUNICIP. (10–14) CON. (15–22 23 24)

COUNTY OR DISTRICT: DUFFERIN | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: MELMOR | CON., BLOCK, TRACT, SURVEY, ETC.: ~~10~~ 5 | LOT (25-27): ~~2~~ 10

[redacted] | ADDRESS: MANSFIELD | DATE COMPLETED (48-53): DAY 18 MO AUG. YR 87

21 (1 2) | UTM ZONE (10) | EASTING (12–17) | NORTHING (18–24) | RC (25) | ELEVATION (26) | RC (30) | BASIN CODE (31) | II | III | IV (47)

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
BROWN	TOP SOIL		LOOSE	0	1'
BROWN	SAND, CLAY			1'	20'
GREY	CLAY			20	30'
GREY	SAND		LOOSE	30	46'

31 | 32 (1 2) (10 14 15 21 32 43 54 65 75 80)

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
10-13 (14): 30	1 ☐ FRESH 3 ☐ SULPHUR; 2 ☐ ~~SALTY~~ 4 ☐ MINERAL
15-18 (19)	1 ☐ FRESH 3 ☐ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL
20-23 (24)	1 ☐ FRESH 3 ☐ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL
25-28 (29)	1 ☐ FRESH 3 ☐ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL
30-33 (34 60)	1 ☐ FRESH 3 ☐ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
10-11 (12): 30	1 ☐ STEEL; ~~2~~ GALVANIZED; 3 ☐ CONCRETE; 4 ☐ OPEN HOLE	~~1/6~~ 0.1-64"	0	13-16: 46
17-18 (19)	1 ☐ STEEL; 2 ☐ GALVANIZED; 3 ☐ CONCRETE; 4 ☐ OPEN HOLE			20-23
24-25 (26)	1 ☐ STEEL; 2 ☐ GALVANIZED; 3 ☐ CONCRETE; 4 ☐ OPEN HOLE			27-30

SCREEN

SIZE(S) OF OPENING (SLOT NO.) 31-33	DIAMETER 34-38 INCHES	LENGTH 39-40 FEET
MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN 41-44 FEET	50

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	DEPTH SET AT - FEET TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
10-13	14-17	
18-21	22-25	
26-29	30-33 (80)	

71 PUMPING TEST

PUMPING TEST METHOD (10): 1 ☐ PUMP ~~2 ☐ BAILER~~

PUMPING RATE (11-14): — GPM

DURATION OF PUMPING (15-16 HOURS 30 17-18 MINS)

STATIC LEVEL (19-21)	WATER LEVEL END OF PUMPING (22-24)
10 FEET	42 FEET

25 WATER LEVELS DURING: 1 ☐ PUMPING ~~2 ☐ RECOVERY~~

15 MINUTES (26-28)	30 MINUTES (29-31)	45 MINUTES (32-34)	60 MINUTES (35-37)
~~40~~ FEET	39 FEET	~~38~~ FEET	37 FEET

IF FLOWING, GIVE RATE (38-41): — GPM

PUMP INTAKE SET AT: — FEET

WATER AT END OF TEST (42): 1 ☐ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ~~☐ DEEP~~

RECOMMENDED PUMP SETTING (43-45): 40 FEET

RECOMMENDED PUMPING RATE (46-49): 2 GPM

50-53

FINAL STATUS OF WELL (54)

1 ☐ WATER SUPPLY; 2 ☐ OBSERVATION WELL; 3 ☐ TEST HOLE; 4 ☐ RECHARGE WELL; 5 ☐ ABANDONED, INSUFFICIENT SUPPLY; 6 ☐ ABANDONED POOR QUALITY; 7 ☐ UNFINISHED

WATER USE (55-56)

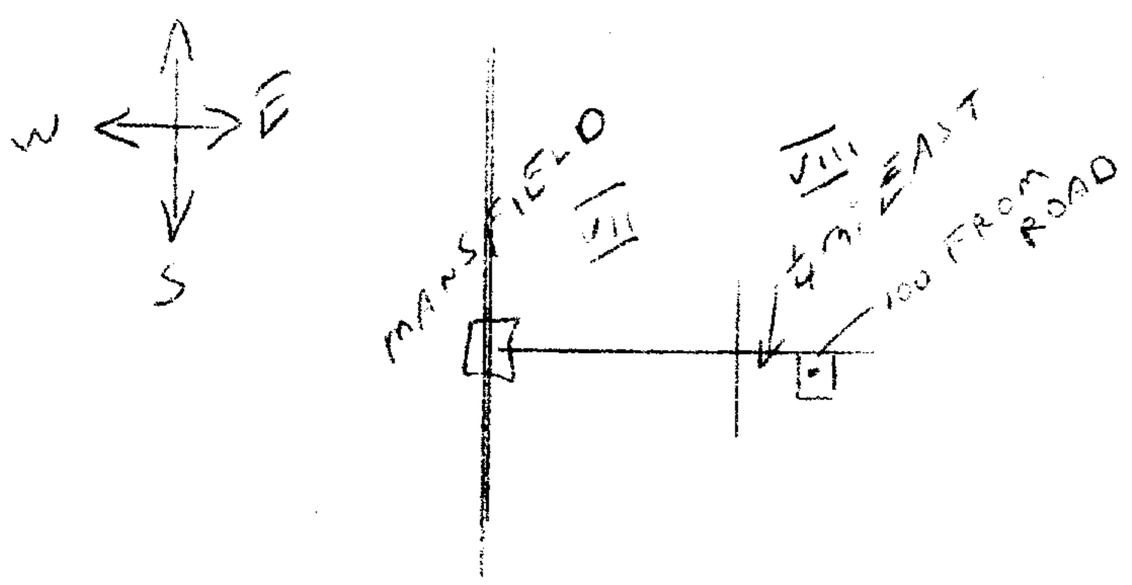
1 ☐ ~~DOMESTIC~~; 2 ☐ STOCK; 3 ☐ IRRIGATION; 4 ☐ INDUSTRIAL; 5 ☐ COMMERCIAL; 6 ☐ MUNICIPAL; 7 ☐ PUBLIC SUPPLY; 8 ☐ COOLING OR AIR CONDITIONING; ☐ OTHER; 9 ☐ NOT USED

METHOD OF DRILLING (57)

1 ☐ CABLE TOOL; 2 ☐ ROTARY (CONVENTIONAL); 3 ☐ ROTARY (REVERSE); 4 ☐ ROTARY (AIR); 5 ☐ AIR PERCUSSION; ~~6 ☐~~ BORING; 7 ☐ DIAMOND; 8 ☐ JETTING; 9 ☐ DRIVING

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS

CONTRACTOR

NAME OF WELL CONTRACTOR: [illegible] | LICENCE NUMBER: 1919

ADDRESS: [illegible]

WELL TECHNICIAN OR BORER: [illegible] | LICENCE NUMBER: 4508

CONTRACTOR: [illegible] | SUBMISSION DATE: DAY ____ MO. ____ YR. ____

OFFICE USE ONLY

DATA SOURCE (58) | CONTRACTOR (59-62) | DATE RECEIVED (63-68): 19 04 85 | (80)

DATE OF INSPECTION | INSPECTOR

REMARKS

CSS.ES

FORM NO. 0506—4—77 FORM 7

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Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1703407

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11

MUNICIP

CON

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT
DUFFERIN	MULMUR	8 EHS	SEPT 10

[redacted]	ADDRESS	DATE COMPLETED
	252 YOUNG ST. ALLISTON.	DAY 23 MO 6 YR 87

21

ZONE | EASTING | NORTHING | RC | ELEVATION | RC | BASIN CODE

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
BROWN	SAND	GRAVEL	MIXTURE	0	14
"	"		SURFACE SAND	14	65
GREY	CLAY	STONES	STONEY CLAY	65	162
"	"	SAND	RUNNY SAND & CLAY	162	168
"	"		HARD CLAY	168	172
BROWN	SAND	CLEAN WATER BEARING		172	180

31

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
10-13	1 ☒ FRESH 3 ☐ SULPHUR 14; 2 ☐ SALTY 4 ☐ MINERAL
15-18	1 ☐ FRESH 3 ☐ SULPHUR 19; 2 ☐ SALTY 4 ☐ MINERAL
20-23	1 ☐ FRESH 3 ☐ SULPHUR 24; 2 ☐ SALTY 4 ☐ MINERAL
25-28	1 ☐ FRESH 3 ☐ SULPHUR 29; 2 ☐ SALTY 4 ☒ MINERAL
30-33	1 ☐ FRESH 3 ☐ SULPHUR 34; 2 ☐ SALTY 4 ☐ MINERAL 40

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
10-11 6 ¼ 7	1 ☒ STEEL 12; 2 ☐ GALVANIZED; 3 ☐ CONCRETE; 4 ☐ OPEN HOLE	.188	13-16 +2 ½	172
17-18	1 ☐ STEEL 19; 2 ☐ GALVANIZED; 3 ☐ CONCRETE; 4 ☐ OPEN HOLE			20-23
24-25	1 ☐ STEEL 26; 2 ☐ GALVANIZED; 3 ☐ CONCRETE; 4 ☐ OPEN HOLE			27-30

SCREEN

SIZE(S) OF OPENING (SLOT NO.) 31-33	DIAMETER 34-38 INCHES	LENGTH 39-40 FEET
3" x 14	6	
MATERIAL AND TYPE 41-44	DEPTH TO TOP OF SCREEN	45
Stainless steel	172 FEET	

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
10-13 8	14-17 20	Bensead
18-21	22-25	
26-29	30-33	80

71 PUMPING TEST

PUMPING TEST METHOD 39	PUMPING RATE 41-42	DURATION OF PUMPING
1 ☐ PUMP 2 AIR 3 ☐ BAILER	20 GPM	1 HOURS 30 MINS (15-16, 17-18)

STATIC LEVEL	WATER LEVEL END OF PUMPING	25 WATER LEVELS DURING	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
125 FEET (19-21)	160 FEET (22-24)	1 ☒ PUMPING 2 ☐ RECOVERY	160 FEET (26-28)	165 FEET (29-31)	160 FEET (32-34)	160 FEET (35-37)

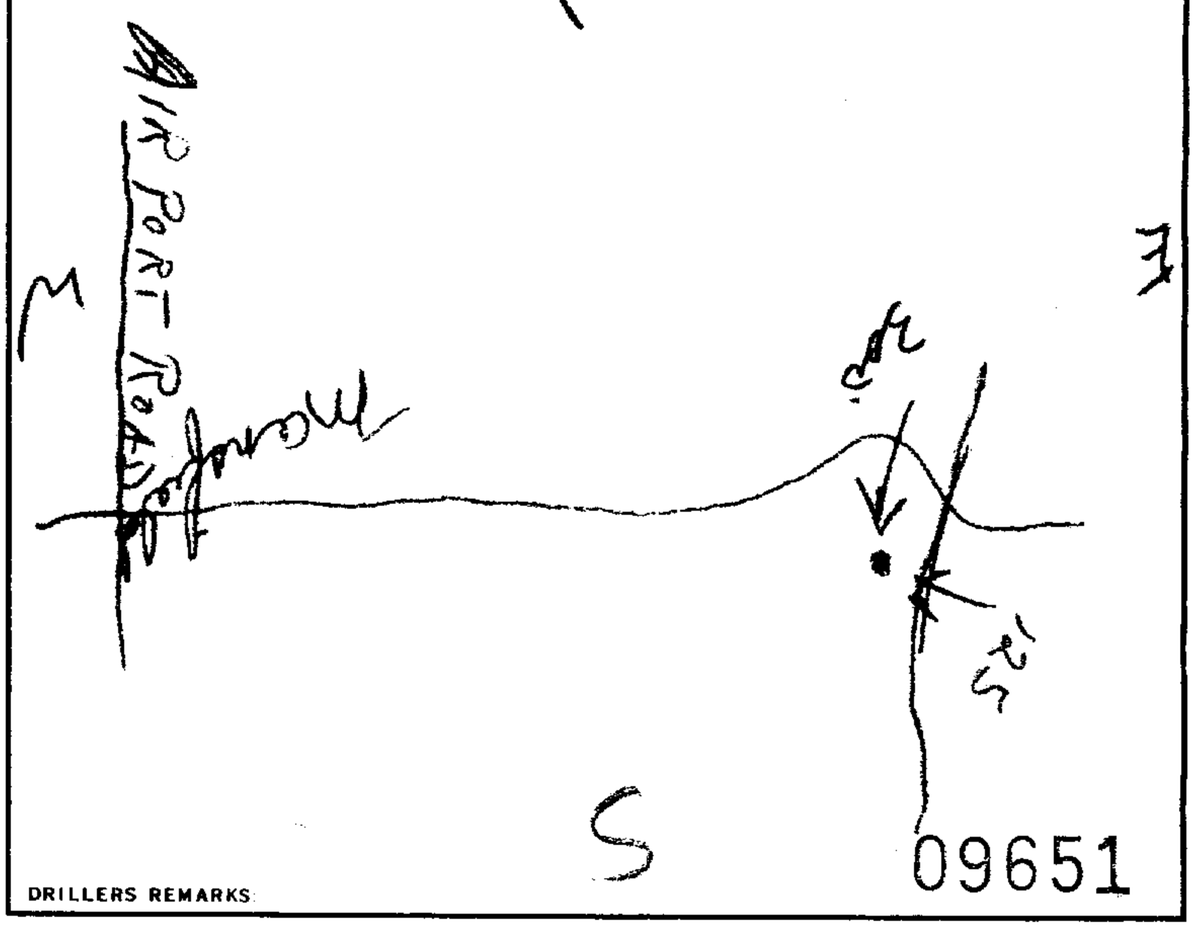
IF FLOWING, GIVE RATE 38-41	PUMP INTAKE SET AT	WATER AT END OF TEST 42
GPM	FEET	1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING 43-45	RECOMMENDED PUMPING RATE 46-49
☐ SHALLOW ☒ DEEP	165 FEET	15 GPM

50-53

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

54 FINAL STATUS OF WELL

1 ☒ WATER SUPPLY; 2 ☐ OBSERVATION WELL; 3 ☐ TEST HOLE; 4 ☐ RECHARGE WELL; 5 ☐ ABANDONED, INSUFFICIENT SUPPLY; 6 ☐ ABANDONED, POOR QUALITY; 7 ☐ UNFINISHED

55-56 WATER USE

1 ☒ DOMESTIC; 2 ☐ STOCK; 3 ☐ IRRIGATION; 4 ☐ INDUSTRIAL; 5 ☐ COMMERCIAL; 6 ☐ MUNICIPAL; 7 ☐ PUBLIC SUPPLY; 8 ☐ COOLING OR AIR CONDITIONING; ☐ OTHER; ☐ NOT USED

METHOD OF DRILLING

1 ☐ CABLE TOOL; 2 ☐ ROTARY (CONVENTIONAL); 3 ☐ ROTARY (REVERSE); 4 ☒ ROTARY (AIR); 5 ☐ AIR PERCUSSION; 6 ☐ BORING; 7 ☐ DIAMOND; 8 ☐ JETTING; 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: Mighton's Well drilling Ltd — LICENCE NUMBER: 3602

ADDRESS: #3 Stayner

NAME OF DRILLER OR BORER: Larry Mighton — LICENCE NUMBER: T0129

SIGNATURE OF CONTRACTOR: Kenneth H. Mighton — SUBMISSION DATE: DAY 3 MO 7 YR 87

OFFICE USE ONLY

CONTRACTOR (59-62) — DATE RECEIVED: JUL 08 1987

DATE OF INSPECTION — INSPECTION

REMARKS

CSS.ES

FORM NO. 0506—4—77 FORM 7

MINISTRY OF THE ENVIRONMENT COPY

Ministry of the Environment
Ontario

20-90

The Ontario Water Resources Act

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 | 1704355 | MUNICIP 17006 | CON. HS E | LOT 08

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON. BLOCK, TRACT, SURVEY, ETC.	LOT
DUFFERIN	Melancthon	Con 8	10

[redacted] 16 HIGH PARK AVE TORONTO — DATE COMPLETED: DAY 10 MO 5 YR 90

RC. | ELEVATION | RC | BASIN CODE

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
Brown	topsoil			0	1
Brown	Sand	Gravel		1	22
Brown	Sand			22	51
Brown	clay			51	56
Blue	clay	Sand		56	96
Grey	Sand		fine	96	111
Grey	Sand	clay		111	134
Grey	Sand	Gravel	Medium	134	153
Grey	Sand		fine	153	168

31
32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
134	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
1 1/4	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.188	0	148
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
#20	6 INCHES	3 FEET

MATERIAL AND TYPE: SS Hi-Flo Scope — DEPTH TO TOP OF SCREEN: 148 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	DEPTH SET AT - FEET TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
0	148	K packer Holeplug cuttings
151	168	cuttings

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☒ PUMP 2 ☐ BAILER — PUMPING RATE: 10 GPM — DURATION OF PUMPING: 4 HOURS 0 MINS

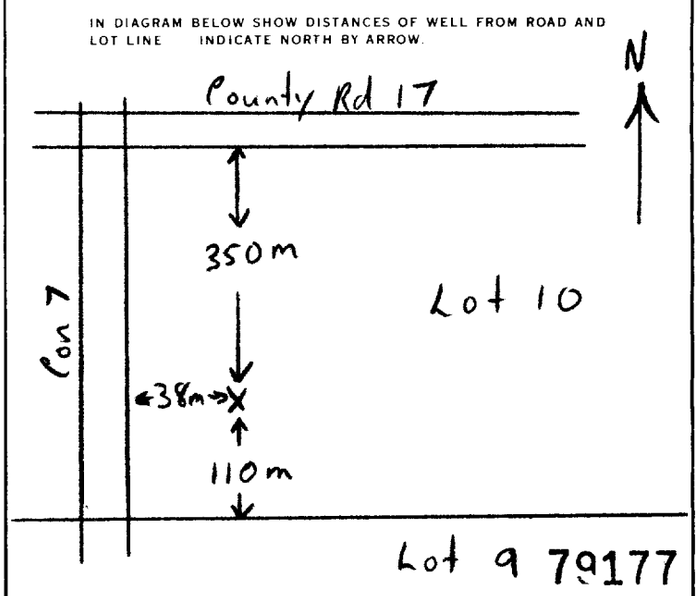
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☒ PUMPING 2 ☐ RECOVERY	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
88 FEET	126.3 FEET		FEET	124.7 FEET	FEET	FEET

IF FLOWING, GIVE RATE: GPM — PUMP INTAKE SET AT: 140 FEET — WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP — RECOMMENDED PUMP SETTING: 140 FEET — RECOMMENDED PUMPING RATE: 10 GPM

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



79177

DRILLERS REMARKS

FINAL STATUS OF WELL

1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☒ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED ☐ DEWATERING

WATER USE

1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED

METHOD OF CONSTRUCTION

1 ☐ CABLE TOOL 2 ☒ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING ☐ DIGGING ☐ OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: Fred Constable & Son Ltd — WELL CONTRACTOR'S LICENCE NUMBER: 1663

ADDRESS: 3936 Major MacKenzie Dr Woodbridge

NAME OF WELL TECHNICIAN: Kevin Constable — WELL TECHNICIAN'S LICENCE NUMBER: T0230

SIGNATURE OF TECHNICIAN/CONTRACTOR: Kevin Constable — SUBMISSION DATE: DAY 21 MO 5 YR 90

OFFICE USE ONLY

DATA SOURCE — CONTRACTOR: 1663 — DATE RECEIVED: JUL 30 1991

DATE OF INSPECTION — INSPECTOR

REMARKS

CSS.ES

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/86) FORM 9

Ontario Ministry of the Environment

The Ontario Water Resources Act
WATER WELL RECORD

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

11 (1-2) **1705505**

Municipality 17006 (10-14) Con. HS E 08 (15-22, 23, 24)

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot (25-27)
Duffern	Mulmur	8	10
[redacted]	Address	Date completed: 20 day, 04 month, 00 year (48-53)	

21 (1-2) UTM (10) Easting (12-17) Northing (18-24) RC (25) Elevation (26) RC (30) Basin Code (31) ii iii iv (47)

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
Grey	Coarse Sand	Medium Gravel		0	66
Brown	Clay	Fine Gravel		66	100
Grey	Clay	Fine Gravel	Soft	100	132
Grey	Clay	Med Gravel	Hard	132	141
Grey	Med Sand			141	149

31, 32

41 WATER RECORD

Water found at - feet	Kind of water
141 (10-13)	1 ☑ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (14)
(15-18)	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (19)
(20-23)	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (24)
(25-28)	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (29)
(30-33)	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (34)

60

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
(10-11) 8	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☑ Open hole 5 ☐ Plastic (12)		0	(13-16) 13
(17-18) 6	1 ☑ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic (19)	188	+1	(20-23) ~~138~~ 141
(24-25)	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic (26)			(27-30)

SCREEN

Sizes of opening (Slot No.) (31-33)	Diameter (34-38)	Length (39-42)	
#12	5 inches	8 feet	
Material and type: S/S	Depth at top of screen (41-44): 138 feet		(80)

61 PLUGGING & SEALING RECORD

☐ Annular space ☐ Abandonment

Depth set at - feet From	Depth set at - feet To	Material and type (Cement grout, bentonite, etc.)
0 (9-13)	13 (14-17)	Hole Plug
(18-21)	(22-25)	
(26-29)	(30-33)	(80)

71 PUMPING TEST

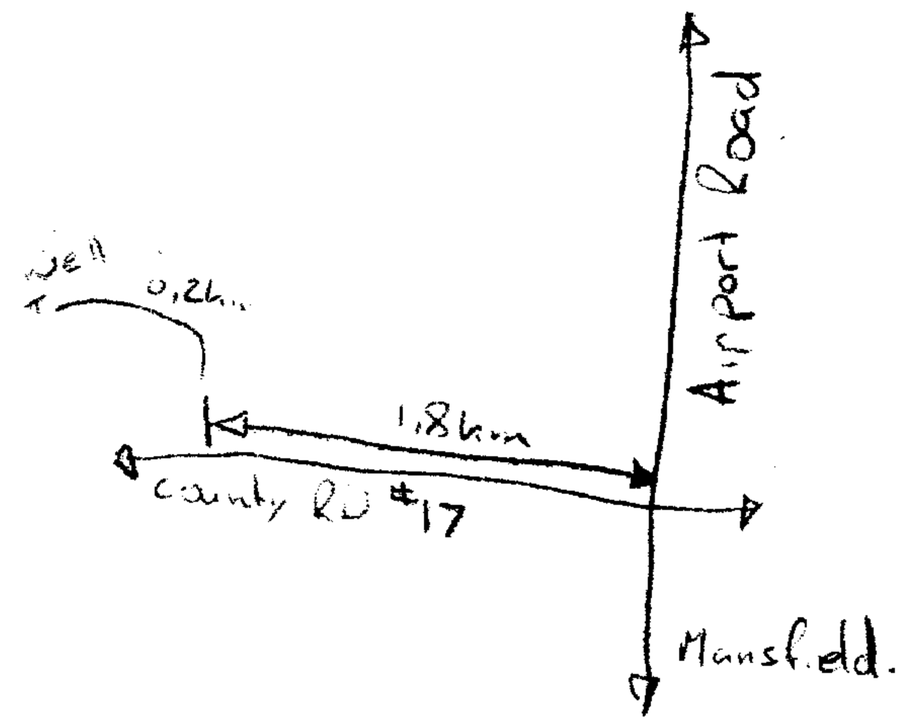
Pumping test method (10): 1 ☑ Pump 2 ☐ Bailer
Pumping rate (11-14): 5 GPM
Duration of pumping (15-16): 8 Hours (17-18) Mins

Static level	Water level end of pumping	Water levels during (25): 1 ☐ Pumping 2 ☐ Recovery			
(19-21) 106 feet	(22-24) 135 feet	15 minutes (26-28) feet	30 minutes (29-31) feet	45 minutes (32-34) feet	60 minutes (35-37) feet
If flowing give rate (38-41) GPM		Pump intake set at feet		Water at end of test (42): ☑ Clear ☐ Cloudy	
Recommended pump type: ☐ Shallow ☑ Deep		Recommended pump setting (43-45): 137 feet		Recommended pump rate (46-49): 5 GPM	

(50-53)

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate north by arrow.



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FINAL STATUS OF WELL (54)

1 ☑ Water supply 2 ☐ Observation well 3 ☐ Test hole 4 ☐ Recharge well 5 ☐ Abandoned, insufficient supply 6 ☐ Abandoned, poor quality 7 ☐ Abandoned (Other) 8 ☐ Dewatering 9 ☐ Unfinished 10 ☐ Replacement well

WATER USE (55-56)

1 ☑ Domestic 2 ☐ Stock 3 ☐ Irrigation 4 ☐ Industrial 5 ☐ Commercial 6 ☐ Municipal 7 ☐ Public supply 8 ☐ Cooling & air conditioning 9 ☐ Not use 10 ☐ Other

METHOD OF CONSTRUCTION (57)

1 ☑ Cable tool 2 ☐ Rotary (conventional) 3 ☐ Rotary (reverse) 4 ☐ Rotary (air) 5 ☐ Air percussion 6 ☐ Boring 7 ☐ Diamond 8 ☐ Jetting 9 ☐ Driving 10 ☐ Digging 11 ☐ Other

Name of Well Contractor	Well Contractor's Licence No.
Tom Horon	6782
Address: 8 John Ave Alliston ON L9R 1J8	
Name of Well Technician: Roger Horon	Well Technician's Licence No. 2478
Signature of Technician/Contractor: Roger Horon	Submission date: 28 day 04 mo 00 yr

MINISTRY USE ONLY

Data source (58)	Contractor (59-62)	Date received (63-68)	(80)
	6782	MAY 24 2000	
Date of inspection	Inspector		
Remarks: CSS.ES0			

0506 (11/98) Front Form 9

2 - MINISTRY OF THE ENVIRONMENT COPY

Ontario — Ministry of the Environment

Well Tag Number (Place sticker and print number below): A016517 / A016517

Well Record

Regulation 903 Ontario Water Resources Act

page 1 of 1

Instructions for Completing Form

- For use in the **Province of Ontario** only. This document is a permanent **legal** document. Please retain for future reference.
- All Sections **must** be completed in full to avoid delays in processing. Further instructions and explanations are available on the back of this form.
- Questions regarding completing this application can be directed to the Water Well Management Coordinator at 416-235-6203.
- **All metre measurements shall be reported to 1/10th of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only

MUN 17006 CON 45 5 08 LOT 10

Well Owner's Information and Location of Well Information

[redacted]

DUFFERIN COUNTY | MULMUR TWP | 10 | C8 HSE

RR#/Street Number/Name: 588480 DUFFERIN RD 17 | City/Town/Village | Site/Compartment/Block/Tract etc.

GPS Reading | NAD: 8 3 | Zone: 17 | Easting: 578660 | Northing: 4891703 | Unit Make/Model: CARMINETREX | Mode of Operation: [X] Undifferentiated [ ] Averaged [ ] Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description		Depth From	Depth To
BROWN	SAND			0	15	0	4.6
BROWN	~~SAND~~ CLAY	SAND		15	44	4.6	13.4
GREY	CLAY	SANDY		44	53	13.4	16.2
GREY	SAND	CLAYEY		53	84	16.2	25.6
GREY	SAND	SILTY		84	94	25.6	28.7
GREY	CLAY	SANDY		94	100	28.7	30.5
GREY	SILT	SANDY		100	115	30.5	35.1
GREY	SAND	SILTY		115	137	35.1	41.8
GREY	SAND			137	143	41.8	43.6

Hole Diameter

Depth From	Metres To	Diameter Centimetres

Water Record

Water found at Metres	Kind of Water		
41.8 m	[X] Fresh	[ ] Sulphur	[ ] Gas
	[ ] Salty	[ ] Minerals	[ ] Other:
___ m	[ ] Fresh	[ ] Sulphur	[ ] Gas
	[ ] Salty	[ ] Minerals	[ ] Other:
___ m	[ ] Fresh	[ ] Sulphur	[ ] Gas
	[ ] Salty	[ ] Minerals	[ ] Other:

After test of well yield, water was: [X] Clear and sediment free [ ] Other, specify

Chlorinated: [X] Yes [ ] No

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Depth To
Casing				
15.9	[X] Steel [ ] Fibreglass [ ] Plastic [ ] Concrete [ ] Galvanized	0.48	+0.74	42.7
	[ ] Steel [ ] Fibreglass [ ] Plastic [ ] Concrete [ ] Galvanized			
	[ ] Steel [ ] Fibreglass [ ] Plastic [ ] Concrete [ ] Galvanized			
Screen				
Outside diam	[ ] Steel [ ] Fibreglass [ ] Plastic [ ] Concrete	Slot No.		
14.6	STAINLESS ~~STEEL~~.	14	42.7	43.6

No Casing or Screen

[ ] Open hole

Test of Well Yield

Pumping test method: [X] Draw Down [ ] Recovery

Pump intake set at - (metres) 38

Pumping rate - (litres/min) 13

Duration of pumping 1 hrs + 2 min

Final water level end of pumping 25.7 metres

Recommended pump type. [ ] Shallow [X] Deep

Recommended pump depth. 39 metres

Recommended pump rate. 31 (litres/min)

If flowing give rate - (litres/min)

If pumping discontinued, give reason.

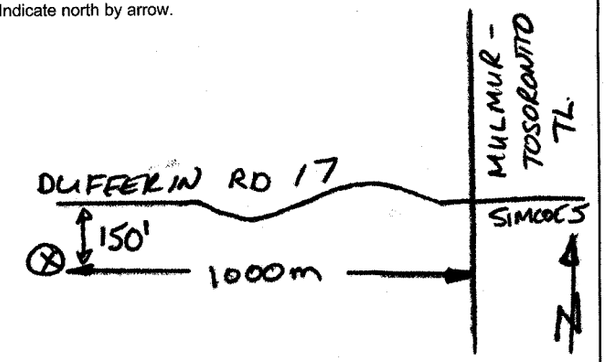
Draw Down Time min	Draw Down Water Level Metres	Recovery Time min	Recovery Water Level Metres
Static Level	16.4		
1	—	1	24.6
2	17.4	2	24.1
3	17.9	3	23.5
4	18.5	4	23.0
5	19.1	5	22.5
10	21.3	10	20.7
15	22.6	15	19.4
20	23.7	20	18.5
25	24.3	25	17.9
30	24.8	30	17.5
40	25.3	40	17.0
50	25.5	50	16.8
60	25.6	60	16.6

Plugging and Sealing Record [ ] Annular space [ ] Abandonment

Depth set at - Metres From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
0	6.1	BENTONITE SLURRY	0.2

Location of Well

In diagram below show distances of well from road, lot line, and building. Indicate north by arrow.



Method of Construction

[X] Cable Tool [ ] Rotary (air) [ ] Diamond [ ] Digging
[ ] Rotary (conventional) [ ] Air percussion [ ] Jetting [ ] Other
[ ] Rotary (reverse) [ ] Boring [ ] Driving

Water Use

[X] Domestic [ ] Industrial [ ] Public Supply [ ] Other
[ ] Stock [ ] Commercial [ ] Not used
[ ] Irrigation [ ] Municipal [ ] Cooling & air conditioning

Final Status of Well

[X] Water Supply [ ] Recharge well [ ] Unfinished [ ] Abandoned, (Other)
[ ] Observation well [ ] Abandoned, insufficient supply [ ] Dewatering
[ ] Test Hole [ ] Abandoned, poor quality [ ] Replacement well

Well Contractor/Technician Information

Name of Well Contractor: COUNTRY WATER SYSTEMS | Well Contractor's Licence No.: 7088

Business Address (street name, number, city etc.): 6995 SIMCOE RD 56, UTOPIA, 877.333.9355.

Name of Well Technician (last name, first name): SCOTT, PETE | Well Technician's Licence No.: T-1667

Signature of Technician/Contractor: X [signature] | Date Submitted YYYY MM DD

Audit No. Z 16609 | Date Well Completed YYYY MM DD: 2004 08 24

Was the well owner's information package delivered? [X] Yes [ ] No | Date Delivered YYYY MM DD: 2004 08 30

Ministry Use Only

Data Source | Contractor 7088

Date Received YYYY MM DD: SEP 13 2004 | Date of Inspection YYYY MM DD

Remarks | Well Record Number: 1706276

0506E (09/03)

Contractor's Copy [ ] Ministry's Copy [X] Well Owner's Copy [ ]

Cette formule est disponible en français

Ontario Ministry of the Environment

Well Tag Number (Place sticker and print number below): A025029

Well Record

Regulation 903 Ontario Water Resources Act

page ___ of ___

Instructions for Completing Form

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- Questions regarding completing this application can be directed to the Water Well Management Coordinator at 416-235-6203.
- ~~All~~ metre measurements shall be reported to 1/10th of a ~~metre~~.
- Please print clearly in blue or black ink only.

Ministry Use Only

MUN | CON | LOT

Well Owner's Information and Location of Well Information

[redacted]

RR#/Street Number/Name: Fire #588474

City/Town/Village: Monstfield

Site/Compartment/Block/Tract etc.

GPS Reading: NAD 83 | Zone 17 | Easting 573788 02 | Northing 4891566

Unit Make/Model

Mode of Operation: ☐ Undifferentiated ☑ Averaged ☐ Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Depth To (Metres)
	Topsoil			0	2
Brown	Sand	Gravel		2	98
Gray	clay	gravel		98	250
Brown	Sand	gravel		250	276

Hole Diameter

Depth From	Metres To	Diameter Centimetres
0	276	6"

Water Record

Water found at Metres	Kind of Water	
276 m	☑ Fresh ☐ Salty	☐ Sulphur ☐ Minerals
	☐ Other:	
m	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals
	☐ Gas ☐ Other:	
m	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals
	☐ Gas ☐ Other:	

After test of well yield, water was ☑ Clear and sediment free ☐ Other, specify

Chlorinated ☑ Yes ☐ No

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Depth To (Metres)
Casing				
6"	☑ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	.188	+2	271
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
Screen				
Outside diam 5"	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	Slot No. 18x5'	271	276

No Casing or Screen

☐ Open hole

Test of Well Yield

Pumping test method: AZR

Pump intake set at - (metres) 240'

Pumping rate - (litres/min) 10gpm

Duration of pumping 2 hrs + ____ min

Final water level end of pumping ____ metres

Recommended pump type. ☐ Shallow ☑ Deep

Recommended pump depth. ____ metres

Recommended pump rate. 10gpm (litres/min)

If flowing give rate - (litres/min)

If pumping discontinued, give reason.

	Draw Down Time min	Draw Down Water Level Metres	Recovery Time min	Recovery Water Level Metres
Static Level		103'		
1			1	
2			2	
3			3	
4			4	
5			5	
10			10	
15			15	
20			20	
25			25	
30			30	
40			40	
50			50	
60			60	

Plugging and Sealing Record ☑ Annular space ☐ Abandonment

Depth set at - Metres From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
0	30	Grout	

Method of Construction

☐ Cable Tool ☑ Rotary (air) ☐ Diamond ☐ Digging
☐ Rotary (conventional) ☐ Air percussion ☐ Jetting ☐ Other
☐ Rotary (reverse) ☐ Boring ☐ Driving

Water Use

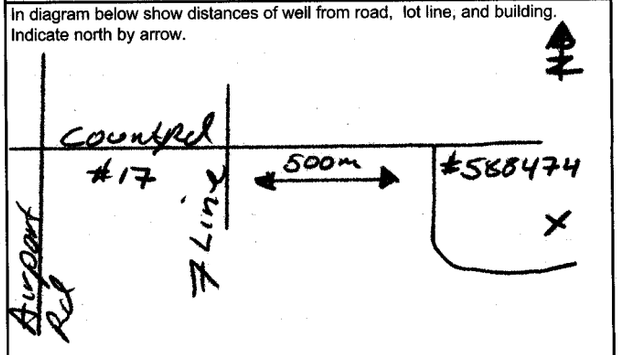
☑ Domestic ☐ Industrial ☐ Public Supply ☐ Other
☐ Stock ☐ Commercial ☐ Not used
☐ Irrigation ☐ Municipal ☐ Cooling & air conditioning

Final Status of Well

☑ Water Supply ☐ Recharge well ☐ Unfinished ☐ Abandoned, (Other)
☐ Observation well ☐ Abandoned, insufficient supply ☐ Dewatering
☐ Test Hole ☐ Abandoned, poor quality ☐ Replacement well

Location of Well

In diagram below show distances of well from road, lot line, and building. Indicate north by arrow.



Audit No. Z 25416

Date Well Completed: YYYY 5 MM 7 DD 25

Was the well owner's information package delivered? ☐ Yes ☐ No

Date Delivered YYYY MM DD

Well Contractor/Technician Information

Name of Well Contractor: Highland Water Wells

Well Contractor's Licence No.: 2576

Business Address (street name, number, city etc.): Box 141 Durham N0G 1R0

Name of Well Technician (last name, first name): Jeff Graham

Well Technician's Licence No.: T2904

Signature of Technician/Contractor: X

Date Submitted: YYYY 5 MM 7 DD 27

Ministry Use Only

Data Source

Contractor: 2576

Date Received: SEP 08 2005 (YYYY MM DD)

Date of Inspection YYYY MM DD

Remarks

Well Record Number

0506E (09/03) Contractor's Copy ☐ Ministry's Copy ☐ Well Owner's Copy ☐

Cette formule est disponible en français

Lot 11

Concession 6

UTM Z E
9 R N
Elev. 9 R 0 40 East
Hurontario St
Basin Con VI
Lot 11

ONTARIO

The Water-well Drillers Act, 1954
Department of Mines

GROUND WATER BRANCH
APR 17 1957
ONTARIO WATER RESOURCES COMMISSION
No 740

Water-Well Record

[redacted] Dufferin Township, Village, Town or City Mulmur
[redacted] Village, Town or City)
[redacted] Address

Date completed 1 (day) May (month) 1950 (year)

Pipe and Casing Record

Casing diameter(s) 6¼ F 5", ,
Length(s) 140' 20' ,
Type of screen
Length of screen

Pumping Test

Static level 90
Pumping rate
Pumping level
Duration of test

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
Dry Sand	0	100			
Quicksand	100	160	140	50	Fresh
Shale	160	250	160	70	Salty
Water very muddy & unsatisfactory					
Well Abandoned					

For what purpose(s) is the water to be used?

Is water clear or cloudy? Cloudy
Is well on upland, in valley, or on hillside? upland

Drilling firm M. S. Bellerby
Address

Name of Driller
Address

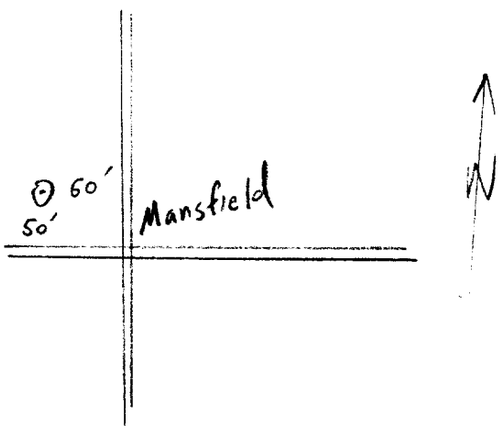
Licence Number 48

I certify that the foregoing statements of fact are true.

Date Apr 17/57 [signature]
Signature of Licensee

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



Form 5

CSS.S8

UTM Z E H.S.E.

9 R N

Elev. 9 R 1045 1045

Basin Lake Huron - St. Clair - VI

Con. - VI

Lot - 11

ONTARIO

RECEIVED
JUN 25 1957
ONTARIO WATER RESOURCES COMMISSION

17 No. 741

The Water-well Drillers Act, 1954

Department of Mines

Water-Well Record

[redacted] ip, Village, Town or City Mulmur

Village, Town or City)

ddress Mansfield

Date completed 1 May 57
(day) (month) (year)

Pipe and Casing Record

Casing diameter(s) 6"

Length(s) pulled

Type of screen

Length of screen

Pumping Test

Static level

Pumping rate Abv

Pumping level

Duration of test

Well Log

Overburden and Bedrock Record	From ft.	To ft.
sand & gravel	0	140
sand & clay	140	162
grey shale	162	250

Water Record

Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)

For what purpose(s) is the water to be used?

Is water clear or cloudy?

Is well on upland, in valley, or on hillside?

Drilling firm M. S. Bellerby

Address 19 Melgund Rd. Toronto

Name of Driller

Address

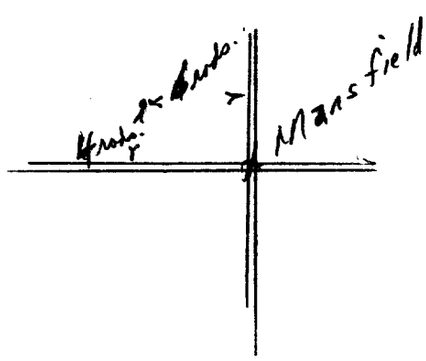
Licence Number

I certify that the foregoing statements of fact are true.

Date May 1 M S Bellerby
Signature of Licensee

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



Form 5

CSS.S8

Hurontario Street East, 06 Lot 011

UTM Z E

R N

Elev. R 1045

Basin 22

County or Distr: Dufferin

Con. W.H.S.E. Lot 11

Owner Village of Mansfield (print in block letters)

WATER RESOURCES DIVISION
17 No. 742
OCT 20 1965
ONTARIO WATER RESOURCES COMMISSION

The Ontario Water Resources Commission Act

WATER WELL RECORD

Township, Village, Town or City ~~MANSFIELD~~ MULMUR

Date completed 22 (day) 7 (month) 1965 (year)

Address MANSFIELD P.O.

Casing and Screen Record

Inside diameter of casing 4"

Total length of casing 123'

Type of screen Johnston S.S. No. 8 mesh

Length of screen 6 ft.

Depth to top of screen 123'

Diameter of finished hole 4"

Pumping Test

Static level 80'

Test-pumping rate 5' G.P.M.

Pumping level 100

Duration of test pumping 5'0 hrs

Water clear or cloudy at end of test clear

Recommended pumping rate 5' G.P.M.

with pump setting of 120 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
Top. Soil.	0	1		
fine gravel + large stone	1	16	27'	
Ridges clay fine gravel + Sand	16	120	120.	fresh.
fine Sand	120	129	to 129.	

For what purpose(s) is the water to be used? ~~Village~~ domestic, village park, plus service showers

Is well on upland, in valley, or on hillside? upland

Drilling or Boring Firm Ken Leighton & Son

Address Durham

Licence Number 1645

Name of Driller or Borer Larry Leighton

Address Durham Ont.

Date

Kenneth M. Leighton

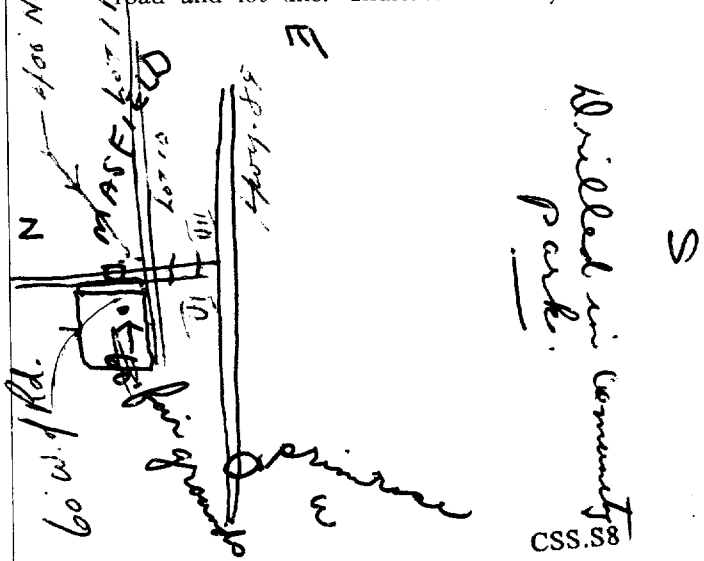
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M-60-4138

OWRC COPY

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



Ministry of the Environment

Ontario

The Ontario Water Resources Act

WATER WELL RECORD

41A/1E

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 | 1702297 | MUNICIP 17006 | CON HS E | LOT 06

COUNTY OR DISTRICT: [redacted]

TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: [illegible]UR

CON., BLOCK, TRACT, SURVEY, ETC.: VI

LOT: 011

DATE COMPLETED: DAY 23 MO 08 YR 77

[illegible]ANS FIELD

90850 | RC 5 | ELEVATION 1035 | RC 5 | BASIN CODE 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
~~SAND~~				0	15'
BROWN	SAND	CLAY	SANDY CLAY		
GREY	CLAY	GRAVEL GRITT	HARD GRITTY CLAY	15'	80
"	"		STICKY CLAY	80	100
"	"	GRITT	GRITTY CLAY	100	105'
BROWN	SAND		WATER BEARING	105'	114

31 | 0015628805 | 0080205117? | 0100205?6 | 0105205?8 | 0114628?1

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0106	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
~~70~~	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
~~114~~	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
~~6~~ 04	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	.188	0	0108
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.): ~~2-4-6-8-10~~ 004 ~~2-4-6-8-10~~

DIAMETER: 04000 INCHES

LENGTH: 06 FEET

MATERIAL AND TYPE: stainless steel

DEPTH TO TOP OF SCREEN: 0108 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER, ETC.)
10-13	14-17	
18-21	22-25	
26-29	30-33	

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☒ PUMP AIR ☐ BAILER

PUMPING RATE: 0006 GPM

DURATION OF PUMPING: 02 HOURS 00 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
FEET	100 FEET	1 ☒ PUMPING 2 ☐ RECOVERY	100 FEET	100 FEET	100 FEET	100 FEET

IF FLOWING, GIVE RATE: GPM

PUMP INTAKE SET AT: FEET

WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY

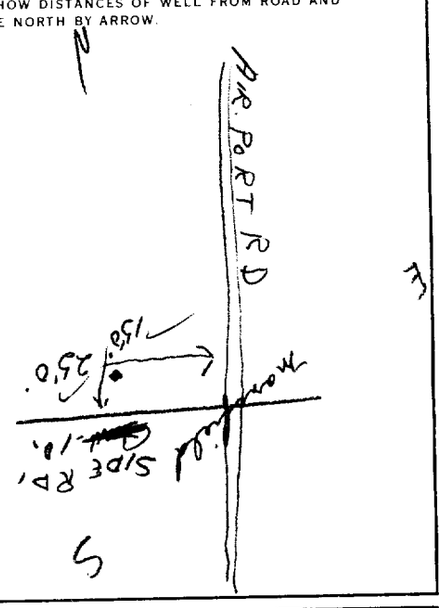
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP

RECOMMENDED PUMP SETTING: 105 FEET

RECOMMENDED PUMPING RATE: 0006 GPM

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS

FINAL STATUS OF WELL 1
1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED POOR QUALITY 7 ☐ UNFINISHED

WATER USE 01
1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED

METHOD OF DRILLING 2
1 ☐ CABLE TOOL 2 ☒ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: [illegible] Well Drilling Ltd — LICENCE NUMBER: 3602

ADDRESS: [illegible] #3 Stayner

NAME OF DRILLER OR BORER: [illegible] Brighton — LICENCE NUMBER:

SIGNATURE OF CONTRACTOR: [illegible] Brighton — SUBMISSION DATE: DAY 12 MO 9 YR 77

OWRC C.V.

OFFICE USE ONLY

DATA SOURCE: 1 — CONTRACTOR: 3602 — DATE RECEIVED: 140977

DATE OF INSPECTION: Aug 22/78 — INSPECTOR: EG

REMARKS: new home

FORM NO. 0506—4—77

MINISTRY OF THE ENVIRONMENT COPY

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 1702832

MUNICIP. COR.

COUNTY OR DISTRICT [redacted] | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE Mulmur | CON. BLOCK, TRACT, SURVEY, ETC. III | LOT 12

Mansfield Ont.

DATE COMPLETED DAY 19 MO 10 YR 81

RC. ELEVATION RC. BASIN CODE

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
Grey	Clay	Stones		0	21
Grey-Blue	Shale			21	127

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
10-13: 40-127	1 ☐ FRESH 3 ☐ SULPHUR 2 ☑ SALTY 4 ☐ MINERAL
15-19	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
20-23	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
25-28	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
30-33	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
10-11: 6"	1 ☑ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	.188	+2	22
17-18	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE		22	127
24-25	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.) 31-33 | DIAMETER 34-38 INCHES | LENGTH 39-40 FEET

MATERIAL AND TYPE | DEPTH TO TOP OF SCREEN 41-44 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	DEPTH SET AT - FEET TO	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER ETC.)
10-13	14-17: Bentonite	
18-21	22-25	
26-29	30-33	80

71 PUMPING TEST

PUMPING TEST METHOD 10: 1 ☐ PUMP 2 ☑ BAILER

PUMPING RATE 11-14: 2 GPM

DURATION OF PUMPING 15-16 HOURS 1 17-18 MINS. 30

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING (25: 1 ☐ PUMPING 2 ☐ RECOVERY)			
19-21: 23 FEET	22-24: 126 FEET	15 MINUTES 26-28 FEET	30 MINUTES 29-31 FEET	45 MINUTES 32-34 FEET	60 MINUTES 35-37 FEET

IF FLOWING, GIVE RATE 38-41 GPM

PUMP INTAKE SET AT FEET

WATER AT END OF TEST 42: 1 ☑ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☑ DEEP

RECOMMENDED PUMP SETTING 43-45: 120 FEET

RECOMMENDED PUMPING RATE 46-49: 2 GPM

50-53

FINAL STATUS OF WELL

54

1 ☑ WATER SUPPLY
2 ☐ OBSERVATION WELL
3 ☐ TEST HOLE
4 ☐ RECHARGE WELL
5 ☐ ABANDONED, INSUFFICIENT SUPPLY
6 ☐ ABANDONED, POOR QUALITY
7 ☐ UNFINISHED

WATER USE

55-56

1 ☑ DOMESTIC
2 ☐ STOCK
3 ☐ IRRIGATION
4 ☐ INDUSTRIAL
☐ OTHER
5 ☐ COMMERCIAL
6 ☐ MUNICIPAL
7 ☐ PUBLIC SUPPLY
8 ☐ COOLING OR AIR CONDITIONING
9 ☐ NOT USED

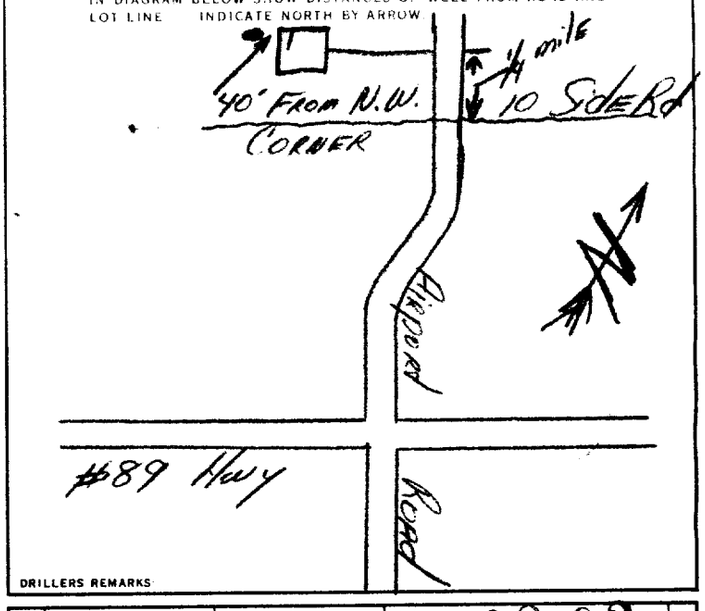
METHOD OF DRILLING

57

1 ☐ CABLE TOOL
2 ☑ ROTARY (CONVENTIONAL)
3 ☐ ROTARY (REVERSE)
4 ☐ ROTARY (AIR)
5 ☐ AIR PERCUSSION
6 ☐ BORING
7 ☐ DIAMOND
8 ☐ JETTING
9 ☐ DRIVING

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

CONTRACTOR

NAME OF WELL CONTRACTOR: Lumley Well Drilling | LICENCE NUMBER: 3406

ADDRESS: RR# 1 Laurel, Ont.

NAME OF DRILLER OR BORER | LICENCE NUMBER

SIGNATURE OF CONTRACTOR | SUBMISSION DATE DAY 19 MO 10 YR 81

OFFICE USE ONLY

DATA SOURCE 58 | CONTRACTOR 59-62 | DATE RECEIVED 63-68: 30 03 82 | 80

DATE OF INSPECTION | INSPECTOR

REMARKS:

CSS.ES

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506—4—77 FORM 7

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 1702926

MUNICIP | CON. | LOT 25-27: 11

COUNTY OR DISTRICT: [redacted]
TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: MAINMUR
CON, BLOCK, TRACT, SURVEY, ETC: VI
DATE COMPLETED: DAY 24 MO June YR 83
[redacted] ANSFIELD
RC | ELEVATION | RC | BASIN CODE

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
BROWN	TOP SOIL			0	1
GREY	CLAY	STONES.	SHALE SHALEY CLAY	1	18
"	SHALE		SLAB SHALE	18	60

Cemented shot to 45'

Recovery 14 gallon per hr. (FRESH WATER) being hooked up for drinking. (They have a salt well on property 100 ft +)

31
32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
60	1 ☐ FRESH 3 ☐ SULPHUR; 2 ☒ SALTY 4 ☐ MINERAL
45	1 ☒ FRESH 3 ☐ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
8"	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	.188	+2	18
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.): 1 | DIAMETER: INCHES | LENGTH: FEET
MATERIAL AND TYPE | DEPTH TO TOP OF SCREEN: FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER ETC.)
10-13	14-17	
18-21	22-25	
26-29	30-33	

71 PUMPING TEST

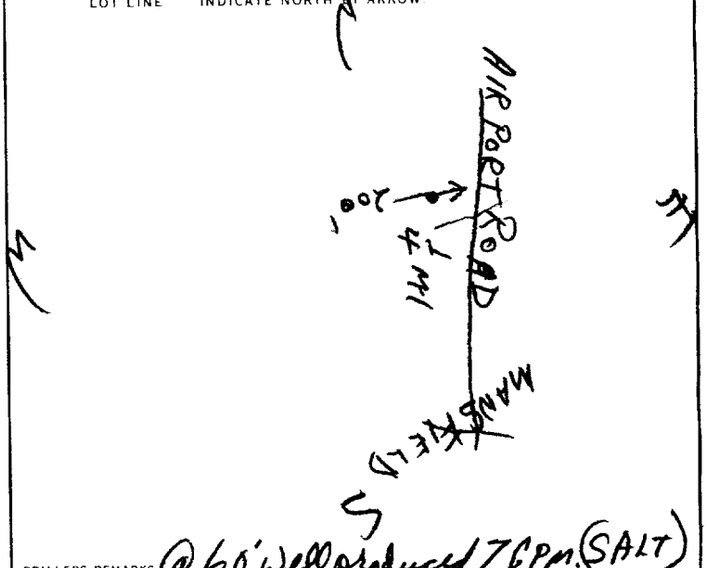
PUMPING TEST METHOD: ☒ 1 PUMP ☐ 2 BAILER
PUMPING RATE: GPM
DURATION OF PUMPING: HOURS MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING (1 ☐ PUMPING 2 ☐ RECOVERY)	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
20 FEET	FEET		FEET	FEET	FEET	FEET

IF FLOWING, GIVE RATE: GPM
PUMP INTAKE SET AT: FEET
WATER AT END OF TEST: 1 ☐ CLEAR 2 ☐ CLOUDY
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP
RECOMMENDED PUMP SETTING: 44 FEET
RECOMMENDED PUMPING RATE: GPM

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW



DRILLERS REMARKS: @ 60' well produced 7 GPM. (SALT)

FINAL STATUS OF WELL

1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED

WATER USE

1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED

METHOD OF DRILLING

1 ☐ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☒ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: Mighton's Well Drilling Ltd | LICENCE NUMBER: 3602
ADDRESS: #3 Stayner
NAME OF DRILLER OR BORER: Larry Mighton | LICENCE NUMBER:
SIGNATURE OF CONTRACTOR: Kenneth R. Mighton | SUBMISSION DATE: DAY 14 MO 7 YR 83

OFFICE USE ONLY

DATA SOURCE | CONTRACTOR | DATE RECEIVED: 21 07 83
DATE OF INSPECTION | INSPECTOR
REMARKS

CSS.ES

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506—4—77 FORM 7

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1703175

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON.	BLOCK, TRACT, SURVEY, ETC.	LOT
DUFFERIN	MULMUR	VI		11
[redacted]	MANSFIELD			

DATE COMPLETED: DAY 15 MO OCT 85

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
BROWN	TOP SOIL			0	1
GREY	CLAY	STONES	STONEY CLAY	1	15
"	"	SHALE	SHALE LAYERS	15	18
"	SHALE	SLAB	SHALE	18	51
"	"	"	"	51	70

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
25	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
51 TO 70	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
13	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	1/4"	+1	18

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET
6		
MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN FEET	

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	DEPTH SET AT - FEET TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 ☐ PUMP 2 ☒ BAILER — AIR	1/2 GPM	HOURS MINS

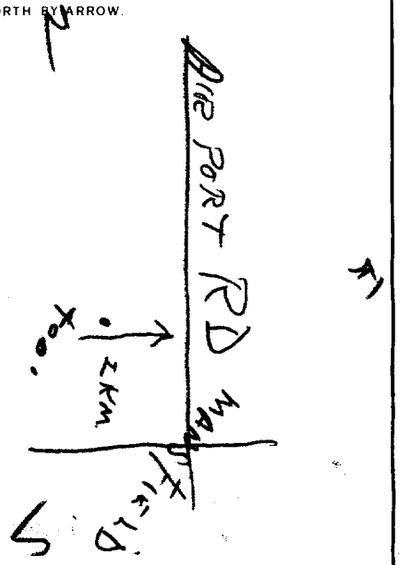
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☐ PUMPING 2 ☒ RECOVERY			
		15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
25 FEET	FEET	FEET	FEET	FEET	FEET

IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
GPM	FEET	1 ☐ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
☐ SHALLOW ☐ DEEP	65 FEET	GPM

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

FINAL STATUS OF WELL	1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED POOR QUALITY 7 ☐ UNFINISHED
WATER USE	1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING ☐ OTHER 9 ☐ NOT USED
METHOD OF DRILLING	1 ☒ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☒ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR	LICENCE NUMBER
Mighton's Well drilling Ltd	3602
ADDRESS: #3 Stayner	
NAME OF DRILLER OR BORER: Larry + Terry Mighton	LICENCE NUMBER
SIGNATURE OF CONTRACTOR: Kenneth M. Mighton	SUBMISSION DATE: DAY 19 MO 12 YR. 85

MINISTRY OF THE ENVIRONMENT COPY

OFFICE USE ONLY

DATA SOURCE	CONTRACTOR	DATE RECEIVED
		131285
DATE OF INSPECTION	INSPECTOR	
REMARKS		

CSS.ES

FORM NO. 0506—4—77 FORM 7

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 1704351 MUNICIP 17006 CON. HS E 06

COUNTY OR DISTRICT [redacted] TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE Mulmur MANSFIELD
CON, BLOCK, TRACT, SURVEY, ETC EH LOT 15
DATE COMPLETED DAY 25 MO 06 YR 91

21 T M G RC ELEVATION RC BASIN CODE

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
BROWN	TOPSOIL			0	1
BROWN	SAND	GRAVEL, STONES		1	23
BROWN	SAND		FINE HARD (DRY)	23	51
BROWN	SAND		(MEDIUM) HARD DRY	51	79
BROWN	SAND	CLAY	BROWN SAND WITH CLAY RIDGES	79	101
BROWN	SAND		CLEAN WATER BEARING SAND	101	112
BROWN	SAND	JUMPER PIPE		112	123

31
32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
101/112	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
6 1/8	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.188	+1	102
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET
8	6	7

MATERIAL AND TYPE: STAINLESS STEEL
DEPTH TO TOP OF SCREEN: 102 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
3	12	BENSEAL

71 PUMPING TEST

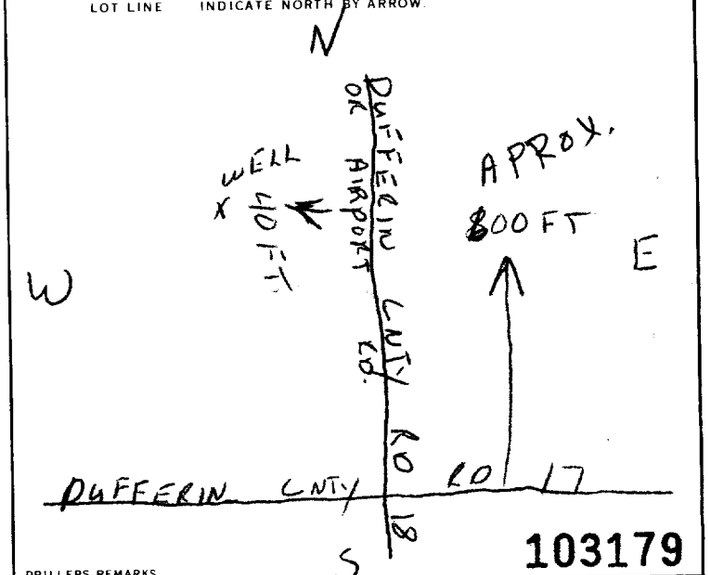
PUMPING TEST METHOD: 1 ☒ PUMP 2 ☐ BAILER
PUMPING RATE: 30 GPM
DURATION OF PUMPING: 2 HOURS 30 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☐ PUMPING 2 ☒ RECOVERY			
		15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
79 FEET	100 FEET	100 FEET	100 FEET	100 FEET	100 FEET

IF FLOWING, GIVE RATE: GPM
PUMP INTAKE SET AT: FEET
WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP
RECOMMENDED PUMP SETTING: 120 FEET
RECOMMENDED PUMPING RATE: 20 GPM

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS: 103179

FINAL STATUS OF WELL

1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED ☐ DEWATERING

WATER USE

1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER Village 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED

METHOD OF CONSTRUCTION

1 ☒ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING ☐ DIGGING ☐ OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: MIGHTON'S WELL DRILLING LTD.
WELL CONTRACTOR'S LICENCE NUMBER: 3603
ADDRESS: RR #2 STAYNER ONT
NAME OF WELL TECHNICIAN: TERRY MIGHTON
WELL TECHNICIAN'S LICENCE NUMBER: T-0130
SIGNATURE OF TECHNICIAN/CONTRACTOR: Kenneth G Mighton
SUBMISSION DATE: DAY 17 MO 7 YR 91

OFFICE USE ONLY

DATA SOURCE
CONTRACTOR: 3602
DATE RECEIVED: JUL 23 1991
DATE OF INSPECTION
INSPECTOR
REMARKS: CSS.ES

FORM NO. 0506 (11/86) FORM 9

MINISTRY OF THE ENVIRONMENT COPY

Ontario Ministry of the Environment

The Ontario Water Resources Act
WATER WELL RECORD

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

11 **1705727** Municipality 17006 Con HS E 06

County or District: DUFFERIN 6
Township/Borough/City/Town/Village: MULMUR
Con block tract survey, etc.: VIE
Lot: 11
Address: MANSFIELD
Date completed: 11 day 09 month 01 year

21 UTM Northing RC Elevation RC Basin Code

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
BROWN	SAND			0	8
BROWN	CLAY	STONES	STONEY CLAY	8	27
BROWN	SAND	CLAY	SANDY CLAY	27	36
GREY	CLAY		HARD	36	47
GREY	SHALE		HARD	47	120

31
32

41 WATER RECORD

Water found at - feet	Kind of water
108/120	1 ☐ Fresh 2 ☑ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
6 1/8	1 ☑ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	.188	+2	48
	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			
	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			

SCREEN

Sizes of opening (Slot No.)	Diameter inches	Length feet
—	—	—

Material and type: —
Depth at top of screen feet: —

61 PLUGGING & SEALING RECORD

☐ Annular space ☐ Abandonment

Depth set at - feet From	Depth set at - feet To	Material and type (Cement grout, bentonite, etc.)
5	18	BENSEAL
120	91	HOLE plug
91	32	CLEAN SAND GRAVEL
23 - 0		BENSEAL + HOLE PLUG

71 PUMPING TEST

AIR

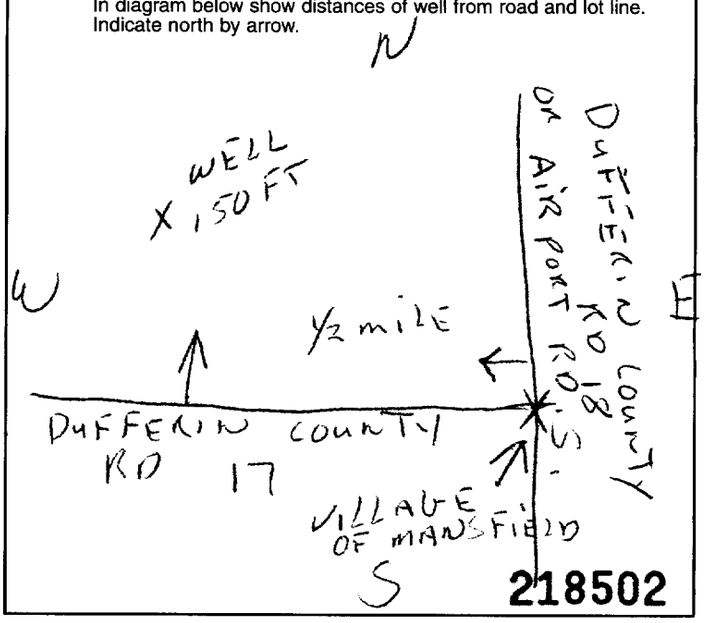
Pumping test method: 1 ☐ Pump 2 ☐ Bailer
Pumping rate: / GPM
Duration of pumping: Hours Mins

Static level	Water level end of pumping	Water levels during: 1 ☐ Pumping 2 ☐ Recovery			
		15 minutes	30 minutes	45 minutes	60 minutes
38 feet	118 feet	118 feet	118 feet	118 feet	118 feet

If flowing give rate: GPM
Pump intake set at: feet
Water at end of test: ☐ Clear ☐ Cloudy
Recommended pump type: ☐ Shallow ☐ Deep
Recommended pump setting: feet
Recommended pump rate: / GPM

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate north by arrow.



FINAL STATUS OF WELL 54

1 ☑ Water supply 2 ☐ Observation well 3 ☐ Test hole 4 ☐ Recharge well 5 ☐ Abandoned, insufficient supply 6 ☐ Abandoned, poor quality 7 ☑ Abandoned (Other) 8 ☐ Dewatering 9 ☐ Unfinished 10 ☐ Replacement well

SALT WATER.

WATER USE 55-56

1 ☑ Domestic 2 ☐ Stock 3 ☐ Irrigation 4 ☐ Industrial 5 ☐ Commercial 6 ☐ Municipal 7 ☐ Public supply 8 ☐ Cooling & air conditioning 9 ☐ Not use 10 ☐ Other

METHOD OF CONSTRUCTION 57

1 ☐ Cable tool 2 ☐ Rotary (conventional) 3 ☐ Rotary (reverse) 4 ☑ Rotary (air) 5 ☐ Air percussion 6 ☐ Boring 7 ☐ Diamond 8 ☐ Jetting 9 ☐ Driving 10 ☐ Digging 11 ☐ Other

Name of Well Contractor	Well Contractor's Licence No.
MIGHTON'S WELL DRILLING	3602
Address: RR2 STAYNER ONT	
Name of Well Technician: LARRY MIGHTON	Well Technician's Licence No.: T-0129
Signature of Technician/Contractor: Kenneth L Mighton	Submission date: day 27 mo 9 yr 01

MINISTRY USE ONLY

Data source 58 | Contractor 59-62: 3602 | Date received 63-68: OCT 02 2001 | 80
Date of inspection | Inspector
Remarks

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Ontario **Ministry of the Environment**

The Ontario Water Resources Act
WATER WELL RECORD

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

11 **1705845** Municipality 17006 Con HS E 06

County or District	Township/Borough/City/Town/Village	Con	block	tract	survey, etc.	Lot
DUFFERIN	MULMER.		Lo			11

Address [redacted] — Date completed: 23 day 01 month 02 year

21 UTM Northing RC Elevation RC Basin Code ii iii iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
BLACK	TOPSOIL	—	SOFT	0	1
BROWN	CLAY.	SAND	SOFT	1	21
BROWN	SAND	SILT	DIRTY	21	95
BROWN	SAND	CLAY	DIRTY	95	118
BROWN	SAND	—	LOOSE	118	125

31

32

41 WATER RECORD

Water found at - feet	Kind of water
125	1 ☑ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas 6 ☐
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas 6 ☐
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas 6 ☐
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas 6 ☐
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas 6 ☐

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
6¼	1 ☑ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	188	+2	120
	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			
	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			

SCREEN

Sizes of opening (Slot No.)	Diameter	Length
14	Lo inches	4 feet

Material and type: STAINLESS — Depth at top of screen: 121 feet

61 PLUGGING & SEALING RECORD

☑ Annular space ☐ Abandonment

Depth set at - feet From	Depth set at - feet To	Material and type (Cement grout, bentonite, etc.)
0	21	HOLEPLUG
		CUTTING.

71 PUMPING TEST

Pumping test method: 1 ☐ Pump 2 ☐ Bailer — Pumping rate: 15 GPM — Duration of pumping: 1 Hours Mins

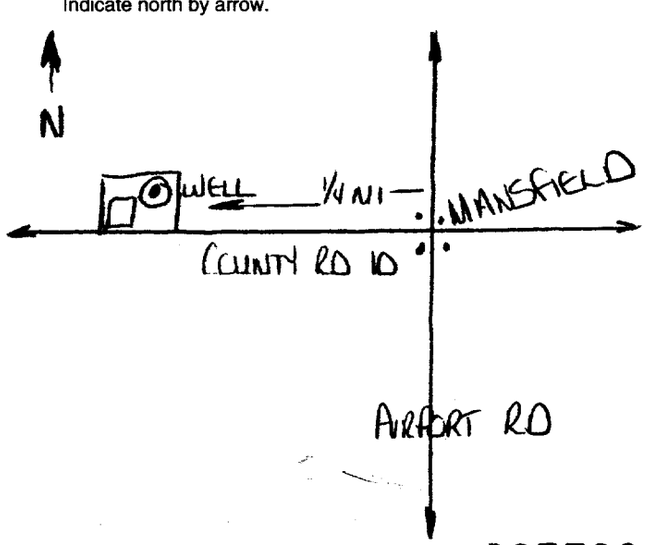
Static level	Water level end of pumping	Water levels during: 1 ☑ Pumping 2 ☐ Recovery			
		15 minutes	30 minutes	45 minutes	60 minutes
88 feet	118 feet	118 feet	118 feet	118 feet	118 feet

If flowing give rate: GPM — Pump intake set at: feet — Water at end of test: ☑ Clear ☐ Cloudy

Recommended pump type: ☐ Shallow ☑ Deep — Recommended pump setting: 115 feet — Recommended pump rate: 8 GPM

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate north by arrow.



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FINAL STATUS OF WELL

1 ☑ Water supply 2 ☐ Observation well 3 ☐ Test hole 4 ☐ Recharge well 5 ☐ Abandoned, insufficient supply 6 ☐ Abandoned, poor quality 7 ☐ Abandoned (Other) 8 ☐ Dewatering 9 ☐ Unfinished 10 ☐ Replacement well

WATER USE

1 ☑ Domestic 2 ☐ Stock 3 ☐ Irrigation 4 ☐ Industrial 5 ☐ Commercial 6 ☐ Municipal 7 ☐ Public supply 8 ☐ Cooling & air conditioning 9 ☐ Not use 10 ☐ Other

METHOD OF CONSTRUCTION

1 ☐ Cable tool 2 ☑ Rotary (conventional) 3 ☐ Rotary (reverse) 4 ☐ Rotary (air) 5 ☐ Air percussion 6 ☐ Boring 7 ☐ Diamond 8 ☐ Jetting 9 ☐ Driving 10 ☐ Digging 11 ☐ Other

Name of Well Contractor	Well Contractor's Licence No.
R & B WELL DRILLING LTD	4645
Address: PO Box 320 BEETON, ONT L0G 1A0	
Name of Well Technician: ROBERT W. KOWALSKI	Well Technician's Licence No.: T2425
Signature of Technician/Contractor	Submission date: 23 day 01 mo 02 yr

MINISTRY USE ONLY

Data source	Contractor	Date received
	4645	JUN 14 2002
Date of inspection	Inspector	
Remarks		CSS.ES2

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Ontario **Ministry of Environment and Energy**

The Ontario Water Resources Act
WATER WELL RECORD

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

11 (1–2) **1706071** Municipality 17006 (10–14) Con. HS E 06 (15–22, 23–24)

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot (25-27)
[redacted]	Mulmer.	6	11
	Address of Well Location: 937058 Airport Road.	Date completed (28-32): 28 day 5 month 03 year	

21 (1–2) UTM: Zone (10) Easting (12–17) Northing (18–24) RC (25) Elevation (26–30) RC Basin Code (31) ii (47) iii iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
Brown	Top Soil			0	2
Brown	Gravel	Sand Clay		2	23
Gray	Shale	Clay Layers		23	62
Gray	Shale		Hard.	62	98

31 (10–14, 15–21, 32–43, 54–65, 75–80)
32

41 WATER RECORD

Water found at - feet	Kind of water
60 (10-13)	1 ☐ Fresh 3 ☐ Sulphur 4 Not Tested (14) / 2 ☐ Salty 4 ☐ Minerals 6 ☐ Gas
97 (15-18)	1 ☐ Fresh 3 ☐ Sulphur 4 Not Tested / 2 ☑ Salty 4 ☐ Minerals 6 ☐ Gas
(20-23)	1 ☐ Fresh 3 ☐ Sulphur (24) / 2 ☐ Salty 4 ☐ Minerals 6 ☐ Gas
(25-28)	1 ☐ Fresh 3 ☐ Sulphur (29) / 2 ☐ Salty 4 ☐ Minerals 6 ☐ Gas
(30-33)	1 ☐ Fresh 3 ☐ Sulphur (34) / 2 ☐ Salty 4 ☐ Minerals 6 ☐ Gas (60)

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
(10-11) 10	1 ☐ Steel (12) / 2 ☐ Galvanized / 3 ☐ Concrete / 4 ☑ Open hole / 5 ☐ Plastic		0	(13-16) 16
(17-18) 8	1 ☑ Steel (19) / 2 ☐ Galvanized / 3 ☐ Concrete / 4 ☐ Open hole / 5 ☐ Plastic	.188	+1	(20-23) 23
(24-25) 8	1 ☐ Steel (26) / 2 ☐ Galvanized / 3 ☐ Concrete / 4 ☑ Open hole / 5 ☐ Plastic		23	(27-30) 98

SCREEN

Sizes of opening (Slot No.) (31-33)	Diameter (34-38) inches	Length (39-40) feet
Material and type	Depth at top of screen (41-44) feet	(30)

61 PLUGGING & SEALING RECORD

☑ Annular space ☐ Abandonment

Depth set at - feet From	Depth set at - feet To	Material and type (Cement grout, bentonite, etc.)
0 (13)	17	Hole Plug
(18-21)	(22-25)	
(26-29)	(30-33)	(80)

71 PUMPING TEST

Pumping test method (10)	Pumping rate (11-14)	Duration of pumping (15-16 Hours, 17-18 Mins)
1 ☑ Pump 2 ☐ Bailer	3 GPM	4 Hours Mins

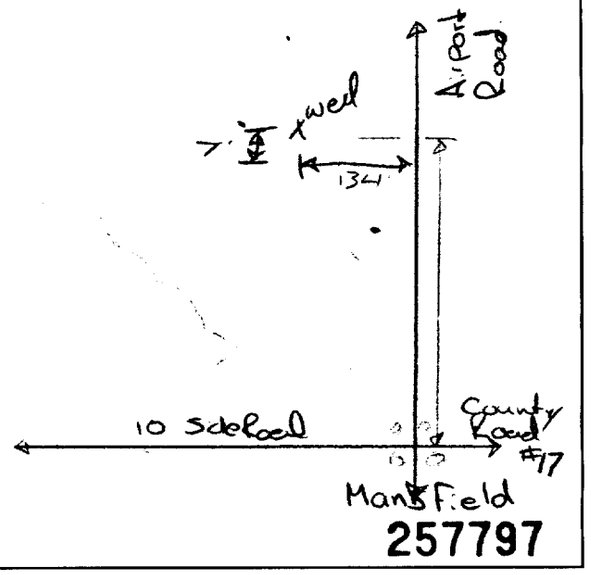
Static level (19-21)	Water level end of pumping (22-24)	Water levels during (25) 1 ☐ Pumping 2 ☐ Recovery: 15 minutes (26-28)	30 minutes (29-31)	45 minutes (32-34)	60 minutes (35-37)
104' feet	54'5" feet	feet	feet	feet	feet

If flowing give rate (38-41)	Pump intake set at	Water at end of test (42)
GPM	feet	☑ Clear ☐ Cloudy
Recommended pump type: ☐ Shallow ☑ Deep	Recommended pump setting (43-45): 97 feet	Recommended pump rate (46-49): 3 GPM

(50-53)

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate north by arrow.



257797

FINAL STATUS OF WELL (54)

1 ☑ Water supply 2 ☐ Observation well 3 ☐ Test hole 4 ☐ Recharge well 5 ☐ Abandoned, insufficient supply 6 ☐ Abandoned, poor quality 7 ☐ Abandoned (Other) 8 ☐ Dewatering 9 ☐ Unfinished 10 ☐ Replacement well

WATER USE (55-56)

1 ☑ Domestic 2 ☐ Stock 3 ☐ Irrigation 4 ☐ Industrial 5 ☐ Commercial 6 ☐ Municipal 7 ☐ Public supply 8 ☐ Cooling & air conditioning 9 ☐ Not use 10 ☐ Other

METHOD OF CONSTRUCTION (57)

1 ☑ Cable tool 2 ☐ Rotary (conventional) 3 ☐ Rotary (reverse) 4 ☐ Rotary (air) 5 ☐ Air percussion 6 ☐ Boring 7 ☐ Diamond 8 ☐ Jetting 9 ☐ Driving 10 ☐ Digging 11 ☐ Other

Name of Well Contractor	Well Contractor's Licence No.
Tom's Well Drilling Ltd	7143
Address: 8 John Ave Milton ON L9R 1J8	
Name of Well Technician: Roger Mann	Well Technician's Licence No. 2478
Signature of Technician/Contractor	Submission date: 28 day 5 mo 03 yr

MINISTRY USE ONLY

Data source (58)	Contractor (59-62)	Date received (63-68) (80)
	7143	JUL 02 2003
Date of inspection	Inspector	
Remarks: CSS.ES3		

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Ontario — Ministry of Environment and Energy

The Ontario Water Resources Act
WATER WELL RECORD

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

11 — 1706150

Municipality 17006 — Con. HS E — 06

PLAN TR 45979

County or District	Township/Borough/City/Town/Village	Con. block tract survey, etc.	Lot
[redacted]	MULMUR	21 EAST	11
	Address of Well Location: BOX 155 MANSFIELD	Date completed: 9 day / 10 month / 3 year	

21 — UTM: Zone | Easting | Northing | RC | Elevation | RC | Basin Code | ii | iii | iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
BROWN	FILL			0	18"
GREY	SHALE & clay Layers			18"	14
GREY	SHALE	Hard		14	21
GREY	SHALE &	BLACK SHALE	Hard to Soft.	21	100

31 — 10 STORY

32

41 WATER RECORD

Water found at - feet	Kind of water
32	1 [X] Fresh 2 [ ] Salty — 3 [ ] Sulphur 4 [✓] Minerals 6 [X] Gas
To	1 [ ] Fresh 2 [ ] Salty — 3 [ ] Sulphur 4 [ ] Minerals 6 [ ] Gas
100	1 [ ] Fresh 2 [ ] Salty — 3 [ ] Sulphur 4 [ ] Minerals 6 [ ] Gas
	1 [ ] Fresh 2 [ ] Salty — 3 [ ] Sulphur 4 [ ] Minerals 6 [ ] Gas
	1 [ ] Fresh 2 [ ] Salty — 3 [ ] Sulphur 4 [ ] Minerals 6 [ ] Gas

60

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
6 1/4	1 [X] Steel 2 [ ] Galvanized 3 [ ] Concrete 4 [ ] Open hole 5 [ ] Plastic	.188	+18	21
1 5/4	1 [ ] Steel 2 [ ] Galvanized 3 [ ] Concrete 4 [ ] Open hole 5 [X] Plastic		18	100
	1 [ ] Steel 2 [ ] Galvanized 3 [ ] Concrete 4 [ ] Open hole 5 [ ] Plastic			

SCREEN

Sizes of opening (Slot No.)	Diameter inches	Length feet
1		
Material and type	Depth at top of screen feet	

61 PLUGGING & SEALING RECORD

[X] Annular space [ ] Abandonment

Depth set at - feet From	Depth set at - feet To	Material and type (Cement grout, bentonite, etc.)
0	20	BENSEAL

PUMPING TEST

71 — Pumping test method: 1 [ ] Pump [ ] Bailer — AIR

Pumping rate GPM	Duration of pumping Hours	Mins
5	1	

25 — Water levels during: 1 [✓] Pumping 2 [ ] Recovery

Static level feet	Water level end of pumping feet	15 minutes feet	30 minutes feet	45 minutes feet	60 minutes feet
29	90	90	90	90	95

If flowing give rate GPM	Pump intake set at feet	Water at end of test
		[X] Clear [ ] Cloudy

Recommended pump type	Recommended pump setting feet	Recommended pump rate GPM
[ ] Shallow [X] Deep	90	5

FINAL STATUS OF WELL

1 [X] Water supply; 2 [ ] Observation well; 3 [ ] Test hole; 4 [ ] Recharge well; 5 [ ] Abandoned, insufficient supply; 6 [ ] Abandoned, poor quality; 7 [ ] Abandoned (Other); 8 [ ] Dewatering; 9 [ ] Unfinished; 10 [ ] Replacement well

WATER USE

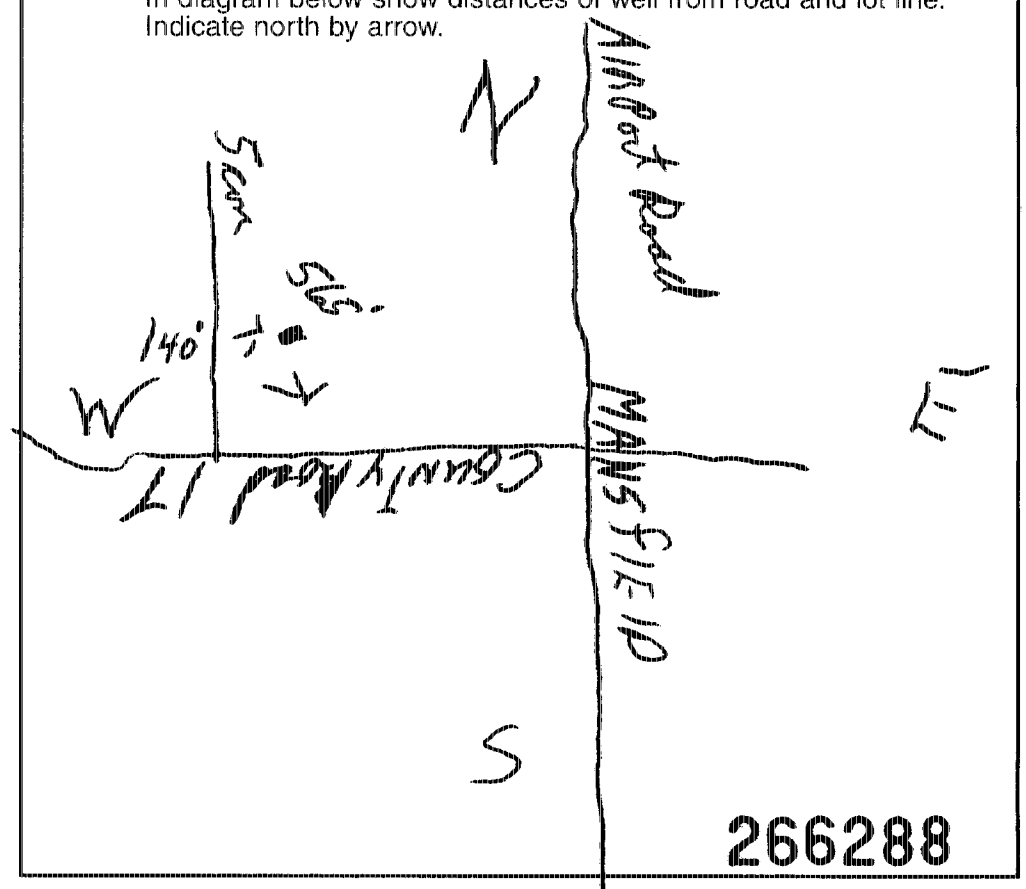
1 [X] Domestic; 2 [ ] Stock; 3 [ ] Irrigation; 4 [ ] Industrial; 5 [ ] Commercial; 6 [ ] Municipal; 7 [ ] Public supply; 8 [ ] Cooling & air conditioning; 9 [ ] Not use; 10 [ ] Other

METHOD OF CONSTRUCTION

1 [ ] Cable tool; 2 [ ] Rotary (conventional); 3 [ ] Rotary (reverse); 4 [X] Rotary (air); 5 [ ] Air percussion; 6 [ ] Boring; 7 [ ] Diamond; 8 [ ] Jetting; 9 [ ] Driving; 10 [ ] Digging; 11 [ ] Other

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate north by arrow.



Name of Well Contractor	Well Contractor's Licence No.
Meghan's Well Drilling	3602
Address: RR2 STAYNER	
Name of Well Technician: Lars Meghan	Well Technician's Licence No.: T.129
Signature of Technician/Contractor: Lars Meghan	Submission date: day 30 mo 10 yr 03

MINISTRY USE ONLY

Data source	Contractor	Date received
	3602	NOV 05 2003
Date of inspection	Inspector	
Remarks		

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Ontario — Ministry of the Environment and Climate Change

Measurements recorded in: ☐ Metric ☐ Imperial

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

Tag#: A160053

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of ____

[redacted]

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
	MULMER	11	6

County/District/Municipality	City/Town/Village	Province	Postal Code
DUFFERIN		Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 8 3		576715	4891201		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
BROWN	SAND	SILT	LOOSE	0	7
BROWN	CLAY	—	HARD	7	26
BROWN	SAND	CLAY	LAYERED	26	110
BROWN	SAND	—	LOOSE	110	126
GREY	CLAY	—	HARD	126	0

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0	20	HOLEPLUG	4

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
6 1/4	STEEL	.188	+2	121

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To
5 1/2	STAINLESS	12	122	126

Status of Well

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

Water Details

Water found at Depth (m/ft)	Kind of Water	
10 (m/ft) ☐ Gas	☑ Fresh ☐ Untested	☐ Other, *specify*
Water found at Depth (m/ft) ☐ Gas	☐ Fresh ☐ Untested	☐ Other, *specify*
Water found at Depth (m/ft) ☐ Gas	☐ Fresh ☐ Untested	☐ Other, *specify*

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)
0	20	10 IN
20	122	8 3/4
122	126	6 1/8

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at (m/ft): 120 FT.

Pumping rate (l/min / GPM):

Duration of pumping: 1 hrs + ____ min

Final water level end of pumping (m/ft): 109 FT.

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

Recommended pump depth (m/ft): 130 FT.

Recommended pump rate (l/min / GPM): 8 GPM

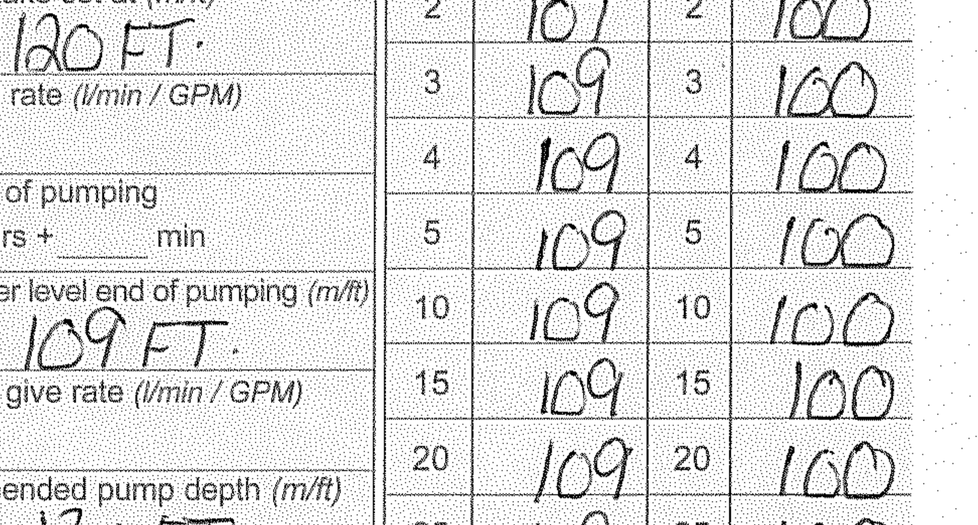
Well production (l/min / GPM): 8 GPM

Disinfected? ☑ Yes ☐ No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	106		
1	103	1	100
2	107	2	100
3	109	3	100
4	109	4	100
5	109	5	100
10	109	10	100
15	109	15	100
20	109	20	100
25	109	25	100
30	109	30	100
40	109	40	100
50	109	50	100
60	109	60	100

Map of Well Location

Please provide a map below following instructions on the back.



Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
RB WELL DRILLING LTD	4645

Business Address (Street Number/Name)	Municipality
3569 SIDEROAD 10, BEETON	NEW TECUMSETH

Province	Postal Code	Business E-mail Address
ON	L0G 1A0	RBWELLDRILLING.COM

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
1057292950	KOWALSKI, ROBERT.

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
2425		20150917

Comments: NEW TECUMSETH.

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

Date Package Delivered: 20150918

Date Work Completed: 20150916

Ministry Use Only

Audit No Z 215708

Received NOV 23 2015

506E (2014/11)

Ministry's Copy

Tag#: A248504

Ontario — Ministry of the Environment and Climate Change

Measurements recorded in: ☐ Metric ☐ Imperial

Well Tag No. *(Place Sticker and/or Print Below)* A248504

Well Record

Regulation 903 Ontario Water Resources Act

Page _____ of _____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
MULMER	TOWNSHIP		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
	MULMER	15	Lo EHS

County/District/Municipality	City/Town/Village	Province	Postal Code
DUFFERIN		Ontario	

UTM Coordinates NAD 83 Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
	576858	4891273		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
	ALTERATION TO ORIGINAL WELL				
	DRILLED JULY 17 1991				
	RECORD # 103179				

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used *(Material and Type)*	Volume Placed (m^3/ft^3)
Ø	10	HOLE PLUG	4 APPROX.
		REPLACED SEAL AFTER	
		WELL WAS SLEEVED	

Method of Construction

☐ Cable Tool ☐ Diamond
☐ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☐ Air percussion
☑ Other, *specify* PUMP TRUCK

Well Use

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

Construction Record - Casing

Inside Diameter *(cm/in)*	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness *(cm/in)*	Depth (m/ft) From	Depth (m/ft) To
6 1/4	STEEL	1.88	+2	5 FT.
4-5 1/2	STEEL	1.88	5	7 FT.
5 1/2	STEEL	1.88	7	93 FT
SCREWED INTO K PACKER				

Construction Record - Screen

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

Status of Well

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

Water Details

Water found at Depth (m/ft)	Gas	Kind of Water: Fresh Untested / Other, *specify*
	☐	
	☐	
	☐	

Hole Diameter

Depth (m/ft) From	To	Diameter *(cm/in)*

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at *(m/ft)*

Pumping rate *(l/min / GPM)*

Duration of pumping _____ hrs + _____ min

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

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

Recommended pump depth *(m/ft)*

Recommended pump rate *(l/min / GPM)*

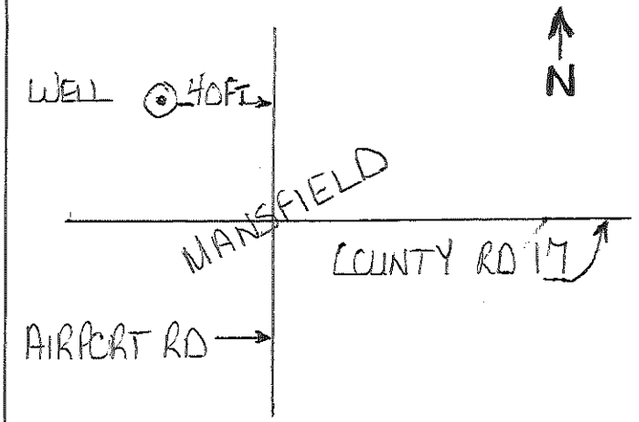
Well production *(l/min / GPM)*

Disinfected? ☑ Yes ☐ No

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

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
K & B WELL DRILLING LTD	4614 5

Business Address (Street Number/Name)	Municipality
3569 SIDEROAD 10 BEETON	NEW TECUMSETH

Province	Postal Code	Business E-mail Address
ON	L0G1A0	RBWELLDRILLING.COM

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
9057299950	KWIATKOWSKI, ROBERT

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
2415		2018/06/05

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☑ Yes ☐ No	2018/06/05	2018/05/16

Ministry Use Only

Audit No. Z287207

Received JUN 26 2018

0506E (2014/11)

Ministry's Copy

Lot 11

Concession 7

14 35

UTM Z E

5 R N

Elev. 5 R 1030

GROUND WATER BRANCH
17 JAN 16 1962 767
ONTARIO WATER RESOURCES COMMISSION

The Ontario Water Resources Commission Act

WATER WELL RECORD

Basin 20

County or District Dufferin

Township, Village, Town or City Mulmur.

Con HSE VII Lot 11 Eleven

Date completed 27 (day) Nov. (month) 1961 (year)

[redacted]

Address Mansfield, Ont.

Casing and Screen Record

Inside diameter of casing 30"

Total length of casing 28½'

Type of screen

Length of screen

Depth to top of screen

Diameter of finished hole 30

Pumping Test

Static level ~~35~~ 23'

Test-pumping rate 50 Gallons G.P.M.

Pumping level

Duration ~~of test pumping~~ 8 hrs.

Water clear or cloudy at end of test Clear.

Recommended pumping rate G.P.M.

with pump setting of feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
			23'	Fresh.
Sandy Brown Clay	0	2		
Gravel	2	10		
Sand	10	16		
Sandy Clay	16	28½		

For what purpose(s) is the water to be used?

Household.

Is well on upland, in valley, or on hillside? upland.

Drilling or Boring Firm

Babuik Well Boring

Address 126 Laurel Ave.

Islington. Ont

Licence Number 8

Name of Driller or Borer Mike S. Babuik

Address Same as above

Date Jan. 15 1962

Mike S. Babuik

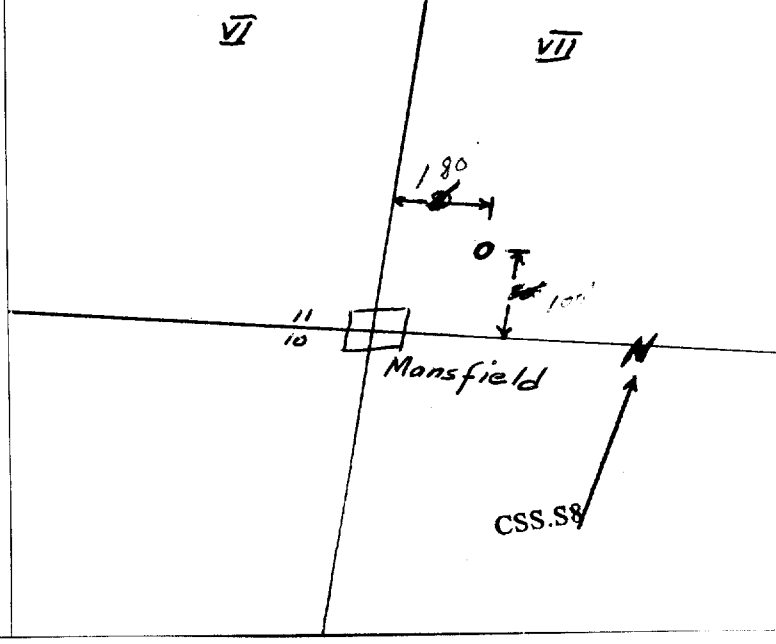
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M Sets 60-5930

OWRC COPY

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



60 Huron Ontario Street East

UTM Z E

5 R N

Elev. 5 R 1000

Basin 22

County or District DUFFERIN

Township, Village, Town or City MULMUR

Con. H.S.E. 7 Lot 11

Date completed 24 (day) 11 (month) 65 (year)

Address MANSFIELD

[redacted]

WATER RESOURCES DIVISION
NOV 30 1965
ONTARIO WATER RESOURCES COMMISSION

17 No 768

The Ontario Water Resources Commission Act

WATER WELL RECORD

Casing and Screen Record

Inside diameter of casing 4"

Total length of casing 70'

Type of screen ~

Length of screen ~

Depth to top of screen ~

Diameter of finished hole 4"

Pumping Test

Static level 40

Test-pumping rate 9 G.P.M.

Pumping level 54

Duration of test pumping 1½ hrs @ 4½ P.M.

Water clear or cloudy at end of test Clear

Recommended pumping rate 5' G.P.M.

with pump setting of 62 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
Top Soil.	0	1		
Clay	1	10		
Sand.	10	25'		fresh.
Grey Clay	25'	70	72	
Sand + gravel	70	72	72	

For what purpose(s) is the water to be used? Household + Stock

Is well on upland, in valley, or on hillside? Hillside

Drilling or Boring Firm Ken Mighton + Son

Address Durham

Licence Number 1645

Name of Driller or Borer Larry Mighton

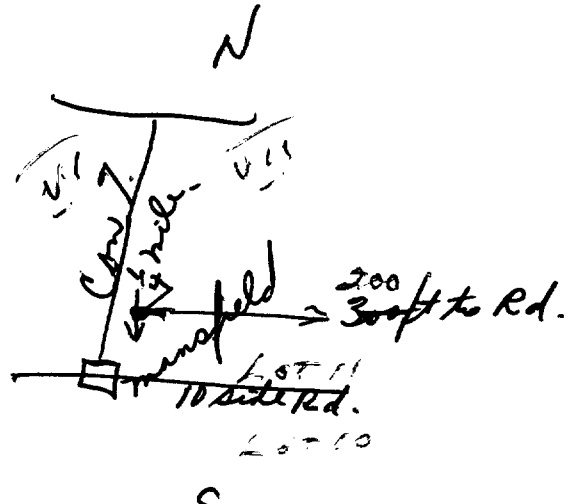
Address Durham

Date 26/11/65

Kenneth G. Mighton.
(Signature of Licensed Drilling or Boring Contractor)

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



Form 7 15M-60-4138 ¼ MILE N. OF 10 sideroad

OWRC COPY 200' E. of Co. Rd. 10

CSS.S8

20' H.S.E.

UTM Z E

9 R N

Elev. 9 R 1030

Basin 22

County or District DUFFERIN

Con VI VII E.H.S. Lot 11 (eleven)

[redacted]

The Ontario Water Resources Commission Act

WATER WELL RECORD

WATER RESOURCES DIVISION
NOV 2 1965
ONTARIO WATER RESOURCES COMMISSION

17 N 775 B

Township, Village, Town or City MULMUR MANSFIELD

Date completed 11 (day) JAN. (month) 1965 (year)

Address MONSFIELD ONT.

Casing and Screen Record

Inside diameter of casing 36"

Total length of casing

Type of screen

Length of screen

Depth to top of screen

Diameter of finished hole 36"

Pumping Test

Static level —

Test-pumping rate — G.P.M.

Pumping level —

Duration of test pumping —

Water clear or cloudy at end of test —

Recommended pumping rate — G.P.M.

with pump setting of — feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
Top. SOILE	0	3		
SANDY LOME	3	27		
HARD CLAY	27	37		
SAND + GRAVEL	37	43		
SAND	43	54		
dRY CLAY + SAND	54	63		
No WOTER				

For what purpose(s) is the water to be used? (white) Dry

Is well on upland, in valley, or on hillside?

Drilling or Boring Firm

Address

Licence Number 1808

Name of Driller or Borer BABUIK WELL BORING

Address 126 LAUREL AVE ISLINGTON

Date SEP 9/65

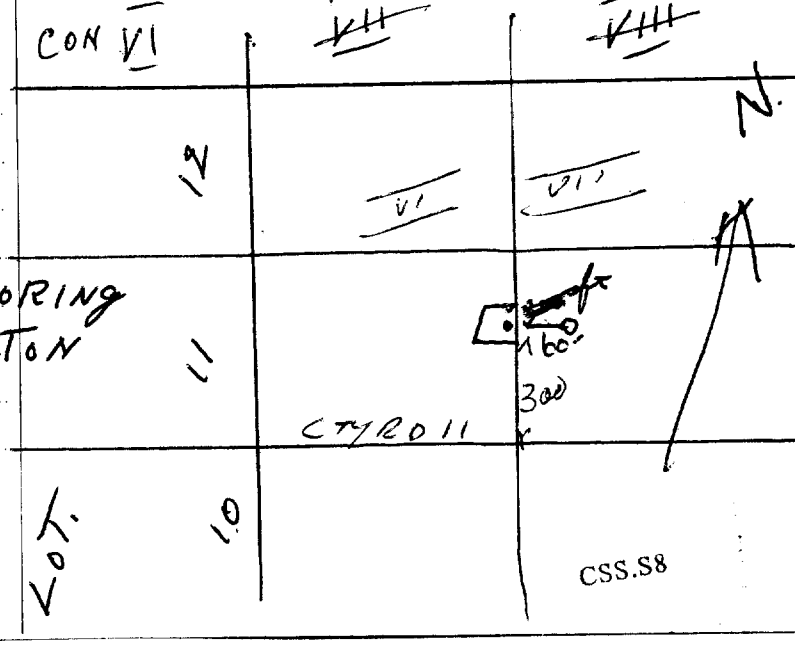
Al Babuik
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M-60-4138

OWRC COPY

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



CSS.S8

J.B.

UTM 17 5 7 6 9 2 0 | 4 8 9 1 0 1 0

Elev. 5 1 0 3

Basin 2 4

HSE
CODED
Con VII
Lot 11

Water management in Ontario

1700957

The Ontario Water Resources Commission Act

WATER WELL RECORD

County or ~~District~~ DUFFERIN

Township, ~~Village, Town or City~~ MULMUR MANSFIELD

Con. 7 H.S.E. Lot 11 W.H.

Date completed 26 (day) NOV (month) 68 (year)

[redacted]dress MANSFIELD

Casing and Screen Record

Inside diameter of casing 4"

Total length of casing 107'

Type of screen Johnston Stainless Steel No 10

Length of screen 3'

Depth to top of screen 107'

Diameter of finished hole 4"

Pumping Test

Static level

Test-pumping rate 5 G.P.M.

Pumping level 90'

Duration of test pumping 1 hr.

Water clear or cloudy at end of test Clear

Recommended pumping rate 5 G.P.M.

with pump setting of 104 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
Top Soil	0	1		
gravely clay	1	10		
fine beach sand & clay	10	100		
hard clay	100	103		
water bearing sand (medium to fine)	103	107	103 to 107	fresh

For what purpose(s) is the water to be used? Household

Is well on upland, in valley, or on hillside? upland

Drilling or Boring Firm Ken Nighton & Sons

Address Stayner

Licence Number 2973

Name of Driller or Borer Ken/Terry Nighton

Address Stayner

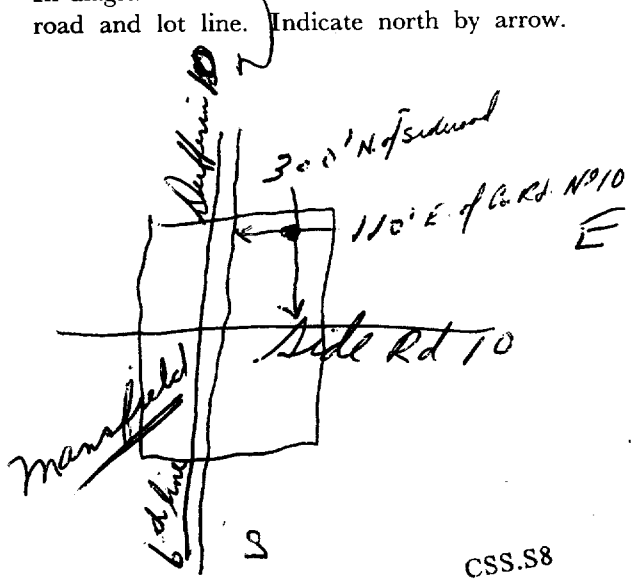
Date 30/11/68

Kenneth G. Nighton

(Signature of Licensed Drilling or Boring Contractor)

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



Form 7

OWRC COPY

CSS.S8

MINISTRY OF THE ENVIRONMENT

The Ontario Water Resources Act

WATER WELL RECORD

41A/1E

ONTARIO

1 PRINT ONLY IN SPACES PROVIDED
2 CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 | 1701446 | MUNICIP. 17006 | CON. HS E C 07

COUNTY OR DISTRICT: [redacted] Simcoe, Tay ~~Tecumseth~~

TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: ~~TORONTO~~ MULMER

RANGE: VII

SURVEY, BLOCK, TRACT, SURVEY, ETC.: HSE

LOT: 011

[redacted] MANSFIELD

DATE COMPLETED: DAY 20 MO ~~Oct~~ YR 72

RC: 4 | ELEVATION: 1025 | RC: 5 | BASIN CODE: 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
Brown.	coarse	SAND & Large Stone.		0	25
Brown	SAND clay.			25	112
Blue	clay	some of shale.		112	160

31 | 0025 6 10 12 | 01 1 26 28 05 | 01 60 30 5 17

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
10-13	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
15-18	1 ☐ FRESH 3 ☐ SULPHUR 2 ☒ SALTY 4 ☐ MINERAL
20-23	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
25-28	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
30-33	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
10-11	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			13-16
17-18	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			20-23
24-25	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			27-30

SCREEN

SIZE(S) OF OPENING (SLOT NO.) 31-33	DIAMETER 34-38 INCHES	LENGTH 39-40 FEET
MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN 41-44 FEET	80

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
10-13	14-17	
18-21	22-25	
26-29	30-33	80

71 PUMPING TEST

PUMPING TEST METHOD 10: 1 ☐ PUMP 2 ☐ BAILER

PUMPING RATE 11-14 GPM

DURATION OF PUMPING 15-16 HOURS 17-18 MINS

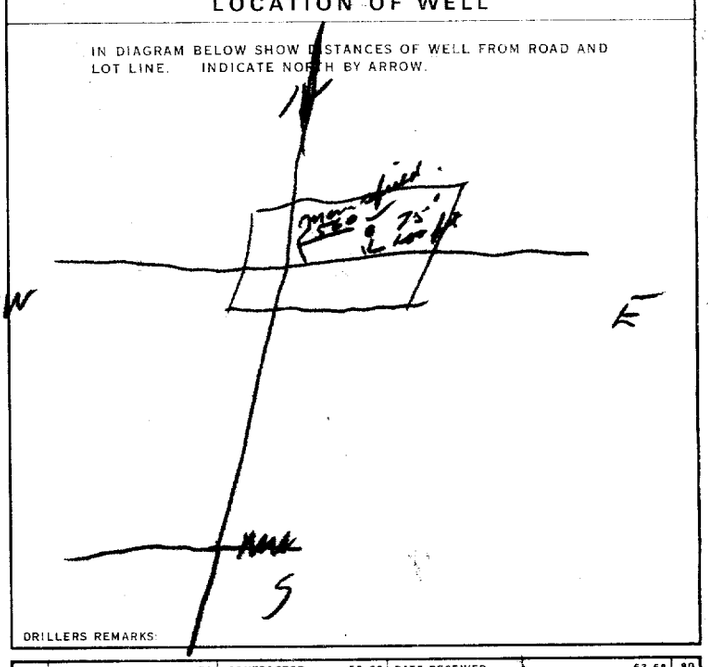
STATIC LEVEL	WATER LEVEL END OF PUMPING	25 WATER LEVELS DURING 1 ☐ PUMPING 2 ☐ RECOVERY			
		15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
19-21 FEET	22-24 FEET	26-28 FEET	29-31 FEET	32-34 FEET	35-37 FEET

IF FLOWING, GIVE RATE 38-41 GPM.	PUMP INTAKE SET AT FEET	WATER AT END OF TEST 42: 1 ☐ CLEAR 2 ☐ CLOUDY
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☐ DEEP	RECOMMENDED PUMP SETTING 43-45 FEET	RECOMMENDED PUMPING RATE 46-49 GPM.

50-53 ____.____ GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

FINAL STATUS OF WELL 54

1 ☐ WATER SUPPLY
2 ☐ OBSERVATION WELL
3 ☐ TEST HOLE
4 ☐ RECHARGE WELL
5 ☒ ABANDONED, INSUFFICIENT SUPPLY
6 ☐ ABANDONED, POOR QUALITY
7 ☐ UNFINISHED

WATER USE 55-56 09

1 ☐ DOMESTIC
2 ☐ STOCK
3 ☐ IRRIGATION
4 ☐ INDUSTRIAL
☐ OTHER
5 ☐ COMMERCIAL
6 ☐ MUNICIPAL
7 ☐ PUBLIC SUPPLY
8 ☐ COOLING OR AIR CONDITIONING
9 ☒ NOT USED

METHOD OF DRILLING 57 2

1 ☐ CABLE TOOL
2 ☒ ROTARY (CONVENTIONAL)
3 ☐ ROTARY (REVERSE)
4 ☐ ROTARY (AIR)
5 ☐ AIR PERCUSSION
6 ☐ BORING
7 ☐ DIAMOND
8 ☐ JETTING
9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: Ken Mughton & Sons. LICENCE NUMBER: 3602.

ADDRESS: Glasgow.

NAME OF DRILLER OR BORER: Larry Mughton LICENCE NUMBER:

SIGNATURE OF CONTRACTOR: Kenneth A. Mughton SUBMISSION DATE: DAY 15 MO. 1 YR. 73

OFFICE USE ONLY

DATA SOURCE 58: 1 | CONTRACTOR 59-62: 3602 | DATE RECEIVED 63-68: 230173 | 80

DATE OF INSPECTION | INSPECTOR

REMARKS: CSS.S8 P WI

MINISTRY OF THE ENVIRONMENT COPY

FORM 7 07-091

Ministry of Environment and Energy
Ontario

The Ontario Water Resources Act
WATER WELL RECORD

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

11 (1 2) **1705216**

Municipality 17006 (10–14) Con. HS E 07 (15 22 23 24)

County or District: Duff. | Township/Borough/City/Town/Village: Mulmur. | Con block tract survey, etc.: 7 | Lot: 11. (25-27)

[redacted] | Address: RR1 Mansfield. | Date completed: 10 10 98 (day month year)

21 (1 2) | UTM (10) | (12–17) | Northing (18–24) | RC (25) | Elevation (26–30) | RC | Basin Code (31) | ii | iii | iv (47)

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth – feet From	Depth – feet To
Brown	clay, sand			0	20
Blue	clay, sand			20	67
Blue	clay, sand, stones			67	130
Blue	clay, boulders			130	140
Grey	sand			140	145

31 (10 14 15 21) | 32 (32 43 54 65 75 80)

41 WATER RECORD

Water found at – feet	Kind of water			
145 (10–13)	1 ☒ Fresh	3 ☐ Sulphur	4 ☐ Minerals	6 ☐ Gas
(15–18)	1 ☐ Fresh	3 ☐ Sulphur	4 ☐ Minerals	6 ☐ Gas
(20–23)	1 ☐ Fresh	3 ☐ Sulphur	4 ☐ Minerals	6 ☐ Gas
(25–28)	1 ☐ Fresh	3 ☐ Sulphur	4 ☐ Minerals	6 ☐ Gas
(30–33)	1 ☐ Fresh	3 ☐ Sulphur	4 ☐ Minerals	6 ☐ Gas

(14, 29, 34, 60)

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth – feet From	Depth – feet To
6 (10–11)	1 ☒ Steel (12)	188	+3	141 (13–16)
(17–18)	1 ☐ Steel (19)			(20–23)
(24–25)	1 ☐ Steel (26)			(27–30)

Materials: 2 ☐ Galvanized, 3 ☐ Concrete, 4 ☐ Open hole, 5 ☐ Plastic

SCREEN

Sizes of opening (Slot No.) 6 (31–33) | Diameter 5 (34–38) inches | Length 4 (39–40) feet
Material and type: Stainless
Depth at top of screen 131 (41–44) feet (30)

61 PLUGGING & SEALING RECORD

☐ Annular space ☐ Abandonment

Depth set at – feet From	Depth set at – feet To	Material and type (Cement grout, bentonite, etc.)
(10–13)	(14–17)	
(18–21)	(22–25)	
(26–29)	(30–33) (80)	

71 PUMPING TEST

Pumping test method: 1 ☐ Pump 2 ☐ Bailer (10) | Pumping rate 25 (11–14) GPM | Duration of pumping (15–18) ..... Hours ..... Mins

Static level | Water level end of pumping (19–21 / 22–24): 60 feet / 100 feet

Water levels during (25): 1 ☒ Pumping 2 ☐ Recovery

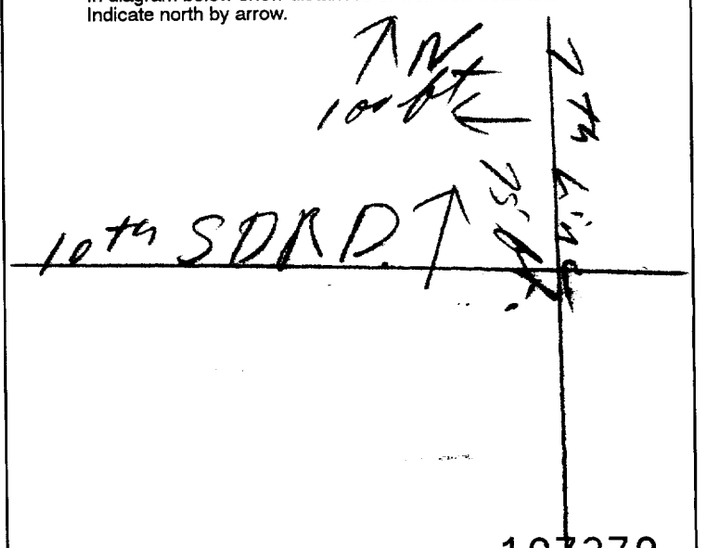
15 minutes (26–28)	30 minutes (29–31)	45 minutes (32–34)	60 minutes (35–37)
75 feet	75 feet	75 feet	100 feet

If flowing give rate (38–41) GPM | Pump intake set at feet | Water at end of test (42): ☐ Clear ☒ Cloudy

Recommended pump type: ☐ Shallow ☒ Deep | Recommended pump setting (43–45): 140 feet | Recommended pump rate (46–49): 10 GPM (50–53)

LOCATION OF WELL

In diagram below show distances of well from road and lot line.
Indicate north by arrow.



FINAL STATUS OF WELL (54)

1 ☒ Water supply | 2 ☐ Observation well | 3 ☐ Test hole | 4 ☐ Recharge well | 5 ☐ Abandoned, insufficient supply | 6 ☐ Abandoned, poor quality | 7 ☐ Abandoned (Other) | 8 ☐ Dewatering | 9 ☐ Unfinished | 10 ☐ Replacement well

WATER USE (55–56)

1 ☒ Domestic | 2 ☐ Stock | 3 ☐ Irrigation | 4 ☐ Industrial | 5 ☐ Commercial | 6 ☐ Municipal | 7 ☐ Public supply | 8 ☐ Cooling & air conditioning | 9 ☐ Not used | 10 ☐ Other .....

METHOD OF CONSTRUCTION (57)

1 ☐ Cable tool | 2 ☒ Rotary (conventional) | 3 ☐ Rotary (reverse) | 4 ☐ Rotary (air) | 5 ☐ Air percussion | 6 ☐ Boring | 7 ☐ Diamond | 8 ☐ Jetting | 9 ☐ Driving | 10 ☐ Digging | 11 ☐ Other .....

Name of Well Contractor: [redacted] | Well Contractor's Licence No.: 3561
Address: Box 156 Glen Huntly
Name of Well Technician: [redacted] | Well Technician's Licence No.: F0298
Signature of Technician/Contractor: [redacted] | Submission date: day mo yr

MINISTRY USE ONLY

Data source (58) | Contractor (59–62): 3561 | Date received (63–68): OCT 27 1998 (80)
Date of inspection | Inspector
Remarks

CSS. ES9

0506 (07/94) Front Form 9

2 - MINISTER OF ENVIRONMENT & ENERGY COPY

Ontario **Ministry of the Environment**

The Ontario Water Resources Act

WATER WELL RECORD

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

11 **1706073** Municipality 17006 Con. HS E 07

PART II

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot
DUFFERIN	MULMUR	VII EST	11

Address: MANSFIELD

Date completed: 01 07 03 (day / month / year)

21 UTM Northing RC Elevation RC Basin Code ii iii iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
BROWN	TOPSOIL			0	2
BROWN	CLAY	STONES	STONEY CLAY	2	12
RED	CLAY	STONES	STONEY CLAY	12	63
GREY	CLAY		HARD	63	140
GREY	SAND	CLAY	SANDY CLAY DIRTY	140	161
GREY	SAND	GRAVEL	TOO DIRTY	161	180
GREY	SHALE	LAYER'S & SILT	HARD	180	200

31 32 10.598383

41 WATER RECORD

Water found at - feet	Kind of water
10-13	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (14)
15-18	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (19)
20-23	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (24)
25-28	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (29)
30-33	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (34) 60

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
10-11 6¼	1 ☑ Steel (12) 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	.188	+2	175 (13-16)
17-18	1 ☐ Steel (19) 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			(20-23)
24-25	1 ☐ Steel (26) 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			(27-30)

SCREEN

Sizes of opening (Slot No.) (31-33)	Diameter (34-38) inches	Length (39-40) feet
Material and type	**Depth at top of screen (41-44) feet**	(30)

61 PLUGGING & SEALING RECORD

☐ Annular space ☐ Abandonment

Depth set at - feet From	Depth set at - feet To	Material and type (Cement grout, bentonite, etc.)
3 (10-13)	12 (14-17)	BENSEAL.
18-21	22-25	
26-29	30-33 (80)	

71 PUMPING TEST

Pumping test method (10): 1 ☐ Pump 2 ☐ Bailer

Pumping rate (11-14) GPM

Duration of pumping (15-16) Hours (17-18) Mins

Static level (19-21) feet

Water level end of pumping (22-24) feet

(25) Water levels during 1 ☐ Pumping 2 ☐ Recovery

15 minutes (26-28)	30 minutes (29-31)	45 minutes (32-34)	60 minutes (35-37)
feet	feet	feet	feet

If flowing give rate (38-41) GPM

Pump intake set at feet

Water at end of test (42) ☐ Clear ☐ Cloudy

Recommended pump type ☐ Shallow ☐ Deep

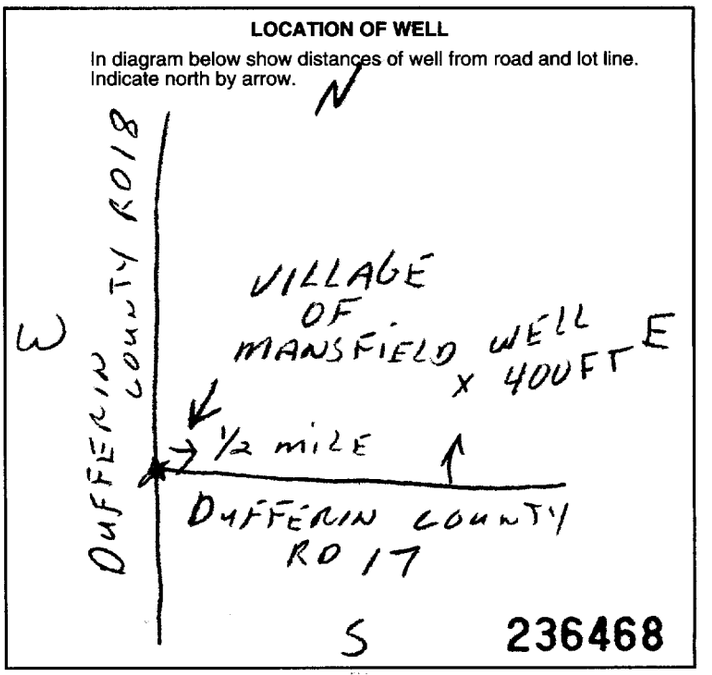
Recommended pump setting (43-45) feet

Recommended pump rate (46-49) GPM

(50-53)

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate north by arrow.



S 236468

FINAL STATUS OF WELL (54)

1 ☐ Water supply 2 ☐ Observation well 3 ☐ Test hole 4 ☐ Recharge well
5 ☑ Abandoned, insufficient supply 6 ☐ Abandoned, poor quality 7 ☐ Abandoned (Other) 8 ☐ Dewatering
9 ☐ Unfinished 10 ☐ Replacement well

WATER USE (55-56)

1 ☑ Domestic 2 ☐ Stock 3 ☐ Irrigation 4 ☐ Industrial
5 ☐ Commercial 6 ☐ Municipal 7 ☐ Public supply 8 ☐ Cooling & air conditioning
9 ☐ Not use 10 ☐ Other

METHOD OF CONSTRUCTION (57)

1 ☑ Cable tool 2 ☐ Rotary (conventional) 3 ☐ Rotary (reverse) 4 ☐ Rotary (air)
5 ☐ Air percussion 6 ☐ Boring 7 ☐ Diamond 8 ☐ Jetting
9 ☐ Driving 10 ☐ Digging 11 ☐ Other

Name of Well Contractor	Well Contractor's Licence No.
MIGHTON'S WELL DRILLING	3602
Address	
RR2 STAYNER ONT	
Name of Well Technician	**Well Technician's Licence No.**
LARRY MIGHTON	T-0129
Signature of Technician/Contractor	**Submission date** day 18 mo 7 yr 03
Larry Mighton	

MINISTRY USE ONLY

Data source (58)	Contractor (59-62)	Date received (63-68) (80)
	3602	JUL 22 2003
Date of inspection	**Inspector**	
Remarks		
		059-853

2 - MINISTRY OF THE ENVIRONMENT COPY

0506 (07/00) Front Form 9

Ontario | Ministry of Environment and Energy

The Ontario Water Resources Act

WATER WELL RECORD

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

11   1706171   Municipality 17006   Con. HS E 07

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot
[redacted]			10

Address of Well Location	Date completed
[redacted]	04 day 09 month 03 year

21   UTM Zone | Easting | Northing | RC | Elevation | RC | Basin Code | ii | iii | iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
		PRE DRILLED		0	180
GREY/BROWN	DRILL CUTTINGS		HARD	180	200
GREY	CLAY	—	DENSE	200	205
GREY	SHALE	—	CRISP	205	220

31

32

41 WATER RECORD

Water found at - feet	Kind of water
200-220	1 ☑ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
6¼	1 ☑ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	·188	+2	APPROX 180
5½	1 ☑ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	188	170	220 SLOTTED
	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			

SCREEN

Sizes of opening (Slot No.)	Diameter	Length
—	— inches	— feet

Material and type	Depth at top of screen
—	— feet

61 PLUGGING & SEALING RECORD

☑ Annular space ☐ Abandonment

Depth set at - feet From	To	Material and type (Cement grout, bentonite, etc.)
0	25	HOLEPLUG
		80

71 PUMPING TEST

Pumping test method AIR: 1 ☑ Pump 2 ☐ ~~Bailer~~ | Pumping rate 2 GPM | Duration of pumping 72 Hours — Mins

Water levels during 1 ☑ Pumping 2 ☐ Recovery

Static level	Water level end of pumping	15 minutes	30 minutes	45 minutes	60 minutes
102 feet	210 feet	210 feet	210 feet	210 feet	210 feet

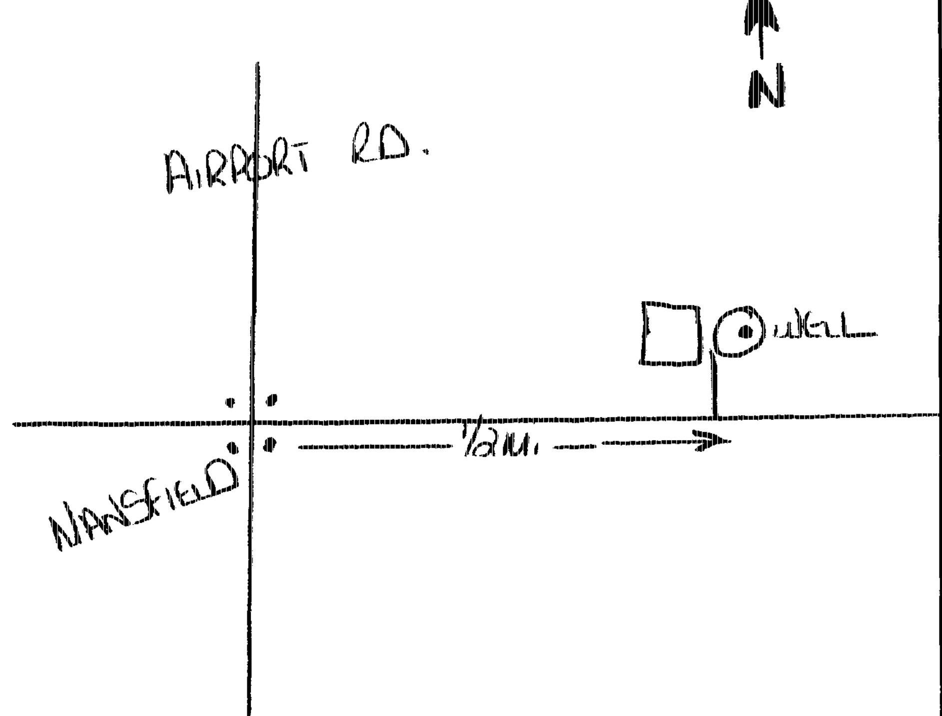
If flowing give rate ___ GPM | Pump intake set at ___ feet | Water at end of test ☐ Clear ☑ Cloudy

Recommended pump type ☐ Shallow ☑ Deep | Recommended pump setting 210 feet | Recommended pump rate 2 GPM

50-53

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate north by arrow.



256597

FINAL STATUS OF WELL

1 ☑ Water supply
2 ☐ Observation well
3 ☐ Test hole
4 ☐ Recharge well
5 ☐ Abandoned, insufficient supply
6 ☐ Abandoned, poor quality
7 ☐ Abandoned (Other)
8 ☐ Dewatering
9 ☐ Unfinished
10 ☐ Replacement well

WATER USE

1 ☑ Domestic
2 ☐ Stock
3 ☐ Irrigation
4 ☐ Industrial
5 ☐ Commercial
6 ☐ Municipal
7 ☐ Public supply
8 ☐ Cooling & air conditioning
9 ☐ Not use
10 ☐ Other

METHOD OF CONSTRUCTION

1 ☐ Cable tool
2 ☑ Rotary (conventional)
3 ☐ Rotary (reverse)
4 ☐ Rotary (air)
5 ☐ Air percussion
6 ☐ Boring
7 ☐ Diamond
8 ☐ Jetting
9 ☐ Driving
10 ☐ Digging
11 ☐ Other

Name of Well Contractor	Well Contractor's Licence No.
R&B WELL DRILLING LTD	4645
Address: PO BOX 320, BEETON, ONT L0G 1A0	
Name of Well Technician: ROBERT W KOWALSKI	Well Technician's Licence No.: T-2425
Signature of Technician/Contractor: [signature]	Submission date: day 29 mo 10 yr 03

MINISTRY USE ONLY

Data source	Contractor	Date received
	4645	JAN 19 2004
Date of inspection	Inspector	
Remarks	CSS ES4	

2 - MINISTRY OF ENVIRONMENT AND ENERGY COPY

0506 (06/02) Front Form 9

Ontario — Ministry of the Environment

Measurements recorded in: ☐ Metric ☐ Imperial

Well Tag No. *(Place Sticker and/or Print Below)* **A 085738**

Well Record

Regulation 903 Ontario Water Resources Act

Page of

[redacted]

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
#583383 Ct Rd 17			

County/District/Municipality	City/Town/Village	Province	Postal Code
Simcoe	Mansfield	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	577796	4891478		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
Red Brown	Clay Sand	Gravel	Hard	0	4.87
Grey	Clay		Soft	4.87	9.14
Grey	Silt	Clay, Sand	Layered	9.14	34.13
Grey	Fine Sand	Medium Sand	Loose	34.13	38.70

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0	6.09	Enviroplug Medium	0.2123763

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	To
15.24	Steel	188	+0.60	34.13
25.40	Open Hole		0	6.09

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To
12.70	Stainless Steel	#8	34.13	36.57

Status of Well

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

Water Details

Water found at Depth (m/ft)	Kind of Water	
34.13	☒ Fresh ☐ Untested ☒ Gas ☐ Other, *specify*	
	☐ Fresh ☐ Untested ☐ Gas ☐ Other, *specify*	
	☐ Fresh ☐ Untested ☐ Gas ☐ Other, *specify*	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
+0.60	34.13	15.24
0	6.09	25.40
34.13	36.57	12.70

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
H2O Calvin Merklinger Well Drilling	7219

Business Address (Street Number/Name)	Municipality
4131 15th Line RR#3 Cookstown	Simcoe

Province	Postal Code	Business E-mail Address
Ont	L0L 1L0	

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
7054358791	Merklinger Calvin

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
2837	Calvin Merklinger	2009/08/06

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at (m/ft): 36.57

Pumping rate (l/min / GPM): 30

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 28.34

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

Recommended pump depth (m/ft): 32.91

Recommended pump rate (l/min / GPM): 30

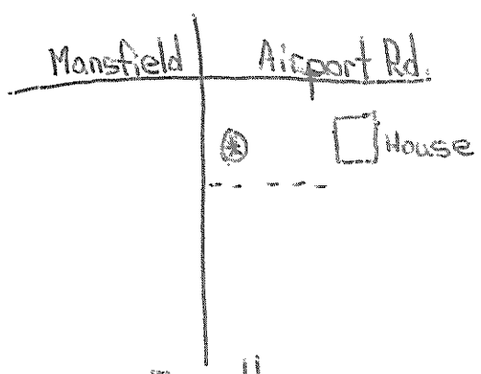
Well production (l/min / GPM): 30

Disinfected? ☒ Yes ☐ No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level		16.76		
1	1	17.98	1	27.43
2	2	19.50	2	26.51
3	3	20.72	3	25.60
4	4	21.33	4	24.68
5	5	22.25	5	24.07
10	10	25.29	10	21.03
15	15	26.67	15	19.20
20	20	27.43	20	18.38
25	25	27.98	25	17.67
30	30	28.16	30	17.37
40	40	28.34	40	16.91
50	50	28.34	50	16.76
60	60	28.34	60	Static

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☐ Yes ☒ No	2009/07/02	2009/07/02

Ministry Use Only

Audit No. Z098420

AUG 17 2009

Received

Lot 11

Concession 8

41 A/1 E
63/78

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

Ontario

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

(11) 1702494 MUNICIP 17006 CON. HS E 08

COUNTY OR DISTRICT: SIMCOE-DUFFERIN
TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: ~~TOSORONTIO~~ MULMUR
CON., BLOCK, TRACT, SURVEY, ETC.: 8
LOT: 011
[redacted]
ADDRESS: EVERETT
DATE COMPLETED: DAY 16 MO. ~~DEC~~ 08 YR. 78

(21) UTM ZONE 17 EASTING 579000 NORTHING 4891700 RC 5 ELEVATION 0900 RC 5 BASIN CODE 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
BROWN	TOP SOIL		HARD.	0	1'
BROWN	CLAY		"	1'	20'
BROWN	SAND		PACKED	20	30
GREY	CLAY		HARD	30	35
BROWN	SAND		PACKED	35	50'

(31) 0011602 73 | 0020605 73 | 0030628 | 0035205 73 | 0050628
(32)

(41) WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0032	1 FRESH ~~2 SALTY~~ 3 SULPHUR 4 MINERAL
	1 FRESH ~~2 SALTY~~ 3 SULPHUR 4 MINERAL
	1 FRESH 3 SULPHUR 2 SALTY 4 MINERAL
	1 FRESH 3 SULPHUR 2 SALTY 4 MINERAL
	1 FRESH 3 SULPHUR 2 SALTY 4 MINERAL

(51) CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
30	1 STEEL ~~2 GALVANIZED~~ 3 CONCRETE 4 OPEN HOLE	2"	0	0030
30	1 STEEL ~~2 GALVANIZED~~ 3 CONCRETE 4 OPEN HOLE		30	0050 ~~50~~
	1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET
MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN FEET	

(61) PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	DEPTH SET AT - FEET TO	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER, ETC.)

(71) PUMPING TEST

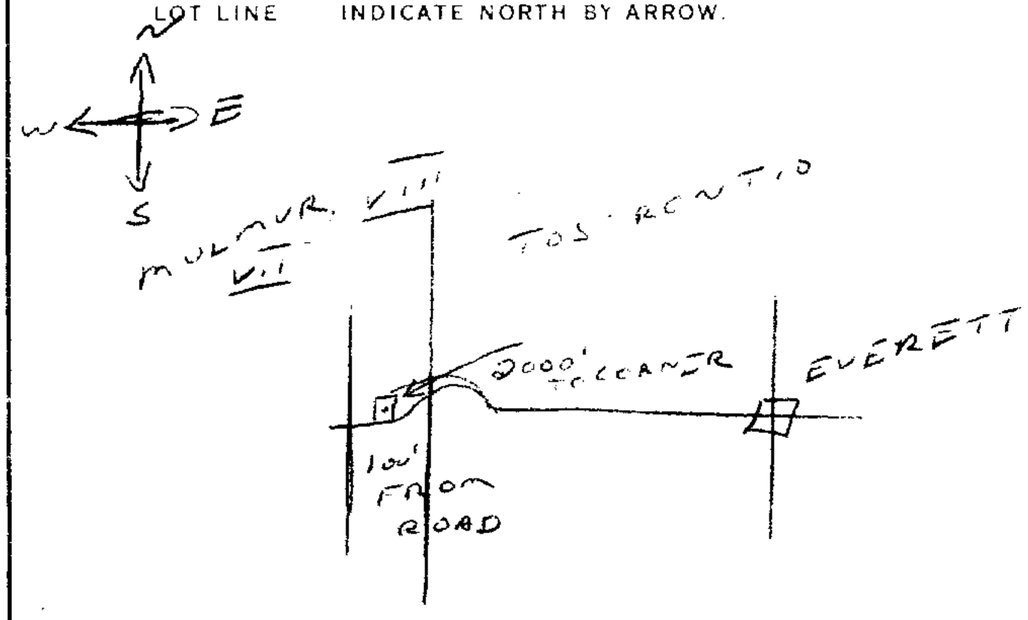
PUMPING TEST METHOD: 1 PUMP ~~2 BAILER~~
PUMPING RATE: — GPM
DURATION OF PUMPING: 00 HOURS 30 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 PUMPING ~~2 RECOVERY~~	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
032 FEET	048 FEET		048 FEET	047 FEET	046 FEET	045 FEET

IF FLOWING, GIVE RATE: — GPM
PUMP INTAKE SET AT: — FEET
WATER AT END OF TEST: 1 CLEAR ~~2 CLOUDY~~
RECOMMENDED PUMP TYPE: SHALLOW ~~DEEP~~
RECOMMENDED PUMP SETTING: 046 FEET
RECOMMENDED PUMPING RATE: 0002 GPM
— — — • — GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

FINAL STATUS OF WELL: 1

~~1 WATER SUPPLY~~ 2 OBSERVATION WELL 3 TEST HOLE 4 RECHARGE WELL 5 ABANDONED, INSUFFICIENT SUPPLY 6 ABANDONED, POOR QUALITY 7 UNFINISHED

WATER USE: 01

~~1 DOMESTIC~~ 2 STOCK 3 IRRIGATION 4 INDUSTRIAL 5 COMMERCIAL 6 MUNICIPAL 7 PUBLIC SUPPLY 8 COOLING OR AIR CONDITIONING 9 NOT USED ☐ OTHER

METHOD OF DRILLING: 6

1 CABLE TOOL 2 ROTARY (CONVENTIONAL) 3 ROTARY (REVERSE) 4 ROTARY (AIR) 5 AIR PERCUSSION ~~6 BORING~~ 7 DIAMOND 8 JETTING 9 DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: [illegible] Boring — LICENCE NUMBER: 459
ADDRESS: Palgrave
NAME OF DRILLER OR BORER: [illegible] — LICENCE NUMBER:
SIGNATURE OF CONTRACTOR: [illegible] — SUBMISSION DATE: DAY ____ MO. ____ YR. ____

OFFICE USE ONLY

DATA SOURCE: 1
CONTRACTOR: 4919
DATE RECEIVED: 211278
DATE OF INSPECTION: August 1979
INSPECTOR: EJ
REMARKS: CSS 88
P
WI
Changed from 5715781

MINISTRY OF THE ENVIRONMENT COPY

FORM 7 MOE 07-091

Ministry of Environment and Energy
Ontario

The Ontario Water Resources Act
WATER WELL RECORD

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

11 (1–2)

1705058

Municipality 17006 (10–14) Con. CON 08 (15–22, 23–24)

County or District: DUFFERIN

Township/Borough/City/Town/Village: ~~MANSFIELD~~ MULMUR

Con ~~block~~ tract survey, etc.: VIII

Lot: 11 (25–27)

[redacted]

Address: ~~Mulmur~~ RR4 MANSFIELD Township

Date completed: 25 day 08 month 97 year (48–53)

Northing (17–24) RC (25) Elevation (26–30) RC Basin Code (31–47) ii iii iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth – feet From	Depth – feet To
BROWN	SAND	STONES	HARD	0	18
GREY	CLAY		SOFT	18	27
GREY	CLAY	SAND	SANDY CLAY	27	54
BROWN	SAND		CLEAN WATER BEARING SAND	54	61

31

32

41 WATER RECORD

Water found at – feet	Kind of water
54 / 61 (10–13)	1 ☑ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (14)
(15–18)	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (19)
(20–23)	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (24)
(25–28)	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (29)
(30–33)	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (34)

(60)

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth – feet From	Depth – feet To
(10–11) 6 1/4	1 ☑ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic (12)	.188	+1 1/2	(13–16) 58
(17–18)	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic (19)			(20–23)
(24–25)	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic (26)			(27–30)

SCREEN

Sizes of opening (Slot No.) (31–33)	Diameter (34–38)	Length (39–40)
8	6 inches	3' 6" feet

Material and type: STAINLESS STEEL

Depth at top of screen (41–44): 58 feet (30)

61 PLUGGING & SEALING RECORD

☐ Annular space ☐ Abandonment

Depth set at – feet From	Depth set at – feet To	Material and type (Cement grout, bentonite, etc.)
5 (10–13)	14 (14–17)	BENSEAL
(18–21)	(22–25)	
(26–29)	(30–33) (80)	

71 PUMPING TEST

Pumping test method (10): 1 ☑ Pump 2 ☐ Bailer

Pumping rate (11–14): 4 GPM

Duration of pumping (15–16 Hours, 17–18 Mins): 2 Hours 15 Mins

Water levels during (25): 1 ☑ Pumping 2 ☐ Recovery

Static level (19–21)	Water level end of pumping (22–24)	15 minutes (26–28)	30 minutes (29–31)	45 minutes (32–34)	60 minutes (35–37)
10' 5" feet	34 feet	34 feet	34 feet	34 feet	34 feet

If flowing give rate (38–41): GPM

Pump intake set at: feet

Water at end of test (42): ☑ Clear ☐ Cloudy

Recommended pump type: ☐ Shallow ☑ Deep

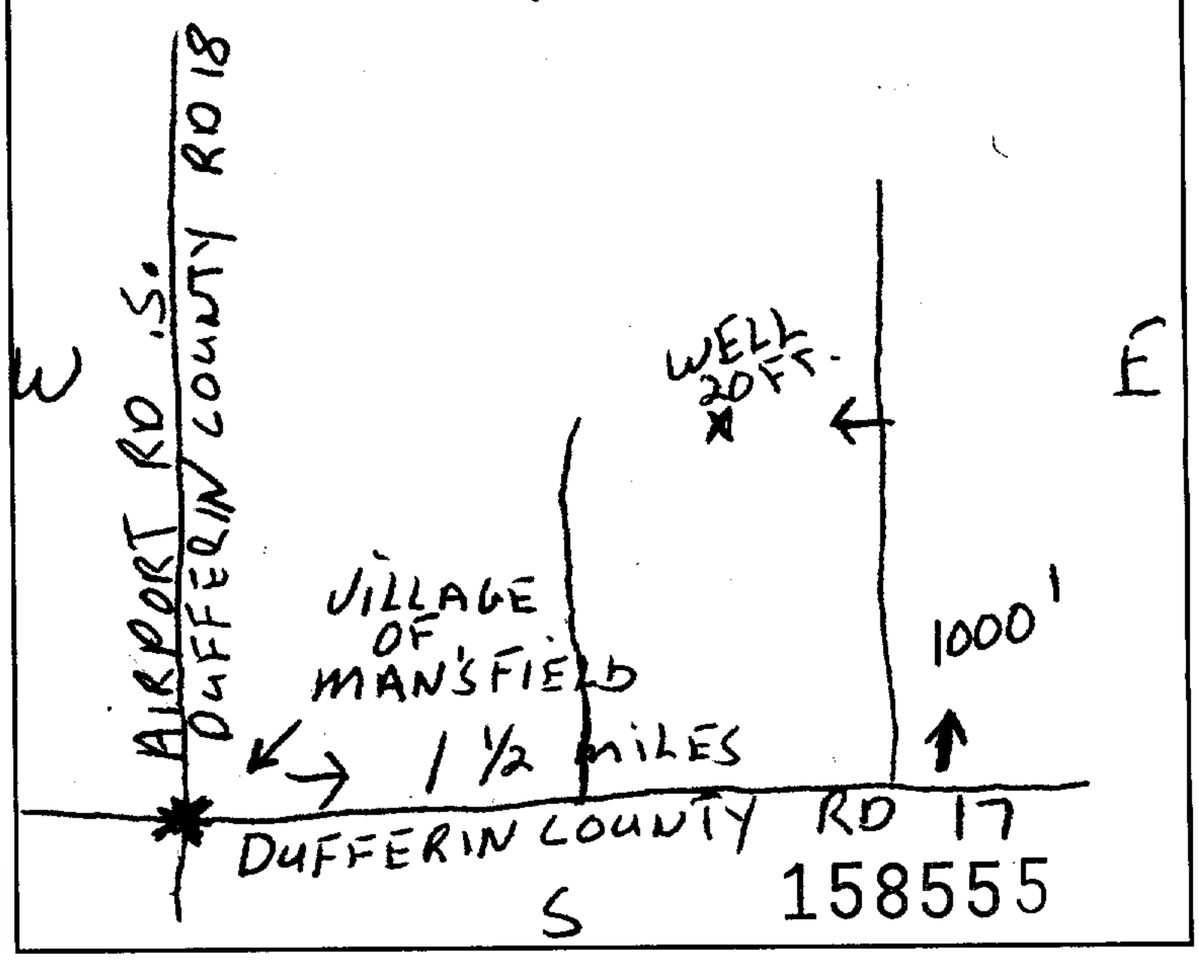
Recommended pump setting (43–45): 45 feet

Recommended pump rate (46–49): 7 GPM

(50–53)

LOCATION OF WELL

In diagram below show distances of well from road and lot line.
Indicate north by arrow.



FINAL STATUS OF WELL (54)

1 ☑ Water supply
2 ☐ Observation well
3 ☐ Test hole
4 ☐ Recharge well
5 ☐ Abandoned, insufficient supply
6 ☐ Abandoned, poor quality
7 ☐ Abandoned (Other)
8 ☐ Dewatering
9 ☐ Unfinished
10 ☐ Replacement well

WATER USE (55–56)

1 ☑ Domestic
2 ☐ Stock
3 ☐ Irrigation
4 ☐ Industrial
5 ☐ Commercial
6 ☐ Municipal
7 ☐ Public supply
8 ☐ Cooling & air conditioning
9 ☐ Not used
10 ☐ Other

METHOD OF CONSTRUCTION (57)

1 ☑ Cable tool
2 ☐ Rotary (conventional)
3 ☐ Rotary (reverse)
4 ☐ Rotary (air)
5 ☐ Air percussion
6 ☐ Boring
7 ☐ Diamond
8 ☐ Jetting
9 ☐ Driving
10 ☐ Digging
11 ☐ Other

Name of Well Contractor: Mighton's well Drilling L.T.D
Well Contractor's Licence No.: 3602

Address: RR2 Stayner ont.

Name of Well Technician: Gerry St Mighton
Well Technician's Licence No.: T-0130

Signature of Technician/Contractor: Kenneth M. Mighton
Submission date: day 15 mo 9 yr 97

MINISTRY USE ONLY

Data source (58)
Contracctor (59–62): 3602
Date received (63–68): SEP 19 1997 (80)
Date of inspection
Inspector
Remarks: CSS.S8

0506 (07/94) Front Form 9

2 - MINISTRY OF ENVIRONMENT & ENERGY COPY

Ontario Ministry of the Environment

Well Tag Number (Place sticker and print number below) **A 093054**

Well Record

Regulation 903 Ontario Water Resources Act

page ___ of ___

Instructions for Completing Form

- For use in the **Province of Ontario** only. This document is a permanent **legal** document. Please retain for future reference.
- All Sections **must** be completed in full to avoid delays in processing. Further instructions and explanations are available on the back of this form.
- Questions regarding completing this application can be directed to the Water Well Help Desk (Toll Free) at 1-888-396-9355.
- **All metre measurements shall be reported to 1/10th of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only

MUN | CON | LOT

[redacted]

RR#/Street Number/Name: same | City/Town/Village | Site/Compartment/Block/Tract etc.: Pt lot 11 8

GPS Reading: NAD 83 | Zone 17 | Easting 555061 | Northing 4879801 | Unit Make/Model: SporTrak | Mode of Operation: ☐ Undifferentiated ☐ Differentiated, specify ☑ Averaged

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Depth To (Metres)
Black	Top soil			0	1
Brown	clay, stone			1	22
Blue	clay, sand.			22	86
Grey	sand.			86	90

all Measurment are imperial

Hole Diameter

Depth From	Metres To	Diameter Centimetres
0	20	8
+3	90	6.

Water Record

Water found at ___ Metres / Kind of Water

88 m	☒ Fresh	☐ Sulphur	
☐ Gas	☐ Salty	☐ Minerals	
☐ Other:			
___ m	☐ Fresh	☐ Sulphur	
☐ Gas	☐ Salty	☐ Minerals	
☐ Other:			
___ m	☐ Fresh	☐ Sulphur	
☐ Gas	☐ Salty	☐ Minerals	
☐ Other:			

After test of well yield, water was
☐ Clear and sediment free
☐ Other, specify

Chlorinated ☐ Yes ☐ No

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Metres To
Casing				
6.	☒ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	188	+3	86.
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
Screen				
Outside diam 5	☒ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	Slot No. 12	86	90
No Casing or Screen				
	☐ Open hole			

Test of Well Yield

Pumping test method: pump.

	Draw Down Time min	Draw Down Water Level Metres	Recovery Time min	Recovery Water Level Metres
Pump intake set at - (metres) 88	Static Level	44-8		88
Pumping rate - (litres/min) 10	1	54-5	1	78-2
Duration of pumping ___ hrs + ___ min	2	60-3	2	70-5
Final water level end of pumping 88 metres	3	66-6	3	67-3
Recommended pump type. ☐ Shallow ☒ Deep	4	72-8	4	60-5
Recommended pump depth. 88 metres	5	75-7	5	582
Recommended pump rate. 5 (litres/min)	10	88	10	55-3
	15		15	52-1
If flowing give rate - (litres/min)	20		20	49-2
	25		25	
If pumping discontinued, give reason. Run out water	30		30	
	40		40	
	50		50	
	60	88	60	45-2

Plugging and Sealing Record

☐ Annular space ☐ Abandonment

Depth set at - Metres From	Metres To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
0	20 ft	cement plug	4 bags

Method of Construction

☒ Cable Tool ☐ Rotary (air) ☐ Diamond ☐ Digging
☐ Rotary (conventional) ☐ Air percussion ☐ Jetting ☐ Other
☐ Rotary (reverse) ☐ Boring ☐ Driving

Water Use

☒ Domestic ☐ Industrial ☐ Public Supply ☐ Other
☐ Stock ☐ Commercial ☐ Not used
☐ Irrigation ☐ Municipal ☐ Cooling & air conditioning

Final Status of Well

☒ Water Supply ☐ Recharge well ☐ Unfinished ☐ Abandoned, (Other)
☐ Observation well ☐ Abandoned, insufficient supply ☐ Dewatering
☐ Test Hole ☐ Abandoned, poor quality ☐ Replacement well

Well Contractor/Technician Information

Name of Well Contractor: Sewer | Well Contractor's Licence No.: 3501

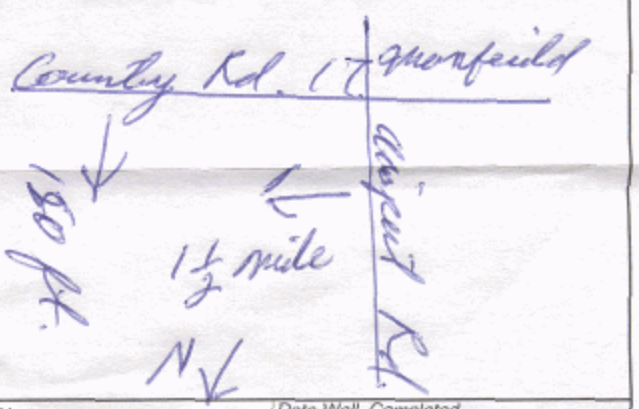
Business Address (street name, number, city etc.): RR2 Shelburne

Name of Well Technician (last name, first name): Sewer | Well Technician's Licence No.: 7298

Signature of Technician/Contractor: X [signature] | Date Submitted YYYY MM DD

Location of Well

In diagram below show distances of well from road, lot line, and building. Indicate north by arrow.



Audit No. Z 56933 | Date Well Completed YYYY MM DD: 2010 01 17

Was the well owner's information package delivered? ☒ Yes ☐ No | Date Delivered YYYY MM DD: 2011 01 17

Ministry Use Only

Data Source | Contractor

Date Received YYYY MM DD: FEB 03 2011 | Date of Inspection YYYY MM DD

Remarks | Well Record Number

0506E (08/2006) **Ministry's Copy** *Cette formule est disponible en français*

Ontario — Ministry of the Environment and Climate Change

Measurements recorded in: ☐ Metric ☐ Imperial

Well Tag No. *(Place Sticker and/or Print Below)*
Tag#: A196819

Well Record
Regulation 903 Ontario Water Resources Act

Page _____ of _____

[redacted]

Address of Well Location (Street Number/Name)	Township	Lot	Concession
	MULMER	11	8 EHS

County/District/Municipality	City/Town/Village	Province	Postal Code
DUFFERIN		Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 8 3		578178	4892157		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	To
BROWN	SAND	GRAVEL	LOOSE	0	74
BROWN	CLAY	—	SOFT	74	78
GREY	CLAY	—	HARD	78	86
GREY	CLAY	SILT	LAYERED	86	128
BROWN	SAND	SILT	LOOSE	128	148
GREY	SHALE	—	HARD	148	154

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0	20	HOLE PLUG	4

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	To
6 1/4	STEEL	1.88	+2	133

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To
5 1/2	STAINLESS	10,10,10,10	133	149
5 1/2	STEEL	SUMP	149	154

Status of Well

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

Water Details

Water found at Depth (m/ft)	Kind of Water	
150	☑ Fresh ☐ Untested	☐ Gas ☐ Other, *specify*
	☐ Fresh ☐ Untested	☐ Gas ☐ Other, *specify*
	☐ Fresh ☐ Untested	☐ Gas ☐ Other, *specify*

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	20	10 IN
20	133	8 3/4

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at (m/ft): 152 FT.

Pumping rate (l/min / GPM): 3 GPM

Duration of pumping: 1 hrs + 10 min

Final water level end of pumping (m/ft): 132 FT

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

Recommended pump depth (m/ft): 152 FT.

Recommended pump rate (l/min / GPM): 3 GPM

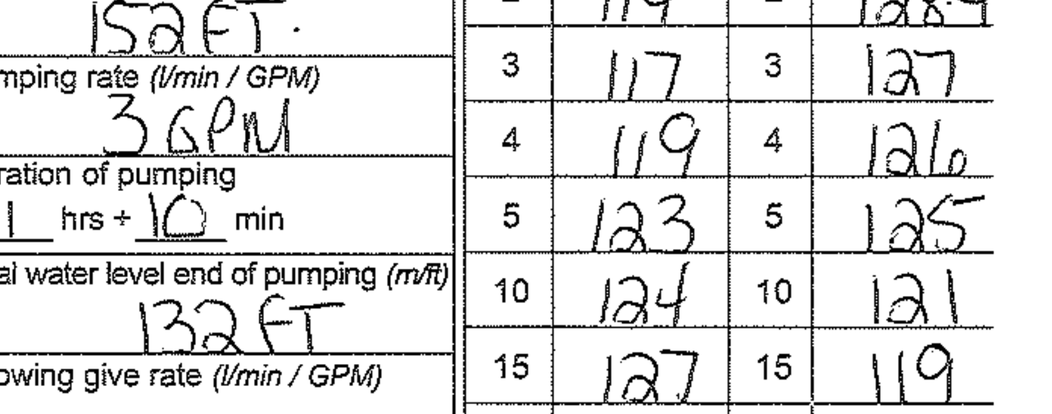
Well production (l/min / GPM): 3 GPM

Disinfected? ☑ Yes ☐ No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level	112		
1	113	1	130
2	114	2	128.4
3	117	3	127
4	119	4	126
5	123	5	125
10	124	10	121
15	127	15	119
20	129	20	116
25	132	25	114
30	132	30	113
40	132	40	112
50	132	50	112
60	132	60	112

Map of Well Location

Please provide a map below following instructions on the back.



Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
R&B WELL DRILLING LTD	4164

Business Address (Street Number/Name)	Municipality
3569 SIDEROAD 10, BEETON	NEW TECUMSETH.

Province	Postal Code	Business E-mail Address
ON	L0G 1A0	RBWELLDRILLING.COM

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
9057299950	KWIALSKI, ROBERT.

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
2425		2016 09 30

Comments:

Well owner's information package delivered ☑ Yes ☐ No

Date Package Delivered: 2016 09 30

Date Work Completed: 2016 09 28

Ministry Use Only

Audit No. Z235595

Received OCT 17 2016

Ontario

Ministry of the Environment and Climate Change

Measurements recorded in: ☐ Metric ☑ Imperial

Well Tag No. *(Place Sticker and/or Print Below)*

A252752

Well Record

Regulation 903 Ontario Water Resources Act

Page _____ of _____

[redacted]

Address of Well Location (Street Number/Name)	Township	Lot	Concession
#957003 7TH Line	Mulmur	11	8

County/District/Municipality	City/Town/Village	Province	Postal Code
Dufferin	Mansfield	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	578219	4891648		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
Brown	Sand		Damp	0	12
Brown	Clay	Stones		12	32
Grey	Clay	Stones		32	86
Grey	Silt	Clay		86	121
Grey	Sand	Clay		121	158
Grey	Sand	Gravel		158	165

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
0'	20'	Grout	

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	To
6"	Steel	.188"	+2'	160'
6"	"K" Packer		157'	158'
5"	Steel	.188"	158'	160'

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To
5"	Stainless	#20		
5"	Stainless	#12	160'	165'

Status of Well

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

Water Details

Water found at Depth 161' (m/ft) ☐ Gas	Kind of Water: ☑ Fresh ☑ Untested	☐ Other, *specify*
Water found at Depth 165' (m/ft) ☐ Gas	Kind of Water: ☑ Fresh ☑ Untested	☐ Other, *specify*
Water found at Depth (m/ft) ☐ Gas	Kind of Water: ☐ Fresh ☐ Untested	☐ Other, *specify*

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0'	20'	8"
20'	165'	6"

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at (m/ft) 150'

Pumping rate (l/min / GPM) 2 GPM

Duration of pumping 1 hrs + _____ min

Final water level end of pumping (m/ft) 143'6

If flowing give rate (l/min / GPM)

Recommended pump depth (m/ft) 150'

Recommended pump rate (l/min / GPM) 2 GPM

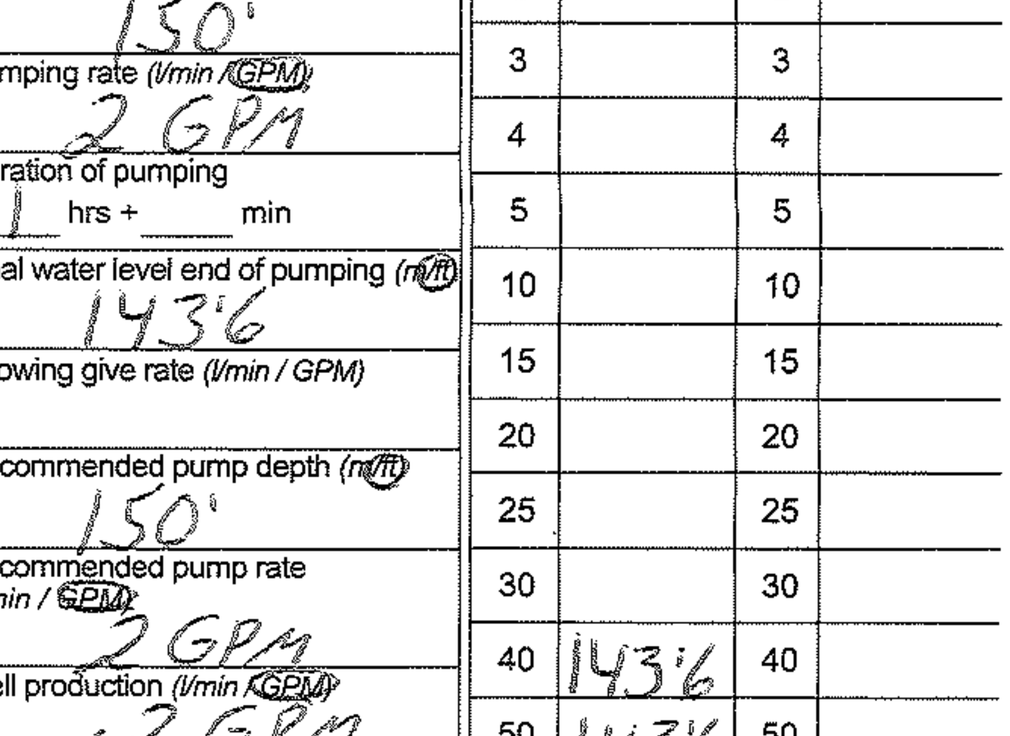
Well production (l/min / GPM) 2 GPM

Disinfected? ☑ Yes ☐ No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	45		
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	
20		20	
25		25	
30		30	
40	143'6	40	
50	143'6	50	
60	143'6	60	114'9

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Highland Water Wells	2516

Business Address (Street Number/Name)	Municipality
Box 141 Durham	Grey

Province	Postal Code	Business E-mail Address
Ont	N0G1R0	

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
5193696363	Wilson, Clint

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
3456	Clint Wilson	2018 07 23

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☑ Yes ☐ No	2018 07 29	2018 07 22

Ministry Use Only

Audit No. Z293309

Received AUG 03 2018

0506E (2014/11)

Ministry's Copy

Lot 12

Concession 6

MA

UTM Z E
Co 5 R 5 N
Elev. 5 R 20970

WATER RESOURCES DIVISION
17 JAN No 7[illegible]
ONTARIO WATER RESOURCES COMMISSION

The Ontario Water Resources Commission Act

WATER WELL RECORD

Basin 22
County or District Dufferin
Township, Village, Town or City Mulmur
Con 6 H.S.E. Lot 12
Date completed 19 (day) Dec (month) 1964 (year)
[redacted] ress Mansfield ont

Casing and Screen Record

Inside diameter of casing 30 inches
Total length of casing 31 feet
Type of screen
Length of screen
Depth to top of screen
Diameter of finished hole 30 inches

Pumping Test

Static level ground to water 20 feet
Test-pumping rate 1/4 gallon 1/2 min G.P.M.
Pumping level
Duration of test pumping
Water clear or cloudy at end of test clear
Recommended pumping rate 1/4 G.P.M.
with pump setting of 27' feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
Top brown soil	0	12		
Grey clay	12	16		
Grey shale	16	30		
water comes from the bottom			30 feet	fresh

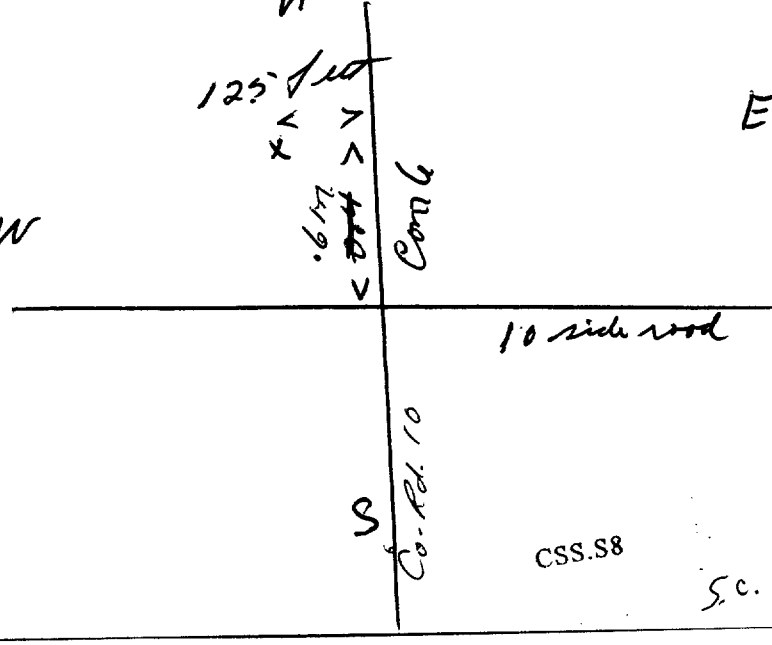
For what purpose(s) is the water to be used? House
Is well on upland, in valley, or on hillside? upland
Drilling or Boring Firm
Address
Licence Number 1278
Name of Driller or Borer Maurice Babinthorpe pt
Address Maurice Babin 90 Brandon Etobicoke
Date Dec 19/64
Maurice Babin
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M-60-4138

OWRC COPY

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



CSS.S8

5 c.

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

41 A/E

Ontario

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 | 1701692 | MUNICIP. 17006 | CON. HS E | 06

COUNTY OR DISTRICT: DUFFERIN
TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: MULMUR
CON. BLOCK, TRACT, SURVEY, ETC.: VI
LOT: 012
[redacted] 1 MANSFIELD
DATE COMPLETED: DAY 04 MO. JUNE YR. 74

RC.	ELEVATION	RC.	BASIN CODE			
5	1190	5	22	AUG 09, 1977	II	III IV

1701692 17 575606 4891498 5 1190 5 22 AUG 09, 1977 322

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
BROWN	TOP SOIL			0	1
RED	CLAY			1	8
RED	SHALE	CLAY	SHALE WITH CLAY RIDGES	8	18
"	"		HARD LAYERS	18	65'
"	"	BLUE LAYERS		65'	102

31 0001602 0008705 0018717057 4 0065717 7473 0102717

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0045	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
0069	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
0102	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
5 1/4	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	.188	0	219 0022
06	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☒ OPEN HOLE		219	0102
5 1/8				
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET

MATERIAL AND TYPE | DEPTH TO TOP OF SCREEN FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	DEPTH SET AT - FEET TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

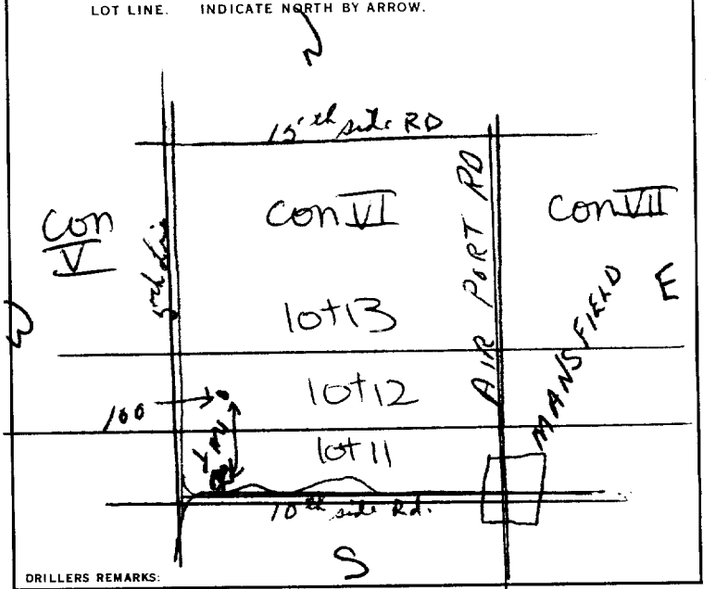
PUMPING TEST METHOD: 1 ☒ PUMP 2 ☐ BAILER
PUMPING RATE: 0003 GPM
DURATION OF PUMPING: 01 HOURS 30 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☒ PUMPING 2 ☐ RECOVERY			
		15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
025 FEET	080 FEET	080 FEET	080 FEET	080 FEET	080 FEET

IF FLOWING, GIVE RATE: GPM
PUMP INTAKE SET AT: FEET
WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP
RECOMMENDED PUMP SETTING: 095' FEET
RECOMMENDED PUMP RATE: 0003 GPM
50-53 ——•—— GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL 7591

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

FINAL STATUS OF WELL 54: 1 ☒ WATER SUPPLY; 2 ☐ OBSERVATION WELL; 3 ☐ TEST HOLE; 4 ☐ RECHARGE WELL; 5 ☐ ABANDONED, INSUFFICIENT SUPPLY; 6 ☐ ABANDONED, POOR QUALITY; 7 ☐ UNFINISHED

WATER USE 55-56: 01 — 1 ☒ DOMESTIC; 2 ☐ STOCK; 3 ☐ IRRIGATION; 4 ☐ INDUSTRIAL; ☐ OTHER; 5 ☐ COMMERCIAL; 6 ☐ MUNICIPAL; 7 ☐ PUBLIC SUPPLY; 8 ☐ COOLING OR AIR CONDITIONING; 9 ☐ NOT USED

METHOD OF DRILLING 57: 4 — 1 ☒ CABLE TOOL; 2 ☐ ROTARY (CONVENTIONAL); 3 ☐ ROTARY (REVERSE); 4 ☒ ROTARY (AIR); 5 ☐ AIR PERCUSSION; 6 ☐ BORING; 7 ☐ DIAMOND; 8 ☐ JETTING; 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: KEN MIGHTON & SONS — LICENCE NUMBER: 3602
ADDRESS: STAYNER,
NAME OF DRILLER OR BORER: Larry Mighton — LICENCE NUMBER:
SIGNATURE OF CONTRACTOR: Kenneth M. Mighton — SUBMISSION DATE: DAY 25 MO. 6 YR. 74

OFFICE USE ONLY

DATA SOURCE 58: 1 — CONTRACTOR 59-62: 3602 — DATE RECEIVED 63-68: 270674 (270674)
DATE OF INSPECTION — INSPECTOR: J.B
REMARKS: CSS.S8
P KO
WI

MINISTRY OF THE ENVIRONMENT COPY

FORM 7 07-091

MINISTRY OF THE ENVIRONMENT

The Ontario Water Resources Act

WATER WELL RECORD

41A/11E

Ontario

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 | 1702002 | MUNICIP 17006 | CON HS E | LOT 06

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT
[redacted]	MELMUR	6 E.H.S.	W D 12
	MANSFIELD		DATE COMPLETED DAY 26 M 09 Y 75

UTM ZONE | EASTING 391550 | NORTHING | RC 5 | ELEVATION 1175 | RC 5 | BASIN CODE 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
BROWN	TOPSOIL			0	1
GREY	CLAY			1	5
RED	SHALE			5	12
GREY	SHALE		HARD LAYERS	12	25
RED & GRAY	SHALE		HARD LAYERS	25	80
BROWN	SHALE		"	80	84
GREY	SHALE		"	84	120

31 | 0001602 | 0005520586 | 0012717 71 | 0025217 7374 | 0080717 73 | 0084617 73 | 1

32 | 0120217

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
00 74	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
06	1 ☐ STEEL 2 ☒ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	1.88	0	20
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET
MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN FEET	

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD 1 ☒ PUMP 2 ☐ BAILER | PUMPING RATE 0003 GPM | DURATION OF PUMPING HOURS 01 MINS 00

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING 1 ☒ PUMPING 2 ☐ RECOVERY			
		15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
030 FEET	095 FEET	095 FEET	095 FEET	095 FEET	095 FEET

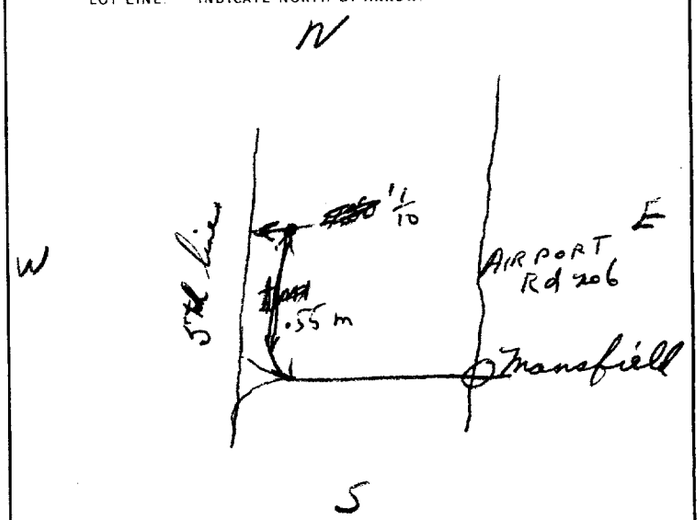
IF FLOWING, GIVE RATE ____ GPM | PUMP INTAKE SET AT ____ FEET | WATER AT END OF TEST 1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE ☐ SHALLOW ☒ DEEP | RECOMMENDED PUMP SETTING 110 FEET | RECOMMENDED PUMPING RATE 0003 GPM

GPM./FT. SPECIFIC CAPACITY ____

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

FINAL STATUS OF WELL 1

1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED

WATER USE 01

1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED

METHOD OF DRILLING 2

1 ☐ CABLE TOOL 2 ☒ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: Mayton Well Drilling Limited | LICENCE NUMBER 3602

ADDRESS: R.R. 3 Elmira

NAME OF DRILLER OR BORER: Laurie Mayton | LICENCE NUMBER

SIGNATURE OF CONTRACTOR: Laurie Mayton | SUBMISSION DATE DAY 3 MO. 10 YR. 75

OFFICE USE ONLY

DATA SOURCE 1 | CONTRACTOR 3602 | DATE RECEIVED 07 10 75

DATE OF INSPECTION June 8/77 | INSPECTOR EG

REMARKS: CSS.S8 | P | WI

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FORM 7 MOE 07-09

MINISTRY OF THE ENVIRONMENT

The Ontario Water Resources Act

WATER WELL RECORD

4 1 A/1 E

Ontario

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 | 1702003 | MUNICIP 17006 | CON HS E 06

COUNTY OR DISTRICT: [redacted] | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: MVR | CON., BLOCK, TRACT, SURVEY, ETC.: DI | LOT: 012

DATE COMPLETED: DAY 25 MO SEPT YR 75

MANSFIELD

ELEVATION: 0960 | BASIN CODE: 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
BROWN	TOP SOIL			0	1
"	CLAY		HEAVY CLAY	1	18
GREY	SHALE		HARD LAYERS	18	120

31 | 0001602 | 0018605 | 0120177371

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
100	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. - INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
06 5¼	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	.188	0	0020
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET	MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	DEPTH SET AT - FEET TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☒ PUMP 2 ☐ BAILER | PUMPING RATE: 0001 GPM | DURATION OF PUMPING: 01 HOURS 30 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☒ PUMPING 2 ☐ RECOVERY	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
023 FEET	115 FEET		115 FEET	115 FEET	115 FEET	115 FEET

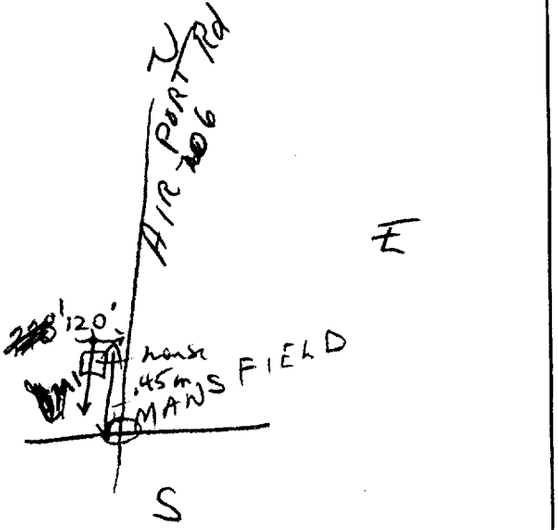
IF FLOWING, GIVE RATE: GPM | PUMP INTAKE SET AT: FEET | WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP | RECOMMENDED PUMPING RATE: 0001 ½ GPM | RECOMMENDED SETTING: 115 115 FEET

GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

FINAL STATUS OF WELL 54: 1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED

WATER USE 55-56: 1 ☒ DOMESTIC 2 ☒ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED

METHOD OF DRILLING 57: 1 ☐ CABLE TOOL 2 ☒ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: [illegible] Co Ltd | LICENCE NUMBER: 3602

ADDRESS: [illegible]

NAME OF DRILLER OR BORER: [illegible] | LICENCE NUMBER

SIGNATURE OF CONTRACTOR: [illegible] | SUBMISSION DATE: DAY 3 MO. 10 YR. 75

OFFICE USE ONLY

DATA SOURCE 58: 1 | CONTRACTOR 59-62: 3602 | DATE RECEIVED 63-68: 071075

DATE OF INSPECTION: June 8/77 | INSPECTOR: EG

REMARKS: CSS.S8 | P | WI

MINISTRY OF THE ENVIRONMENT COPY

FORM 7 MOE 07-091

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

Ontario

41A/1

1. PRINT ONLY IN SPACES PROVIDED
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(11) 1702582 MUNICIP. 17006 CON. HS E 06

COUNTY OR DISTRICT: [redacted] Mansfield
TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: MUNMUR
CON., BLOCK, TRACT, SURVEY, ETC.: EHS
LOT: 012
DATE COMPLETED: DAY 24 MO 08 YR 79
UTM: 91450 RC 5 ELEVATION 0975 RC 5 BASIN CODE 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
BROWN	CLAY			0	15
GREY	SHALE		Crumbly shale	15	30
			HARD SLAB SHALE	30	140

(31) 60015605 61030211 61402177 73
(32)

(41) WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0100	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL

(51) CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
06	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	.188	0	035
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET
1		
MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN FEET	

(61) PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	DEPTH SET AT - FEET TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

(71) PUMPING TEST

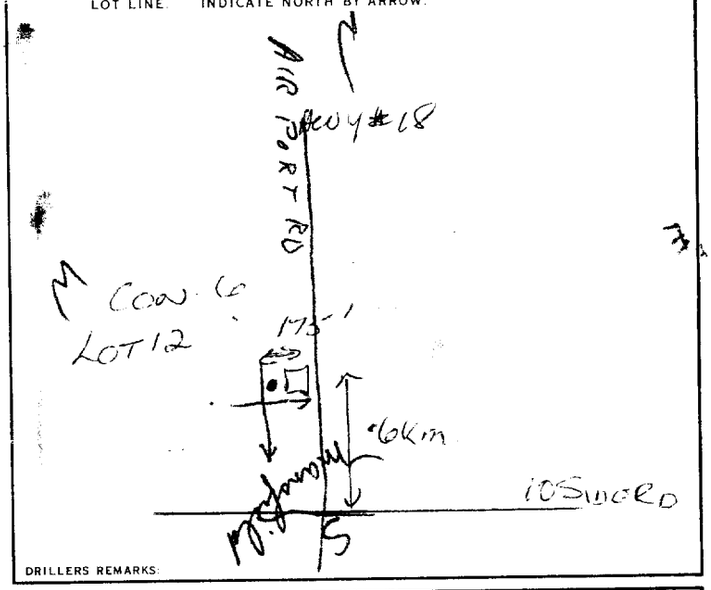
PUMPING TEST METHOD: 1 ☒ PUMP AIR 2 ☐ BAILER
PUMPING RATE: 0001 GPM
DURATION OF PUMPING: 00 HOURS 30 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☒ PUMPING 2 ☐ RECOVERY			
		15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
09 FEET	120 FEET	120 FEET	120 FEET	120 FEET	120 FEET

IF FLOWING, GIVE RATE: GPM
PUMP INTAKE SET AT: FEET
WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP
RECOMMENDED PUMP SETTING: 135 FEET
RECOMMENDED PUMP RATE: 0001 GPM
GPM./FT. SPECIFIC CAPACITY:

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

FINAL STATUS OF WELL 1
1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED

WATER USE 01
1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED

METHOD OF DRILLING 4
1 ☐ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☒ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: Leighton's Well Drilling Ltd — LICENCE NUMBER: 3602
ADDRESS: #13 Stayner
NAME OF DRILLER OR BORER: Larry Leighton — LICENCE NUMBER:
SIGNATURE OF CONTRACTOR: Kenneth W. Leighton — SUBMISSION DATE: DAY 29 MO. 8 YR. 79

OFFICE USE ONLY

DATA SOURCE: 1 — CONTRACTOR: 3602 — DATE RECEIVED: 060979
DATE OF INSPECTION: June 10, 1980 — INSPECTOR:
REMARKS: Changed From 5716257 CSS.S8 — P Gul WI

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FORM 7 MOE 07-091

A1A/1

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

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11 | 1702588 | MUNICIP 17006 | CON. HS E | 06

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT
[redacted]	Twp.	Con. 6	012

[redacted] 6, Mansfield, Ontario

DATE COMPLETED: DAY 29 MO 08 YR. 79

21 | 17 | 91650 | RC. 5 | ELEVATION 0950 | RC. 5 | BASIN CODE 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
Brown	Top Soil			0	1
Brown	Clay & Sand			1	9
Blue	Clay	Stones		9	21

31 | 0001602 | 0009605028 | 0021305012

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0010	NOT TESTED #5
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERAL
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERAL
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERAL
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
30	☒ CONCRETE	3	0	0007 (7½)
30	☒ STEEL	16 Gauge	7½	0016 (15½)
24	☒ GALVANIZED	16 Gauge	15½	0021 (21½)

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET

MATERIAL AND TYPE: — DEPTH TO TOP OF SCREEN: — FEET

61 PLUGGING & SEALING RECORD

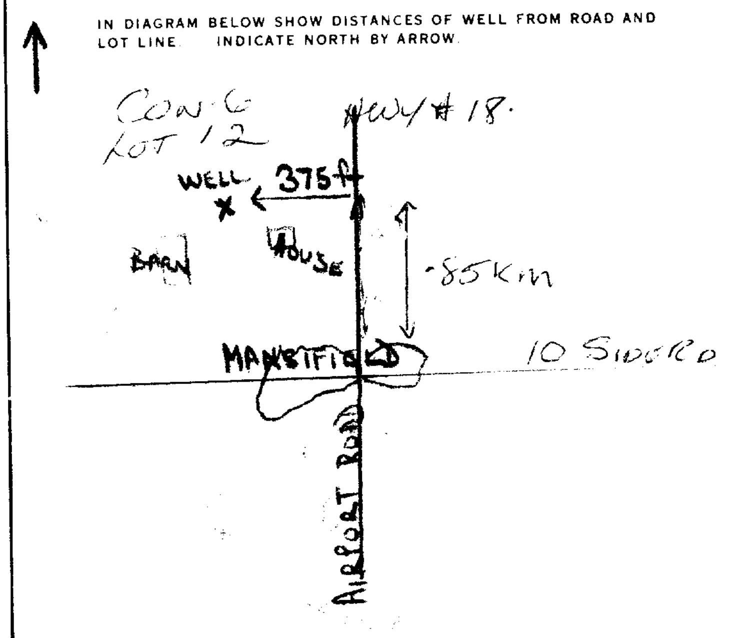
DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD: ☐ PUMP ☒ BAILER
PUMPING RATE: 0001 ½ GPM
DURATION OF PUMPING: 01 HOURS 00 MINS
STATIC LEVEL: 009 FEET
WATER LEVEL END OF PUMPING: 020 FEET
WATER LEVELS DURING: ☐ PUMPING ☒ RECOVERY — 15 MINUTES: 020 FEET; 30 MINUTES: 019 FEET; 45 MINUTES: 018 FEET; 60 MINUTES: 018 FEET
IF FLOWING GIVE RATE: — GPM
PUMP INTAKE SET AT: — FEET
WATER AT END OF TEST: ☒ CLEAR ☐ CLOUDY
RECOMMENDED PUMP TYPE: ☒ SHALLOW ☐ DEEP
RECOMMENDED PUMP SETTING: 019 FEET
RECOMMENDED PUMPING RATE: 0001 ½ GPM

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS

FINAL STATUS OF WELL: 1 — ☒ WATER SUPPLY ☐ OBSERVATION WELL ☐ TEST HOLE ☐ RECHARGE WELL ☐ ABANDONED, INSUFFICIENT SUPPLY ☐ ABANDONED, POOR QUALITY ☐ UNFINISHED

WATER USE: 01 — ☒ DOMESTIC ☐ STOCK ☐ IRRIGATION ☐ INDUSTRIAL ☐ OTHER ☐ COMMERCIAL ☐ MUNICIPAL ☐ PUBLIC SUPPLY ☐ COOLING OR AIR CONDITIONING ☐ NOT USED

METHOD OF DRILLING: 6 — ☐ CABLE TOOL ☐ ROTARY (CONVENTIONAL) ☐ ROTARY (REVERSE) ☐ ROTARY (AIR) ☐ AIR PERCUSSION ☒ BORING ☐ DIAMOND ☐ JETTING ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: Glenn Mason — LICENCE NUMBER: 3662
ADDRESS: R.R.#1, Colgan, Ontario L0G 1G0
NAME OF DRILLER OR BORER: Glenn Mason — LICENCE NUMBER: 3662
SIGNATURE OF CONTRACTOR: Glenn Mason
SUBMISSION DATE: DAY 16 MO. 11 YR. 79

OFFICE USE ONLY

DATA SOURCE: 1 — CONTRACTOR: 3662 — DATE RECEIVED: 211179
DATE OF INSPECTION: June 10, 1980 — INSPECTOR:
REMARKS: CSS.S8 P.9W

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FORM NO. 0506-4-77

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 — 1703646 — MUNICIP 17006 — CON.

COUNTY OR DISTRICT: [redacted] — TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: MANSFIELD — CON. BLOCK, TRACT, SURVEY, ETC: VI — LOT: 12

DATE COMPLETED: DAY 9 MO 8 YR 88

RC — ELEVATION — RC — BASIN CODE

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
RED	CLAY			0	6
"	SHALE	CLAY	MIXTURE	6	18
"	"		HARD SLAB SHALE	18	60
GREY	"		" " "	60	78

31

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
55	1 ☒ FRESH 2 ☐ SALTY — 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
70	1 ☒ FRESH 2 ☐ SALTY — 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY — 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY — 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY — 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
6 1/4	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.188	+2	18
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			

SCREEN

SIZE(S) OF OPENING (SLOT NO.): — DIAMETER: — INCHES — LENGTH: — FEET

MATERIAL AND TYPE: — DEPTH TO TOP OF SCREEN: — FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	DEPTH SET AT - FEET TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
0	18	Bensenl

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☒ BAILER — PUMPING RATE: 4 GPM — DURATION OF PUMPING: 1 HOURS ___ MINS

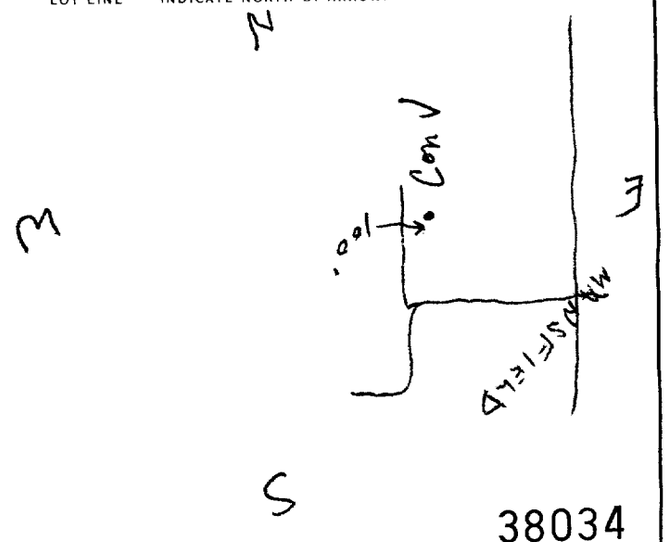
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☐ PUMPING 2 ☐ RECOVERY			
		15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
16 FEET	70 FEET	FEET	FEET	FEET	FEET

IF FLOWING, GIVE RATE: — GPM — PUMP INTAKE SET AT: — FEET — WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP — RECOMMENDED PUMP SETTING: 75 FEET — RECOMMENDED PUMPING RATE: 4 GPM

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



38034

DRILLERS REMARKS:

FINAL STATUS OF WELL

1 ☒ WATER SUPPLY — 2 ☐ OBSERVATION WELL — 3 ☐ TEST HOLE — 4 ☐ RECHARGE WELL — 5 ☐ ABANDONED, INSUFFICIENT SUPPLY — 6 ☐ ABANDONED, POOR QUALITY — 7 ☐ UNFINISHED — 9 ☐ DEWATERING

WATER USE

1 ☒ DOMESTIC — 2 ☐ STOCK — 3 ☐ IRRIGATION — 4 ☐ INDUSTRIAL — 5 ☐ COMMERCIAL — 6 ☐ MUNICIPAL — 7 ☐ PUBLIC SUPPLY — 8 ☐ COOLING OR AIR CONDITIONING — 9 ☐ NOT USED — ☐ OTHER

METHOD OF CONSTRUCTION

1 ☐ CABLE TOOL — 2 ☐ ROTARY (CONVENTIONAL) — 3 ☐ ROTARY (REVERSE) — 4 ☒ ROTARY (AIR) — 5 ☐ AIR PERCUSSION — 6 ☐ BORING — 7 ☐ DIAMOND — 8 ☐ JETTING — 9 ☐ DRIVING — ☐ DIGGING — ☐ OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: Neighton's Well Drilling Ltd — WELL CONTRACTOR'S LICENCE NUMBER: 3602

ADDRESS: #3 Stayner

NAME OF WELL TECHNICIAN: Larry Neighton — WELL TECHNICIAN'S LICENCE NUMBER: 70129

SIGNATURE OF TECHNICIAN/CONTRACTOR: Kenneth H. Neighton — SUBMISSION DATE: DAY 19 MO 8 YR 88

MINISTRY OF THE ENVIRONMENT COPY

OFFICE USE ONLY

DATA SOURCE — CONTRACTOR: 3602 — DATE RECEIVED: AUG 23 1988

DATE OF INSPECTION — INSPECTOR

REMARKS

CSS.ES

FORM NO. 0506 (11/86) FORM 9

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 | 1704903 | MUNICIP. 17006 | CON. H.S. E. 06

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON, BLOCK, TRACT, SURVEY, ETC	LOT
DUFFERIN	MULMUR	VI	12

OWNER (SURNAME FIRST): [redacted]
ADDRESS: R.R. MANSFIELD
DATE COMPLETED: DAY 28 MO 9 YR 95

21 | NORTHING | RC | ELEVATION | RC | BASIN CODE

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
BROWN	TOP SOIL			0	1
"	CLAY	STONES	STONEY CLAY	1	12
GREY	"	SHALE	SHALE CLAY MIXTURE	12	23
RED GREY	SHALE	HARD	SLAB SHALE	23	143

31
32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
40	☒ FRESH
to 143	

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
8 1/4	☒ STEEL	.188	+ 1	23

SCREEN

SIZE(S) OF OPENING (SLOT NO.) | DIAMETER INCHES | LENGTH FEET
MATERIAL AND TYPE | DEPTH TO TOP OF SCREEN FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
8	16	Benseal

71 PUMPING TEST

PUMPING TEST METHOD: ☒ PUMP ☐ BAILER
PUMPING RATE: 8 GPM
DURATION OF PUMPING: HOURS / MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
37 FEET	120 FEET	50 FEET	100 FEET	120 FEET	120 FEET

WATER LEVELS DURING: ☒ PUMPING ☐ RECOVERY
IF FLOWING, GIVE RATE: GPM
PUMP INTAKE SET AT: 140 FEET
WATER AT END OF TEST: ☒ CLEAR ☐ CLOUDY
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP
RECOMMENDED PUMP SETTING: 140 FEET
RECOMMENDED PUMPING RATE: 6 GPM

FINAL STATUS OF WELL

☒ WATER SUPPLY ☐ OBSERVATION WELL ☐ TEST HOLE ☐ RECHARGE WELL ☐ ABANDONED, INSUFFICIENT SUPPLY ☐ ABANDONED, POOR QUALITY ☐ UNFINISHED ☐ DEWATERING

WATER USE

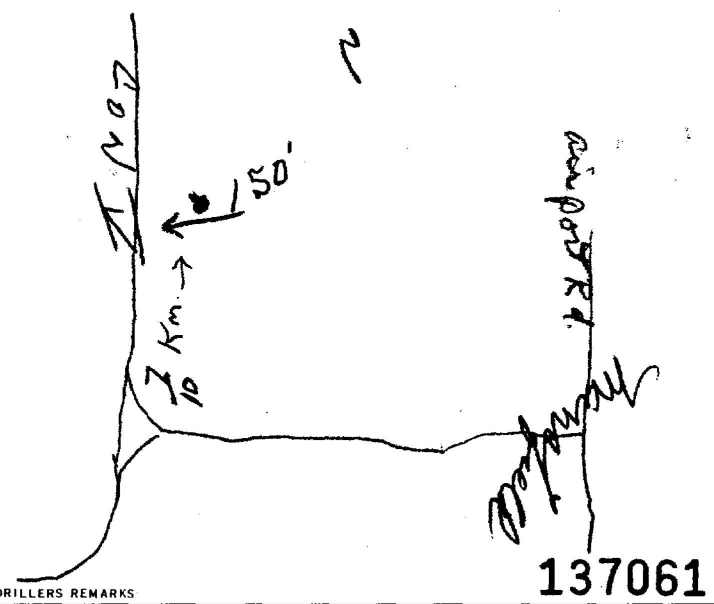
☒ DOMESTIC ☐ STOCK ☐ IRRIGATION ☐ INDUSTRIAL ☐ OTHER ☐ COMMERCIAL ☐ MUNICIPAL ☐ PUBLIC SUPPLY ☐ COOLING OR AIR CONDITIONING ☐ NOT USED

METHOD OF CONSTRUCTION

☐ CABLE TOOL ☐ ROTARY (CONVENTIONAL) ☐ ROTARY (REVERSE) ☒ ROTARY (AIR) ☐ AIR PERCUSSION ☐ BORING ☐ DIAMOND ☐ JETTING ☐ DRIVING ☐ DIGGING ☐ OTHER

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS
137061

CONTRACTOR

NAME OF WELL CONTRACTOR: Mighton's Welldrilling Ltd
WELL CONTRACTOR'S LICENCE NUMBER: 3602
ADDRESS: #2 Staynor
NAME OF WELL TECHNICIAN: Larry Mighton
WELL TECHNICIAN'S LICENCE NUMBER: T0129
SIGNATURE OF TECHNICIAN/CONTRACTOR: Kenneth A. Mighton
SUBMISSION DATE: DAY 12 MO 10 YR 95

OFFICE USE ONLY

DATA SOURCE | CONTRACTOR 3602 | DATE RECEIVED OCT 16 1995
DATE OF INSPECTION | INSPECTOR
REMARKS
CSS.ES

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/86) FORM 9

Ministry of Environment and Energy
Ontario

The Ontario Water Resources Act
WATER WELL RECORD

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

11 — 1705049 — Municipality 17006 — Con. HS E 06

PLAN 7R2933 WH

County or District [redacted] — Township/Borough/City/Town/Village MULMUR — Con block tract survey, etc. Pt — Lot 12

Address MANSFIELD — Date completed 30 day 9 month 97 year

21 — Zone — Easting — Northing — RC — Elevation — RC — Basin Code — ii — iii — iv 5

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth – feet From	Depth – feet To
BLACK	TOPSOIL			0	1
BROWN	CLAY	STONES	STONEY CLAY	1	5
RED	CLAY		HARD & SOFT LAYERS	5	18
RED	SHALE			18	38
GREY	SHALE			38	41
GREY	SHALE		HARD AND SOFT LAYERS	41	139

31

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41 WATER RECORD

Water found at – feet	Kind of water
41	1 ☑ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
130	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth – feet From	Depth – feet To
8 1/8	1 ☑ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	.188	+1 1/2	40
5	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☑ Plastic	250 MM	-12	137
	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			

SCREEN

Sizes of opening (Slot No.)	Diameter inches	Length feet
—	—	—

Material and type: — Depth at top of screen: — feet

61 PLUGGING & SEALING RECORD

☐ Annular space ☐ Abandonment

Depth set at – feet From	Depth set at – feet To	Material and type (Cement grout, bentonite, etc.)
4	10	BENSEAL

71 PUMPING TEST

Pumping test method: 1 ☐ Pump 2 ☑ Bailer — Pumping rate 2 1/2 GPM — Duration of pumping 3 Hours ..... Mins

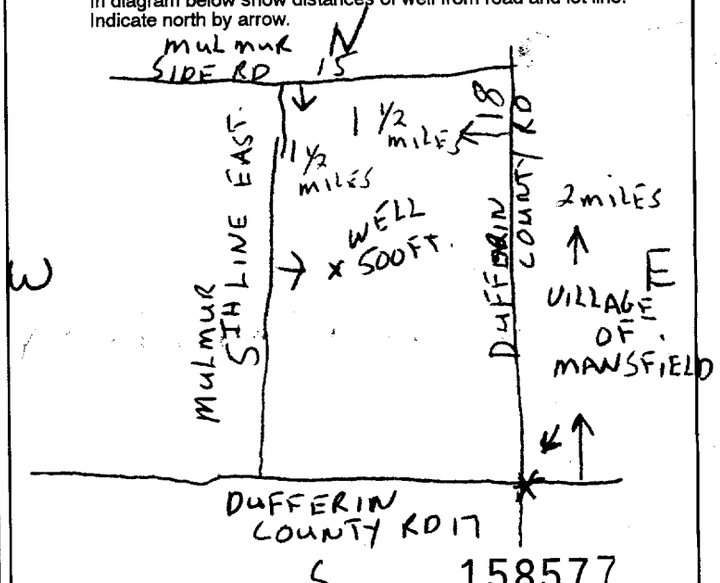
Static level	Water level end of pumping	Water levels during: 1 ☐ Pumping 2 ☑ Recovery			
		15 minutes	30 minutes	45 minutes	60 minutes
18 8/12 feet	130 feet	feet	feet	feet	130 feet

If flowing give rate	Pump intake set at	Water at end of test
GPM	feet	☑ Clear ☐ Cloudy

Recommended pump type	Recommended pump setting	Recommended pump rate
☐ Shallow ☑ Deep	125 feet	2 1/2 GPM

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate north by arrow.



FINAL STATUS OF WELL

1 ☑ Water supply 2 ☐ Observation well 3 ☐ Test hole 4 ☐ Recharge well 5 ☐ Abandoned, insufficient supply 6 ☐ Abandoned, poor quality 7 ☐ Abandoned (Other) 8 ☐ Dewatering 9 ☐ Unfinished 10 ☐ Replacement well

WATER USE

1 ☑ Domestic 2 ☐ Stock 3 ☐ Irrigation 4 ☐ Industrial 5 ☐ Commercial 6 ☐ Municipal 7 ☐ Public supply 8 ☐ Cooling & air conditioning 9 ☐ Not used 10 ☐ Other .....

METHOD OF CONSTRUCTION

1 ☑ Cable tool 2 ☐ Rotary (conventional) 3 ☐ Rotary (reverse) 4 ☐ Rotary (air) 5 ☐ Air percussion 6 ☐ Boring 7 ☐ Diamond 8 ☐ Jetting 9 ☐ Driving 10 ☐ Digging 11 ☐ Other .....

S 158577

Name of Well Contractor	Well Contractor's Licence No.
Meyntans Well Drilling LTD	3602
Address RR #2 Stayner Ont	
Name of Well Technician	Well Technician's Licence No.
Terry Nighton	T-0130
Signature of Technician/Contractor Kenneth T Nighton	Submission date day 17 mo 6 yr 97

MINISTRY USE ONLY

Data source	Contractor	Date received
	3602	JUL 03 1997
Date of inspection	Inspector	
Remarks	CSS.S8	

2 - MINISTRY OF ENVIRONMENT & ENERGY COPY

0506 (07/94) Front Form 9

Ontario **Ministry of the Environment**

The Ontario Water Resources Act
WATER WELL RECORD

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

11 **1705902** Municipality 17006 Con. HS E 06

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot
DUFFERIN	MULMER	6	12

Address: RR#1 MANSFIELD

Date completed: 1 day 0 month 02 year

21 UTM Northing RC Elevation RC Basin Code ii iii iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
BROWN	TOP-SOIL			0	1
BROWN	SAND			1	8
BROWN	SAND			8	10
GREY	CLAY			10	14
GREY	CLAY	STONES	HARD	14	18
	BEDROCK OR SHALE IN BOTTOM				
	AS FAR AS COULD BORE				

31

32

41 WATER RECORD

Water found at - feet	Kind of water
8-10	1 ☑ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
36	1 ☐ Steel 2 ☐ Galvanized 3 ☒ Concrete 4 ☐ Open hole 5 ☐ Plastic	3	0	18
	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			
	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			

SCREEN

Sizes of opening (Slot No.)	Diameter inches	Length feet

Material and type: PEA STONE

Depth at top of screen feet

61 PLUGGING & SEALING RECORD

☐ Annular space ☐ Abandonment

Depth set at - feet From	Depth set at - feet To	Material and type (Cement grout, bentonite, etc.)
0	8	BENSEAL

71 PUMPING TEST

Pumping test method: 1 ☐ Pump 2 ☐ Bailer

Pumping rate: GPM

Duration of pumping: Hours Mins

Static level: 8 feet

Water level end of pumping: feet

Water levels during: 1 ☐ Pumping 2 ☐ Recovery

15 minutes	30 minutes	45 minutes	60 minutes
feet	feet	feet	feet

If flowing give rate: GPM

Pump intake set at: feet

Water at end of test: ☐ Clear ☐ Cloudy

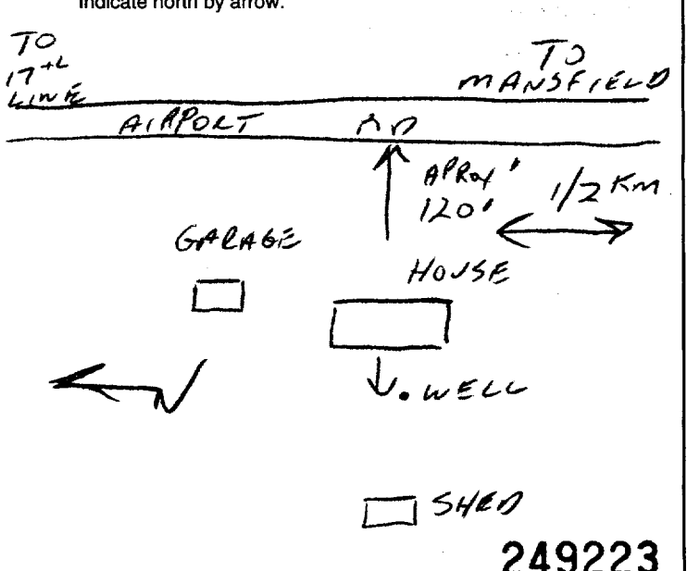
Recommended pump type: ☑ Shallow ☐ Deep

Recommended pump setting: 17 feet

Recommended pump rate: GPM

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate north by arrow.



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FINAL STATUS OF WELL

1 ☑ Water supply 2 ☐ Observation well 3 ☐ Test hole 4 ☐ Recharge well 5 ☐ Abandoned, insufficient supply 6 ☐ Abandoned, poor quality 7 ☐ Abandoned (Other) 8 ☐ Dewatering 9 ☐ Unfinished 10 ☐ Replacement well

WATER USE

1 ☑ Domestic 2 ☐ Stock 3 ☐ Irrigation 4 ☐ Industrial 5 ☐ Commercial 6 ☐ Municipal 7 ☐ Public supply 8 ☐ Cooling & air conditioning 9 ☐ Not use 10 ☐ Other

METHOD OF CONSTRUCTION

1 ☐ Cable tool 2 ☐ Rotary (conventional) 3 ☐ Rotary (reverse) 4 ☐ Rotary (air) 5 ☐ Air percussion 6 ☑ Boring 7 ☐ Diamond 8 ☐ Jetting 9 ☐ Driving 10 ☐ Digging 11 ☐ Other

Name of Well Contractor	Well Contractor's Licence No.
JOHNSON & BAETZ	3030

Address: BRANTFORD

Name of Well Technician	Well Technician's Licence No.
JOHN BAETZ	T-0333

Signature of Technician/Contractor: J Baetz

Submission date: day mo yr

MINISTRY USE ONLY

Data source: Contractor 3030 Date received: SEP 25 2002

Date of inspection: Inspector

Remarks: CSS.EC2

0506 (07/00) Front Form 9

2 - MINISTRY OF THE ENVIRONMENT COPY

Lot 12

Concession 7

Lot 12

Concession 8

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 — 1704847 — MUNICIP. 17006 — CON. HS E — LOT 08

COUNTY OR DISTRICT: [redacted]
TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: MULMUR
CON. BLOCK, TRACT, SURVEY, ETC: CONC. 8
LOT: W½ 12
ADDRESS: RR#3, MANSFIELD
DATE COMPLETED: DAY 10 MO 6 YR 92
TWNSHIP — RC — ELEVATION — RC — BASIN CODE — II — III — IV

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
BROWN	SAND	SILT		0	92
BROWN	CLAY		SOFT	92	100
BLUE	CLAY	SAND		100	110
BROWN	SAND	SILT		110	134
BLUE	CLAY	STONES, MUD SHALE		134	140
BLUE	SHALE			140	154

31
32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
127	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
6	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.188	0	127
5	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC		134	154
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
#10 SLOT	6 INCHES	7 FEET

MATERIAL AND TYPE: STNLS STEEL
DEPTH TO TOP OF SCREEN: 127 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	DEPTH SET AT - FEET TO	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER, ETC.)

71 PUMPING TEST

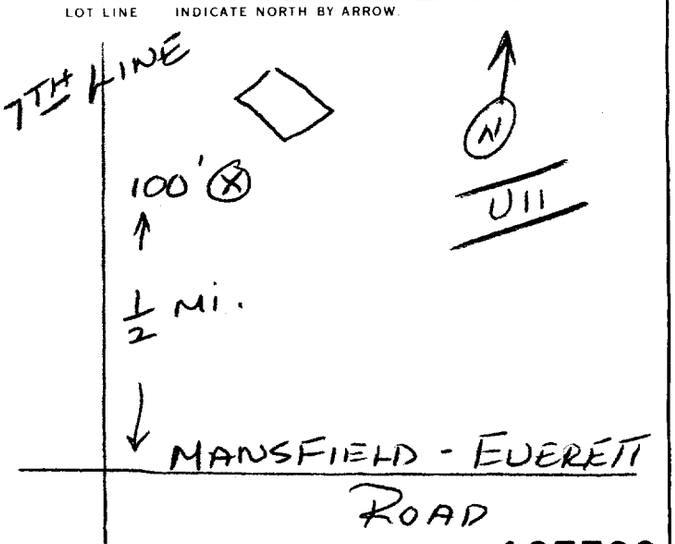
PUMPING TEST METHOD: 1 ☐ PUMP 2 ☒ BAILER
PUMPING RATE: 4½ GPM
DURATION OF PUMPING: 2 HOURS ___ MINS
STATIC LEVEL: 108 FEET
WATER LEVEL END OF PUMPING: 126 FEET
WATER LEVELS DURING: 1 ☒ PUMPING 2 ☐ RECOVERY

15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
120 FEET	123 FEET	126 FEET	126 FEET

IF FLOWING GIVE RATE: ___ GPM
PUMP INTAKE SET AT: ___ FEET
WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP
RECOMMENDED PUMP SETTING: 152 FEET
RECOMMENDED PUMPING RATE: 4½ GPM

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



U11

DRILLERS REMARKS: 107590

FINAL STATUS OF WELL

1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED ☐ DEWATERING

WATER USE

1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED

METHOD OF CONSTRUCTION

1 ☒ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING ☐ DIGGING ☐ OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: SCOTT WELL DRILLING
WELL CONTRACTOR'S LICENCE NUMBER: 4778
ADDRESS: BOX 497, NOBLETON
NAME OF WELL TECHNICIAN: KEN SCOTT
WELL TECHNICIAN'S LICENCE NUMBER: 1-0585
SIGNATURE OF TECHNICIAN/CONTRACTOR: Ken Allen Scott
SUBMISSION DATE: DAY ___ MO ___ YR. ___

MINISTRY OF THE ENVIRONMENT COPY

OFFICE USE ONLY

DATA SOURCE
CONTRACTOR: 4778
DATE RECEIVED: MAY 04 1995
DATE OF INSPECTION
INSPECTOR
REMARKS

CSS.ES

FORM NO. 0506 (11/86) FORM 9

Ministry of Environment and Energy
Ontario

The Ontario Water Resources Act
WATER WELL RECORD

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

11 **1704930** Municipality 17006 Con. HS E 08

County or District: DUFFRIN | Township/Borough/City/Town/Village: MULMUR | Con | block | tract | survey, etc.: 8 | Lot: 12-13

Owner's surname [redacted] First name | Address: ALLISTON | Date completed: 18 day 12 month 95 year

21 Zone | Easting | Northing | RC | Elevation | RC | Basin Code | II | III | IV

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth – feet From	Depth – feet To
BROWN	SAND	—	LOOSE	0	35
BROWN	SILT	CLAY FINE SAND	LAYERED	35	50
BROWN	CLAY	SILT	—	50	65
BROWN	SILT	FINE SAND	LAYERED	65	78
GREY	CLAY	—	—	78	88
BROWN	SILT	TO COARSE SAND	—	88	100
BROWN	GRAVEL	SILT	LOOSE	100	106
GREY	SILT	GRAVEL CLAY	—	106	113
GREY	CLAY	—	DENSE	113	122
GREY	SHALE	—	CRISP COMPACTED	122	220

31

32

41 WATER RECORD

Water found at – feet	Kind of water
220	1 ☑ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth – feet From	Depth – feet To
6¼	1 ☑ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	.188	+2	98
5¼	1 ☑ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	SLOTTED .188	95	165
5⅛	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☑ Open hole 5 ☐ Plastic		165	220

SCREEN

Sizes of opening (Slot No.)	Diameter	Length
—	— inches	— feet

Material and type: —

Depth at top of screen: — feet

61 PLUGGING & SEALING RECORD

☐ Annular space ☐ Abandonment

Depth set at – feet From	Depth set at – feet To	Material and type (Cement grout, bentonite, etc.)

71 PUMPING TEST

Pumping test method: 1 ☑ Pump 2 ☐ Bailer AIR | Pumping rate: 3 GPM | Duration of pumping: 6 Hours ..... Mins

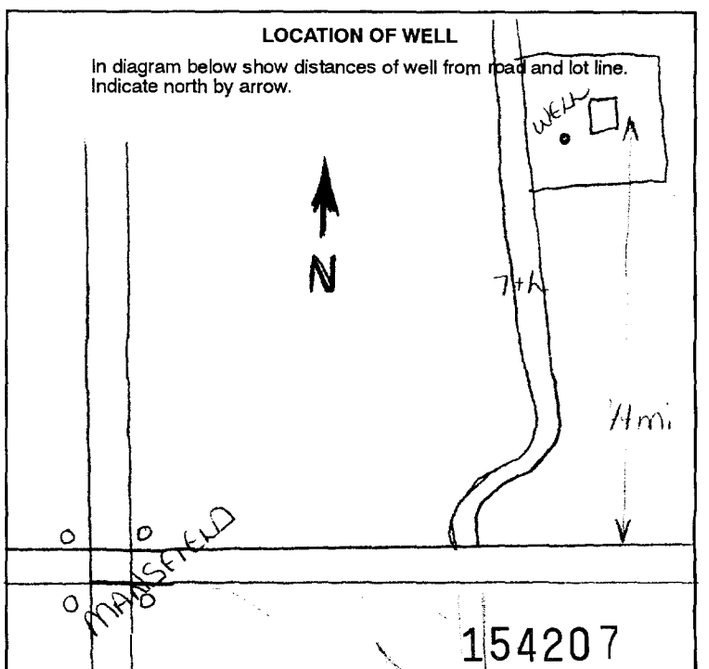
Static level	Water level end of pumping	Water levels during: 1 ☑ Pumping 2 ☐ Recovery			
		15 minutes	30 minutes	45 minutes	60 minutes
95 feet	230 feet	220 feet	220 feet	220 feet	220 feet

If flowing give rate: GPM | Pump intake set at: feet | Water at end of test: ☐ Clear ☑ Cloudy

Recommended pump type: ☐ Shallow ☑ Deep | Recommended pump setting: 200 feet | Recommended pump rate: 1 GPM

LOCATION OF WELL

In diagram below show distances of well from road and lot line.
Indicate north by arrow.



154207

FINAL STATUS OF WELL

1 ☑ Water supply 2 ☐ Observation well 3 ☐ Test hole 4 ☐ Recharge well 5 ☐ Abandoned, insufficient supply 6 ☐ Abandoned, poor quality 7 ☐ Abandoned (Other) 8 ☐ Dewatering 9 ☐ Unfinished 10 ☐ Replacement well

WATER USE

1 ☑ Domestic 2 ☐ Stock 3 ☐ Irrigation 4 ☐ Industrial 5 ☐ Commercial 6 ☐ Municipal 7 ☐ Public supply 8 ☐ Cooling & air conditioning 9 ☐ Not used 10 ☐ Other .....

METHOD OF CONSTRUCTION

1 ☐ Cable tool 2 ☑ Rotary (conventional) 3 ☐ Rotary (reverse) 4 ☐ Rotary (air) 5 ☐ Air percussion 6 ☐ Boring 7 ☐ Diamond 8 ☐ Jetting 9 ☐ Driving 10 ☐ Digging 11 ☐ Other .....

Name of Well Contractor: R & B WELL DRILLING LTD | Well Contractor's Licence No.: 4645

Address: RR #2 BEETON ONT. L0G 1A0

Name of Well Technician: CARL M. COMER | Well Technician's Licence No.: T0028

Signature of Technician/Contractor: [signature] | Submission date: day 4 mo 1 yr 96

MINISTRY USE ONLY: Data source | Contractor: 4645 | Date received: APR 15 1996

Date of inspection | Inspector

Remarks

CSS.ES

2 - MINISTRY OF ENVIRONMENT & ENERGY COPY

0506 (07/94) Front Form 9

Ontario — Ministry of the Environment

Measurements recorded in: ☐ Metric ☐ Imperial

Well Tag No. *(Place Sticker and/or Print Below)*

Tag #: A169391

Well Record

Regulation 903 Ontario Water Resources Act

Page _____ of _____

[redacted]

Address of Well Location (Street Number/Name)	Township	Lot	Concession
	MULMUR	12	8

County/District/Municipality	City/Town/Village	Province	Postal Code
DUFFERIN		Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83		579311	4892565		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (*m/ft*) From	Depth (*m/ft*) To
BLACK	TOPSOIL	—	SOFT	0	1
BROWN	SAND	—	LOOSE	1	23
GREY	CLAY	SILT	LAYERED	23	36
GREY	CLAY	—	HARD	36	53
BROWN	SAND	—	FINE	53	65
GREY	CLAY	—	HARD	65	75
BROWN	SAND	—	LOOSE	75	85

Annular Space

Depth Set at (*m/ft*) From	To	Type of Sealant Used (*Material and Type*)	Volume Placed (*m³/ft³*)
0	20	HOLE PLUG	4

Method of Construction

☐ Cable Tool ☑ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Other, *specify* _____

☐ Diamond ☐ Jetting ☐ Driving ☐ Digging

Well Use

☐ Public ☑ Domestic ☑ Livestock ☐ Irrigation ☐ Industrial ☐ Other, *specify* _____

☐ Commercial ☐ Municipal ☐ Test Hole ☐ Cooling & Air Conditioning

☐ Not used ☐ Dewatering ☐ Monitoring

Construction Record - Casing

Inside Diameter (*cm/in*)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (*cm/in*)	Depth (*m/ft*) From	Depth (*m/ft*) To
6'14	STEEL	.188	+2	80

Construction Record - Screen

Outside Diameter (*cm/in*)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (*m/ft*) From	Depth (*m/ft*) To
5'2	STAINLESS	14	81	85

Status of Well

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

Water Details

Water found at Depth	Kind of Water	
85 (*m/ft*) ☐ Gas	☑ Fresh ☐ Untested	☐ Other, *specify*
(*m/ft*) ☐ Gas	☐ Fresh ☐ Untested	☐ Other, *specify*
(*m/ft*) ☐ Gas	☐ Fresh ☐ Untested	☐ Other, *specify*

Hole Diameter

Depth (*m/ft*) From	Depth (*m/ft*) To	Diameter (*cm/in*)
0	20	10 IN
20	80	8 3/4
80	85	6'18

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at (*m/ft*): 75 FT

Pumping rate (*l/min / GPM*): 10 GPM

Duration of pumping: 1 hrs + _____ min

Final water level end of pumping (*m/ft*): 65 FT

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

Recommended pump depth (*m/ft*): 75 FT

Recommended pump rate (*l/min / GPM*): 10 GPM

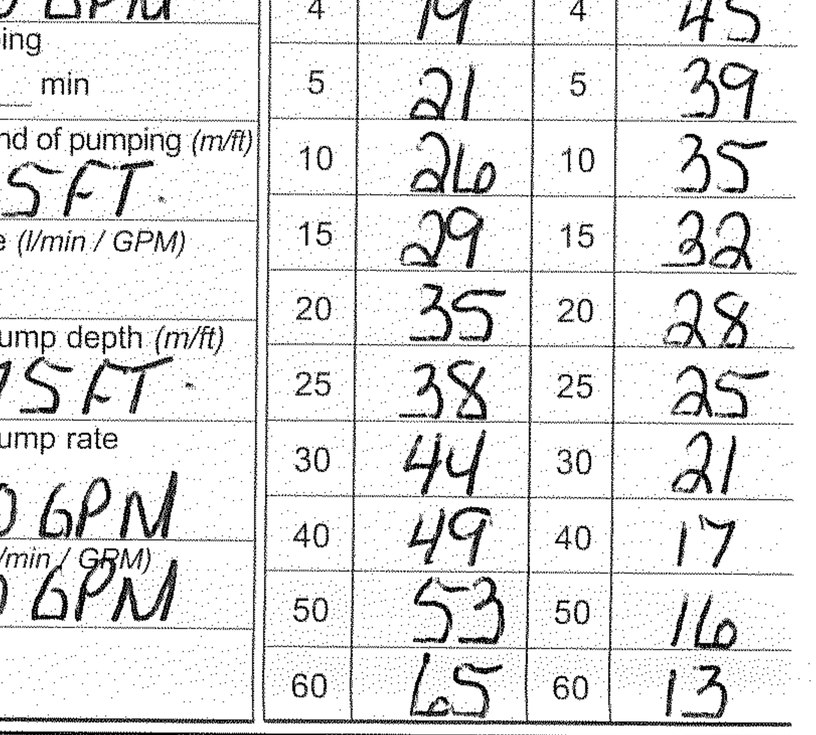
Well production (*l/min / GPM*): 10 GPM

Disinfected? ☑ Yes ☐ No

Draw Down Time (*min*)	Draw Down Water Level (*m/ft*)	Recovery Time (*min*)	Recovery Water Level (*m/ft*)
Static Level	12		
1	13	1	60
2	15	2	53
3	16	3	48
4	19	4	45
5	21	5	39
10	26	10	35
15	29	15	32
20	35	20	28
25	38	25	25
30	44	30	21
40	49	40	17
50	53	50	16
60	65	60	13

Map of Well Location

Please provide a map below following instructions on the back.



Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
R&B WELL DRILLING LTD	4645

Business Address (Street Number/Name)	Municipality
3569 SIDEROAD 10, BEETON	NEW TECUMSETH

Province	Postal Code	Business E-mail Address
ON	L0G1A0	RBWELLDRILLING@COM

Bus. Telephone No. (*inc. area code*)	Name of Well Technician (Last Name, First Name)
9057292950	KOWALSKI, ROBERT

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
2425		2014 11 04

Comments:

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☑ Yes ☐ No	2014 11 04	2014 11 03

Ministry Use Only

Audit No. Z 183980

Received DEC 22 2014

Ministry's Copy

APPENDIX C

Nitrate Calculations

REASONABLE USE CALCUATIONS

Armstrong Estates, Mansfield

Detailed Calculation

$$C_e = (C_p*P*A + C_{s*}Q_s + C_b*Q_b)/(P*A + Q_s + Q_b)$$

where		**393.0**	**mm/a**	**Orangeville station** - annual precipitation
		235.8	mm/a	60% of total precipitation
Downgradient Area	(A)	109,221	m^2	Pervious Area
Annual Infiltration Rate	(P)	236	mm	Orangeville station
Diluting Volume	(P*A)	25,754	m^3/a	
		0.2	mg/L	Nitrate concentration in precipitation
Average Daily Sewage Volume	(Q_s)	43		Housing Units
		1,000	L/day	Input (average Design Flow from D-5-4 Guidance)
		43,000	L/day	Sewage Volume for North Precinct
		15,706	m^3/a	
Effluent Nitrate Concentration	(C_s)	20.0	mg/L	Waterloo Biofilter performance criteria
Estimated Site Concentration	(C_e)	**7.7**	mg/L	North Precinct

REASONABLE USE CALCUATIONS

Armstrong Estates, Mansfield

Detailed Calculation

$$C_e = (C_p*P*A + C_s*Q_s + C_b*Q_b)/(P*A + Q_s + Q_b)$$

where		**393.0**	**mm/a**	**Orangeville station** - annual precipitation
		235.8	mm/a	60% of total precipitation
Downgradient Area	(A)	51,919	m^2	Pervious Area
Annual Infiltration Rate	(P)	236	mm	Orangeville station
Diluting Volume	(P*A)	12,243	m^3/a	
		0.2	mg/L	Nitrate concentration in precipitation
Average Daily Sewage Volume	(Q_s)	28		Housing Units
		1,000	L/day	Input (average Design Flow from D-5-4 Guidance)
		28,000	L/day	Sewage Volume for South Precinct
		10,227	m^3/a	
Effluent Nitrate Concentration	(C_s)	20.0	mg/L	Waterloo Biofilter performance criteria
Estimated Site Concentration	(C_e)	**9.2**	mg/L	South Precinct

APPENDIX D

Soil Logs

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE/MONITORING WELL NO. 1

17T 576894E 4891433N

PROJECT Proposed Residential Development
LOCATION 937045 Airport Road, Mansfield, ON
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 13, 2021
PML REF. 21BF019
ENGINEER GW
TECHNICIAN AT/NT

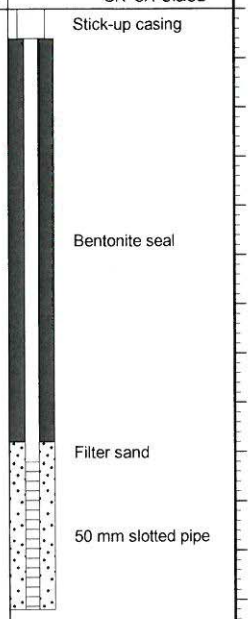
DEPTH ELEV (metres)	DESCRIPTION	NUMBER	TYPE	"N" VALUES
	SURFACE ELEVATION 313.20			
0.40	TOPSOIL: Brown, silty sand, trace gravel, moist	1	SS	5
0.70 / 312.50	SAND: Loose, brown, sand, trace silt, moist			
	SANDY SILT: Loose to compact, brown, sandy silt, trace clay, trace gravel, very moist	2	SS	4
		3	SS	15
2.1 / 311.1	SAND: Dense, brown, sand, trace silt, trace to some gravel, moist	4	SS	42
2.9 / 310.3	SILTY SAND: Very dense to dense, brown, silty sand, trace gravel, moist	5	SS	80/290 mm
5.5 / 307.7	SAND: Very dense, brown, stratified sand, trace silt, trace gravel, moist	6	SS	31
6.5		7	SS	53
306.7	BOREHOLE TERMINATED AT 6.5 m			

SHEAR STRENGTH (kPa): +FIELD VANE △TORVANE ○ Qu ▲POCKET PENETROMETER ○ Q; DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ●

PLASTIC LIMIT (w_P) NATURAL MOISTURE CONTENT (w) LIQUID LIMIT (w_L); WATER CONTENT (%)

UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL



Upon completion of augering
No water
No cave
Water Level Readings:

Date	Depth	Elev.
2021-05-20	DRY	--
2021-06-11	DRY	--

NOTES

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE/MONITORING WELL NO. 2

17T 577120E 4891551N

PROJECT Proposed Residential Development
LOCATION 937045 Airport Road, Mansfield, ON
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 13, 2021
PML REF. 21BF019
ENGINEER GW
TECHNICIAN AT/NT

DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUES
	SURFACE ELEVATION 312.80				
0.0	TOPSOIL: Brown, silty sand, trace gravel, moist		1	SS	4
0.60 / 312.20	SAND: Very loose to loose, brown, sand, some silt, trace gravel, moist		2	SS	2
			3	SS	5
			4	SS	7
2.9 / 309.9	SILTY SAND: Loose, brown, silty sand, trace gravel, very moist		5	SS	7
4.0 / 308.8	SANDY SILT: Very dense, brown, sandy silt, with sand layers, trace clay, very moist		6	SS	59
6.5 / 306.3	BOREHOLE TERMINATED AT 6.5 m		7	SS	64

ELEVATION SCALE: 312, 311, 310, 309, 308, 307

SHEAR STRENGTH (kPa)
+FIELD VANE △TORVANE ○ Qu
▲POCKET PENETROMETER O Q
50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30 40

UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS
GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL

Upon completion of augering
No water
No cave
Water Level Readings:

Date	Depth	Elev.
2021-05-20	DRY	--
2021-06-11	DRY	--

NOTES

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 3

17T 577257E 4891636N

PROJECT Proposed Residential Development
PML REF. 21BF019
LOCATION 937045 Airport Road, Mansfield, ON
BORING DATE May 13, 2021
ENGINEER GW
BORING METHOD Continuous Flight Solid Stem Augers
TECHNICIAN CM

DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUES	ELEVATION SCALE	SHEAR STRENGTH (kPa) / DYNAMIC CONE PENETRATION / STANDARD PENETRATION TEST	PLASTIC LIMIT / NATURAL MOISTURE CONTENT / LIQUID LIMIT / WATER CONTENT (%)	UNIT WEIGHT kN/m³	GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL
	SURFACE ELEVATION 310.60									
0.20	TOPSOIL: Brown, silty sand, moist		1	SS	5					
310.40	SAND: Very loose to compact, brown, sand, trace to some silt, trace gravel, moist to very moist		2	SS	3	310				
			3	SS	4	309				
			4	SS	11	308				
			5	SS	16	307				
			6	SS	16	306				
5.0										
305.6	BOREHOLE TERMINATED AT 5.0 m									Upon completion of augering No water No cave

SHEAR STRENGTH (kPa): + FIELD VANE △ TORVANE ○ Qu ▲ POCKET PENETROMETER ○ Q; 50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80
PLASTIC LIMIT w_P NATURAL MOISTURE CONTENT w LIQUID LIMIT w_L
WATER CONTENT (%) 10 20 30 40

NOTES

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 4

17T 577078E 4891413N

PROJECT Proposed Residential Development
PML REF. 21BF019
LOCATION 937045 Airport Road, Mansfield, ON
BORING DATE May 14, 2021
ENGINEER GW
BORING METHOD Continuous Flight Solid Stem Augers
TECHNICIAN CM

DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUES	ELEVATION SCALE	SHEAR STRENGTH (kPa) / DYNAMIC CONE PENETRATION / STANDARD PENETRATION TEST	PLASTIC LIMIT / NATURAL MOISTURE CONTENT / LIQUID LIMIT / WATER CONTENT (%)	UNIT WEIGHT kN/m³	GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL
	SURFACE ELEVATION 309.30									
0.15 / 309.15	TOPSOIL: Brown, silty sand, moist		1	SS	4	309				
	SAND: Loose to compact, brown, sand, trace silt, trace gravel, cobbles and boulders, moist to wet		2	SS	13	308				First water strike at 1.5 m
			3	SS	8					
2.1 / 307.2	SANDY CLAYEY SILT: Hard, brown, sandy clayey silt, trace gravel, DTPL		4'	SS	33	307				
2.9 / 306.4	SANDY SILT: Very dense to dense, brown to grey, sandy silt, trace gravel, trace clay, moist		5	SS	74	306				
						305				
5.0 / 304.3	BOREHOLE TERMINATED AT 5.0 m		6	SS	48					Upon completion of augering No water No cave

SHEAR STRENGTH (kPa): + FIELD VANE △ TORVANE ○ Qu ▲ POCKET PENETROMETER ○ Q (50 100 150 200)
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
(20 40 60 80)
PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L
WATER CONTENT (%) (10 20 30 40)

NOTES

Peto MacCallum Ltd.
CONSULTING ENGINEERS

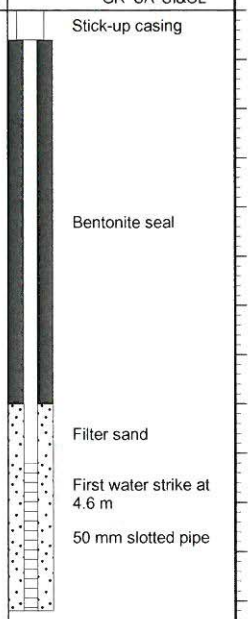
LOG OF BOREHOLE/MONITORING WELL NO. 5

17T 577238E 4891392N

PROJECT Proposed Residential Development
LOCATION 937045 Airport Road, Mansfield, ON
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 13, 2021
PML REF. 21BF019
ENGINEER GW
TECHNICIAN CM

DEPTH / ELEV (metres)	DESCRIPTION	NUMBER	TYPE	"N" VALUES
	SURFACE ELEVATION 309.20			
0.20 / 309.00	TOPSOIL: Brown, silty sand, trace gravel, moist	1	SS	6
	SAND AND GRAVEL: Very dense to dense, brown, sand and gravel, trace silt, moist	2	SS	54
		3	SS	46
		4	SS	29
2.9 / 306.3	SAND: Compact to loose, brown, sand, trace to some silt, trace gravel, moist to wet	5	SS	27
		6	SS	9
5.5 / 303.7	SANDY SILT: Compact, brown, sandy silt, trace gravel, trace clay, very moist	7	SS	23
6.5 / 302.7	BOREHOLE TERMINATED AT 6.5 m			

SHEAR STRENGTH (kPa): + FIELD VANE △ TORVANE ○ Qu ▲ POCKET PENETROMETER ○ Q; 50 100 150 200
DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ●; 20 40 60 80
PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L
WATER CONTENT (%); 10 20 30 40
UNIT WEIGHT kN/m³



GROUND WATER OBSERVATIONS AND REMARKS
GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL

Upon completion of augering
Wet cave at 4.3 m

Water Level Readings:

Date	Depth	Elev.
2021-05-20	4.2	305.0
2021-06-11	4.3	304.9

NOTES

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 6

17T 577273E 4891513N

PROJECT Proposed Residential Development
PML REF. 21BF019
LOCATION 937045 Airport Road, Mansfield, ON
BORING DATE May 12, 2021
ENGINEER GW
BORING METHOD Continuous Flight Solid Stem Augers
TECHNICIAN CM

DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUES	ELEVATION SCALE	SHEAR STRENGTH (kPa) / DYNAMIC CONE PENETRATION / STANDARD PENETRATION TEST	PLASTIC LIMIT / NATURAL MOISTURE CONTENT / LIQUID LIMIT / WATER CONTENT (%)	UNIT WEIGHT kN/m³	GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL
	SURFACE ELEVATION 304.50									
0.18	TOPSOIL: Dark brown, silty sand, moist		1	SS	3	304				
304.32	SILTY SAND: Very loose to compact, brown, silty sand, wet		2	SS	8					First water strike at 0.8 m
			3	SS	10	303				
2.3										
302.2	SILT: Compact, brown, sandy silt, trace sand, trace gravel, trace clay, wet		4[1]	SS	13	302				
3.1										
301.4	CLAYEY SILT: Stiff to very stiff, grey, clayey silt, with sandly silt layers, trace sand, WTPL		5	SS	14	301				
5.0			6	SS	20	300				
299.5	BOREHOLE TERMINATED AT 5.0 m									Upon completion of augering Water at 1.2 m Cave at 1.8 m

SHEAR STRENGTH (kPa): + FIELD VANE △ TORVANE ○ Qu ▲ POCKET PENETROMETER ○ Q; 50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80
PLASTIC LIMIT w_P NATURAL MOISTURE CONTENT w LIQUID LIMIT w_L
WATER CONTENT (%): 10 20 30 40

NOTES

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE/MONITORING WELL NO. 7

17T 577292E 4891491N

PROJECT Proposed Residential Development
PML REF. 21BF019
LOCATION 937045 Airport Road, Mansfield, ON
BORING DATE May 12, 2021
ENGINEER GW
BORING METHOD Continuous Flight Solid Stem Augers
TECHNICIAN CM

DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUES	ELEVATION SCALE	SHEAR STRENGTH (kPa) / DYNAMIC CONE PENETRATION / STANDARD PENETRATION TEST	PLASTIC LIMIT / NATURAL MOISTURE CONTENT / LIQUID LIMIT / WATER CONTENT (%)	UNIT WEIGHT kN/m³	GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL
	SURFACE ELEVATION 304.05									
0.20	TOPSOIL: Brown, silty sand, moist		1	SS	3					Stick-up casing
303.85	SAND: Very loose to loose, brown, sand, trace silt, wet		2	SS	8	303				First water strike at 0.8 m
1.4										
302.7	CLAYEY SILT: Stiff, brown, clayey silt, sandy silt layers, trace sand, WTPL		3	SS	12					Bentonite seal
2.1						302				
302.0	CLAYEY SILT TILL: Stiff, grey, clayey silt, trace gravel, trace sand, cobbles and boulders, APL to WTPL		4	SS	14					
			5	SS	13	301				Filter sand
						300				50 mm slotted pipe
5.0			6	SS	14					
299.1	BOREHOLE TERMINATED AT 5.0 m									Upon completion of augering Water at 0.9 m No cave Water Level Readings: Date / Depth / Elev. 2021-05-20 1.0 303.1 2021-06-11 1.3 302.8

SHEAR STRENGTH (kPa): + FIELD VANE △ TORVANE ○ Qu ▲ POCKET PENETROMETER ○ Q; 50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80
PLASTIC LIMIT w_P NATURAL MOISTURE CONTENT w LIQUID LIMIT w_L
WATER CONTENT (%) 10 20 30 40

NOTES

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE/MONITORING WELL NO. 8

17T 577389E 4891551N

PROJECT Proposed Residential Development
LOCATION 937045 Airport Road, Mansfield, ON
BORING METHOD Continuous Flight Hollow Stem Augers
BORING DATE May 13, 2021
PML REF. 21BF019
ENGINEER GW
TECHNICIAN CM

DEPTH ELEV (metres)	DESCRIPTION	NUMBER	TYPE	"N" VALUES
	SURFACE ELEVATION 309.85			
0.13 / 309.72	TOPSOIL: Brown, silty sand, moist	1	SS	7
	FILL: Brown, silty sand, some gravel, trace organics, moist	2	SS	64
1.4 / 308.5	SAND: Compact, brown, sand, trace to some silt, trace gravel, moist to wet	3	SS	26
		4	SS	15
		5	SS	16
		6	SS	25
5.5 / 304.4	SILT: Compact, brown, silt, trace to some sand, trace gravel, trace clay, moist to wet	7[1]	SS	25
		8	SS	24
9.0 / 300.9	CLAYEY SILT TILL: Hard, brown to grey, clayey silt, trace sand, trace gravel, cobbles and boulders, APL	9	SS	44
10.0 / 299.9	BOREHOLE TERMINATED AT 10.0 m			

SHEAR STRENGTH (kPa): +FIELD VANE △TORVANE ○ Qu ▲POCKET PENETROMETER ○ Q; DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ●

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L; WATER CONTENT (%)

UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS

GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL

Upon completion of augering
Wet cave at 4.6 m

Water Level Readings:

Date	Depth	Elev.
2021-05-20	7.2	302.7
2021-06-11	7.2	302.7

NOTES

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 9

17T 576946E 4891305N

PROJECT Proposed Residential Development
PML REF. 21BF019
LOCATION 937045 Airport Road, Mansfield, ON
BORING DATE May 14, 2021
ENGINEER GW
BORING METHOD Continuous Flight Solid Stem Augers
TECHNICIAN CM

DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUES	ELEVATION SCALE
0.05	SURFACE ELEVATION 311.35					
311.30	TOPSOIL: Brown, silty sand, trace gravel, moist		1	SS	19	311
0.70	SAND: Compact, brown, sand, trace silt, moist					
310.65	SAND AND GRAVEL: Very dense to dense, brown, sand and gravel, trace silt, cobbles and boulders, moist to very moist		2	SS	84	310
			3	SS	39	
2.1						
309.3	SILT: Dense, brown to grey, silt, trace sand, trace clay, trace gravel, moist to wet		4[1]	SS	44	309
			5	SS	33	308
4.0						
307.4	SILTY SAND: Dense, brown, silty sand, trace gravel, moist					307
5.0			6	SS	34	
306.4	BOREHOLE TERMINATED AT 5.0 m					

SHEAR STRENGTH (kPa)
+ FIELD VANE △ TORVANE ○ Qu
▲ POCKET PENETROMETER O Q
50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30 40

UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS
GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL

First water strike at 3.1 m

Upon completion of augering
No water
No cave

NOTES

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE/MONITORING WELL NO. 10

17T 577162E 4891306N

PROJECT Proposed Residential Development
LOCATION 937045 Airport Road, Mansfield, ON
BORING METHOD Continuous Flight Solid Stem Augers
BORING DATE May 14, 2021
PML REF. 21BF019
ENGINEER GW
TECHNICIAN CM

DEPTH (metres)	ELEV	DESCRIPTION	STRAT PLOT	SAMPLES NUMBER	TYPE	"N" VALUES
		SURFACE ELEVATION 310.50				
0.0	0.10 / 310.40	TOPSOIL: Brown, silty sand, moist		1	SS	4
		SAND: Loose to compact, brown, sand, trace to some silt, trace to some gravel, moist		2	SS	24
1.0						
				3	SS	13
2.0						
				4	SS	12
	2.9 / 307.6	SILTY SAND: Compact, brown, silty sand, trace gravel, wet				
3.0				5	SS	17
4.0						
				6	SS	17
5.0						
6.0	6.5 / 304.0	BOREHOLE TERMINATED AT 6.5 m		7	SS	22
7.0						
8.0						
9.0						
10.0						
11.0						
12.0						
13.0						
14.0						
15.0						

ELEVATION SCALE: 310, 309, 308, 307, 306, 305, 304

SHEAR STRENGTH (kPa)
+ FIELD VANE △ TORVANE ○ Qu
▲ POCKET PENETROMETER ○ Q
50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30 40

UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS
GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL

Stick-up casing
Bentonite seal
First water strike at 3.1 m
Filter sand
50 mm slotted pipe

Upon completion of augering
Wet cave at 4.3 m

Water Level Readings:

Date	Depth	Elev.
2021-05-20	4.2	306.3
2021-06-11	4.3	306.2

NOTES

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE/MONITORING WELL NO. 11

17T 577306E 4891413N

PROJECT Proposed Residential Development — **PML REF.** 21BF019
LOCATION 937045 Airport Road, Mansfield, ON — **BORING DATE** May 12, 2021 — **ENGINEER** GW
BORING METHOD Continuous Flight Solid Stem Augers — **TECHNICIAN** CM

DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUES	ELEVATION SCALE	SHEAR STRENGTH (kPa) / DYNAMIC CONE PENETRATION / WATER CONTENT (%)	UNIT WEIGHT kN/m³	GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL
	SURFACE ELEVATION 309.05								
0.20 308.85	TOPSOIL: Brown, silty sand, trace gravel, moist		1	SS	8				Stick-up casing
	SAND: Loose to compact, brown, sand, trace silt, trace to some gravel, cobbles and boulders, moist		2	SS	17	308			
			3	SS	18	307			Bentonite seal
2.1 307.0	SANDY SILT: Compact, brown, sandy silt, trace gravel, trace clay, moist with wet layers		4	SS	11	306			
			5[1]	SS	13	305			Filter sand
			6	SS	16	304			First water strike at 4.6 m 50 mm slotted pipe
6.5 302.6	BOREHOLE TERMINATED AT 6.5 m		7	SS	11	303			Upon completion of augering Wet cave at 5.5 m

SHEAR STRENGTH (kPa): +FIELD VANE △TORVANE ○ Qu ▲POCKET PENETROMETER O Q; 50 100 150 200
DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ●; 20 40 60 80
PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L
WATER CONTENT (%): 10 20 30 40

Water Level Readings:

Date	Depth	Elev.
2021-05-20	4.6	304.5
2021-06-11	4.8	304.3

NOTES

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE/MONITORING WELL NO. 12

17T 577451E 4891453N

PROJECT Proposed Residential Development
LOCATION 937045 Airport Road, Mansfield, ON
BORING METHOD Continuous Flight Hollow Stem Augers
BORING DATE May 12, 2021
PML REF. 21BF019
ENGINEER GW
TECHNICIAN CM

DEPTH ELEV (metres)	DESCRIPTION	NUMBER	TYPE	"N" VALUES
	SURFACE ELEVATION 308.00			
0.20	TOPSOIL: Brown, silty sand, moist			
307.80	SAND: Loose to compact, brown, sand, trace silt, moist to wet	1	SS	7
		2	SS	8
		3	SS	10
		4	SS	15
2.9				
305.1	SILTY FINE SAND: Compact, brown, silty fine sand, wet	5[1]	SS	15
		6	SS	13
5.5				
302.5	SANDY SILT: Compact, brown, sandy silt, trace clay, trace gravel, cobbles and boulders, moist to very moist	7[1]	SS	25
		8	SS	19
9.0				
299.0	SANDY SILTY CLAY: Stiff, grey, sandy silty clay, trace gravel, APL	9[1]	SS	14
10.0				
298.0	BOREHOLE TERMINATED AT 10.0 m			

SHEAR STRENGTH (kPa): + FIELD VANE △ TORVANE ○ Qu ▲ POCKET PENETROMETER ○ Q (50 100 150 200)
DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ● (20 40 60 80)
PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%) (10 20 30 40)
UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS
GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL

Stick-up casing
First water strike at 2.3 m
Bentonite seal
Filter sand
50 mm slotted pipe

Upon completion of augering
No water
No cave
Water Level Readings:

Date	Depth	Elev.
2021-05-20	5.7	302.3
2021-06-11	5.8	302.2

NOTES

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Environmental Assessments & Approvals

TEST PIT LOG 1

Project Name/ Project Client	21-158	**Project Address**	937045 Airport Road	**Date**	October 14th 2022
Test Pit Number	TP 1	**Contractor**	David Seaman	**Elevation**	
Equipment	Rubber Track Mini-Excavator	**Test Pit Size**	2m x 4m	**Datum**	
Temperature	5°	**Weather**	Cloudy	**Sample Type**	

Depth		**Soil description**	**Samples**		**Screening Parameters**	**Remarks / Chemical Analysis**
From (m)	**To (m)**		**No.**	**Depth (mbgs)**		
0.00	0.30	TOPSOIL: Dark brown to black, sand, trace silt, trace gravel, moist to very moist				
0.30	1.20	SAND AND GRAVEL: Compact, brown, sand and gravel, with cobbles and boulders, moist				
1.20	3.10	SAND: Compact, light brown to brown, sand, trace silt, trace gravel, moist				
		Test Pit Terminated at ___3.1m_____				

Comments	***Water Conditions in Test Pit***	
Standpipe 1 installed at bottom of testpit. Standpipe 1 - Dry - 2022/10/31	☐ Wet upon completion ☑ Dry upon completion	

JOB No.	21-158
TEST PIT No.	1
FIELD STAFF	AT

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Environmental Assessments & Approvals

TEST PIT LOG 2

Project Name/ Project Client	21-158	**Project Address**	937045 Airport Road	**Date**	October 14th 2022
Test Pit Number	TP 2	**Contractor**	David Seaman	**Elevation**	
Equipment	Rubber Track Mini-Excavator	**Test Pit Size**	2m x 4m	**Datum**	
Temperature	6°	**Weather**	Cloudy	**Sample Type**	

Depth		**Soil description**	**Samples**		**Screening Parameters**	**Remarks / Chemical Analysis**
From (m)	**To (m)**		**No.**	**Depth (mbgs)**		
0.00	0.40	TOPSOIL: Brown to black, sand, trace silt, trace gravel, moist to very moist				
0.40	0.70	SILTY SAND: Compact, brown, silty sand, trace gravel, moist				
0.70	1.30	SAND AND GRAVEL: Compact, brown, sand and gravel, with cobbles and boulders, moist				
1.30	3.10	SAND: Compact, brown, sand, trace to some silt, trace gravel, moist				
		Test Pit Terminated at ___3.1m_____				

Comments	***Water Conditions in Test Pit***	
Standpipe 2 installed at bottom of testpit. Standpipe 2 - Dry - 2022/10/31	☐ Wet upon completion ☑ Dry upon completion	

JOB No. 21-158

TEST PIT No. 2

FIELD STAFF AT

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Environmental Assessments & Approvals

TEST PIT LOG 3

Project Name/ Project Client	21-158	**Project Address**	937045 Airport Road	**Date**	October 14th 2022
Test Pit Number	TP 3	**Contractor**	David Seaman	**Elevation**	
Equipment	Rubber Track Mini-Excavator	**Test Pit Size**	2m x 4m	**Datum**	
Temperature	8°	**Weather**	Cloudy	**Sample Type**	

Depth		**Soil description**	**Samples**		**Screening Parameters**	**Remarks / Chemical Analysis**
From (m)	**To (m)**		**No.**	**Depth (mbgs)**		
0.00	0.25	TOPSOIL: Black to brown, sand, trace silt, trace gravel, trace organics, moist to very moist				
0.25	0.75	SILTY SAND: Compact, brown, silty sand, trace gravel, moist				
0.75	3.10	SAND AND GRAVEL: Compact to dense, brown, sand and gravel, with cobbles and boulders, moist				
		Test Pit Terminated at ___3.1m_____				

Comments	***Water Conditions in Test Pit***	
Standpipe 3 installed at bottom of testpit. Standpipe 3 - Dry - 2022/10/31	☐ Wet upon completion ☑ Dry upon completion	

JOB No.	21-158
TEST PIT No.	3
FIELD STAFF	AT

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Environmental Assessments & Approvals

TEST PIT LOG 4

Project Name/ Project Client	21-158	**Project Address**	937045 Airport Road	**Date**	October 14th 2022
Test Pit Number	TP 4	**Contractor**	David Seaman	**Elevation**	
Equipment	Rubber Track Mini-Excavator	**Test Pit Size**	2m x 4m	**Datum**	
Temperature	10°	**Weather**	Parly Sunny	**Sample Type**	

Depth		**Soil description**	**Samples**		**Screening Parameters**	**Remarks / Chemical Analysis**
From (m)	**To (m)**		**No.**	**Depth (mbgs)**		
0.00	0.40	TOPSOIL: Black to dark brown, sand, trace to some silt, trace gravel, trace organics, moist				
0.40	1.00	SAND: Compact, brown, sand, some silt, trace gravel, moist				
1.00	1.70	SAND AND GRAVEL: Compact, brown, sand and gravel, with cobbles and boulders, moist				
1.70	3.40	SAND: Compact, light brown to brown, sand, trace silt, trace gravel, moist				
		Test Pit Terminated at ___3.4m_____				

Comments	***Water Conditions in Test Pit***
Standpipe 4 installed at bottom of testpit. Standpipe 4 - Dry - 2022/10/31	☐ Wet upon completion ☑ Dry upon completion

JOB No.	21-158
TEST PIT No.	4
FIELD STAFF	AT

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Environmental Assessments & Approvals

TEST PIT LOG 5

Project Name/ Project Client	21-158	**Project Address**	937045 Airport Road	**Date**	October 14th 2022
Test Pit Number	TP 5	**Contractor**	David Seaman	**Elevation**	
Equipment	Rubber Track Mini-Excavator	**Test Pit Size**	2m x 4m	**Datum**	
Temperature	10°	**Weather**	Parly Sunny	**Sample Type**	

Depth		**Soil description**	**Samples**		**Screening Parameters**	**Remarks / Chemical Analysis**
From (m)	**To (m)**		**No.**	**Depth (mbgs)**		
0.00	0.35	TOPSOIL: Black to dark brown, silty sand, trace gravel, trace organics, moist				
0.35	0.60	SILTY SAND: Compact, brown, silty sand, trace gravel, moist				
0.60	3.60	SAND AND GRAVEL: Compact to dense, brown, sand and gravel, with cobbles and boulders, moist				
		Test Pit Terminated at ___3.6m_____				

Comments	***Water Conditions in Test Pit***	
Standpipe 5 installed at bottom of testpit. Standpipe 5 - Dry - 2022/10/31	☐ Wet upon completion ☑ Dry upon completion	

JOB No. 21-158

TEST PIT No. 5

FIELD STAFF AT

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
Environmental Assessments & Approvals

Project:	Project Number:	Client:	Borehole ID:
Sewage Impact Study	21-158B	David Seaman	BH 101
Project Location: Armstrong Subdivision, Mansfield, Ontario		**Drilling Contractor:** Orbit Garant Drilling	**Drilling Method:** Hollow Stem Augers
Logged By: A. Turner	**Date:** 23-May-2023	**Stickup (m):**	**Well Depth (mbgs):**
UTM: (NAD 83, Zone 17T)	**Ground Elevation (masl):** 311.22	**Water Level (mbgs):**	**Well Diameter (mm)**
Easting: 576951	**Well Screen Type:**	**Riser Pipe Type:**	**Well Screen Length (m):**
Northing: 4891389			

Depth Below Ground Surface (mbgs)	Sample Type / No.	N - Value	Sample Recovery (%)	Lithology	Monitoring Well Construction	Lithology Description
	SS 1/SS 2	4,3	75,75			**TOPSOIL:** Dark brown, sand, some silt, trace gravel, trace organics, moist (0.0 - 0.4m)
	SS 3	50+	50			
	SS 4	23	75			**SILTY SAND:** Very loose, brown to dark brown, silty sand, trace gravel, moist, (0.4 - 1.5 m)
	SS 5	14	83			
	SS 6/SS 7	23,24	92,83			**SAND:** Compact to very dense, brown, coarse sand, some gravel to gravelly, moist (1.5 - 2.3m)
5	SS 8	28	92			
	SS 9	32	83			**SAND:** Becoming fine sand, stratified, moist (1.5 - 16.8m)
	SS 10	25	92			
	SS 11	31	92			
10	SS 12	26	92			
	SS 13	32	83			
	SS 14	35	83			
15	SS 15	45	75			
	SS 16	37	83			**SAND:** Becoming more coarse (16.8 - 18.9m)
	SS 17	36	83			
20						Borehole terminated at 18.9 mbgs Upon completion of augering; No water No cave
25						
30						

Ground Water Level Upon Well Completion (mbgs)

Seal (grout / hole plug) **Silica Sand Pack** **Well Screen**

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
Environmental Assessments & Approvals

Project:	Project Number:	Client:	Borehole ID:
Sewage Impact Study	21-158B	David Seaman	BH 102
Project Location:		**Drilling Contractor:**	**Drilling Method:**
Armstrong Subdivision, Mansfield, Ontario		Orbit Garant	Hollow Stem Augers
Logged By:	**Date:**	**Stickup (m):**	**Well Depth (mbgs):**
A. Turner	17-May-2023	Stick Up Casing	4.6
	Ground Elevation (masl):	**Water Level (mbgs):**	**Well Diameter (mm)**
UTM: (NAD 83, Zone 17T)	308.68	4.25	50.8
Easting: 577143	**Well Screen Type:**	**Riser Pipe Type:**	**Well Screen Length (m):**
Northing: 4891471	10-Slot PVC, Schedule 40	Schedule 40 PVC	1.5

Depth Below Ground Surface (mbgs)	Sample Type / No.	N - Value	Sample Recovery (%)	Lithology	Monitoring Well Construction	Lithology Description
	SS 1	10	66			**TOPSOIL:** Brown, sand, trace silt, trace gravel, trace organics,
	SS 2	37	42			moist (0.0 - 0.3m)
						GRAVELLY SAND: Dense, brown, gravelly sand, trace organics,
	SS 3	13	83			moist (0.3 - 1.5m)
2	SS 4	13	92			**SAND:** Compact, brown to light brown, fine sand, trace to some silt,
						trace gravel, moist (1.5 - 3.0m)
	SS 5	19	83			**SANDY SILT:** Compact, brown, sandy silt, very moist (3.0 - 4.6m)
4						
	SS 6	13	92			**TILL:** Compact, brown, sandy silt with clayey silt layers, trace gravel,
						cobbles and boulders, moist (4.6 - 5.2m)
6						
						Borehole terminated at 5.2 mbgs
						Upon completion of augering;
						No water
						No cave
8						
10						
12						

Ground Water Level Upon Well Completion (mbgs)

Seal (grout / hole plug) **Silica Sand Pack** **Well Screen**

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
Environmental Assessments & Approvals

Project: Sewage Impact Study	**Project Number:** 21-158B	**Client:** David Seaman	**Borehole ID:** BH 103
Project Location: Armstrong Subdivision, Mansfield, Ontario		**Drilling Contractor:** Orbit Garant	**Drilling Method:** Hollow Stem Augers
Logged By: A. Turner	**Date:** 16-May-2023	**Stickup (m):** Stick Up Casing	**Well Depth (mbgs):** 10.7
UTM: (NAD 83, Zone 17T)	**Ground Elevation (masl):** 314.48	**Water Level (mbgs):** Dry	**Well Diameter (mm)** 50.8
Easting: 577168	**Well Screen Type:**	**Riser Pipe Type:**	**Well Screen Length (m):**
Northing: 4891602	10-Slot PVC, Schedule 40	Schedule 40 PVC	3

Depth Below Ground Surface (mbgs)	Sample Type / No.	N - Value	Sample Recovery (%)	Lithology	Monitoring Well Construction	Lithology Description
	SS 1	6	33			**TOPSOIL:** Brown, sand, trace silt, trace gravel, trace organics,
	SS 2	7	42			moist (0.0 - 0.28m)
						SAND: Loose to compact, brown to light brown, coarse sand, trace to some
	SS 3	15	66			silt, trace gravel, moist (0.28 - 6.1m)
2	SS 4	15	75			
	SS 5	21	83			
4						
	SS 6	8	83			Silt seam, very moist at 4.6m
6						
	SS 7	28	92			**SILT:** Compact, brown, silt, trace to some sand, very moist (6.1 - 7.6m)
	SS 8	35	83			**SAND:** Dense, brown to light brown, sand, some silt with silt layers, trace
8						gravel, moist (7.6 - 10.7m)
	SS 9	33	83			
10						
	SS 10	47	92			**TILL:** Dense, brown to grey, sandy silt, trace to some gravel, cobbles and
						boulders, moist (10.7 - 11.5m)
						Borehole terminated at 11.5 mbgs
						Upon completion of augering;
12						No water
						No cave

Ground Water Level Upon Well Completion (mbgs)

Seal (grout / hole plug) **Silica Sand Pack** **Well Screen**

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
Environmental Assessments & Approvals

Project:	Project Number:	Client:	Borehole ID:
Sewage Impact Study	21-158B	David Seaman	BH 104
Project Location:		**Drilling Contractor:**	**Drilling Method:**
Armstrong Subdivision, Mansfield, Ontario		Orbit Garant Drilling	Hollow Stem Augers
Logged By:	**Date:**	**Stickup (m):**	**Well Depth (mbgs):**
A. Turner	16-May-2023	Stickup Casing	12.2
	Ground Elevation (masl):	**Water Level (mbgs):**	**Well Diameter (mm)**
UTM: (NAD 83, Zone 17T)	309.97	7.84	50.8
Easting: 577454	**Well Screen Type:**	**Riser Pipe Type:**	**Well Screen Length (m):**
Northing: 4891722	10-Slot PVC, Schedule 40	Schedule 40 PVC	3

Depth Below Ground Surface (mbgs)	Sample Type / No.	N - Value	Sample Recovery (%)	Lithology	Monitoring Well Construction	Lithology Description
	SS 1/SS 2	4,3	66,58			**TOPSOIL:** Brown, sand, trace to some silt, trace gravel, trace organics, moist (0.0 - 0.4m)
	SS 3	3	42			**SAND:** Very loose to compact, brown to light brown, fine sand, trace to some silt, trace gravel, moist to wet (0.4 - 9.1m)
	SS 4	4	50			
	SS 5	1	50			
	SS 6	25	83			
5						
	SS 7	26	92			
	SS 8	13	83			First ground water strike at 7.6m Becoming some silt to silty at 7.6 m
	SS 9	20	83			**SANDY SILT:** Compact, brown, sandy silt, wet (9.1 - 10.7m)
10	SS 10	14	83			**SILTY SAND:** Compact, brown to grey, silty fine sand, wet (10.7 - 12.2m)
	SS 11	50+	83			**TILL:** Very dense, grey to red, clayey silt with sand layers, trace gravel, cobbles and boulders, very moist (12.2 - 12.5m)
15						Borehole terminated at 12.5 mbgs Upon completion of augering; Water at 9.1m No cave
20						
25						
30						

Soil Group Name: grain size,color, density/consistency, moisture, stratification, other descriptors

Rock Description: modifier, color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.

Ground Water Level Upon Well Completion (mbgs)

Seal (grout / hole plug) **Silica Sand Pack** **Well Screen**

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
Environmental Assessments & Approvals

Project:	Project Number:	Client:	Borehole ID:
Sewage Impact Study	21-158B	David Seaman	BH 105
Project Location:		**Drilling Contractor:**	**Drilling Method:**
Armstrong Subdivision, Mansfield, Ontario		Orbit Garant Drilling	Hollow Stem Augers
Logged By:	**Date:**	**Stickup (m):**	**Well Depth (mbgs):**
A. Turner	17-May-2023	Stickup Casing	14.3
	Ground Elevation (masl):	**Water Level (mbgs):**	**Well Diameter (mm)**
UTM: (NAD 83, Zone 17T)	309.86	8.17	50.8
Easting: 577471	**Well Screen Type:**	**Riser Pipe Type:**	**Well Screen Length (m):**
Northing: 4891578	10-Slot PVC, Schedule 40	Schedule 40 PVC	3

Depth Below Ground Surface (mbgs)	Sample Type / No.	N - Value	Sample Recovery (%)	Lithology	Monitoring Well Construction	Lithology Description
	SS 1/SS 2	3,2	75,66			**TOPSOIL:** Brown, sand, trace to some silt, trace gravel, trace organics, moist (0.0 - 0.5m)
	SS 3	13	66			**SAND:** Very loose to compact, brown to light brown, coarse to fine sand,
	SS 4	13	75			trace to some gravel, moint to very moist (0.5 - 12.2m)
	SS 5	11	66			
	SS 6	18	83			
5						
	SS 7	25	92			
	SS 8	14	83			Becoming silty fine sand
						First ground water strike at 7.9m
	SS 9	16	92			
10	SS 10	20	83			
	SS 11	31	92			**SANDY SILT:** Dense, brown, sandy silt, wet (12.2 - 13.7m)
	SS 12	25	75			**SILT:** Compact, brown to grey, silt, some sand to sandy, trace gravel,
	SS 13	16	83			becoming "till-like", very moist (13.7 - 14.3m)
15						**TILL:** Compact, brown to grey, clayey silt, trace sand, trace gravel, cobbles and boulders, very moist (14.3 - 15.1m)
						Borehole terminated at 15.1 mbgs
						Upon completion of augering;
20						Water at 7.0m
						No cave
25						
30						

Soil Group Name: grain size,color, density/consistency, moisture, stratification, other descriptors

Rock Description: modifier, color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.

Ground Water Level Upon Well Completion (mbgs)

Seal (grout / hole plug) **Silica Sand Pack** **Well Screen**

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
Environmental Assessments & Approvals

Project:	Project Number:	Client:	Borehole ID:
Sewage Impact Study	21-158B	David Seaman	BH 106
Project Location:		**Drilling Contractor:**	**Drilling Method:**
Armstrong Subdivision, Mansfield, Ontario		Orbit Garant	Hollow Stem Augers
Logged By:	**Date:**	**Stickup (m):**	**Well Depth (mbgs):**
A. Turner	18-May-2023	Stick Up Casing	4.6
	Ground Elevation (masl):	**Water Level (mbgs):**	**Well Diameter (mm)**
UTM: (NAD 83, Zone 17T)	311.1	4.4	50.8
Easting: 577011	**Well Screen Type:**	**Riser Pipe Type:**	**Well Screen Length (m):**
Northing: 4891274	10-Slot PVC, Schedule 40	Schedule 40 PVC	1.5

Depth Below Ground Surface (mbgs)	Sample Type / No.	N - Value	Sample Recovery (%)	Lithology	Monitoring Well Construction	Lithology Description
	SS 1	3	75			**TOPSOIL:** Brown to dark brown, sand, trace to some silt, trace gravel
	SS 2	10	75			trace organics, moist (0.0 - 0.6m)
						SAND: Compact, brown, coarse sand, trace silt, some gravel,
	SS 3	15	83			moist (0.6 - 2.3m)
2	SS 4	14	83			**SANDY SILT:** Compact, brown, sandy silt, with clayey silt layers,
						trace gravel, very moist (2.3 - 4.0m)
	SS 5	17	92			
	SS 6	33	83			
4						**SAND:** Dense, brown, fine to coarse sand, some silt, stratified, trace to some
	SS 7	36	83			gravel, moist (4.0 - 4.6m)
	SS 8	22	83			**TILL:** Compact to dense, brown to grey, sandy silt with clay seams,
6						trace gravel, cobbles and boulders, moist (4.6 - 6.0m)
						Borehole terminated at 6.0 mbgs
						Upon completion of augering;
						No water
8						No cave
10						
12						

Ground Water Level Upon Well Completion (mbgs)

Seal (grout / hole plug) **Silica Sand Pack** **Well Screen**

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
Environmental Assessments & Approvals

Project: Sewage Impact Study	**Project Number:** 21-158B	**Client:** David Seaman	**Borehole ID:** BH 107
Project Location: Armstrong Subdivision, Mansfield, Ontario		**Drilling Contractor:** Orbit Garant	**Drilling Method:** Hollow Stem Augers
Logged By: A. Turner	**Date:** 18-May-2023	**Stickup (m):** Stick Up Casing	**Well Depth (mbgs):** 9.1
UTM: (NAD 83, Zone 17T)	**Ground Elevation (masl):** 309.59	**Water Level (mbgs):** 5.79	**Well Diameter (mm)** 50.8
Easting: 577391	**Well Screen Type:** 10-Slot PVC, Schedule 40	**Riser Pipe Type:** Schedule 40 PVC	**Well Screen Length (m):** 3
Northing: 4891354			

Depth Below Ground Surface (mbgs)	Sample Type / No.	N - Value	Sample Recovery (%)	Lithology	Monitoring Well Construction	Lithology Description
	SS 1	5	75			**TOPSOIL:** Dark brown to brown, sand, some silt to silty, trace gravel,
	SS 2	35	66			trace organics, moist (0.0 - 0.6m)
						SAND: Compact to dense, coarse sand, trace silt, some gravel to gravelly,
	SS 3	30	75			moist (0.6 - 4.6m)
2	SS 4	18	83			Becoming fine sand, trace gravel at 1.5m
	SS 5	20	92			
4						
	SS 6	22	83			**SILTY SAND:** Compact, brown, silty fine sand, very moist to wet (4.6 - 7.6m)
6	SS 7	14	92			First ground water strike at 6.1m
	SS 8	14	92			**SANDY SILT:** Compact, brown, sandy silt, wet (7.6 - 9.1m)
8	SS 9	60	92			**TILL:** Very dense, brown to grey, silty sand to sandy silt, trace gravel,
10						cobbles and boulders, very moist (9.1 - 9.8m)
						Borehole terminated at 9.8 mbgs
						Upon completion of augering;
12						Borehole flushed out with drilling mud and water before monitoring well install
						no final water level reading obtained
						No cave

Lithology Description

Soil Group Name: grain size,color, density/consistency, moisture, stratification, other descriptors

Rock Description: modifier, color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.

Ground Water Level Upon Well Completion (mbgs)

Seal (grout / hole plug) **Silica Sand Pack** **Well Screen**

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
Environmental Assessments & Approvals

Project:	Project Number:	Client:	Borehole ID:
Sewage Impact Study	21-158B	David Seaman	BH 108
Project Location: Armstrong Subdivision, Mansfield, Ontario		**Drilling Contractor:** Orbit Garant Drilling	**Drilling Method:** Hollow Stem Augers
Logged By: A. Turner	**Date:** 23-May-2023	**Stickup (m):** Stickup Casing	**Well Depth (mbgs):**
UTM: (NAD 83, Zone 17T)	**Ground Elevation (masl):** 312.78	**Water Level (mbgs):**	**Well Diameter (mm)**
Easting: 576917	**Well Screen Type:**	**Riser Pipe Type:**	**Well Screen Length (m):**
Northing: 4891440			

Depth Below Ground Surface (mbgs)	Sample Type / No.	N - Value	Sample Recovery (%)	Lithology	Monitoring Well Construction	Lithology Description
	SS 1/SS 2	2,6	66,75			**TOPSOIL:** Brown to dark brown, sand, some silt, trace gravel, trace organics, moist (0.0 - 0.3m)
	SS 3	6	75			**SAND:** Loose, brown, fine to coarse sand, trace gravel, moist (0.3 - 1.5m)
	SS 4	33	83			**SANDY SILT:** Loose, brown, sandy silt, trace gravel, moist to very moist, (1.5 - 2.3m)
	SS 5/SS 6	20,28	83,83			**SAND:** Dense, brown, fine to coarse sand, some silt, some gravel to gravelly, moist to very moist, (2.3 - 3.0m)
5	SS 7	23	75			**SILT:** Compact, brown, silt, trace clay with sand seams, some gravel, moist (3.0 - 3.9m)
	SS 8	19	83			**SAND:** Compact, brown, sand, some silt to silty, trace to some gravel, moist, (3.9 - 4.6m)
	SS 9	32	92			**SILTY SAND:** Compact, brown, silty sand, trace gravel, moist to very moist, (4.6 - 6.1m)
10	SS 10	26	83			**SAND:** Compact to dense, light brown, fine sand, trace silt, trace gravel, moist, (6.1 - 14.3m)
	SS 11	32	83			
	SS 12	28	92			Borehole terminated at 14.3 mbgs
	SS 13	24	92			Upon completion of augering;
15						No water
						No cave
20						
25						
30						

Soil Group Name: grain size,color, density/consistency, moisture, stratification, other descriptors

Rock Description: modifier, color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.

Ground Water Level Upon Well Completion (mbgs)

Seal (grout / hole plug) **Silica Sand Pack** **Well Screen**

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
Environmental Assessments & Approvals

Project:	Project Number:	Client:	Borehole ID:
Sewage Impact Study	21-158B	David Seaman	BH 109
Project Location:		**Drilling Contractor:**	**Drilling Method:**
Armstrong Subdivision, Mansfield, Ontario		Orbit Garant	Hollow Stem Augers
Logged By:	**Date:**	**Stickup (m):**	**Well Depth (mbgs):**
A. Turner	19-May-2023	Stick Up Casing	9.1
	Ground Elevation (masl):	**Water Level (mbgs):**	**Well Diameter (mm)**
UTM: (NAD 83, Zone 17T)	310.45	4.55	50.8
Easting: 577162	**Well Screen Type:**	**Riser Pipe Type:**	**Well Screen Length (m):**
Northing: 4891306	10-Slot PVC, Schedule 40	Schedule 40 PVC	1.5

Depth Below Ground Surface (mbgs)	Sample Type / No.	N - Value	Sample Recovery (%)	Lithology	Monitoring Well Construction	Lithology Description
						Auger probe down to 3.0m from surface before starting to sample. Monitoring well is nested next to PML BH10. Lithology for top 2.9 metres is utilized from PML BH 10 Log;
2						**TOPSOIL:** Brown, silty sand, moist (0.0 - 0.1m)
						SAND: Loose to compact, brown, sand, trace to some silt, trace to some gravel, moist (0.1 - 2.9m)
	SS 1	7	75			**SAND:** Loose to compact, coarse to fine sand, trace to some silt, trace
4	SS 2	15	83			gravel, stratified, moist to very moist (2.9 - 4.6m)
	SS 3	13	92			**SILTY SAND:** Compact, brown, silty fine sand, wet (4.6 - 6.9m)
	SS 4	14	92			First ground water strike at 5.5m
6	SS 5	15	92			
	SS 6	13	92			
	SS 7	14	83			**SANDY SILT:** Compact, brown, sandy silt with silt layers, trace clay,
8	SS 8	12	92			wet, (6.9 - 9.1m)
	SS 9	29	83			**TILL:** Compact, brown to grey, clayey silt, trace sand, trace gravel,
10						cobbles and boulders, about plastic limit (very moist to wet), (9.1 - 9.8m)
						Borehole terminated at 9.8 mbgs
						Upon completion of augering;
						Borehole flushed out with drilling mud and water before monitoring well install
12						no final water level reading obtained
						No cave

Ground Water Level Upon Well Completion (mbgs)

Seal (grout / hole plug) **Silica Sand Pack** **Well Screen**

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
Environmental Assessments & Approvals

Project:	Project Number:	Client:	Borehole ID:
Sewage Impact Study	21-158B	David Seaman	BH 110
Project Location: Armstrong Subdivision, Mansfield, Ontario		**Drilling Contractor:** Orbit Garant	**Drilling Method:** Hollow Stem Augers
Logged By: A. Turner	**Date:** 24-May-2023	**Stickup (m):**	**Well Depth (mbgs):**
UTM: (NAD 83, Zone 17T)	**Ground Elevation (masl):** 310.95	**Water Level (mbgs):**	**Well Diameter (mm)**
Easting: 577015	**Well Screen Type:**	**Riser Pipe Type:**	**Well Screen Length (m):**
Northing: 4891408			

Depth Below Ground Surface (mbgs)	Sample Type / No.	N - Value	Sample Recovery (%)	Lithology	Monitoring Well Construction	Lithology Description
						Soil Group Name: grain size,color, density/consistency, moisture, stratification, other descriptors **Rock Description:** modifier, color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.
						Auger probe down to 3.0m from surface before starting to sample. Soil cuttings analyzed during drilling the upper 3.0m region included;
						TOPSOIL: Dark brown, sand, some silt, trace gravel, moist
2						**SAND:** Brown, gravelly coarse sand, moist
	SS 1	18	75			**SAND:** Compact, brown to light brown, fine sand, trace to some silt, trace to
4	SS 2	15	83			some gravel, stratified, moist (3.0 - 11.3m)
	SS 3	20	92			
	SS 4	21	83			
6						
	SS 5	16	83			
	SS 6	16	92			
	SS 7	14	92			
8	SS 8	18	92			
	SS 9	26	92			
	SS 10	20	92			
10						
	SS 11	12	92			Borehole terminated at 11.3 mbgs
						Upon completion of augering;
12						No water
						No cave

Ground Water Level Upon Well Completion (mbgs)

Seal (grout / hole plug) **Silica Sand Pack** **Well Screen**

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
Environmental Assessments & Approvals

Project:	Project Number:	Client:	Borehole ID:
Sewage Impact Study	21-158B	David Seaman	BH 111
Project Location: Armstrong Subdivision, Mansfield, Ontario		**Drilling Contractor:** Orbit Garant	**Drilling Method:** Hollow Stem Augers
Logged By: A. Turner	**Date:** 24-May-2023	**Stickup (m):**	**Well Depth (mbgs):**
UTM: (NAD 83, Zone 17T)	**Ground Elevation (masl):** 309.31	**Water Level (mbgs):**	**Well Diameter (mm)**
Easting: 577083	**Well Screen Type:**	**Riser Pipe Type:**	**Well Screen Length (m):**
Northing: 4891432			

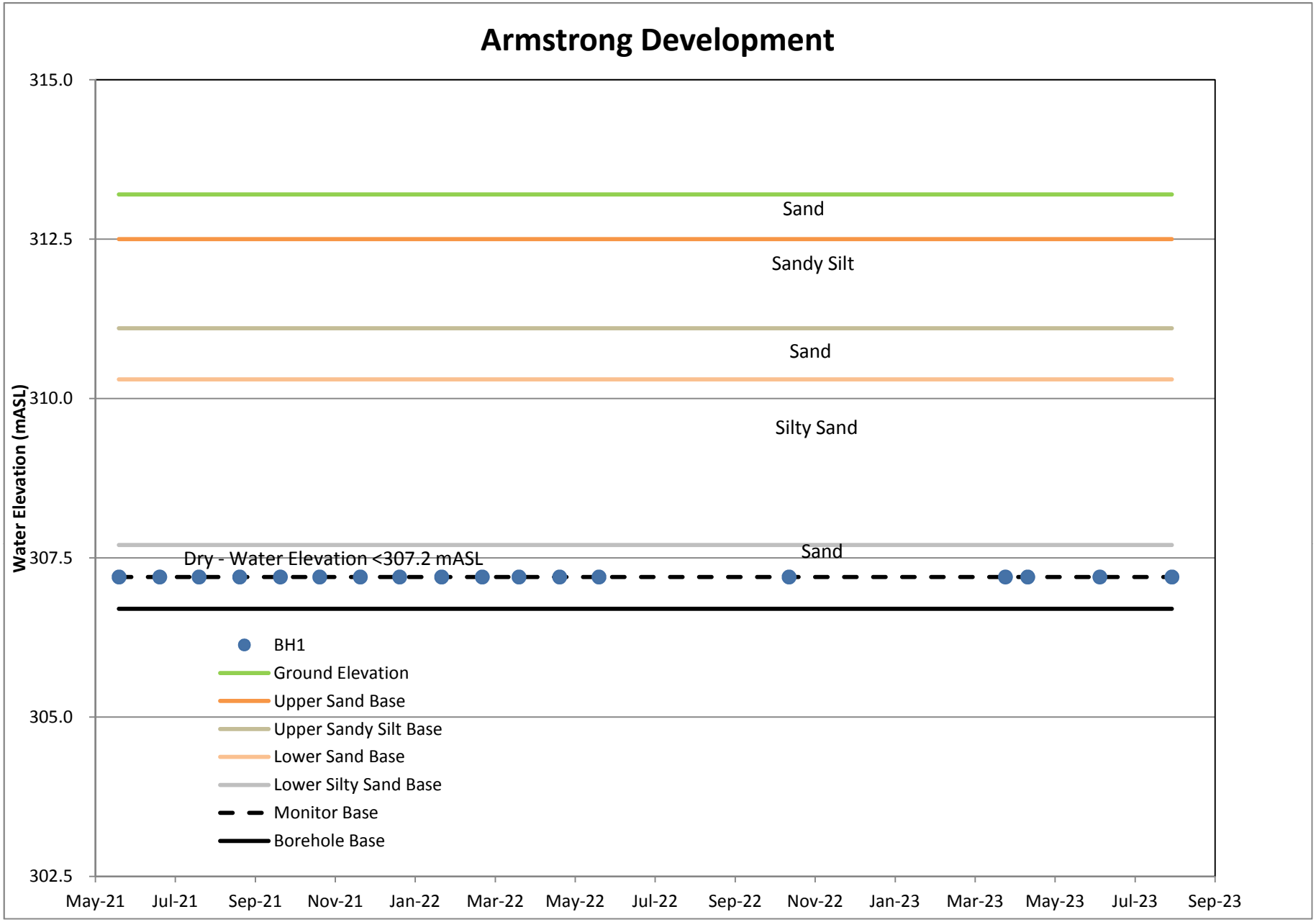
Depth Below Ground Surface (mbgs)	Sample Type / No.	N - Value	Sample Recovery (%)	Lithology	Monitoring Well Construction	Lithology Description
	SS 1	3	75			**TOPSOIL:** Brown to dark brown, sand, trace to some silt, trace gravel,
	SS 2	3	66			trace organics, moist (0.0 - 0.6m)
						SAND: Very loose, brown to dark brown, sand, trace to some silt, trace
	SS 3	3	75			gravel, moist (0.6 - 1.5m)
2	SS 4	19	83			**SILTY SAND:** Very loose, brown, silty sand, trace gravel, moist (1.5 - 2.3m)
						CLAYEY SILT: Compact, brown, clayey silt, trace gravel, about plastic limit,
	SS 5	33	83			moist, (2.3 - 3.0m)
	SS 6	30	83			**SILTY SAND:** Dense, brown, silty sand with silt layers, trace gravel, moist
4						(3.0 - 4.6m)
	SS 7	53	25			**SAND:** Dense to very dense, light brown, fine sand, trace silt, some gravel to
	SS 8	29	75			gravelly, stratified, moist (4.6 - 11.3m)
6	SS 9	31	83			
	SS 10	34	83			Silt layer at 7.6m
8						
	SS 11	28	83			
10						
	SS 12	29	92			Borehole terminated at 11.3 mbgs
						Upon completion of augering;
12						No water
						No cave

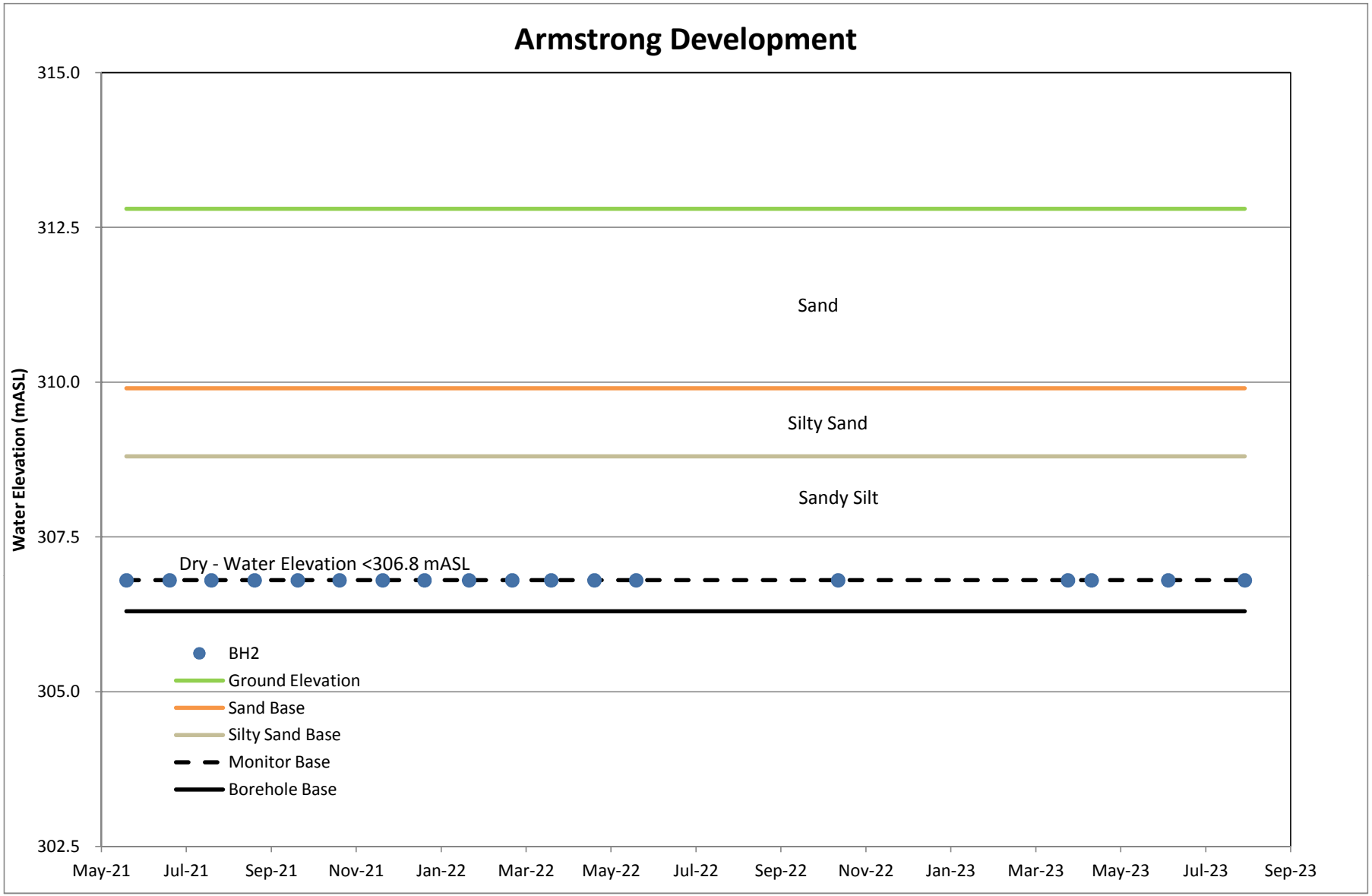
Ground Water Level Upon Well Completion (mbgs)

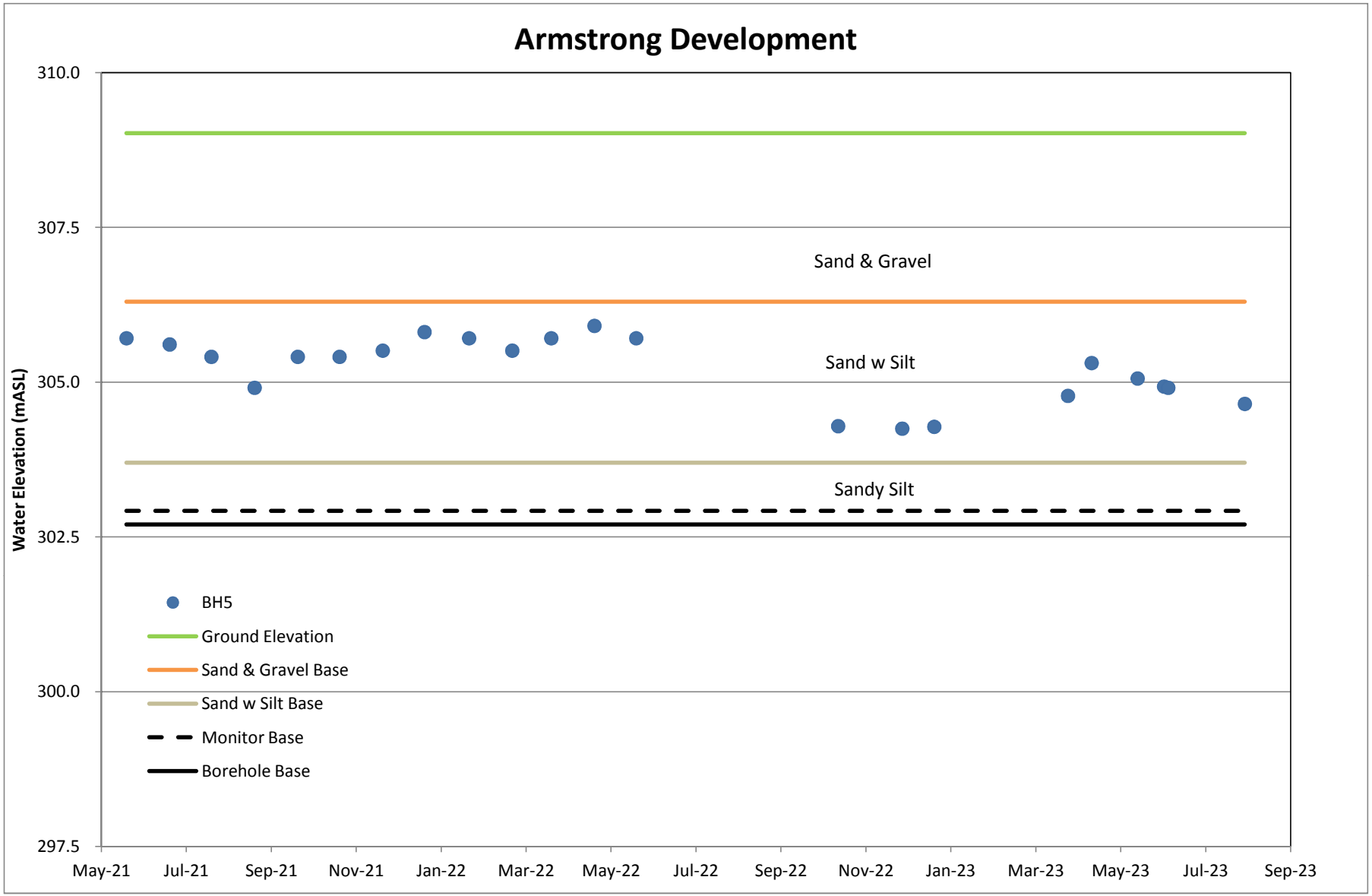
Seal (grout / hole plug) **Silica Sand Pack** **Well Screen**

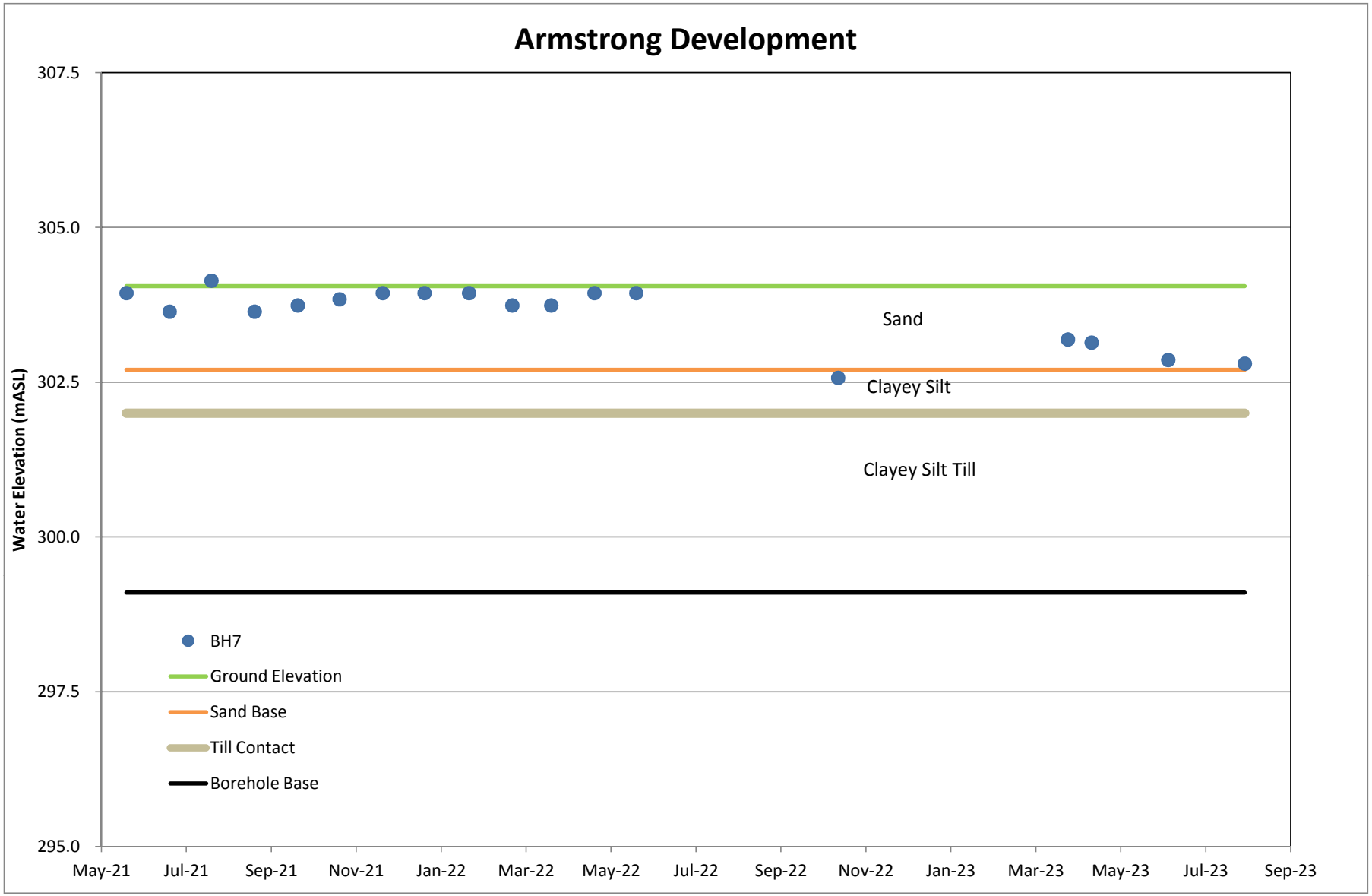
APPENDIX E

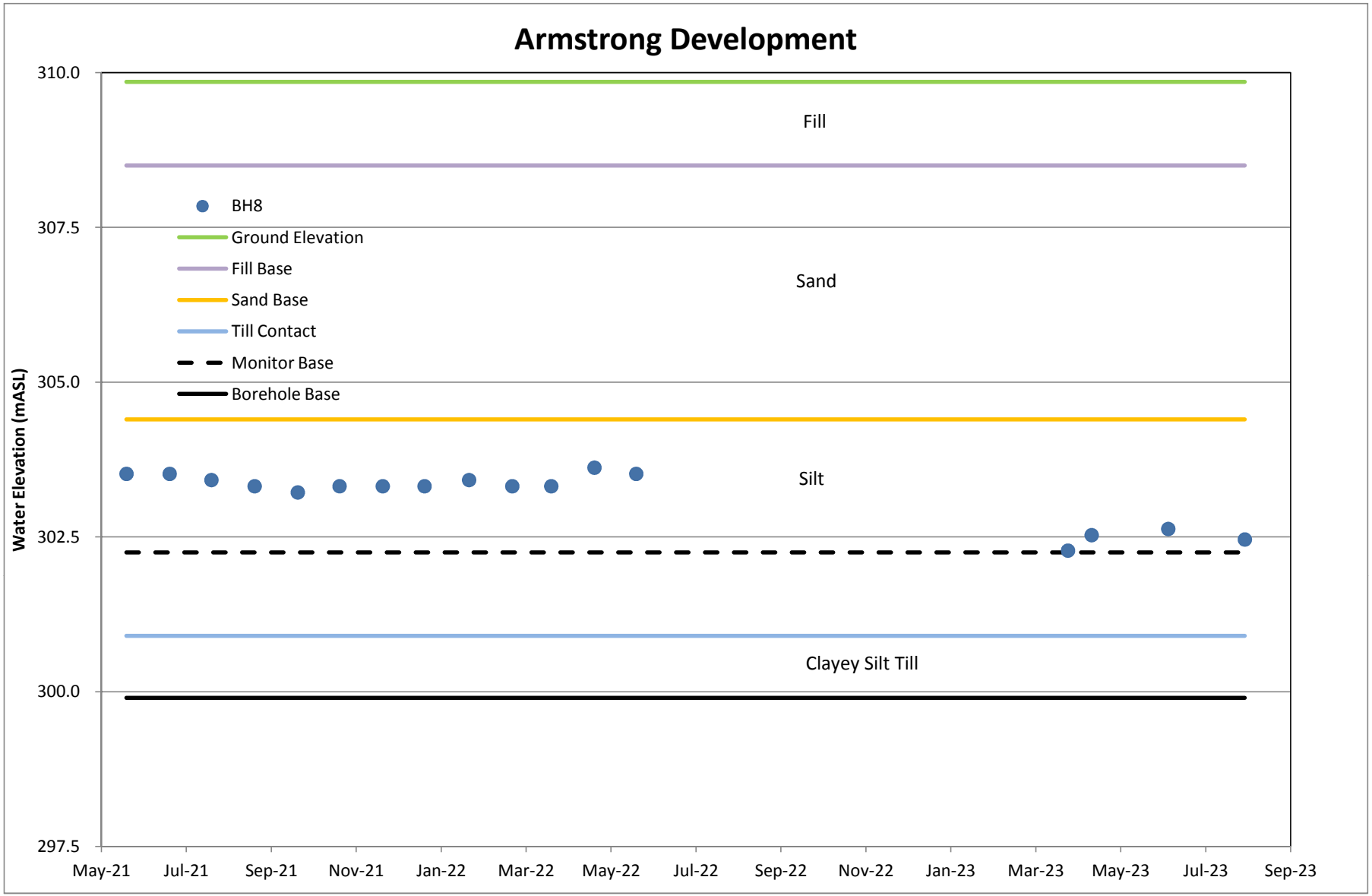
Ground Water Hydrographs

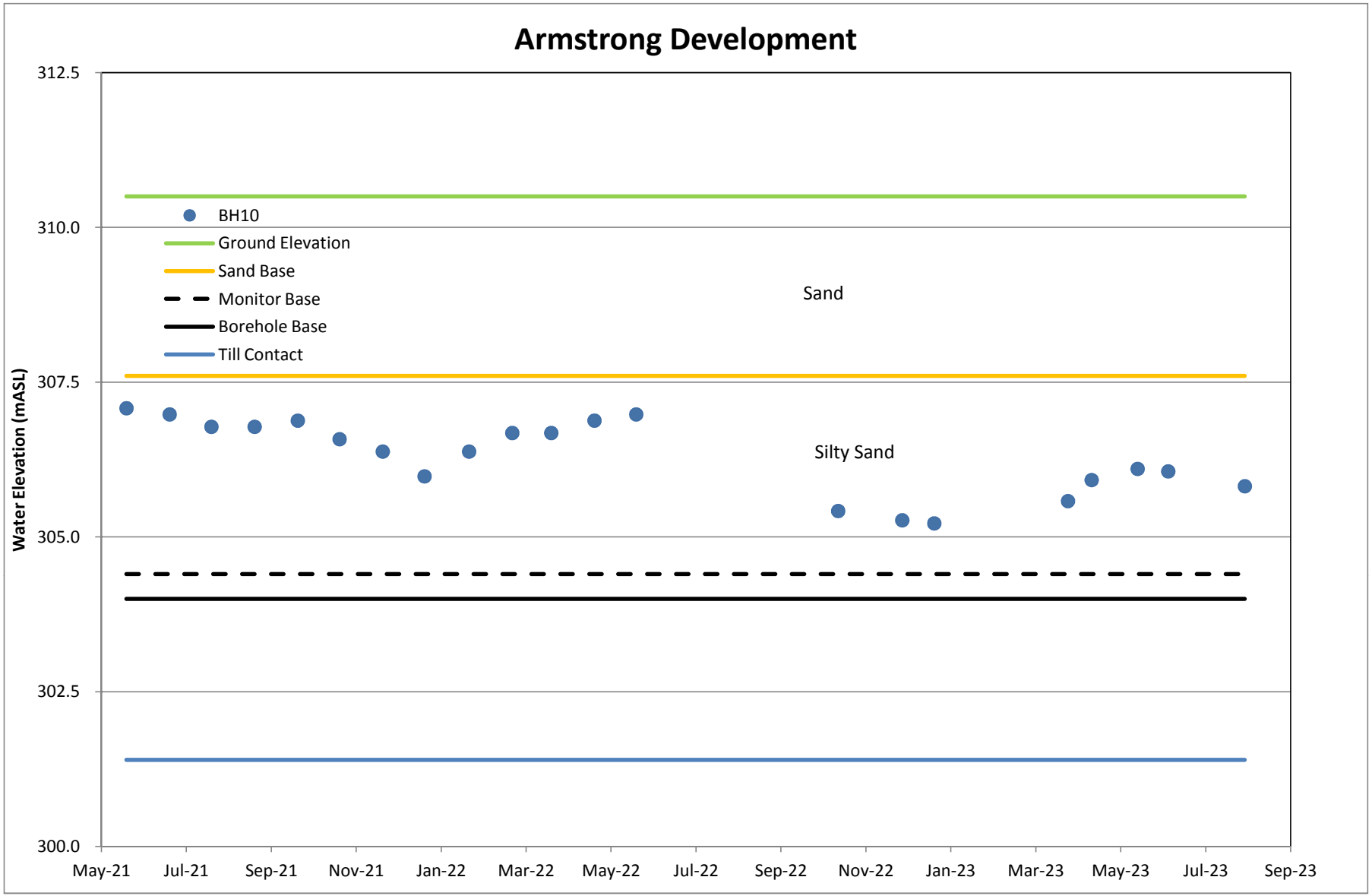

Armstrong Development
315.0
312.5
310.0
307.5
305.0
302.5
Water Elevation (mASL)
Sand
Sandy Silt
Sand
Silty Sand
Sand
Dry - Water Elevation <307.2 mASL
BH1
Ground Elevation
Upper Sand Base
Upper Sandy Silt Base
Lower Sand Base
Lower Silty Sand Base
Monitor Base
Borehole Base
May-21
Jul-21
Sep-21
Nov-21
Jan-22
Mar-22
May-22
Jul-22
Sep-22
Nov-22
Jan-23
Mar-23
May-23
Jul-23
Sep-23

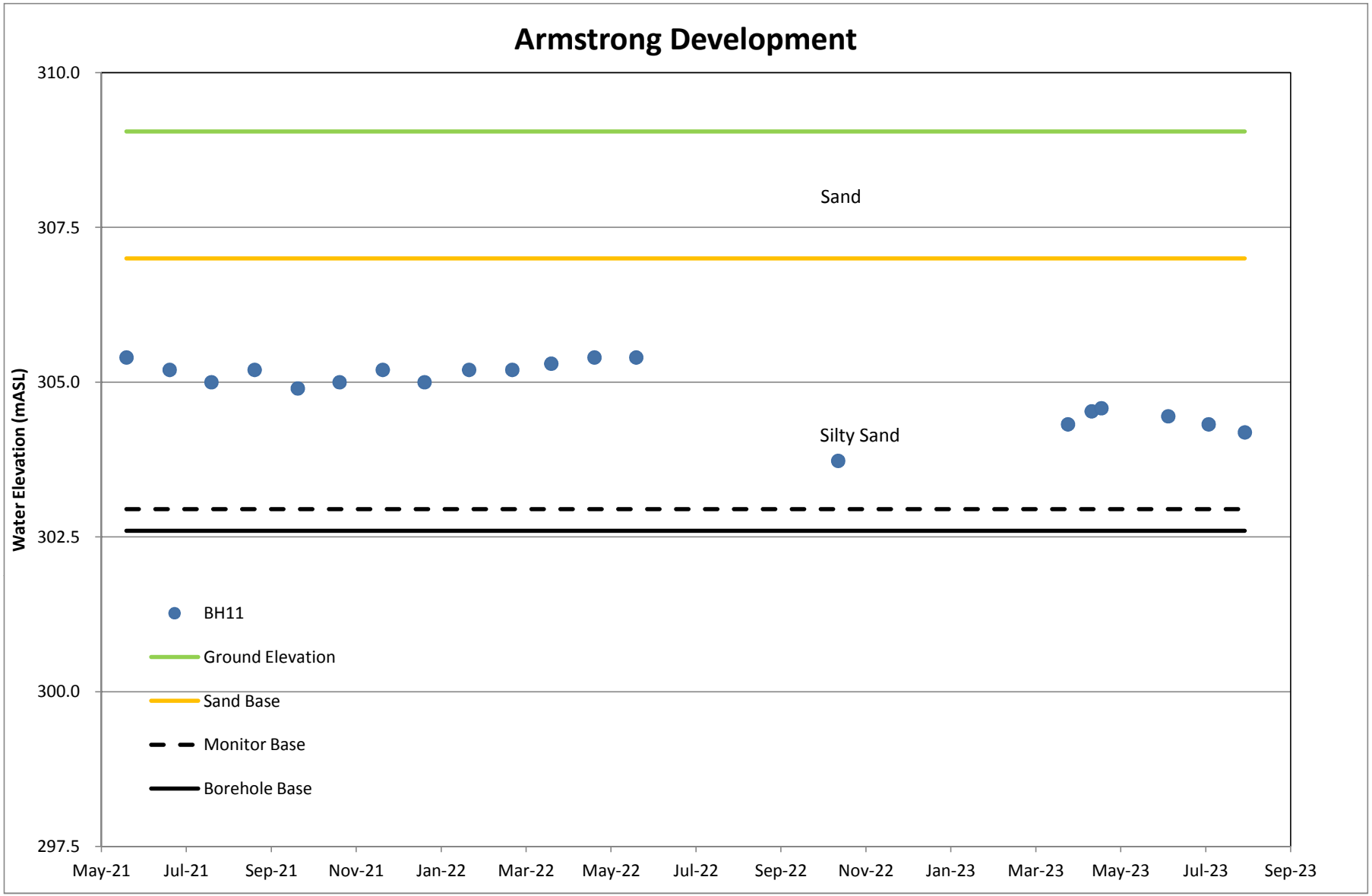

Armstrong Development
315.0
312.5
310.0
307.5
305.0
302.5
Water Elevation (mASL)
Sand
Silty Sand
Sandy Silt
Dry - Water Elevation <306.8 mASL
BH2
Ground Elevation
Sand Base
Silty Sand Base
Monitor Base
Borehole Base
May-21
Jul-21
Sep-21
Nov-21
Jan-22
Mar-22
May-22
Jul-22
Sep-22
Nov-22
Jan-23
Mar-23
May-23
Jul-23
Sep-23

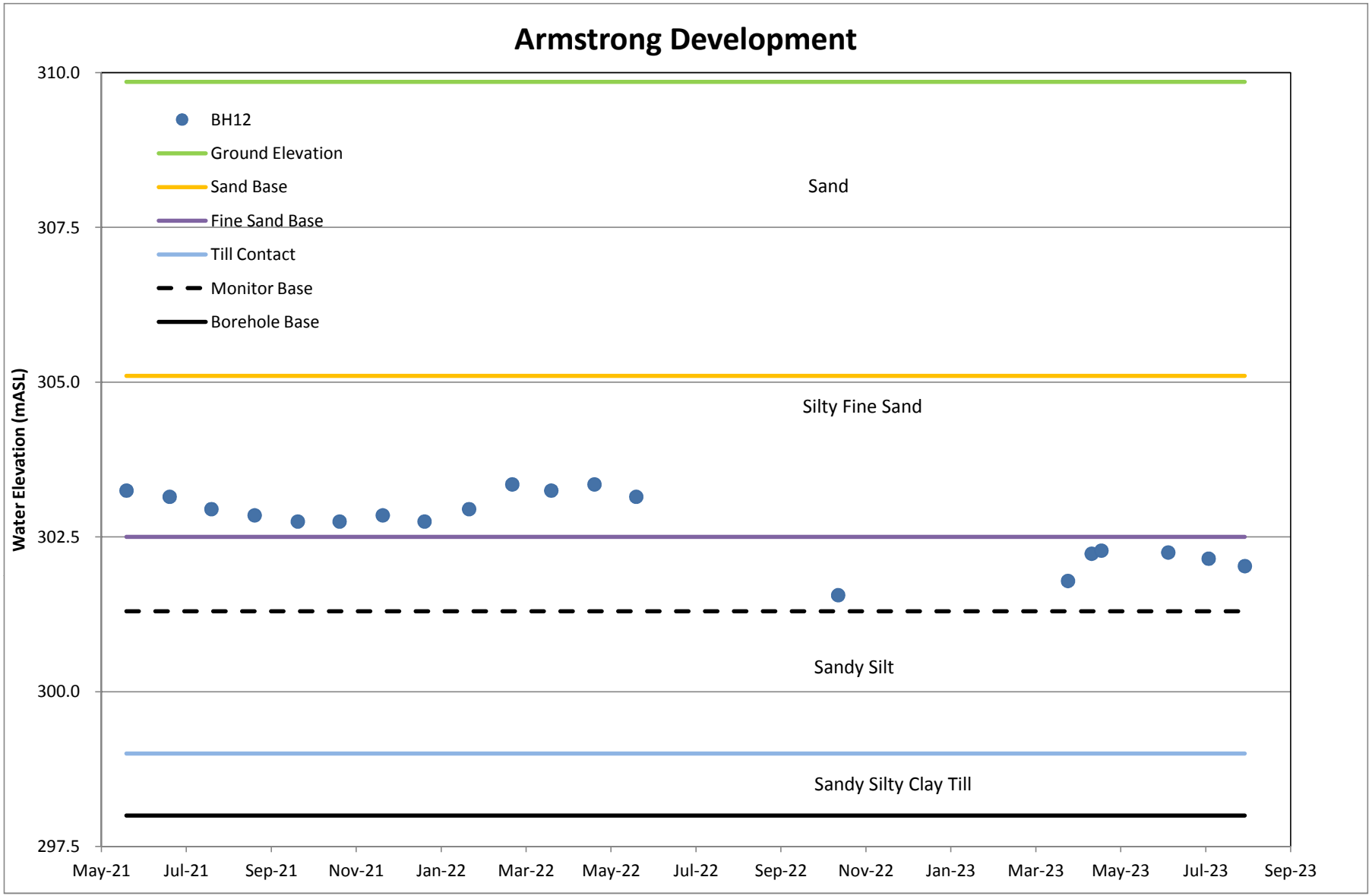

Armstrong Development
Water Elevation (mASL)
310.0
307.5
305.0
302.5
300.0
297.5
May-21
Jul-21
Sep-21
Nov-21
Jan-22
Mar-22
May-22
Jul-22
Sep-22
Nov-22
Jan-23
Mar-23
May-23
Jul-23
Sep-23
Sand & Gravel
Sand w Silt
Sandy Silt
BH5
Ground Elevation
Sand & Gravel Base
Sand w Silt Base
Monitor Base
Borehole Base

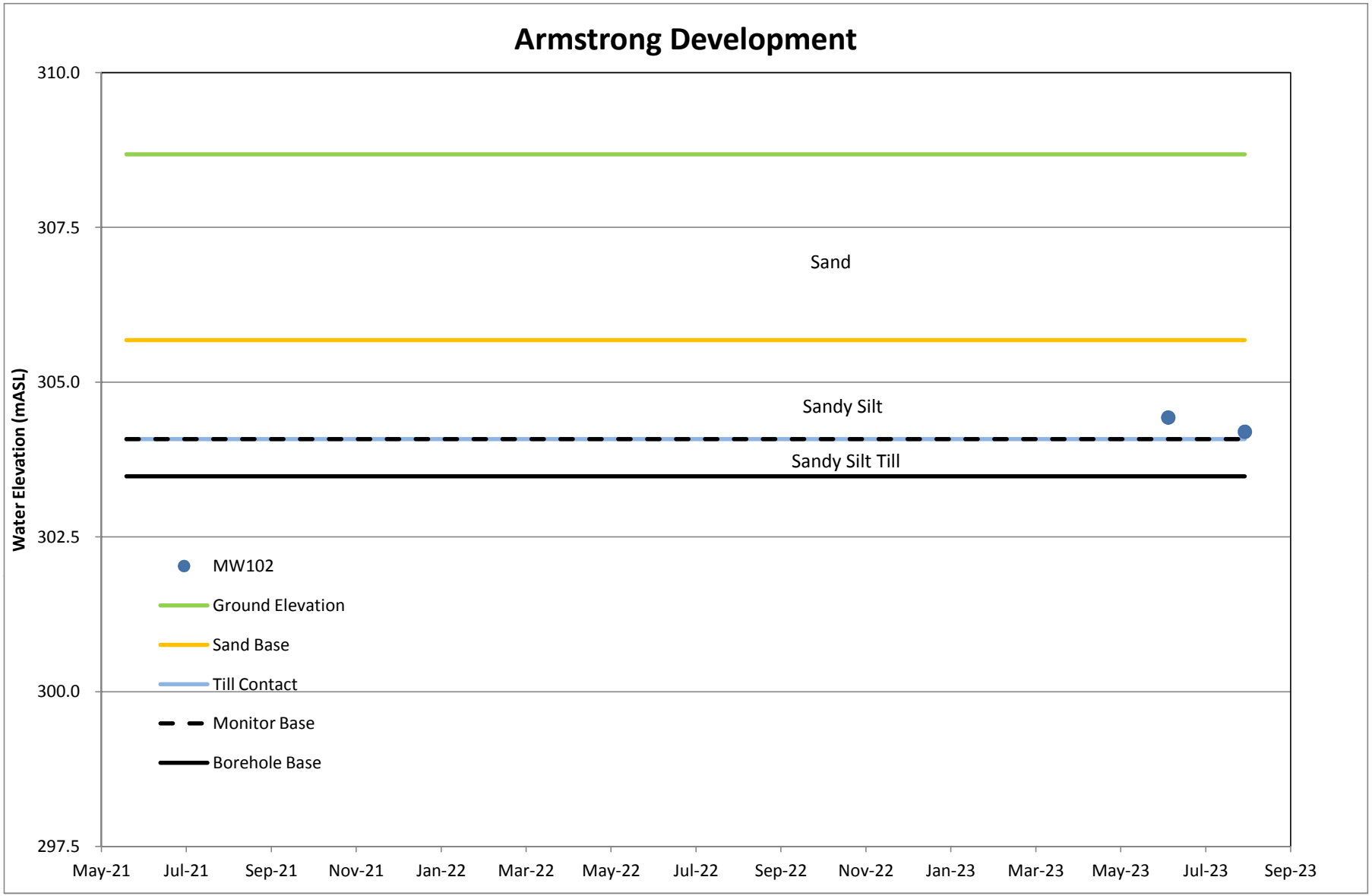

Armstrong Development
Water Elevation (mASL)
307.5
305.0
302.5
300.0
297.5
295.0
May-21
Jul-21
Sep-21
Nov-21
Jan-22
Mar-22
May-22
Jul-22
Sep-22
Nov-22
Jan-23
Mar-23
May-23
Jul-23
Sep-23
Sand
Clayey Silt
Clayey Silt Till
BH7
Ground Elevation
Sand Base
Till Contact
Borehole Base

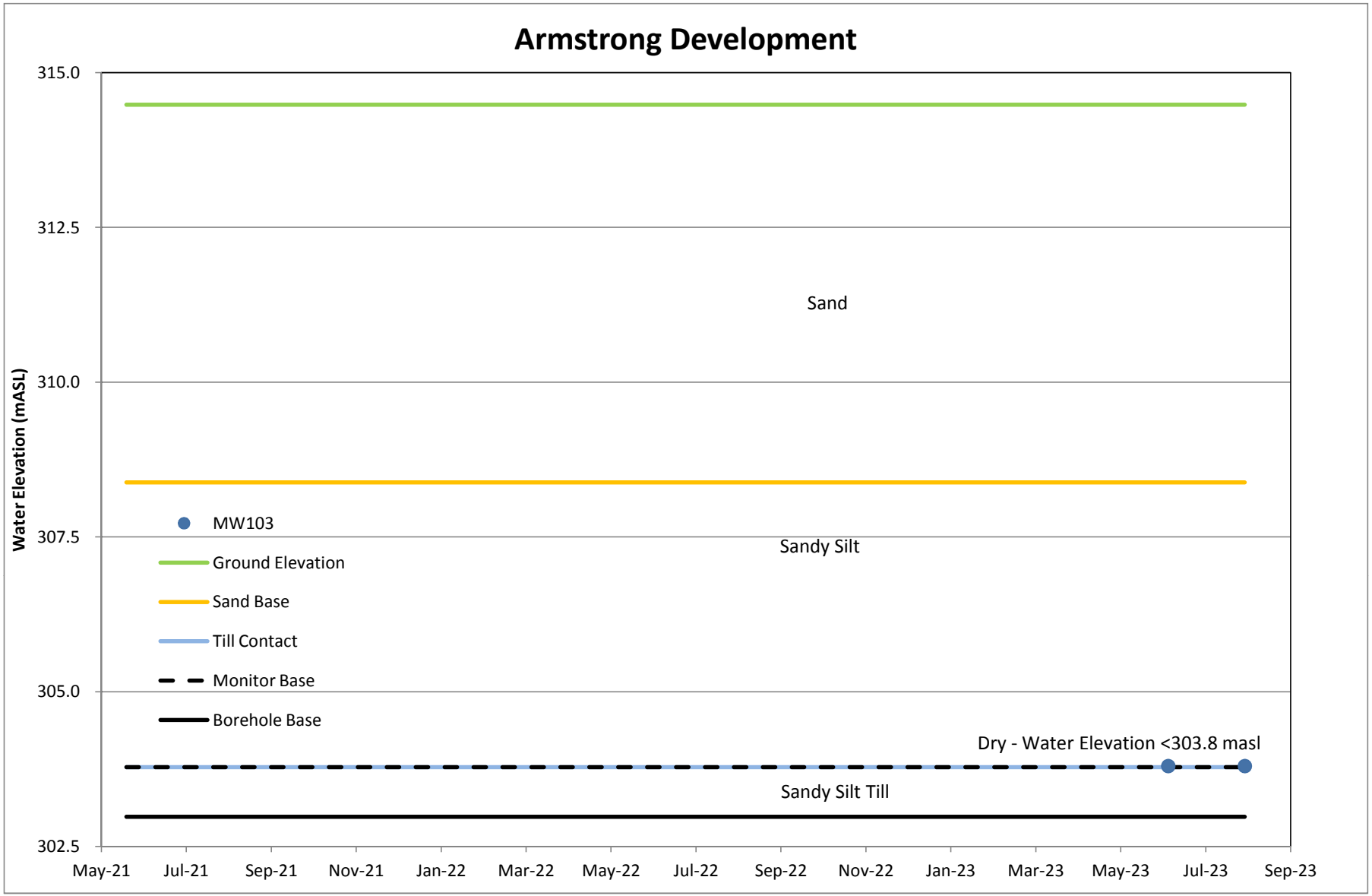

Armstrong Development
Water Elevation (mASL)
310.0
307.5
305.0
302.5
300.0
297.5
May-21
Jul-21
Sep-21
Nov-21
Jan-22
Mar-22
May-22
Jul-22
Sep-22
Nov-22
Jan-23
Mar-23
May-23
Jul-23
Sep-23
BH8
Ground Elevation
Fill Base
Sand Base
Till Contact
Monitor Base
Borehole Base
Fill
Sand
Silt
Clayey Silt Till

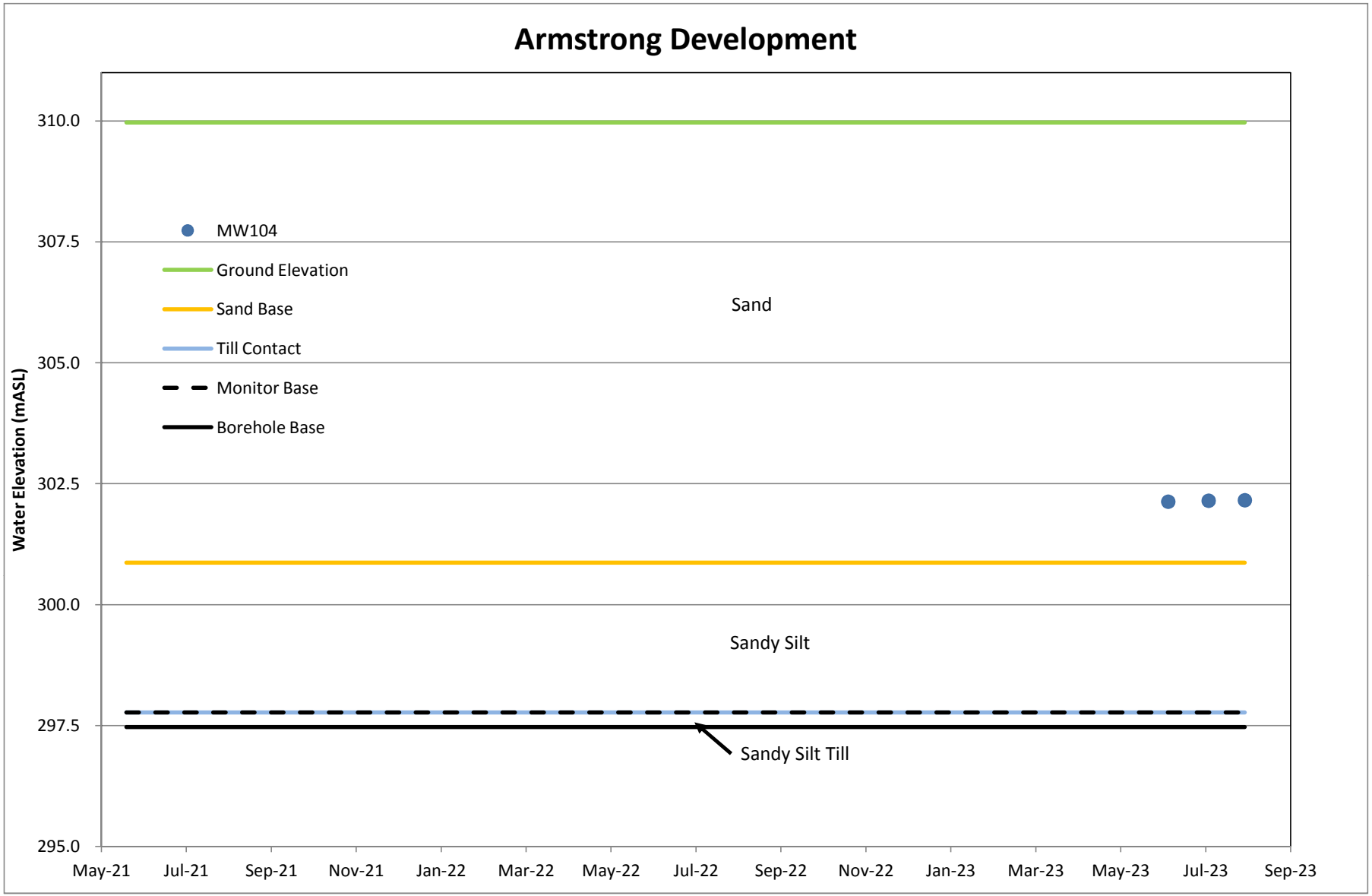

Armstrong Development
312.5
310.0
307.5
305.0
302.5
300.0
Water Elevation (mASL)
BH10
Ground Elevation
Sand Base
Monitor Base
Borehole Base
Till Contact
Sand
Silty Sand
May-21
Jul-21
Sep-21
Nov-21
Jan-22
Mar-22
May-22
Jul-22
Sep-22
Nov-22
Jan-23
Mar-23
May-23
Jul-23
Sep-23


Armstrong Development
Water Elevation (mASL)
310.0
307.5
305.0
302.5
300.0
297.5
May-21
Jul-21
Sep-21
Nov-21
Jan-22
Mar-22
May-22
Jul-22
Sep-22
Nov-22
Jan-23
Mar-23
May-23
Jul-23
Sep-23
Sand
Silty Sand
BH11
Ground Elevation
Sand Base
Monitor Base
Borehole Base


Armstrong Development
Water Elevation (mASL)
310.0
307.5
305.0
302.5
300.0
297.5
BH12
Ground Elevation
Sand Base
Fine Sand Base
Till Contact
Monitor Base
Borehole Base
Sand
Silty Fine Sand
Sandy Silt
Sandy Silty Clay Till
May-21
Jul-21
Sep-21
Nov-21
Jan-22
Mar-22
May-22
Jul-22
Sep-22
Nov-22
Jan-23
Mar-23
May-23
Jul-23
Sep-23


Armstrong Development
Water Elevation (mASL)
310.0
307.5
305.0
302.5
300.0
297.5
May-21
Jul-21
Sep-21
Nov-21
Jan-22
Mar-22
May-22
Jul-22
Sep-22
Nov-22
Jan-23
Mar-23
May-23
Jul-23
Sep-23
Sand
Sandy Silt
Sandy Silt Till
MW102
Ground Elevation
Sand Base
Till Contact
Monitor Base
Borehole Base


Armstrong Development
315.0
312.5
310.0
307.5
305.0
302.5
Water Elevation (mASL)
May-21
Jul-21
Sep-21
Nov-21
Jan-22
Mar-22
May-22
Jul-22
Sep-22
Nov-22
Jan-23
Mar-23
May-23
Jul-23
Sep-23
Sand
Sandy Silt
Sandy Silt Till
MW103
Ground Elevation
Sand Base
Till Contact
Monitor Base
Borehole Base
Dry - Water Elevation <303.8 masl


Armstrong Development
Water Elevation (mASL)
310.0
307.5
305.0
302.5
300.0
297.5
295.0
MW104
Ground Elevation
Sand Base
Till Contact
Monitor Base
Borehole Base
Sand
Sandy Silt
Sandy Silt Till
May-21
Jul-21
Sep-21
Nov-21
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Mar-22
May-22
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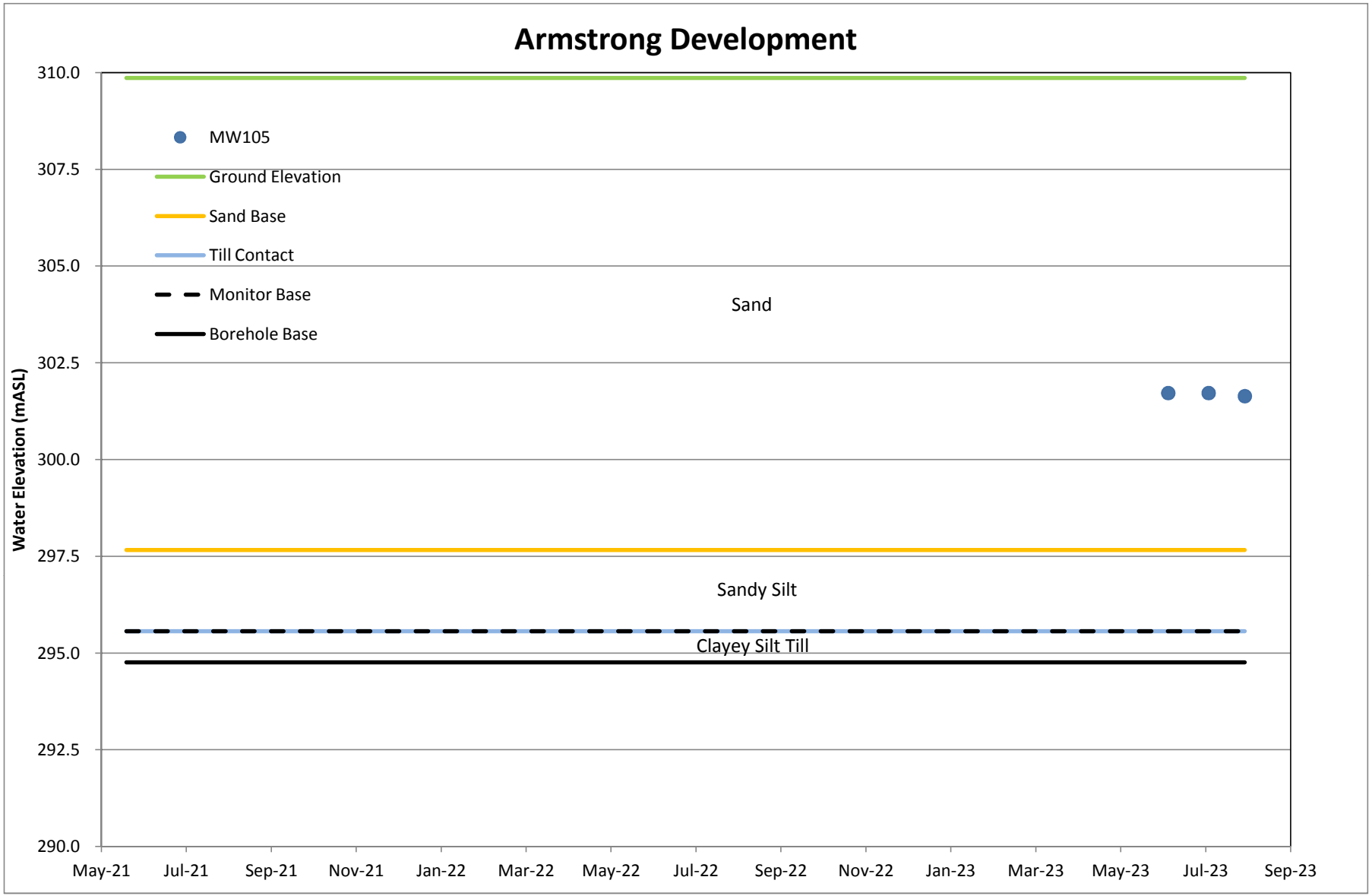
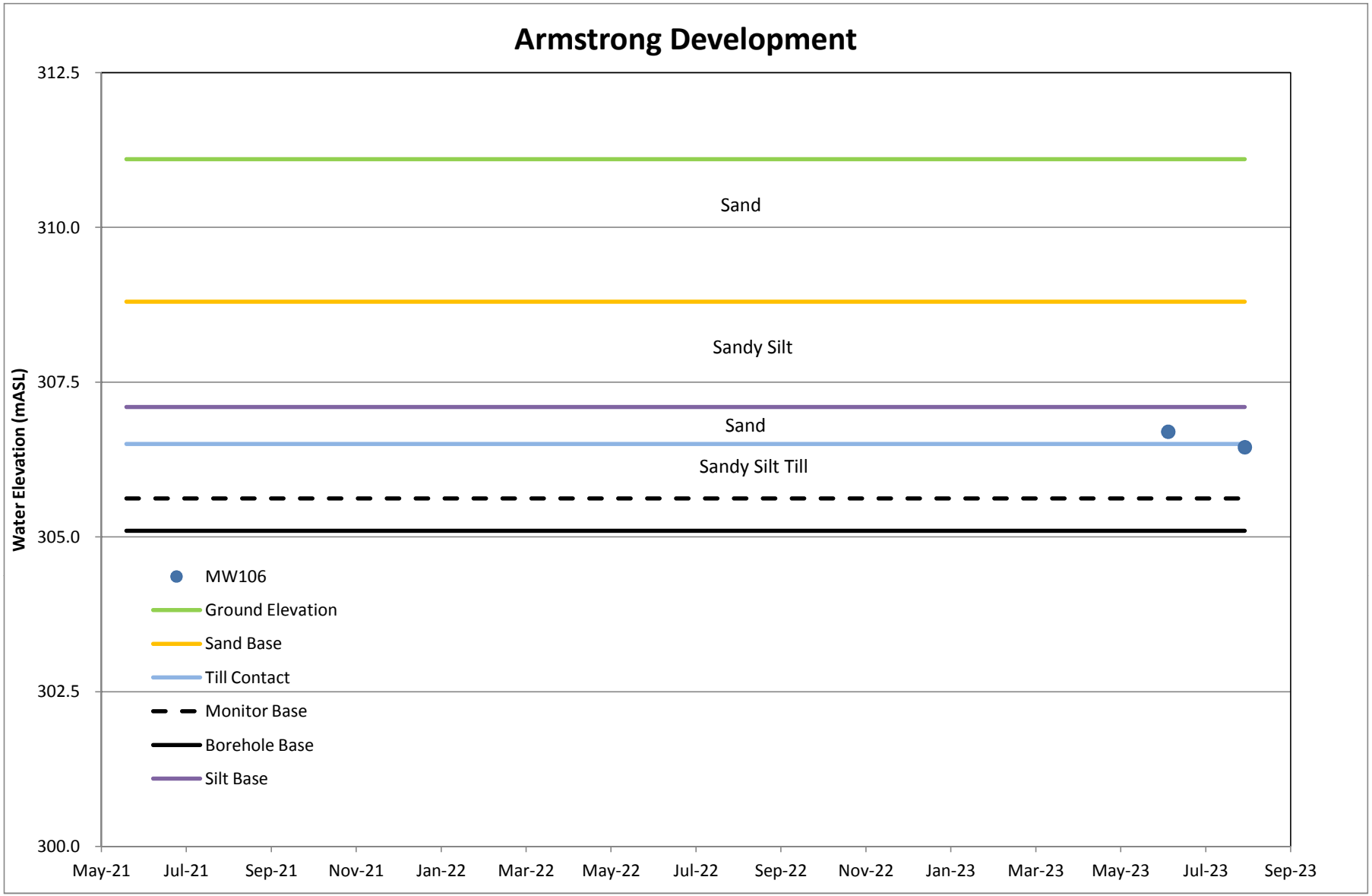
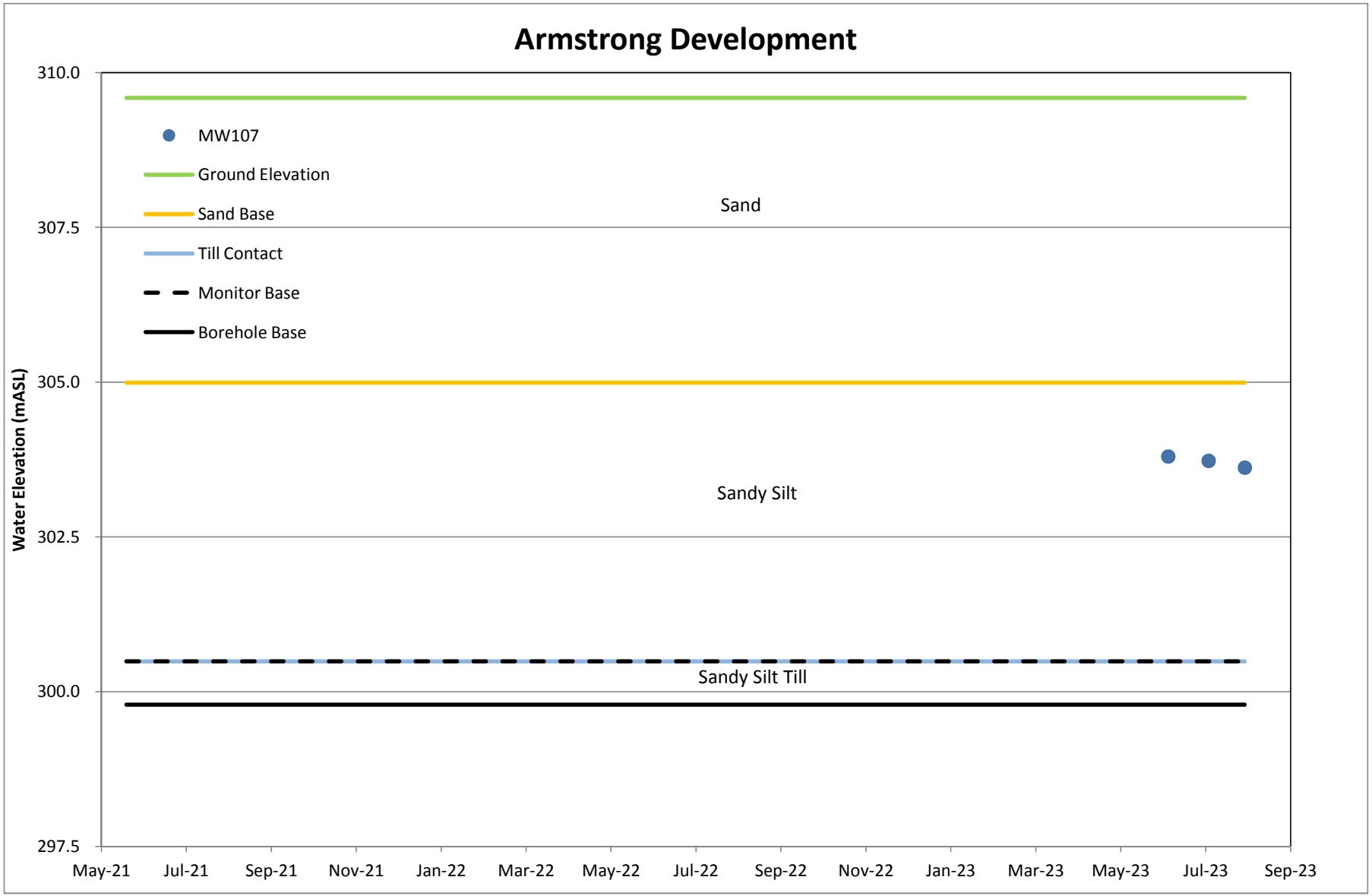
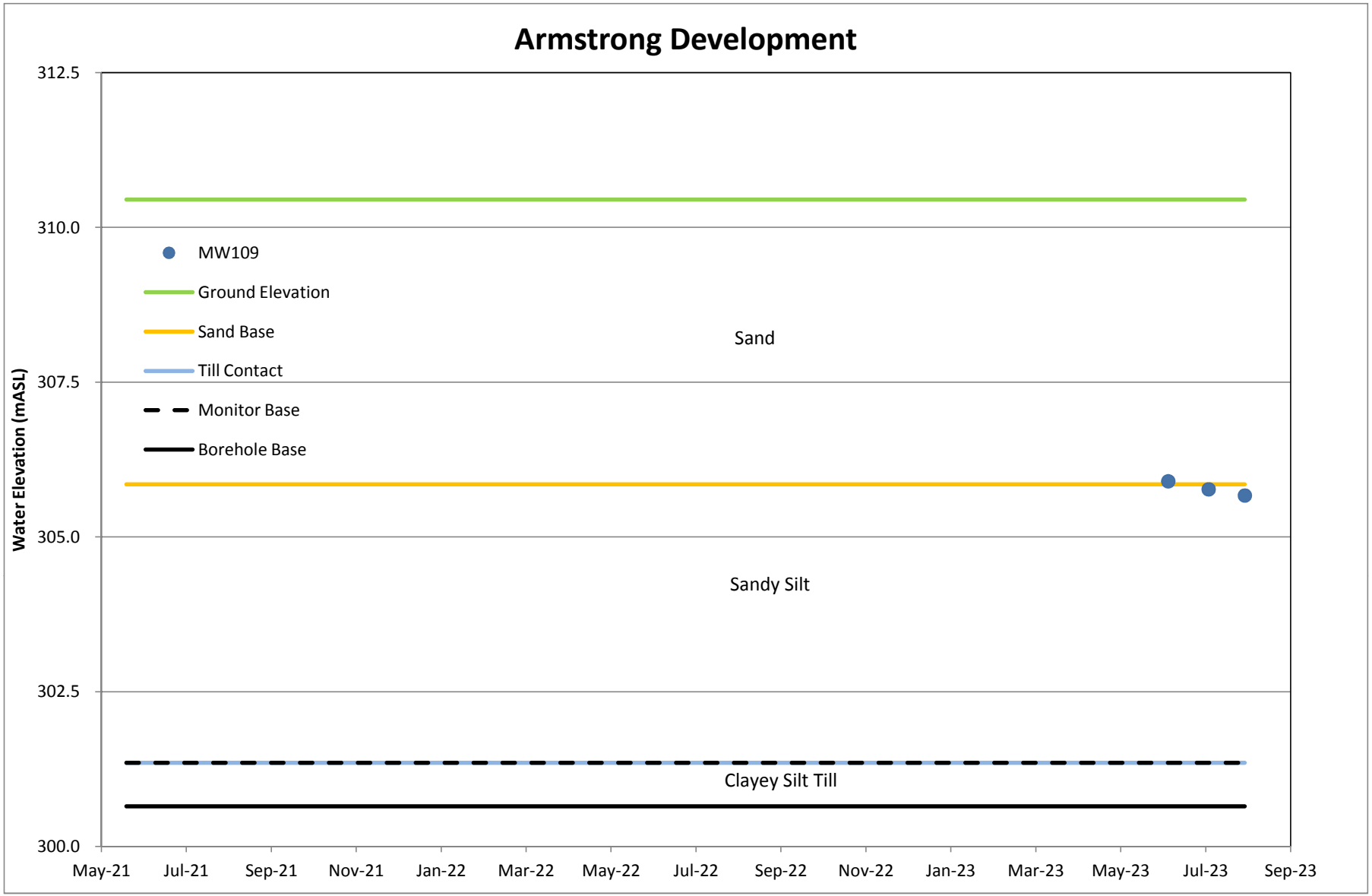
Nov-22
Jan-23
Mar-23
May-23
Jul-23
Sep-23


Armstrong Development
Water Elevation (mASL)
310.0
307.5
305.0
302.5
300.0
297.5
295.0
292.5
290.0
MW105
Ground Elevation
Sand Base
Till Contact
Monitor Base
Borehole Base
Sand
Sandy Silt
Clayey Silt Till
May-21
Jul-21
Sep-21
Nov-21
Jan-22
Mar-22
May-22
Jul-22
Sep-22
Nov-22
Jan-23
Mar-23
May-23
Jul-23
Sep-23


Armstrong Development
Water Elevation (mASL)
312.5
310.0
307.5
305.0
302.5
300.0
May-21
Jul-21
Sep-21
Nov-21
Jan-22
Mar-22
May-22
Jul-22
Sep-22
Nov-22
Jan-23
Mar-23
May-23
Jul-23
Sep-23
Sand
Sandy Silt
Sand
Sandy Silt Till
MW106
Ground Elevation
Sand Base
Till Contact
Monitor Base
Borehole Base
Silt Base


Armstrong Development
310.0
307.5
305.0
302.5
300.0
297.5
Water Elevation (mASL)
MW107
Ground Elevation
Sand Base
Till Contact
Monitor Base
Borehole Base
Sand
Sandy Silt
Sandy Silt Till
May-21
Jul-21
Sep-21
Nov-21
Jan-22
Mar-22
May-22
Jul-22
Sep-22
Nov-22
Jan-23
Mar-23
May-23
Jul-23
Sep-23


Armstrong Development
312.5
310.0
307.5
305.0
302.5
300.0
Water Elevation (mASL)
MW109
Ground Elevation
Sand Base
Till Contact
Monitor Base
Borehole Base
Sand
Sandy Silt
Clayey Silt Till
May-21
Jul-21
Sep-21
Nov-21
Jan-22
Mar-22
May-22
Jul-22
Sep-22
Nov-22
Jan-23
Mar-23
May-23
Jul-23
Sep-23