Preliminary Hydrogeological Investigation
Proposed Development
White Church Road East and Upper James Street,
Hamilton, Ontario

Prepared for:

White Church Landowners Group Inc.
% SCS Consulting Group
30 Centurian Drive, #100
Markham, Ontario
L3R 8B8

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EXECUTIVE SUMMARY

SCOPE OF SERVICES	
Proposed Development	It is understood that any future development to be undertaken at the site is likely to comprise of single-detached, townhouse and residential condominium development for low density zones, low- to mid-rise towers and stacked townhouses in medium-density zones and high-rise towers in high-density zones. The development is also expected to include for community parks, institutional and community centre blocks, woodland lots and Storm Water Management ponds.
Report Deliverables	The Preliminary Hydrogeological Investigation Report is required to provide an understanding of the current site groundwater conditions, and a preliminary determination of the potential development effects of the proposed development.

SITE DETAILS AND SETTING			
Coordinates	589650, 4777630	**Geodetic Elevation**	220 m to 232 m
Site Description	The site is situated along both White Church Road and Airport Road, it is approximately 3,644,000 m2 (364.4 hectares) in plan area and is semi-rectangular in shape. The site is of agricultural and commercial use during most of the year, with a few areas of residential use. It is bound to the south by White Church Road, to the west by Upper James Street, to the north by Airport Road, and to the east by Miles Road. The topography of the site is generally of an undulating, glacial horizon.		
Geology	Organic soil was encountered at the ground surface. Interbedded deposits of silt, clayey silt/silty clay and till deposits were encountered underlying the organic material in all boreholes and extends to the maximum dill depths of between 6.0 m and 12.6 m below the ground surface.		
Groundwater Analysis	Groundwater samples were collected from 3 monitoring wells at the Site analyzed for the Provincial Water Quality Objective (PWQO) parameters. All analyzed parameters were within guideline Limits with the exception of Total Cobalt, Total Iron, Total Silver, and Total Uranium as shown in Section 3.12 of this report.		

DEWATERING CONSIDERATIONS	
Short Term and Long Term	Given the absence of a development plan, this investigation is to be considered preliminary until such time that a development concept is available for each development parcel and an appropriate, more detailed investigation is completed to complement the development plan. As a result, detailed water taking evaluation and impact assessment could not be completed at this time.
Monitoring and Mitigation Plans	This will be provided when a development concept is available for each development parcel and an appropriate, more detailed investigation is completed to compliment the development plan.

PERMIT CONSIDERATIONS	
EASR or PTTW	This will be provided when a development concept is available for each development parcel and an appropriate, more detailed investigation is completed to compliment the development plan, if applicable.

IMPACTS CONSIDERATION	
Impacts	This will be provided when a development concept is available for each development parcel and an appropriate, more detailed investigation is completed to compliment the development plan.

Table of Contents

Appendices:

1.0 INTRODUCTION

1.1 Background

Landtek Limited (Landtek) has been retained by Mr. Nicholas Mcintosh, P. Eng., of SCS Consulting Group Ltd. (herein "*SCS*") on August 28, 2023, acting on behalf of the White Church Landowners Group Inc. to complete a Preliminary Hydrogeological Investigation for the proposed development located at the site identified as White Church Lands at White Church Road and Airport Road in Hamilton, Ontario (the Site or development).

The area comprises primarily of agricultural land used for arable purposes. Existing residential properties fringe the area, following the Municipal Road corridors that form the area boundaries, with the existing Southern Pines Golf and Country Club is located in the northwestern corner.

The site is located in Hamilton, Ontario, and is centered at approximate grid reference 589650, 4777630 (UTM 17T coordinates). The Geodetic elevation of the ground surface at the site is approximately 220 m to 230 m. It has a total area of approximately 3,643,670 m^2 (364.367 hectares) in plan area and is semi-rectangular in shape. The site includes the lands bound by Upper James Street to the west, Miles Road to the east, Airport Road East to the north, and mostly by White Church Road East to the south, with the exception of Parcel C4 which abuts to the south. The Site location, and Concept Plan are shown on Figures 1 and 2 in Appendix A, respectively.

At the time of issue of this report, Landtek understands that no designs are available for the development area other than the preliminary layout of low- medium- and high-density zoning. It is understood however, that any development to be undertaken at the site is likely to comprise of single-detached, townhouse and residential condominium development for low density zones, low- to mid-rise towers and stacked townhouses in medium-density zones and high-rise towers in high-density zones.

The development is also expected to include for community parks, an institutional and community centre block, and Storm Water Management (herein "*SWM*") ponds. New municipal and private road pavement structures and services are also anticipated.

Given the absence of a development plan, this investigation is to be considered preliminary until such a time that a development concept is available for each development parcel and an appropriate, more detailed investigation is completed to compliment the development plan. On this basis, the primary objectives of this investigation are to evaluate the groundwater conditions at the site. Specifically, the report provides the following:

- A description of the hydrogeologic setting of the Site and a summary of the existing soil/bedrock and groundwater conditions at the site.
- Identification of hydrogeologic features such as zones of significant groundwater recharge and discharge.
- Assessment of preliminary potential impacts resulting from development at the site.

1.2 Scope of work

It is understood that a Hydrogeological Investigation is required for the proposed development in order to determine the hydrogeological condition at the site and potential impacts of proposed developments.

The hydrogeological investigation shall include a complete site assessment of existing conditions along with recommendations required in support of a Plan approval. The investigation should be completed in such a manner to be compatible with future additional investigations required for detailed municipal engineering design and construction considerations.

The following scope of work is based on the terms of reference for the hydrogeological investigation.

- Review of available hydrogeological information and MECP well records; site inspection, including walking all drainage features for evidence of seeps, areas of closed drainage, erosion
- Installation of monitoring wells to a depth of 6.0 m below ground surface (mbgs).
- Installation of monitoring wells to a depth of 10.0 mbgs.
- Installation of nested monitoring wells to a depth of 3.0 mbgs.
- Installation of piezometers to ascertain significance of groundwater discharge to adjacent features
- Completion of groundwater level monitoring for a period of twelve months.
- Observation of surface water flow at water drainage features.
- Installation of dataloggers for continuous groundwater level monitoring
- Completion of in-situ hydraulic conductivity testing at selected monitoring wells.
- Completion of groundwater sampling analysis for PWQS parameters analyses.
- Completion of preliminary water balance and development impact assessment.
- Completion of a report and data analyses to include groundwater contour mapping/flow direction, dewatering considerations, and discussion of the characteristics of local aquifers or aquitards

1.3 Proposed Investigation

This investigation includes the following:

- Review of available background information. A review of published works of available geologic and hydrogeologic information for the site including topographical and geological maps and water well records. A review of Meteorological data to assess the local climate.

- Site Assessment. A detailed visual inspection of the site and surrounding area to identify and document local topography, surface water drainage features, and the potential presence of significant hydrogeological features such as closed depressions (areas of ground water recharge), seeps, springs, or the presence of phreatophytic vegetation.

- A subsurface investigation. Drilling of boreholes and monitoring wells at the Site to characterize the subsurface soil and/or bedrock as well as assess the site-specific groundwater conditions.

- Hydraulic Conductivity Tests. In-situ rising head tests in selected installed monitoring wells to assess the subsurface soil and/or bedrock hydraulic conductivity.

- Groundwater Monitoring. Groundwater level monitoring in all monitoring wells in order to assess the depth of groundwater level across the site.

2.0 METHODOLOGY

2.1 Desktop Study

A review of published available geological and hydrogeological information for the site including topographic and geological maps was completed.

The Ministry of Environment, Conservation and Park (MECP) water well database for the local area was also accessed and the individual well record obtained for wells located within 500 m radius of the Site.

2.2 Site Inspection to Assess Hydrogeologic Features

A detailed visual inspection of the site and surrounding areas was conducted on June 12, 2024, to assess the presence of features which may be significant from a hydrogeologic viewpoint. In particular, the site was inspected to assess the following:

- The presence of closed drainage features, depressions, or sandy areas which may allow for ponding and significant or enhanced infiltration of water.
- Assessment of the presence of phreatophytic vegetation which may indicate seasonally high groundwater levels and/or groundwater discharge and seepage.
- Identification of any zones of visible seepage or groundwater discharge.

2.3 Field Investigation

2.3.1 Drilling and Well Installation

Fieldwork undertaken at the site by Landtek included clearance of underground services, borehole layout, borehole drilling and soil sampling, and field supervision. A total of twenty-one boreholes (boreholes BH1 to BH24, excluding BH14, BH15 and BH21) were drilled in phases on March 11, and between July 4 and August 8, 2024. Boreholes BH22, BH23 and BH24 were drilled on January 6, 2025.

The boreholes were drilled using a Dietrich D-50 track mounted drill rig equipped with continuous flight, solid stem augers to a maximum depth of between approximately 6.0 m and 12.1 m. Full time supervision of drilling and soil sampling operations was carried out by a representative of Landtek.

Fifteen (15) boreholes were completed as monitoring wells and re-identified as boreholes BH/MW3S/D (nested), BH/MW4, BH/MW6, BH/MW8, BH/MW9, BH/MW10, BH/MW11, BH/MW12, BH/MW16, BH/MW17, BH/MW18, BH/MW19S/D (nested), BH/MW20, BH/MW22 and BH/MW24. The monitoring wells consisted of new/sealed 50 mm polyvinyl chloride (PVC) screen with No.10 slots threaded onto a matching riser. The screens and risers were pre-threaded including o-ring seals such that no glues or solvents were used to connect the pipe sections. The annular space between the PVC well and the borehole was backfilled to approximately 0.3 m above the top of the screen section with sand pack, and then with bentonite to existing ground level. A J-Plug lockable air-tight cap was installed on the riser. The monitoring well installation details are presented on the respective borehole logs provided in Appendix B. The locations of these boreholes are shown on Figure 3 in Appendix A.

The boreholes were advanced using a continuous flight power auger track-mounted drill rig equipped with conventional soil sampling and testing tools. The drilling was conducted by an experienced drilling contractor under the supervision of a member of Landtek staff who logged the borings and examined the samples as they were obtained.

The borehole locations were established by Landtek relative to site measurements and existing site features. All depth-related remarks relative to topographical survey information available for the site, drawing reference 365466-T, as completed by A. T. McLaren Ltd.

A summary of the monitoring well installation details is presented on below in Table 1.

Table 1. Monitoring Wells Construction Details

Monitoring Well ID	Easting* (NAD83)	Northing* (NAD83)	Well Depth (mbgs)	Stick-up (m)	Screened Interval (m)	Screened Material
BH/MW3S	589468	4777821	3.0	1.07	1.5-3.0	Clayey Silt Till/Silt Till
BH/MW3D	589468	4777821	6.0	1.15	3.0-6.0	Silt Till
BH/MW4	588218	4777526	6.0	1.01	3.0-6.0	Clayey Silt Till/Silty Clay Till
BH/MW6	589149	4777202	6.0	1.16	3.0-6.0	Clayey Silt/Silty Clay Till
BH/MW8	589744	4777357	6.0	0.95	3.0-6.0	Silt Till/Clayey Silt Till
BH/MW9	590102	4776924	9.0	1.13	6.0-9.0	Silty Clay Till
BH/MW10	590528	4777243	6.0	1.12	3.0-6.0	Clayey Silt/Clayey Silt Till
BH/MW11	590475	4776897	6.0	1.09	3.0-6.0	Clayey Silt Till
BH/MW12	589299	4776966	6.0	1.10	3.0-6.0	Clayey Silt/Silty Clay Till
BH/MW16	589889	4777957	6.0	1.20	3.0-6.0	Clayey Silt/Clayey Silt Till
BH/MW17	590572	4777889	6.0	1.04	3.0-6.0	Silty Clay Till
BH/MW18	590082	4777727	8.4	1.06	5.4-8.4	Clayey Silt Till
BH/MW19S	589840	4777144	3.0	1.30	1.5-3.0	Clayey Silt Till
BH/MW19D	589840	4777144	6.0	1.30	3.0-6.0	Silty Clay Till
BH/MW20	590742	4777461	6.0	1.10	3.0-6.0	Clayey Silt Till

Notes:
masl = meters above sea level
mbgs = meters below ground level
m = meters
* Values are approximate by GPS +/- 4 m

2.3.2 Drive-Point Piezometers Installation

On July 3rd and 4th, 2024, Landtek personnel installed eight (8) drive-point piezometers, consisting of deep piezometers (i.e., DP1, DP2, DP3, DP4, DP5, DP6, DP7, and DP9) at surface water bodies locations determined by Beacon Environmental (Figure 4). The piezometers were installed to evaluate whether these water bodies function as a groundwater recharge feature (i.e., contributes water to subsurface), discharge feature (receives water from the subsurface), or a combination of both.

Each drive-point piezometer is constructed of a 0.31 m long stainless-steel screen (25 mm diameter) that is connected to a 0.31 m long, 25 mm diameter steel riser pipes. Landtek personnel drove the drive-point piezometers into the substrate using a sledgehammer in accordance with standard procedure.

A summary of the construction details for the drive-point piezometers installation is presented on the following page in Table 2, and the locations of the piezometers are shown on Figure 4, in Appendix A.

Table 2. Piezometers Construction Details

Piezometer ID	Easting* (NAD83)	Northing* (NAD83)	Depth (mbgs)	Stick-up (m)
DP1	589573	4777750	0.90	0.90
DP2	589060	4777084	0.90	0.90
DP3	589248	4776879	0.90	0.90
DP4	589722	4777464	0.90	0.90
DP5	589808	4777427	0.90	0.90
DP6	590035	4777362	0.90	0.90
DP7	590064	4777583	0.90	0.90
DP9	590413	4777269	0.90	0.90

Notes:
masl = meters above sea level
mbgs = meters below ground level
m = meters
* Values are approximate by GPS +/- 4 m

2.3.3 Monitoring Well Development

Well Development: Each of the installed monitoring wells was developed to remove any sediment that may have been introduced during installation and to improve the hydraulic properties of the formation against which the wells were screened. The monitoring wells were developed by Landtek staff on July 19 and August 12, 2024. Development employed electric well pump/waterra tubing with foot valves and each well was developed until a visible decrease in turbidity and steady flow were observed.

2.3.4 Groundwater Monitoring

Depths to groundwater in all monitoring wells, were obtained manually by Landtek staff on July 19, August 12, August 16, August 28, September 18, and November 21, 2024.

2.3.5 Groundwater Sampling

On September 18, 2024, groundwater samples were collected from monitoring wells MW3D, MW4, and MW10 after purging. All collected samples were stored in a cooler with freezer packs after collection and during transport to AGAT Laboratories in Mississauga, Ontario. The collected samples were analyzed for the Provincial Water Quality Objective (PWQO) Analysis. ALS is accredited by the *Canadian Associations for Laboratory Accreditation Inc*. (CALA).

2.3.6 Hydraulic Conductivity Testing

On September 5, 2024, hydraulic conductivity tests were completed in monitoring wells MW1, MW3S, MW3D, MW4, MW6, MW9, MW10, and MW18 to provide estimates of the hydraulic conductivity for the zones against which the screens for the wells were set. The tests involved the extraction of a volume of groundwater to displace the water level. A datalogger programed at 2 second intervals were used to record the water level response during the tests.

Data Analysis: The rising head test data were analyzed using AqteSolve Professional Version 4.5 software package developed by Glenn M. Duffield of HydroSOLVE Inc. applying the Hvorslev analysis solutions, depending on hydrogeology.

3.0 FINDINGS

3.1 Topography, Drainage and Hydrology

The Geodetic elevation of the ground surface at the site is approximately 220 m to 232 m.

Ground water flow is known to be from areas of higher elevation to areas of lower elevation. Based on topography and mapping information of the area, the ground surface elevations at the site indicate there is a drainage split where the northeast part of the site drains northeast towards Lake Ontario, while the majority of the site drains south to tributaries of the Welland River, which drains south-eastward.

The Site is located within the Niagara Peninsula Conservation Authority (NPCA) Watershed. Based on the Ontario Source Protection Information Atlas, the Site is not within a *Wellhead Protection Area* ("WPA") and *Intake Protection Zone* (IPZ"). However, there are areas of *Highly Vulnerable Aquifer Areas* ("HVA") which vary across the Site with Scores ranging from 0 to 6.

Based on the Karst Map of Southern Ontario, the Site is located within an area of Potential Karst described as areas of carbonate rock units identified as most susceptible to karst processes, a thick cover of drift.

3.2 Regional Physiography

The Site is located within the physiographical regions of the Haldimand Clay Plain comprised of till moraines and clay plains according to the "Physiography Map of South-Central Portion of Southern Ontario" (Map 2226, Scale 1:253,440) prepared by the Ontario Department of Mines and Northern Affairs and based on the database maintained by Ontario Geological Survey ("OGS").

3.3 Climate

The site is located in the Mixedwood Plains ecozone of Ontario (Natural Resources Canada, 2012). The general climate data presented below in Table 3 was obtained from Environment Canada publications and from the Environment Canada online database. Average climate data was taken from the Hamilton A station (Hamilton Airport) for the period of 1981 to 2010.

Table 3. 1981 to 2010 Climate Normals for Hamilton A Station (as averages)

	Daily Average Temperature (°C)	Average Rainfall (mm)	Average Snowfall (cm)	Average Precipitation (mm)
January	-5.5	29.7	40.8	64.0
February	-4.6	28.2	35.1	57.8
March	-0.1	42.6	26.5	68.4
April	6.7	71.3	8.4	79.1
May	12.8	78.7	0.5	79.4
June	18.3	84.9	0.0	84.9
July	20.9	100.7	0.0	100.7
August	20.0	79.2	0.0	79.2
September	15.8	81.9	0.0	81.9
October	9.3	76.5	0.7	77.4
November	3.7	74.4	11.0	84.3
December	-2.3	43.8	33.5	73.0

Year	7.9	791.7	156.5	929.8

3.4 Regional Geology

The City of Hamilton is underlain by clastic and carbonate sedimentary rocks of Late Ordovician to Middle Silurian age, which make up parts of three major depositional sequences (Johnson et al., 1992). The oldest bedrock unit outcropping in the area, the Queenston Formation, is predominantly dark red, fissile, hematitic, calcareous shale (Liberty et al., 1976).

The Queenston Formation is found north of the Niagara Escarpment and consists in many places of up to 4 feet (1.2 m) of very weathered bedrock (red clay) which grades downward into typical brick-red shale. The Queenston shale is overlain by Halton Till in the area of the site.

The Late Wisconsinan Halton Till is a clay to clayey silt till and is exposed in the form of a till plain from Lake Ontario southward to the Niagara Escarpment. It is the youngest glacial unit in the region and has been found to be relatively thick (up to 30 m) in the buried bedrock valley between Grimsby and Grimsby Beach. The basal part of the till is red, relatively coarser textured, and consists almost entirely of Queenston shale. Proglacial Lake Iroquois clay, silt and sand is mapped as overlying the Queenston shale in the southern portion of the site. The lake terrace is mainly underlain by Queenston shale and Halton Till although a sheet of predominantly fine sand was deposited along the shoreline and is relatively thicker (up to 4.5 m) in the vicinity of Grimsby (Feenstra, 1974).

Surficial Geology

Based on the OGS surficial geology Map, the Site is generally covered with fine-textured glaciolacustrine deposits; and till (clay to silt-textured till, derived from glaciolacusrine deposits or shale.

Bedrock Geology

Based on the Bedrock Geology of Ontario Southern Sheet, Map 2544 (1: 1,000,000) by OGS, the bedrock at the Site consisted of sandstone, shale, dolostone and siltstone of Guelph Formation.

3.5 Local and Regional Hydrogeology

Local hydrogeology conditions were assessed on the basis of local water well records and available ground investigation reports for the area.

The hydrostratigraphy (i.e., the vertical sequence and horizontal extent of aquifers and aquitards) in the overburden and bedrock generally follows the geologic layering. Till formations in the overburden act as aquitards while the sandier units generally behave as aquifers. Shale generally acts as an aquitard with an upper weathered bedrock aquifer layer (City of Hamilton, 2010).

The Halton till has low infiltration potential due to the composition of the clay and density of the till. The groundwater recharge potential is classified as moderate to low in the area.

3.6 MECP Water Well Records and Groundwater Resources

The Ministry of Environment, Conservation and Park (MECP) Water Well Information System is a publicly available database which contains information such as groundwater well location, well construction details, static water level, geologic units encountered with depth, general water quality observations, water use, date of construction, and screened interval.

The MECP records for wells located within approximately 500 meters of the site were reviewed to assess the general nature and use of the groundwater resource in the area and to characterize local hydrogeologic conditions.

Desk Top Studies

The MECP records for wells located within approximately 500 meters of the twelve (12) Parcels at site were reviewed to assess the general nature and use of the groundwater resource in the area and to characterize local hydrogeologic conditions.

Parcel A

A desktop search of the MECP water well records within approximately 500 m of the site, conducted on March 8, 2024, returned a total of 139 wells comprising of 119 water wells, seventeen (17) observation wells, two (2) abandoned wells, and 1 well with unknown use. The records were reviewed to assess the general nature of the groundwater resource in the area and to characterize local hydrogeologic conditions. The locations of the wells are shown on Figure 1 in Appendix C. The well records summary is provided in Table 1, Appendix D.

A summary of the data obtained from the well survey is presented below.

Well Construction

- Wells terminated in bedrock 29
- Wells terminated in overburden 106
- Wells with unknown construction 4
- **Total.....139**

Well Uses

- Domestic Water Supply 109
- Commercial Water Supply 3
- Public Water Supply 2
- Industrial Water Supply.....1
- Irrigation Water Supply 4
- Monitoring/Test Hole.....17
- Abandoned Wells 2
- No Records 1
- **Total.....139**

Well Depth

- Less than 15 m 14
- 15 to 30 m 15
- Greater than 30 m 107

- No Data.....3
- **Total.....139**

Based on the well records review, it was determined that there are one hundred and nineteen (119) water wells within 500 m radius of the Site.

Parcel B

A desktop search of the MECP water well records within approximately 500 m of the site, conducted on March 8, 2024, returned a total of 57 wells comprising 43 water wells, 12 observation wells, one (1) abandoned well, and one (1) well without information. The records were reviewed to assess the general nature of the groundwater resource in the area and to characterize local hydrogeologic conditions. The locations of the wells are shown on Figure 2 in Appendix C. The well records summary is provided in Table 2, Appendix D.

A summary of the data obtained from the well survey is presented below.

Well Construction

- Wells terminated in bedrock 13
- Wells terminated in overburden 43
- Wells with unknown construction.....1
- **Total.....57**

Well Uses

- Water Supply.....43
- Abandoned.....1
- Observation.....12
- No Records 1
- **Total.....57**

Well Depth

- Less than 15 m 12
- 15 to 30 m 6
- Greater than 30 m 38
- No Data.....1
- **Total.....57**

Based on the well records review, it was determined that there are forty-three (43) water wells within 500 m radius of the Site.

Parcel C1

A desktop search of the MECP water well records within approximately 500 m of the site, conducted on March 12, 2024, returned a total of 10 wells comprising of 10 water wells. The records were reviewed to assess the general nature of the groundwater resource in the area and to characterize local hydrogeologic conditions. The locations of the wells are shown on Figure 3 in Appendix C. The well records summary is provided in Table 3, Appendix D.

A summary of the data obtained from the well survey is presented on the following page.

Well Construction

- Wells terminated in bedrock 2
- Wells terminated in overburden 8
- **Total.....10**

Well Uses

- Domestic Water Supply 6
- Irrigation Water Supply 4
- **Total.....10**

Well Depth

- Less than 15 m 0
- 15 to 30 m 0
- Greater than 30 m 10
- **Total.....10**

Based on the well records review, it was determined that there are ten (10) water wells within 500 m radius of the Site.

Parcel C2

A desktop search of the MECP water well records within approximately 500 m of the site, conducted on March 12, 2024, returned a total of 17 wells comprising of 17 water wells. The records were reviewed to assess the general nature of the groundwater resource in the area and to characterize local hydrogeologic conditions. The locations of the wells are shown on Figure 4 in Appendix C. The well records summary is provided in Table 4, Appendix D.

A summary of the data obtained from the well survey is presented below.

Well Construction

- Wells terminated in bedrock 5
- Wells terminated in overburden 12
- **Total.....17**

Well Uses

- Domestic Water Supply 16
- Livestock 1
- **Total.....17**

Well Depth

- Less than 15 m 0
- 15 to 30 m 3
- Greater than 30 m 14
- **Total.....17**

Based on the well records review, it was determined that there are seventeen (17) water wells within 500 m radius of the Site.

Parcel C3

A desktop search of the MECP water well records within approximately 500 m of the site, conducted on March 12, 2024, returned a total of 14 wells comprising of 14 water wells. The records were reviewed to assess the general nature of the groundwater resource in the area and to characterize local hydrogeologic conditions. The locations of the wells are shown on Figure 5 in Appendix C. The well records summary is provided in Table 5, Appendix D.

A summary of the data obtained from the well survey is presented below.

Well Construction

- Wells terminated in bedrock 1
- Wells terminated in overburden 13
- **Total.....14**

Well Uses

- Domestic Water Supply 13
- Irrigation Water Supply 1
- **Total.....14**

Well Depth

- Less than 15 m 0
- 15 to 30 m 1
- Greater than 30 m 13
- **Total.....14**

Based on the well records review, it was determined that there are fourteen (14) water wells within 500 m radius of the Site.

Parcel C4

A desktop search of the MECP water well records within approximately 500 m of the site, conducted on March 12, 2024, returned a total of 17 wells comprising of 17 water wells. The records were reviewed to assess the general nature of the groundwater resource in the area and to characterize local hydrogeologic conditions. The locations of the wells are shown on Figure 6 in Appendix C. The well records summary is provided in Table 6, Appendix D.

A summary of the data obtained from the well survey is presented below.

Well Construction

- Wells terminated in bedrock 1
- Wells terminated in overburden 16
- **Total.....17**

Well Uses

- Domestic Water Supply 16
- Irrigation Water Supply 1
- **Total.....17**

Well Depth

- Less than 15 m 1
- 15 to 30 m 4
- Greater than 30 m 12
- **Total.....17**

Based on the well records review, it was determined that there are seventeen (17) water wells within 500 m radius of the Site.

Parcel D1

A desktop search of the MECP water well records within approximately 500 m of the site, conducted on July 9, 2024, returned a total of 13 wells comprising of 11 water wells, one (1) abandoned well, and one (1) well with unknown use. The records were reviewed to assess the general nature of the groundwater resource in the area and to characterize local hydrogeologic conditions. The locations of the wells are shown on Figure 7 in Appendix C. The well records summary is provided in Table 7, Appendix D.

A summary of the data obtained from the well survey is presented below.

Well Construction

- Wells terminated in bedrock 0
- Wells terminated in overburden 12
- Wells with unknown construction 1
- **Total.....13**

Well Uses

- Domestic 11
- Abandoned.....1
- No Record 1
- **Total.....13**

Well Depth

- Less than 15 m 0
- 15 to 30 m 1
- Greater than 30 m 11
- No Data.....1
- **Total.....13**

Based on the well records review, it was determined that there are eleven (11) water wells within 500 m radius of the Site.

Parcel D2

A desktop search of the MECP water well records within approximately 500 m of the site, conducted on July 9, 2024, returned a total of 11 wells comprising of 8 water wells, 1 (one) abandoned well, and 2 wells with unknown use. The records were reviewed to assess the general nature of the groundwater resource in the area and to characterize local hydrogeologic conditions. The locations of the wells are shown on Figure 8 in Appendix C. The well records summary is provided in Table 8, Appendix D.

A summary of the data obtained from the well survey is presented below.

Well Construction

- Wells terminated in bedrock 3
- Wells terminated in overburden 7
- Wells with unknown construction 1
- **Total 11**

Well Uses

- Domestic 8
- Abandoned Well 1
- No Records 2
- **Total 11**

Well Depth

- Less than 15 m 0
- 15 to 30 m 0
- Greater than 30 m 9
- No Data 2
- **Total 11**

Based on the well records review, it was determined that there are eight (8) water wells within 500 m radius of the Site.

Parcel D3

A desktop search of the MECP water well records within approximately 500 m of the site, conducted on July 9, 2024, returned a total of 7 wells comprising of 6 water wells, and 1 well with unknown use. The records were reviewed to assess the general nature of the groundwater resource in the area and to characterize local hydrogeologic conditions. The locations of the wells are shown on Figure 9 in Appendix C. The well records summary is provided in Table 9, Appendix D.

A summary of the data obtained from the well survey is presented below.

Well Construction

- Wells terminated in bedrock 3
- Wells terminated in overburden 3
- Wells with unknown construction 1
- **Total 7**

Well Uses

- Domestic 6
- No Record 1
- **Total 7**

Well Depth

- Less than 15 m 0
- 15 to 30 m 0
- Greater than 30 m 6
- No Data 1
- **Total 7**

Based on the well records review, it was determined that there are six (6) water wells within 500 m radius of the Site.

Parcel E1

A desktop search of the MECP water well records within approximately 500 m of the site, conducted on August 6, 2024, returned a total of 20 wells comprising of fifteen water wells, two (2) abandoned wells, and 3 wells with unknown use. The records were reviewed to assess the general nature of the groundwater resource in the area and to characterize local hydrogeologic conditions. The locations of the wells are shown on Figure 10 in Appendix C. The well records summary is provided in Table 10, Appendix D.

A summary of the data obtained from the well survey is presented below.

Well Construction

- Wells terminated in bedrock 13
- Wells terminated in overburden 4
- Wells with unknown construction 3
- **Total 20**

Well Uses

- Domestic Water Supply 15
- Abandoned Well 1
- No Records 4
- **Total 20**

Well Depth

- Less than 15 m 0
- 15 to 30 m 3
- Greater than 30 m 14
- No Data 3
- **Total 20**

Based on the well records review, it was determined that there are fifteen (15) water wells within 500 m radius of the Site.

Parcel E2

A desktop search of the MECP water well records within approximately 500 m of the site, conducted on August 6, 2024, returned a total of 14 wells comprising of 12 water wells, one (1) abandoned well, and one (1) well with unknown use. The records were reviewed to assess the general nature of the groundwater resource in the area and to characterize local hydrogeologic conditions. The locations of the wells are shown on Figure 11 in Appendix C. The well records summary is provided in Table 11, Appendix D.

A summary of the data obtained from the well survey is presented below.

Well Construction

- Wells terminated in bedrock 8
- Wells terminated in overburden 6
- **Total.....14**

Well Uses

- Domestic Water Supply 11
- Livestock Water Supply 1
- Abandoned.....1
- No Records 1
- **Total.....14**

Well Depth

- Less than 15 m 0
- 15 to 30 m 2
- Greater than 30 m 11
- No Data.....1
- **Total.....14**

Based on the well records review, it was determined that there are twelve (12) water wells within 500 m radius of the Site.

Parcel E3

A desktop search of the MECP water well records within approximately 500 m of the site, conducted on August 6, 2024, returned a total of 7 wells comprising of 5 water wells, one (1) abandoned well, and 1 (one) well with unknown use. The records were reviewed to assess the general nature of the groundwater resource in the area and to characterize local hydrogeologic conditions. The locations of the wells are shown on Figure 12 in Appendix C. The well records summary is provided in Table 12, Appendix D.

A summary of the data obtained from the well survey is presented below.

Well Construction

- Wells terminated in bedrock 2
- Wells terminated in overburden 4
- Wells with unknown construction.....1
- **Total.....7**

Well Uses

- Domestic Water Supply 5
- Abandoned Well 1
- No Records 1
- **Total 7**

Well Depth

- Less than 15 m 0
- 15 to 30 m 0
- Greater than 30 m 6
- No Data 1
- **Total 7**

Based on the well records review, it was determined that there are seven (7) water wells within 500 m radius of the Site.

3.7 Results of Site Inspection

A detailed site inspection was conducted by Landtek on June 22, 2023, to assess the presence of features which may be significant from a hydrogeologic viewpoint. In particular, the site was inspected to assess the following:

- The presence of closed drainage features, depressions, or sandy areas which may allow for ponding and significant or enhanced infiltration of water.

- Assessment of the presence of phreatophytic vegetation which may indicate seasonally high groundwater levels and/or groundwater discharge and seepage.

- Identification of any zones of visible seepage or groundwater discharge.

The observations made during the inspection include surface drainage features (streams), and ponds. Five (5) streams, and seven (7) ponds were identified within the Site These are presented on Figure 5 in Appendix A.

3.8 Results of Subsurface Investigation

The borehole information is generally consistent with the geological data of the area, with the predominant soils comprising of glaciolacustrine clays, silts and tills.

Detailed monitoring wells logs are presented in Appendix B, and the lithologies encountered during drilling are discussed further in the following sections.

Organic Soil

An approximately 50 mm to 200 mm thick layer of topsoil was encountered from ground surface in all boreholes.

Silt

Silt deposits were encountered in boreholes BH/MW6, BH/MW8, BH/MW22, BH23 and BH/MW24 underlying the organic material and clayey silt deposits at a depth of 1.5 m to 7.6 m below ground level. The silt deposits encountered are primarily brown, and grey at depth in colour and include trace fractions of grey clay seams and iron staining.

Clayey Silt to Silty Clay

Clayey silt to silty clay deposits were encountered in all boreholes except boreholes BH1, BH23 and BH/MW24 below the organic material, and range in depth between approximately 0.1 m to 6.0 m below the ground surface. The clayey silt to silty clay deposits encountered are primarily brown, and grey at depth in colour, and includes variable fractions of gravel, iron staining, red shale fragments, grey clay seams, and sand.

Silt Till

Silt till deposits were encountered in boreholes BH1, nested boreholes BH/MW3S/D, BH23 and BH/MW24 underlying the silt, clayey silt and clayey silt to silty clay till deposits, ranging in depth between approximately 0.7 m to 8.1 m below ground level. The silt till deposits encountered are primarily grey in colour and include variable fractions of clay, iron staining and gravel.

Silty Clay to Clayey Silt Till

Silty clay to clayey silt till deposits were encountered in all boreholes except BH23 and BH/MW24 below the silty clay to clayey silt deposits and organic material, and range in depth between approximately 0.7 m to the maximum drill depth of approximately 12.6 m below the ground surface. The till deposits encountered are primarily brown, and grey at depth in colour and include variable fractions of gravel, iron staining, cobbles, grey clay seams and red shale fragments.

Bedrock

Bedrock was not encountered during this investigation.

Groundwater

Groundwater or water seepages were not encountered during drilling, with all boreholes remaining open and dry to completion though wet soils, particularly the silt till and deeper clayey silt till, were noted at variable depth across the development area.

3.9 Groundwater Monitoring

Depths to groundwater in monitoring wells MW3S, MW3D, MW4, MW6. MW8, MW9, MW10, MW11, MW12, MW16, MW17, MW18, MW19S, MW19D, and MW 20 were obtained manually by Landtek staff on July 19, August 12, August 16, August 28, September 18, and November 21, 2024. The readings are presented on the following page in Table 4. It should be noted that groundwater level monitoring is ongoing to determine the seasonal highest groundwater level which usually occurs in Spring due to rain and snow melt.

Table 4. Groundwater Monitoring Data

MW ID	Date	Total Depth (mbgs)	Water Strike (mbgs)*	Stick-up (m)	Water Level (mbgs)
BH/MW3S	19-Jul-24	3.0	None	1.07	0.89
	12-Aug-24				-
	16-Aug-24				1.06
	28-Aug-24				1.28
	18-Sep-24				2.42
	21-Nov-24				2.70
BH/MW3D	19-Jul-24	6.0	None	1.15	0.71
	12-Aug-24				-
	16-Aug-24				1.17
	28-Aug-24				1.39
	18-Sep-24				4.63
	21-Nov-24				2.90
BH/MW4	19-Jul-24	6.0	None	1.01	0.21
	12-Aug-24				-
	16-Aug-24				0.78
	28-Aug-24				2.00
	18-Sep-24				3.44
	21-Nov-24				1.55
BH/MW6	19-Jul-24	6.0	None	1.16	0.40
	12-Aug-24				-
	16-Aug-24				0.88
	28-Aug-24				1.06
	18-Sep-24				5.61
	21-Nov-24				1.58
BH/MW8	19-Jul-24	6.0	None	0.95	0.48
	12-Aug-24				-
	16-Aug-24				1.18
	28-Aug-24				1.45
	18-Sep-24				2.07
	21-Nov-24				1.36
BH/MW9	19-Jul-24	9.0	None	1.13	7.44
	12-Aug-24				-
	16-Aug-24				5.75
	28-Aug-24				6.12
	18-Sep-24				3.96
	21-Nov-24				2.62
BH/MW10	19-Jul-24	6.0	None	1.12	0.43
	12-Aug-24				-
	16-Aug-24				0.50
	28-Aug-24				0.57
	18-Sep-24				0.68
	21-Nov-24				0.15
BH/MW11	19-Jul-24	6.0	None	1.09	0.78
	12-Aug-24				-
	16-Aug-24				1.17
	28-Aug-24				1.35
	18-Sep-24				1.69
	21-Nov-24				1.32
BH/MW12	19-Jul-24	6.0	None	1.10	1.46
	12-Aug-24				-
	16-Aug-24				0.98
	28-Aug-24				1.68
	18-Sep-24				1.73
	21-Nov-24				1.31
BH/MW16	19-Jul-24	6.0	None	1.20	-
	12-Aug-24				1.03

	16-Aug-24				1.00
	28-Aug-24				1.17
	18-Sep-24				1.49
	21-Nov-24				2.09
BH/MW17	19-Jul-24	6.0	None	1.04	-
	12-Aug-24				5.53
	16-Aug-24				5.29
	28-Aug-24				4.39
	18-Sep-24				5.15
	21-Nov-24				3.94
BH/MW18	19-Jul-24	8.4	None	1.06	-
	12-Aug-24				4.22
	16-Aug-24				1.77
	28-Aug-24				1.03
	18-Sep-24				1.31
	21-Nov-24				1.57
BH/MW19S	19-Jul-24	3.0	None	1.30	-
	12-Aug-24				1.27
	16-Aug-24				1.31
	28-Aug-24				1.44
	18-Sep-24				1.67
	21-Nov-24				2.08
BH/MW19D	19-Jul-24	6.0	None	1.30	-
	12-Aug-24				1.31
	16-Aug-24				1.38
	28-Aug-24				1.47
	18-Sep-24				1.67
	21-Nov-24				0.98
BH/MW20	19-Jul-24	6.0	None	1.10	-
	12-Aug-24				1.16
	16-Aug-24				1.23
	28-Aug-24				1.54
	18-Sep-24				2.18
	21-Nov-24				3.03

Notes:
[*] water strike/groundwater seepage
mbgs = meters below ground surface
masl = meters above sea-level

3.10 Hydraulic Gradients and Flow

Vertical Hydraulic Gradient

Groundwater generally flows from the shallow to deeper aquifers as leakage across the aquitards. However, this may vary locally, and the direction of vertical flow depends on the relative heads in the different layers. Leakage rates vary locally depending on the magnitude of the vertical gradients and on the thickness and hydraulic conductivity of the confining units (City of Hamilton, 2010).

Horizontal Hydraulic Gradient

Ground water flow is known to be from areas of higher elevation to areas of lower elevation. Based on topography and mapping information of the area, the ground surface elevations at the site indicate there is a drainage split where the northeast part of the site drains northeast towards Lake Ontario, while the majority of the site drains south to tributaries of the Welland River, which drains south-eastward.

3.11 Estimated Hydraulic Conductivity

3.11.1 Hydraulic Conductivity Tests Analysis

The analyses were completed using the Hvorslev method (Fetter, 1994). The graphical results of the hydraulic conductivity analysis are presented in Appendix D, and the results are summarized below in Table 5.

Table 5. Hydraulic Conductivity Results

Monitoring Well	Hydraulic Conductivity (m/s)	Screened Material
MW3S	4.689×10^{-8}	Clayey Silt Till/Silt Till
MW3D	1.470×10^{-8}	Silt Till
MW4	1.738×10^{-8}	Clayey Silt Till/Silty Clay Till
MW6	9.618×10^{-9}	Clayey Silt/Silty Clay Till
MW9	3.133×10^{-8}	Silty Clay Till
MW10	1.482×10^{-9}	Clayey Silt/Clayey Silt Till
MW18	6.416×10^{-10}	Clayey Silt Till

The results indicate that the hydraulic conductivity of the screened till material at the site range from 6.416×10^{-10} m/s to 4.689×10^{-8} m/s, with a geometric mean of 8.583×10^{-9} m/s.

In theoretical terms, hydraulic conductivity is a measure of how easily water can pass through soil or rock. High values indicate permeable material through which water can pass easily, and low values indicate that the material is less permeable. The above value of 8.583×10^{-9} m/s is considered as low.

3.12 Groundwater Quality

Copies of the laboratory Certificates of Analysis are provided in Appendix E. The results of the analyzed groundwater samples collected from monitoring wells MW3D, MW4 and MW10 were compared to the Provincial Water Quality Objective (PWQO) Analysis parameters.

All analyzed parameters were within guideline Limits with the exception of Total Cobalt, Total Iron, Total Silver, and Total Uranium as shown in red in the Table 6 below.

Table 6. Laboratory Analysis Results

Monitoring Well	Parameter	PWQO
MW3D	Total Cobalt	0.0019 mg/L* (Guideline = 0.0009 mg/L)
MW3D	Total Iron	0.863 mg/L* (Guideline = 0.3 mg/L)
MW4	Total Cobalt	0.0048 mg/L* (Guideline = 0.0009 mg/L)
MW4	Total Silver	0.0001 mg/L* (Guideline = 0.0001 mg/L)
MW4	Total Uranium	0.0067 mg/L* (Guideline = 0.005 mg/L)
MW10	Total Cobalt	0.0023 mg/L* (Guideline = 0.0009 mg/L)
MW10	Total Uranium	0.0078 mg/L* (Guideline = 0.005 mg/L)

[*] Exceedance

4.0 WATER TAKING EVALUATION & IMPACT ASSESSMENT

Given the absence of a development plan, this investigation is to be considered preliminary until such a time that a development concept is available for each development parcel and an appropriate, more detailed investigation is completed to complement the development plan.

Based on the above, detailed water taking evaluation and impact assessment could not be completed at this time. However, the following insights are provided

Construction Excavation Dewatering

Based on the boreholes and monitoring wells completed at the site, and groundwater level monitoring completed so far, depth to ground water from the ground surface was encountered at varying depths. Groundwater level monitoring is ongoing to determine the highest groundwater level which usually occurs in Spring.

Groundwater control for shallow depth excavations could be handled by standard construction sump pump/well points or equivalent. However, a more robust and elaborate groundwater control measures, such as deep wells and well points, may be considered for deeper overburden excavations depending on depth to groundwater.

5.0 WATER BUDGET

The following discussion and recommendations are based on the data gathered for the study and are presented for site planning purposes.

5.1 Existing Site Development

Existing Site Development (Pre-Development)

The following two areas were identified at the Site:

1. Areas with moderately rooted crop/pasture and scrubs
2. Significant Woodlands

Based on the above existing conditions, pre-development water budget was completed for each of the identified areas. Post-development water budget will be completed at the Secondary Planning stage when the proposed development plan is available.

Areas with moderately rooted crop/pasture and scrubs

The following summarizes the approximate existing land coverage areas for the site:

- Building roof area ..... 1.447 ha
- Hardscape area ..... 4.344 ha
- Softscape area ..... 340.996 ha
- **Total Area ..... 346.787 ha**

Significant Woodland Area

The following summarizes the approximate existing land coverage areas for the site:

- Building roof area ..... 0 ha
- Hardscape area ..... 0 ha
- Wooded area ..... 17.580 ha
- **Total Area ..... 17.580 ha**

5.2 Principal Hydrogeologic Features and Functions

The results of the study indicate that the site hydrogeologic characteristics are as follows:

- Groundwater flow at the site is controlled by the topography present across the area. The overburden present at surface includes the low permeability clayey silt which may have hydraulic conductivity values as low as 10^{-9} m/s, resulting in relatively low amount of groundwater infiltration or recharge. As a result, surface water will tend to flow overland and/or pool in low lying area after rainfall or melt. The recharge rate for a clayey silt is approximately 100 mm/year (City of Hamilton “Guidelines for Hydrogeological Studies and Technical Standards for Private Services, 2013”).

- Depths to groundwater in all monitoring wells installed at the site were obtained manually by Landtek staff on July 19, August 12, August 16, August 28, September 18,

and November 21, 2024. The highest groundwater level recorded so far was 0.21 mbgs at BH/MW4 on July 19, 2024.

- During drilling activities, the underlying clayey silt was found to be firm and moist. Based on the physical characteristics of the till and the assumed low hydraulic conductivities, infiltration will be relatively low.

The above noted hydrogeological characteristics should be considered in conjunction with the requirement for future site development plans and in particular storm water management practices at the site. Additional information regarding water budget at the site is presented in the following section.

5.3 Water Budget

The surface soils at the site will provide limited water recharge into the shallow groundwater system. This is as a result of the relatively impermeable clayey silt soil encountered below surface across the site. Based on the subsurface investigation completed for the site, no enhanced zones of groundwater flow or transmission were identified across the site.

Evapotranspiration represents the transport of water from the earth back to the atmosphere and is an important component to water balance calculation. The Thornthwaite method was used to calculate potential evapotranspiration typical for the region. By using equations 8, 9, and 10 in Thornthwaite (1948), the potential evapotranspiration for the region was found to be 609 mm/year. The calculation is included in Appendixes G and H.

As was presented in Table 3 of this report, the annual total precipitation was taken from the Hamilton A climate station for the period of 1981 to 2010. Total monthly average precipitation for the area is 930 mm/year, and the mean daily temperature is 7.9 °C.

The total shallow groundwater recharge rate for the site is estimated to be 100 mm/year. This recharge was referenced from the *MOE Hydrogeological Technical Information (April 1995) - Infiltration Factors (Table 2)*. The post-development water budget can not be completed as the development site plan has not been completed.

Areas with moderately rooted crop/pasture and scrubs

The water budget and run-off calculations of areas with moderately rooted crop/pasture and scrubs of the existing site water are presented in Appendixes G. The Annual Pre-Development Water Budget and a summary are presented below in Tables 7 and 8, respectively.

Table 7. Annual Pre-Development Water Budget

Land Use	Area (m^2)	Precipitation (m^2)	Evapotranspiration (m^3)	Infiltration (m^3)	Run-Off (m^3)
Building Roofs	14,471	13,458	-	-	13,458
Green Space	3,409,960	3,171,263	2,076,666	340,996	753,601
Hardscape Area	43,442	40, l01	-	-	40,401
TOTAL	3,467,874	3,225,122	2,076,666	340,996	807,461

Table 8. Moderately Rooted Crop/Pasture and Scrubs Area Water Budget

Precipitation (m^3)	Evapotranspiration (m^3)	Infiltration (m^3)	Run-Off (m^3)
3,225,122	2,076,666	340,996	807,461

The above-noted values and associated calculations found in Appendix G are considered to be conservative and are based on the following assumptions:

- No infiltration will occur beneath paved roads and building locations.
- No evapotranspiration will occur at paved roads and building locations.

Significant Woodland Area

The water budget and run-off calculations of significant woodland areas of the existing site water are presented in Appendixes H. The Annual Pre-Development Water Budget and a summary are presented below in Tables 9 and 10, respectively.

Table 9. Annual Pre-Development Water Budget

Land Use	Area (m^2)	Precipitation (m^2)	Evapotranspiration (m^3)	Infiltration (m^3)	Run-Off (m^3)
Building Roofs	0	0	-	-	0
Green Space	175,800	163,494	107,062	17,580	38,852
Hardscape Area	0	0	-	-	0
TOTAL	175,800	163,494	107,062	17,580	38,852

Table 10. Significant Woodland Water Budget

Precipitation (m^3)	Evapotranspiration (m^3)	Infiltration (m^3)	Run-Off (m^3)
163,494	107,062	17,580	38,852

The above-noted values and associated calculations found in Appendix H are considered to be conservative and are based on the following assumptions:

- Infiltration will occur at wooded areas.
- Evapotranspiration will occur at wooded areas.

6.0 SUMMARY AND CONCLUSIONS

The following summarizes the results of the investigation:

- The borehole information is generally consistent with the geological data of the area, with the predominant soils comprising of glaciolacustrine clays, silts and tills.

- Significant hydrogeologic features identified during the inspection conducted by Landtek on June 22, 2023, include surface drainage features (streams), and ponds. These include five (5) streams, and seven (7) ponds were identified within the Site

- The Geodetic elevation of the ground surface at the site is approximately 220 m to 232 m. Groundwater typically follows the general path of the surface water courses and flows to lower elevations. In this study area, the inferred local groundwater flow direction varies. It mostly southwest over the site, with exception that flow is northeast at the northeast area.

- Depths to groundwater in all fifteen (15) monitoring wells at the site were obtained manually by Landtek staff on July 19, August 12, August 16, August 28, and September 18, 2024. The readings are presented on the in Table 4 of this report. It should be noted that groundwater level monitoring is ongoing to determine the seasonal highest groundwater level which usually occurs in Spring due to rain and snow melt.

- Groundwater samples were collected from 3 monitoring wells at the Site analyzed for the Provincial Water Quality Objective (PWQO) parameters. ALS is accredited by the *Canadian Associations for Laboratory Accreditation Inc*. (CALA). All analyzed parameters were within guideline Limits with the exception of Total Cobalt, Total Iron, Total Silver, and Total Uranium as shown in Section 3.12 of this report.

- Pre-development water budget was completed for each of the identified areas at the site (Areas with moderately rooted crop/pasture and scrubs; and Significant Woodlands), which determined the precipitation, evapotranspiration, infiltration, and run-off at each area.

- Post-development water budget will be completed at the Secondary Planning stage when the proposed development plan is available.

7.0 CLOSURE

We trust this report is satisfactory for your purposes. If you have any questions regarding our submission, please do not hesitate to contact Landtek.

Yours truly,

Landtek Limited

Henry Erebor, M.Sc., P.Geo.,
Senior Hydrogeologist

8.0 REFERENCES

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9.0 LIMITATIONS

The conclusions and recommendations given in this report are based on information determined at the borehole locations. Subsurface and ground water conditions between and beyond the boreholes may be different from those encountered at the borehole locations, and conditions may become apparent during construction that could not be detected or anticipated at the time of the geotechnical investigation. It is recommended practice that Landtek be retained during construction to confirm that the subsurface conditions throughout the site are consistent with the conditions encountered in the boreholes.

The comments made in this report on potential construction problems and possible remedial methods are intended only for the guidance of the designer. The number of boreholes may not be sufficient to determine all the factors that may influence construction methods and costs. For example, the thickness and quality of surficial topsoil or fill layers may vary markedly and unpredictably. Contractors bidding on the project or undertaking construction on the site should make their own interpretation of the factual borehole information and establish their own conclusions as to how the subsurface conditions may affect their work.

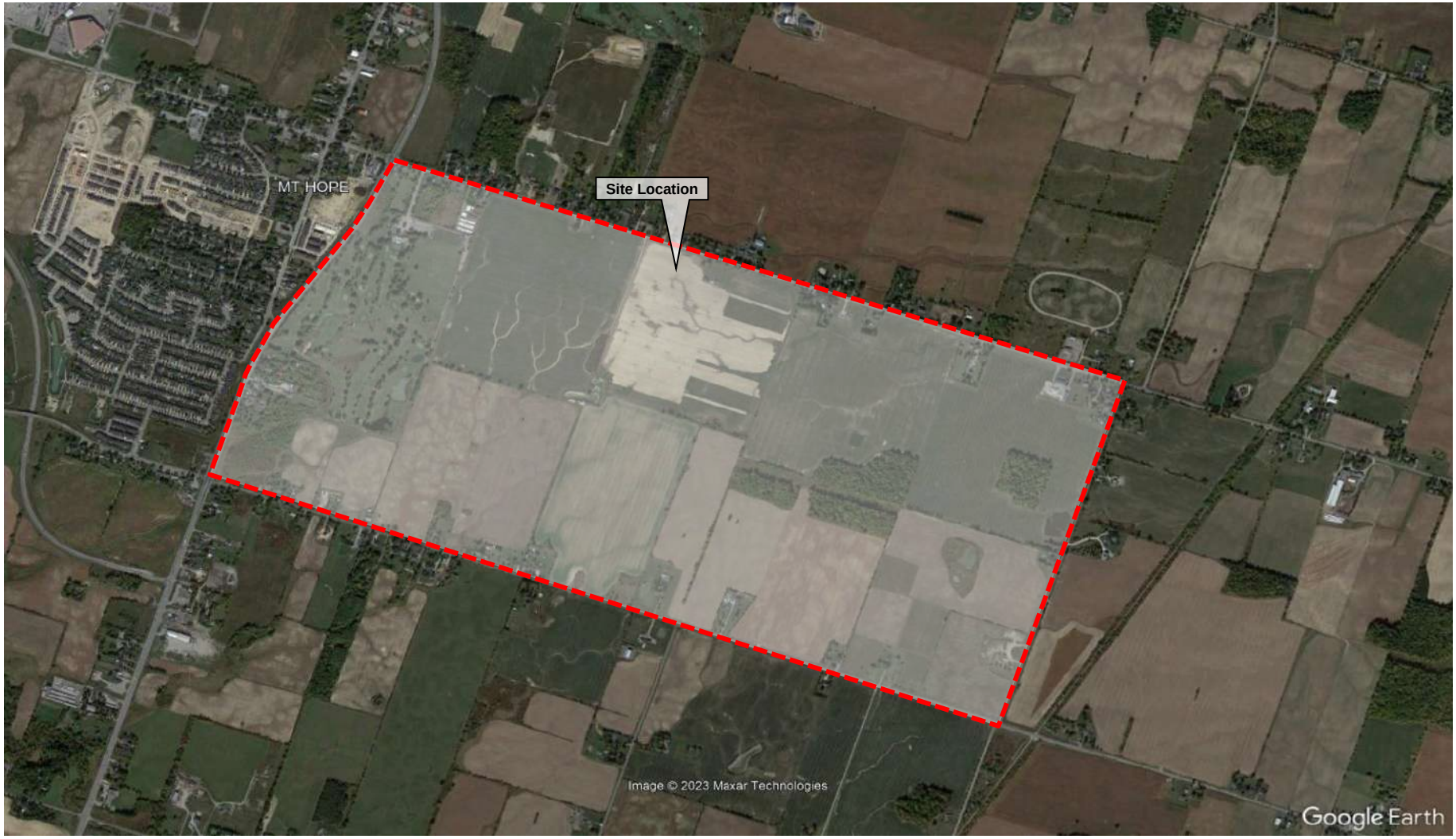
The survey elevations in the report were obtained by Landtek or others and are strictly for use by Landtek in the preparation of the geotechnical report. The elevations should not be used by any other parties for any other purpose.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Landtek accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken based on this report.

This report does not reflect environmental issues or concerns related to the property unless otherwise stated in the report. The design recommendations given in the report are applicable only to the project described in the text and then only if constructed substantially in accordance with the details stated in this report. Since all details of the design may not be known, it is recommended that Landtek be retained during the final design stage to verify that the design is consistent with the report recommendations, and that the assumptions made in the report are still valid.

APPENDIX A

FIGURES



	LANDTEK LIMITED ***CONSULTING ENGINEERS*** **205 NEBO ROAD, HAMILTON, ONTARIO, L8W 2E1**
	Scale: On Map | Date: September 2024
Project:	Hydrogeological Desktop Study White Church Road East & Upper James Street Hamilton, Ontario
Title:	Figure 1: Site Location
Project No.	23355

WHITE CHURCH BOUNDARY EXPANSION AREA

SCALE 1:9000

0 100 200 300 400 500

NOTES:

- Base information prepared by A.T. McLaren Limited
- Aerial Imagery: Google Earth 2023

URBAN SOLUTIONS est.2014 PLANNING & LAND DEVELOPMENT

LEGEND

- SUBJECT LANDS
- RESIDENTIAL
- INSTITUTIONAL
- PARK / OPEN SPACE
- COMMERCIAL
- STORM WATER MANAGEMENT POND
- PIPELINE / TRAIL NETWORK
- NATURAL HERITAGE SYSTEM
- 26m COLLECTOR RIGHT OF WAY
- ARTERIAL RIGHT OF WAY
- CHIPPEWA RAIL TRAIL

LAND USE SCHEDULE

ITEM	AREA (ha)
RESIDENTIAL	249.44
INSTITUTIONAL	7.32
PARK / OPEN SPACE	18.88
COMMERCIAL	16.78
STORM WATER MANAGEMENT POND	18.52
PIPELINE / TRAIL NETWORK	6.59
NATURAL HERITAGE SYSTEM	17.57
RIGHT OF WAY	29.27
TOTAL	364.37

POPULATION

POLICY DOCUMENT	NET RESIDENTIAL DENSITY (UPH)	PEOPLE PER HECTARE	ESTIMATED NUMBER OF UNITS (@ 3.5 PERSON PER UNIT)	ESTIMATED POPULATION
WHITE CHURCH SECONDARY PLAN	31	77	7,629	26,703
PROVINCIAL PLANNING STATEMENT	20	50	4,954	17,340
URBAN HAMILTON OFFICIAL PLAN TARGET	28	70	6,936	24,275

AIRPORT ROAD EAST

COMMERCIAL 16.78 ha

2010 NEF CONTOUR- 30dB

RECOMMENDED NEF CONTOUR - 30dB

COMMUNITY PARK 6.37 ha

2010 NEF CONTOUR- 28dB

RECOMMENDED NEF CONTOUR- 28dB

SWM POND 4.87 ha

PUBLIC ELEMENTARY SCHOOL 2.44 ha

N. PARK 2.50 ha

A

B

C1

C2

C3

D1

D2

D3

E1

E2

UPPER JAMES STREET

SWM POND 1.13 ha

PUBLIC ELEMENTARY SCHOOL 2.44 ha

N. PARK 2.50 ha

N. PARK 2.50 ha

CATHOLIC ELEMENTARY SCHOOL 2.44 ha

SWM POND 4.61 ha

SWM POND 1.88 ha

NEIGHBOURHOOD PARK 2.50 ha

SIGNIFICANT WOODLAND 12.48 ha

SIGNIFICANT WOODLAND 5.10 ha

N. PARK 2.50 ha

SWM POND 1.72 ha

SWM POND 4.31 ha

MILES ROAD

EXISTING CHIPPEWA RAIL TRAIL

WHITE CHURCH ROAD EAST

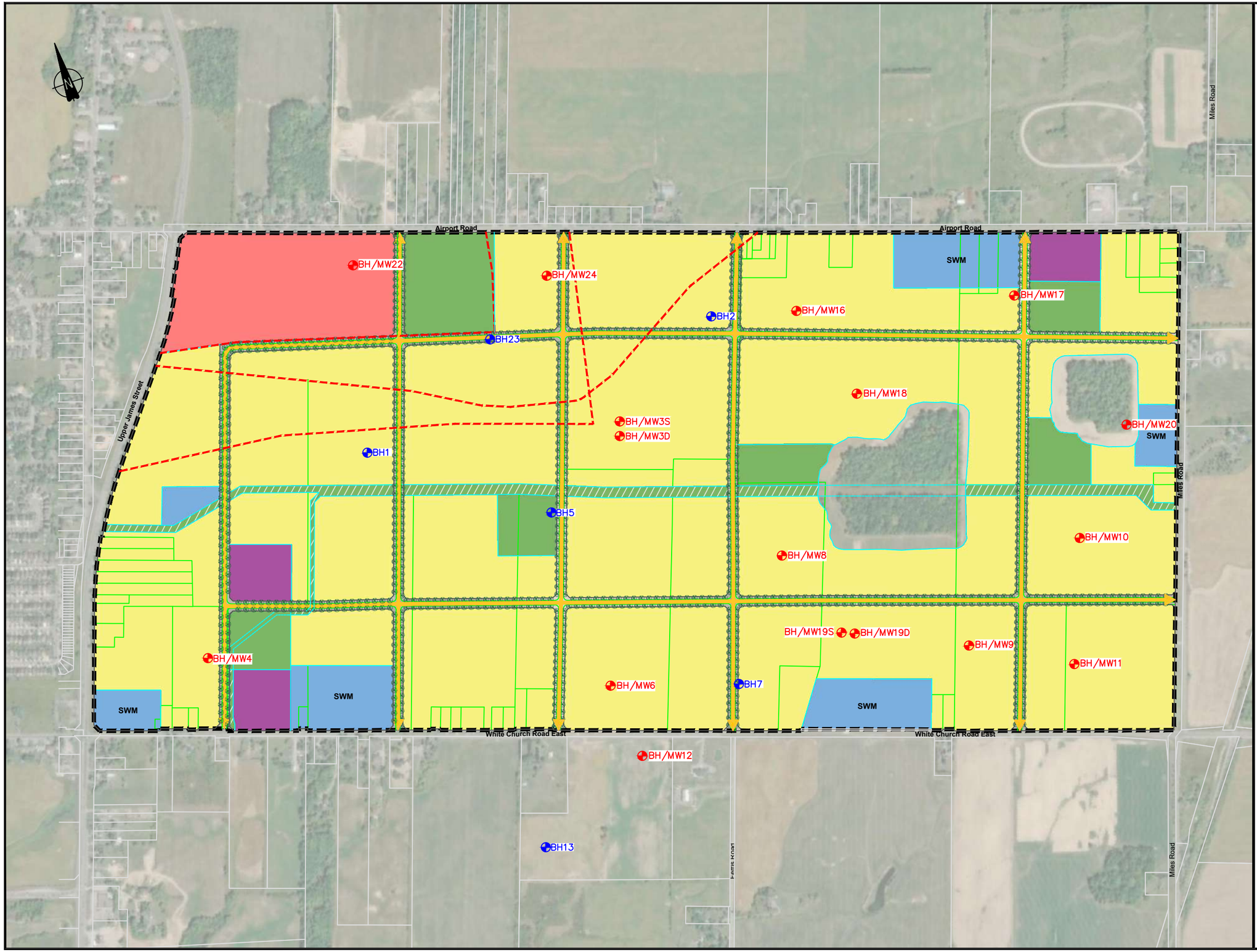
FERRIS ROAD

A - E: Areas with MECP Water Well Survey Completed

N

Figure 2: Concept Plan

C:\Users\StephenEricksonBACPT\OneDrive - Urban Solutions\Documents - Active Projects\464-22 - Whitechurch Secondary Plan\2 - Drawings\1 - Urbansolutions\Secondary Plan\2025\464-22 - Boundary Expansion Concept - 2025-01-08.dwg



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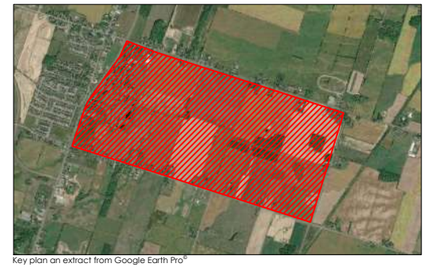
project location



Key plan an extract from Google Earth Pro©

Key:

- Approximate location of boreholes drilled by Landtek Limited between 3 and 8 july 2024.
- Approximate location of monitoring wells installed by Landtek Limited between 3 july and 8 august 2024.
- Future Residential Development
- Future Commercial Development
- Future Institutional Development
- Existing and Future Greenspace (Woodland, Parkland)

Notes:

Base plan taken from the drawing *"White Church Boundary Expansion Area"*, as issued by Urban Solutions Planning & Land Development, with a background extract provided by A. T. McLaren and Aerial Imagery from Google Earth Pro©.

revisions/submissions

#	date	description
1	7 july 2024	issued for draft report
2	28 october 2024	updated property boundary
3	2 december 2024	updated property boundary

client

White Church Landowners Group Inc.

municipality

The Corporation of the City of Hamilton

project

Geotechnical Investigation
White Church Lands

sheet

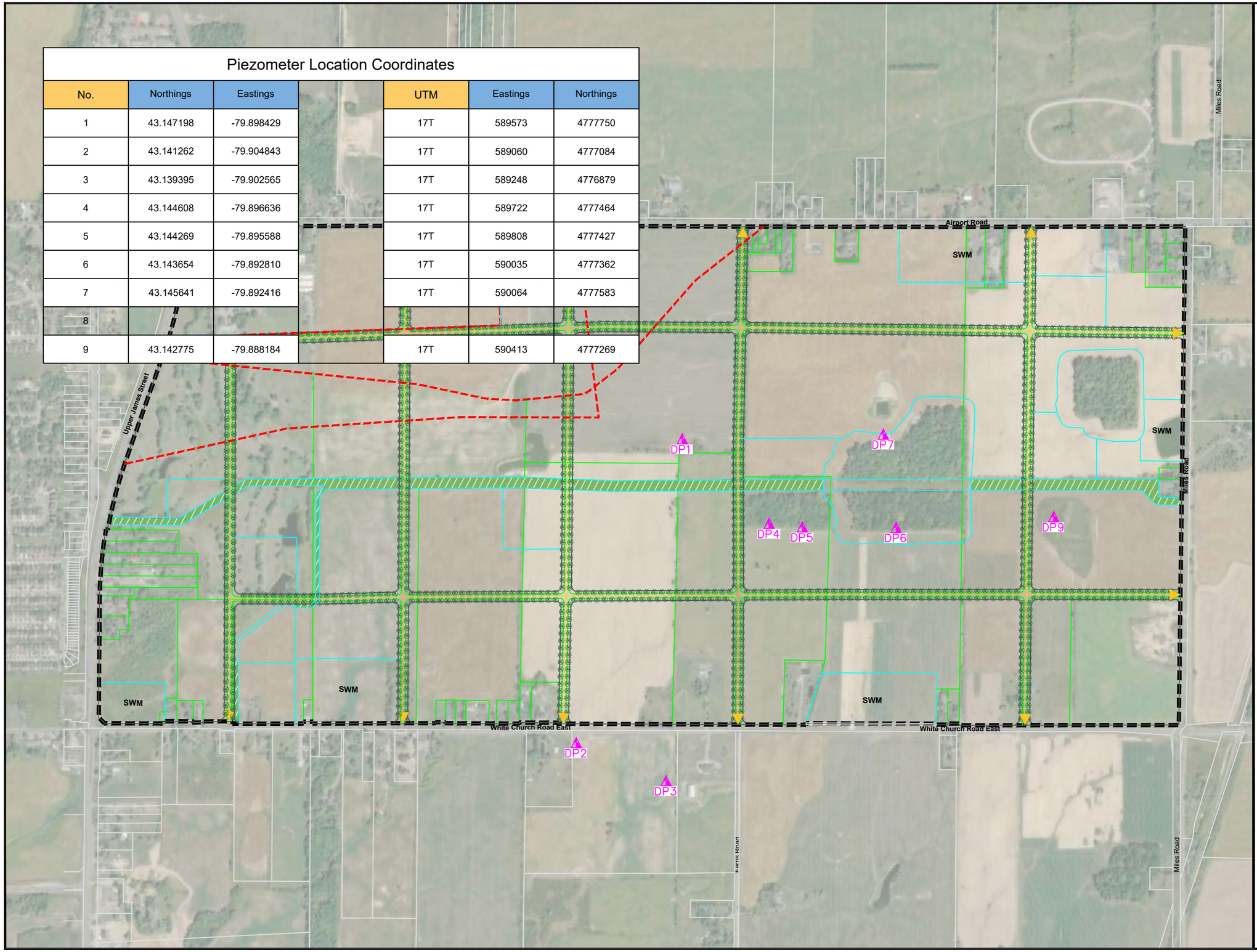
Borehole and Monitoring Well Location Plan

date: january 2025
drawn: mdc
checked: jd
project #: 23354
scale: 1:10,000

23354-01

Piezometer Location Coordinates

No.	Northings	Eastings	UTM	Eastings	Northings
1	43.147198	-79.898429	17T	589573	4777750
2	43.141262	-79.904843	17T	589060	4777084
3	43.139395	-79.902565	17T	589248	4776879
4	43.144608	-79.896636	17T	589722	4777464
5	43.144269	-79.895588	17T	589808	4777427
6	43.143654	-79.892810	17T	590035	4777362
7	43.145641	-79.892416	17T	590064	4777583
8					
9	43.142775	-79.888184	17T	590413	4777269



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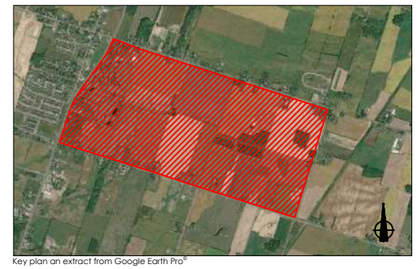
project location



Key plan an extract from Google Earth Pro©

Key:

▲ Approximate location of piezometer installed by Landtek Limited between July 3rd and 4th, 2023.

Notes:

Base plan and extract from the preliminary drawing "Urban Hamilton Official Plan", reference Map B.5.5-1 - Land Use Plan dated November 2023, as issued by The City of Hamilton

revisions/ submissions

#	date	description

client
Urban Solutions

municipality
The Region of the City of Hamilton

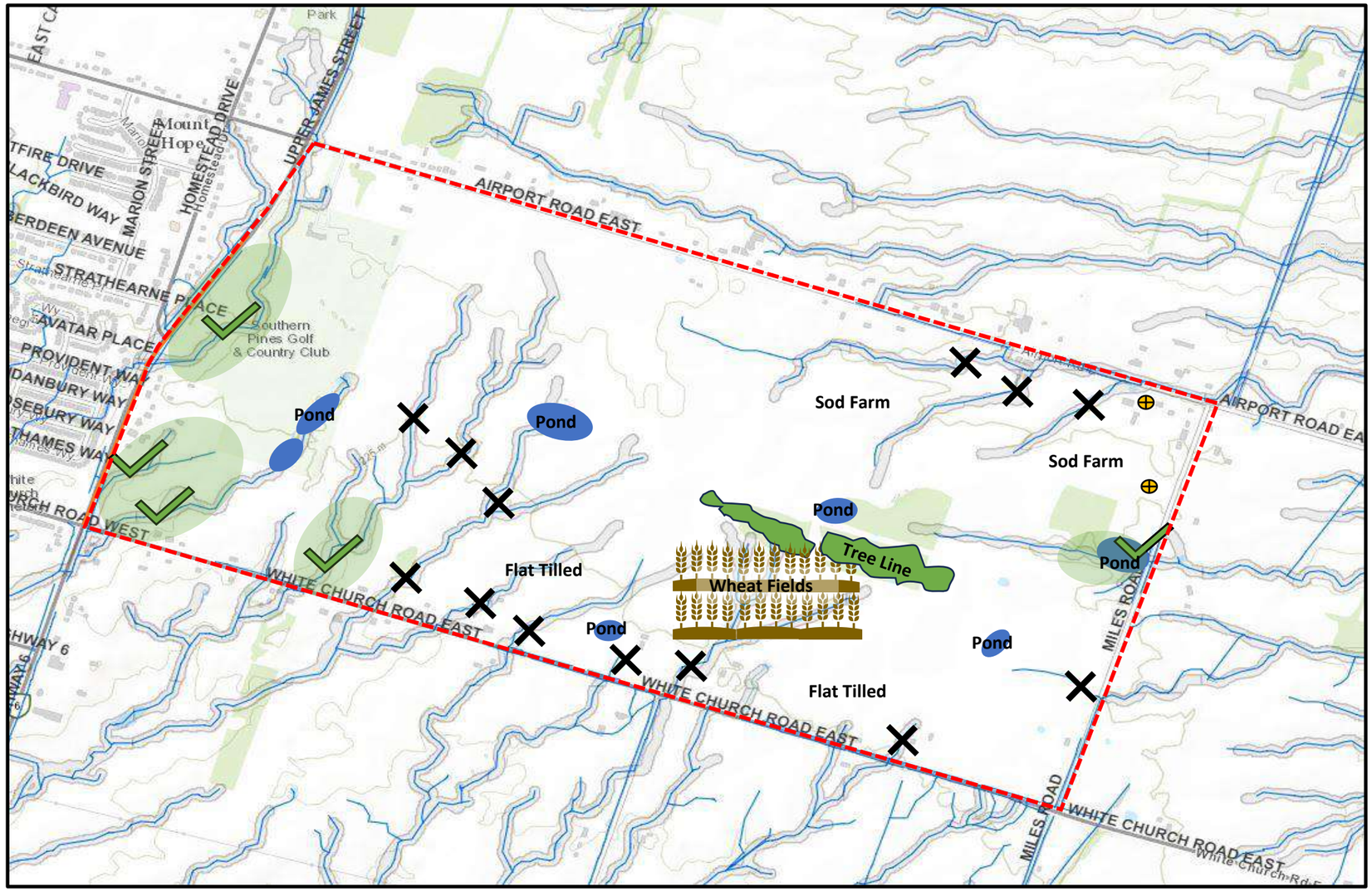
project
HydroGeological Investigation
White Church Lands

sheet
Piezometer Location Plan

Figure 4

date: December, 2024
drawn: mdc
checked: jd
project #: 23355
scale: 1:10,00

23355-01



N

Visible Watershed Features

Non-Visible Watershed Features

Ponds or Pooling

Visible Reaches of Features

Monitoring Well

LANDTEK LIMITED

Scale:	NTS	Date: June 2023
Project:	Hydrogeological Investigation	
	White Church Road E & Upper James Street	
	Hamilton , Ontario	
Title:	Figure 5: Site Visit Map	
Project No.	23355	

APPENDIX B

BOREHOLES AND MONITORING WELLS LOGS

LOG OF BOREHOLE BH1

Project No.: 23354
Project Name: White Church Lands
Location: White Church Rd. & Airport Rd., Hamilton

Drill Date: 2024-03-11
Drilling Method: Solid Stem
Datum: Geodetic

Northing: 43.149397
Easting: -79.908197
Ground Surface Elevation: 227.7

Depth Scale (m)	Stratigraphic Symbol	Depth/Elevation (m)	Description	Number	Type	Blow Counts/150 mm	N Value	Undrained Shear Strength Values (kPa) 40 80 120 160 / Penetration Test Values (Blows / 0.3m) 20 40 60 80	Moisture / Plasticity PL MC LL / 10 20 30 40	Well Details	Groundwater Conditions	Headspace / PID (ppm) [LEL(%)] / ppm	Comments
0		227.0	**Organic Material** ~100 mm. Clayey silt, some organics. Brown, moist.	1	SS	1 1 6 7	7		17.4				
			Clayey Silt Till some grey clay seams, trace gravel. Firm, brown, moist.										
1			**Silt Till** some iron staining, trace gravel. Compact, brown, moist.	2	SS	7 9 15	24		17.2				
		226.0		3	SS	8 10 14	24		16.4				
2			**Clayey Silt Till** trace gravel, trace cobbles, trace iron staining. Very stiff, brown, moist.	4	SS	6 10 15	25		15.5				
		225.0											
3			...with iron staining. Hard, brown and grey.	5	SS	16 15 16	31		14.4				
		224.0											
4													
			...no cobbles, no iron staining, some gravel. Very stiff, grey.	6	SS	7 9 11	20		13.7				
5		223.0											
		222.0											
6			...trace gravel.	7	SS	6 8 10	18		13.7				
		221.0	End of Log										
7													
		220.0											
8													
		219.0											
9													
		218.0											
10													

Additional Notes:
1. Borehole open to approximately 6.0 m depth on completion.
2. Groundwater or water seepage not encountered during drilling.
3.
4.

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LOG OF BOREHOLE BH2

Project No.: 23354
Project Name: White Church Lands
Location: White Church Rd. & Airport Rd., Hamilton

Drill Date: 2024-07-04
Drilling Method: Solid Stem
Datum: Geodetic

Northing: 43.149763
Easting: -79.896422
Ground Surface Elevation: 227.5

Depth Scale (m)	Depth/Elevation (m)	Description	Number	Type	Blow Counts/150 mm	N Value	Undrained Shear Strength (kPa) / Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity (PL MC LL)	Well Details	Groundwater Conditions	Headspace / PID (ppm) [LEL(%)] / ppm	Comments
0	227.0	**Organic Material** ~100 mm. Clayey silt, some organics. Brown, dry to moist.	1	SS	3 6 7 6	13		14.1				
		Clayey Silt some iron staining, trace grey clay seams. Stiff, brown, moist.	2	SS	3 5 8	13		21.1				
1	226.0	...trace iron staining. Hard.	3	SS	7 17 21	38		15.6				
2	225.0	**Clayey Silt Till** trace gravel, trace iron staining. Hard, grey, moist.	4	SS	11 19 33	52		14.0				
3			5	SS	9 21 26	47		13.1				
4	224.0											
	223.0	...no iron staining. Very stiff.	6	SS	4 10 12	22		13.8				
5	222.0											
6			7	SS	6 5 12	17		14.7				
	221.0	End of Log										
7												
	220.0											
8												
	219.0											
9												
	218.0											
10												

Additional Notes:
1. Borehole open to approximately 6.0 m depth on completion.
2. Groundwater or water seepage not encountered during drilling.
3.
4.

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LOG OF BOREHOLE BHMW3S

Project No.: 23354
Project Name: White Church Lands
Location: White Church Rd. & Airport Rd., Hamilton

Drill Date: 2024-07-04
Drilling Method: Solid Stem
Datum: Geodetic

Northing: 43.148049
Easting: -79.900399
Ground Surface Elevation: 230

Depth Scale (m)	Depth/Elevation (m)	Description	Number	Type	Blow Counts/150 mm	N Value	Comments
0	230.0	**Organic Material** ~100 mm. Clayey silt, some organics. Brown, dry to moist.	1	SS	3 5 9 12	14	
1	229.0	**Clayey Silt** trace grey clay seams. Stiff, brown, moist. ...very stiff.	2	SS	5 9 17	26	
2	228.0	**Clayey Silt Till** some grey clay seams, trace gravel. Very stiff, brown, moist. ...hard.	3	SS	6 9 15	24	
3	227.0	**Silt Till** some clay, trace gravel. Dense, grey, wet. ...compact.	4	SS	7 17 25	42	
		End of Log					
4	226.0						
5	225.0						
6	224.0						
7	223.0						
8	222.0						
9	221.0						
10	220.0						

Penetration / Strength Results
Undrained Shear Strength Values (kPa): 40 80 120 160
Penetration Test Values (Blows / 0.3m): 20 40 60 80

Moisture / Plasticity
PL MC LL
Moisture / Plasticity: 10 20 30 40
13.5
18.5
17.5
17.2

Well Details
36" Locking Vault
3/8" Bentonite Pellets
#10 Well Slot Sand
2" PVC Screen

Groundwater Conditions

Headspace / PID (ppm) [LEL(%)] / ppm

Additional Notes:
1. Borehole open to approximately 3.0 m depth on completion.
2. Groundwater or water seepage not encountered during drilling.
3.
4.

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LOG OF BOREHOLE BH3D

Project No.: 23354
Project Name: White Church Lands
Location: White Church Rd. & Airport Rd., Hamilton

Drill Date: 2024-07-04
Drilling Method: Solid Stem
Datum: Geodetic

Northing: 43.148164
Easting: -79.900243
Ground Surface Elevation: 230

Depth Scale (m)	Depth/Elevation (m)	Description	Number	Type	Blow Counts/150 mm	N Value	Comments
0	230.0	**Organic Material** ~100 mm. Clayey silt, some organics. Brown, dry to moist.	1	SS	3 5 9 12	14	
		Clayey Silt trace grey clay seams. Stiff, brown, moist.					
1	229.0	...very stiff.	2	SS	5 9 17	26	
		Clayey Silt Till some grey clay seams, trace gravel. Very stiff, brown, moist.	3	SS	6 9 15	24	
2	228.0	...hard.					
		Silt Till some clay, trace gravel. Dense, grey, wet.	4	SS	7 17 25	42	
3	227.0	...compact.	5	SS	5 6 8	14	
4	226.0						
			6	SS	6 10 11	21	
5	225.0						
6	224.0		7	SS	4 9 13	22	
		End of Log					
7	223.0						
8	222.0						
9	221.0						
10	220.0						

Undrained Shear Strength Values (kPa)
40 80 120 160

Penetration Test Values (Blows / 0.3m)
20 40 60 80

Moisture / Plasticity
PL MC LL
10 20 30 40

Moisture / Plasticity: 13.5, 18.5, 17.5, 17.2, 14.7, 17.3, 16.8

Well Details
36" Locking Vault
3/8" Bentonite Pellets
#10 Well Slot Sand
2" PVC Screen

Groundwater Conditions

Headspace / PID (ppm) [LEL(%)] / ppm

Additional Notes:
1. Borehole open to approximately 6.0 m depth on completion.
2. Groundwater or water seepage not encountered during drilling.
3.
4.

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LOG OF BOREHOLE BHMW4

Project No.: 23354
Project Name: White Church Lands
Location: White Church Rd. & Airport Rd., Hamilton

Drill Date: 2024-07-09
Drilling Method: Solid Stem
Datum: Geodetic

Northing: 43.145765
Easting: -79.915462
Ground Surface Elevation: 222.5

Depth Scale (m)	Depth/Elevation (m)	Description	Number	Type	Blow Counts/150 mm	N Value	Undrained Shear Strength (kPa) / Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity (PL, MC, LL)	Well Details	Groundwater Conditions	Headspace / PID (ppm) [LEL(%)] / ppm	Comments
	223.0								36" Locking Vault			
0		**Organic Material** ~100 mm. Silty clay. Brown, moist.	1	SS	2 5 4 5	9		25.6				
	222.0	**Silty Clay** with grey clay seams. Stiff, brown, dry to moist.	2	SS	3 11 15	26		15.7				
1		...very stiff.										
	221.0	...hard.	3	SS	4 14 19	33		19.4	3/8" Bentonite Pellets			
2												
	220.0	**Clayey Silt Till** trace gravel, trace cobbles. Hard, brown, moist.	4	SS	3 16 20	36		15.9				
3		...some grey clay seams, trace iron staining. Very stiff to hard.	5	SS	5 12 18	30		17.1				
	219.0											
4									#10 Well Slot Sand			
	218.0											
		Silty Clay Till trace gravel. Very stiff, grey, very moist to wet.	6	SS	3 8 10	18		16.6				
5												
	217.0											
6		...stiff.	7	SS	3 5 6	11		19.5		2" PVC Screen		
	216.0	End of Log										
7												
	215.0											
8												
	214.0											
9												
	213.0											
10												

Additional Notes:
1. Borehole open to approximately 6.0 m depth on completion.
2. Groundwater or water seepage not encountered during drilling.
3.
4.

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LOG OF BOREHOLE BH5

Project No.: 23354
Project Name: White Church Lands
Location: White Church Rd. & Airport Rd., Hamilton

Drill Date: 2024-07-04
Drilling Method: Solid Stem
Datum: Geodetic

Northing: 43.146519
Easting: -79.903092
Ground Surface Elevation: 227

Depth Scale (m)	Stratigraphic Symbol	Depth/Elevation (m)	Description	Number	Type	Blow Counts/150 mm	N Value	Undrained Shear Strength Values (kPa) 40 80 120 160 / Penetration Test Values (Blows / 0.3m) 20 40 60 80	Moisture / Plasticity (PL MC LL) / Moisture / Plasticity 10 20 30 40	Well Details	Groundwater Conditions	Headspace / PID (ppm) [LEL(%)] / ppm	Comments
0			**Organic Material** ~50 mm. Clayey silt, trace organics. Brown, dry.	1	SS	3 4 4 5	8		13.7				
			Clayey Silt trace iron staining. Firm to stiff, brown, dry.										
1		226.0	...very stiff.	2	SS	5 12 15	27		15.8				
			...moist.	3	SS	6 11 16	27		16.8				
2		225.0											
			Clayey Silt Till trace gravel, trace iron staining. Very stiff, brownish grey, moist.	4	SS	5 10 16	26		17.4				
3		224.0		5	SS	6 8 13	21		15.3				
4		223.0											
			...grey, wet.	6	SS	5 12 15	27		16.1				
5		222.0											
6		221.0	...moist.	7	SS	4 8 17	25		16.0				
			End of Log										
7		220.0											
8		219.0											
9		218.0											
10		217.0											

Additional Notes:
1. Borehole open to approximately 6.0 m depth on completion.
2. Groundwater or water seepage not encountered during drilling.
3.
4.

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LOG OF BOREHOLE BHMW6

Project No.: 23354
Project Name: White Church Lands
Location: White Church Rd. & Airport Rd., Hamilton

Drill Date: 2024-07-04
Drilling Method: Solid Stem
Datum: Geodetic

Northing: 43.141969
Easting: -79.903206
Ground Surface Elevation: 224

Depth Scale (m)	Depth/Elevation (m)	Description	Number	Type	Blow Counts/150 mm	N Value	Undrained Shear Strength (kPa) / Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity (PL, MC, LL)	Well Details	Groundwater Conditions	Headspace / PID (ppm) [LEL(%)] / ppm	Comments
0	224.0	**Organic Material** ~100 mm. Silty clay, trace organics. Brown, dry to moist.	1	SS	4 2 6 3	8		14.8	36" Locking Vault			
		Clayey Silt some iron staining, trace grey clay seams. Firm to stiff, brown, moist.										
1	223.0	...very stiff.	2	SS	3 8 10	18		18.6	3/8" Bentonite Pellets			
		Silt trace grey clay seams, trace iron staining. Compact, brown, moist.	3	SS	4 10 15	25		20.1				
2	222.0											
		Clayey Silt Till some gravel, some iron staining. Very stiff, grey, moist.	4	SS	6 10 12	22		20.0				
3	221.0		5	SS	5 10 14	24		18.8				
4	220.0								#10 Well Slot Sand			
		Silty Clay Till trace gravel. Very stiff, grey, moist.	6	SS	3 8 8	16		18.5				
5	219.0											
6	218.0		7	SS	4 7 10	17		18.9	2" PVC Screen			
		End of Log										
7	217.0											
8	216.0											
9	215.0											
10	214.0											

Additional Notes:
1. Borehole open to approximately 6.0 m depth on completion.
2. Groundwater or water seepage not encountered during drilling.
3.
4.

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LOG OF BOREHOLE BH7

Project No.: 23354
Project Name: White Church Lands
Location: White Church Rd. & Airport Rd., Hamilton

Drill Date: 2024-07-05
Drilling Method: Solid Stem
Datum: Geodetic

Northing: 43.141126
Easting: -79.899115
Ground Surface Elevation: 224.1

Depth Scale (m)	Depth/Elevation (m)	Description	Number	Type	Blow Counts/150 mm	N Value	Comments
0	224.0	**Organic Material** ~100 mm. Silty clay, some organics and wood debris. Brown, moist.	1	SS	1 2 2 3	4	
		Clayey Silt trace sand, trace gravel. Soft to firm, brown, dry to moist.	2	SS	4 13 14	27	
1	223.0	...very stiff.					
		...trace grey clay seams, trace red shale fragments.	3	SS	5 10 15	25	
2	222.0	**Clayey Silt Till** trace gravel. Hard, brown, moist.	4	SS	7 13 20	33	
3	221.0	...some iron staining. Very stiff.	5	SS	5 12 14	26	
4	220.0	...grey.	6	SS	4 7 9	16	
5	219.0						
6	218.0	...very moist.	7	SS	5 7 10	17	
7	217.0						
8	216.0		8	SS	6 9 10	19	
9	215.0		9	SS	3 6 10	16	
		...stiff, very moist to wet.					
10	214.0		10	SS	4 5 8	13	
		End of Log					

Penetration / Strength Results
Undrained Shear Strength Values (kPa): 40 80 120 160
Penetration Test Values (Blows / 0.3m): 20 40 60 80

Moisture / Plasticity
PL MC LL
Moisture / Plasticity: 10 20 30 40

Depth	Moisture / Plasticity
224.0	37.0
223.0	23.9
222.0	15.9
221.0	17.7
220.0	16.4
219.0	14.9
218.0	15.2
217.0	15.7
216.0	19.0
215.0	25.0

Well Details
Groundwater Conditions
Headspace / PID (ppm) [LEL(%)] / ppm

Additional Notes:
1. Borehole open to approximately 9.3 m depth on completion.
2. Groundwater or water seepage not encountered during drilling.
3.
4.

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LOG OF BOREHOLE BHMW8

Project No.: 23354
Project Name: White Church Lands
Location: White Church Rd. & Airport Rd., Hamilton

Drill Date: 2024-07-05
Drilling Method: Solid Stem
Datum: Geodetic

Northing: 43.143731
Easting: -79.896422
Ground Surface Elevation: 227.3

Depth Scale (m)	Depth/Elevation (m)	Description	Number	Type	Blow Counts/150 mm	N Value	Undrained Shear Strength (kPa) / Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity (PL MC LL)	Moisture / Plasticity	Well Details	Groundwater Conditions	Headspace / PID (ppm) [LEL(%)] / ppm	Comments
0	228.0									36" Locking Vault			
	227.0	**Organic Material** ~100 mm. Clayey silt, trace organics, trace sand. Brown, moist.	1	SS	2 4 4 5	8			16.4				
1		**Clayey Silt** some iron staining, trace gravel. Firm to stiff, brown, dry to moist.	2	SS	4 8 17	25			16.7	3/8" Bentonite Pellets			
	226.0	...trace grey clay seams. Very stiff.											
2			3	SS	5 10 13	23			17.3				
	225.0	...very moist. Hard.	4	SS	7 15 16	31			17.7				
3		**Silt** trace gravel, trace iron staining. Compact, grey, very moist.	5	SS	8 11 18	29			18.8				
	224.0												
4	223.0									#10 Well Slot Sand			
		Clayey Silt Till trace gravel. Very stiff, grey, moist.	6	SS	6 7 12	19			16.0				
5													
	222.0												
6										2" PVC Screen			
	221.0	...very moist.	7	SS	6 8 14	22			17.9				
		End of Log											
7													
	220.0												
8													
	219.0												
9													
	218.0												
10													

Additional Notes:
1. Borehole open to approximately 6.0 m depth on completion.
2. Groundwater or water seepage not encountered during drilling.
3.
4.

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LOG OF BOREHOLE BHMW9

Project No.: 23354
Project Name: White Church Lands
Location: White Church Rd. & Airport Rd., Hamilton

Drill Date: 2024-07-08
Drilling Method: Solid Stem
Datum: Geodetic

Northing: 43.139595
Easting: -79.892163
Ground Surface Elevation: 227.3

Depth Scale (m)	Depth/Elevation (m)	Description	Number	Type	Blow Counts/150 mm	N Value	Undrained Shear Strength (kPa) / Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity (PL MC LL)	Well Details	Comments
	228.0								36" Locking Vault	
0	227.0	**Organic Material** ~100 mm. Clayey silt, some organics, trace gravel. Brown, moist.	1	SS	3 4 5 5	9		15.1		
1		**Clayey Silt** some gravel. Stiff, brown, moist. ...very stiff.	2	SS	7 9 13	22		18.2		
	226.0									
2		...trace iron staining, trace red shale fragments.	3	SS	9 10 17	27		16.4	3/8" Bentonite Pellets	
	225.0									
3		...no iron staining. Hard, grey and brown.	4	SS	11 18 23	41		16.4		
		...trace iron staining.	5	SS	9 15 22	37		16.2		
4	224.0									
	223.0									
5		**Silty Clay Till** some gravel. Stiff to very stiff, grey, moist.	6	SS	4 6 9	15		16.7		
	222.0									
6		...very stiff.	7	SS	4 10 14	24		15.0		
	221.0									
7									#10 Well Slot Sand	
	220.0									
8			8	SS	8 11 15	26		15.2		
	219.0									
9			9	SS	5 8 11	19		16.2	2" PVC Screen	
	218.0									
10										

Additional Notes:
1. Borehole open to approximately 12.1 m depth on completion.
2. Groundwater or water seepage not encountered during drilling.
3.
4.

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LOG OF BOREHOLE BHMW9

Project No.: 23354
Project Name: White Church Lands
Location: White Church Rd. & Airport Rd., Hamilton

Drill Date: 2024-07-08
Drilling Method: Solid Stem
Datum: Geodetic

Northing: 43.139595
Easting: -79.892163
Ground Surface Elevation: 227.3

Depth Scale (m)	Stratigraphic Symbol	Depth/Elevation (m)	Description	Number	Type	Blow Counts/150 mm	N Value	Penetration / Strength Results	Moisture / Plasticity	Well Details	Groundwater Conditions	Headspace / PID (ppm) [LEL(%)] / ppm	Comments
			(continued)					Undrained Shear Strength Values (kPa) ▲ 40 80 120 160 ▲	PL MC LL				
11		217.0	...stiff to very stiff, moist to very moist.	10	SS	5 7 8	15	Penetration Test Values (Blows / 0.3m) × 20 40 60 80 ×	Moisture / Plasticity ○ 10 20 30 40 ○ 18.4				
12		216.0											
13		215.0	...very stiff.	11	SS	4 8 11	19		18.9				
14		214.0	End of Log										
15		213.0											
16		212.0											
17		211.0											
18		210.0											
19		209.0											
20		208.0											
21		207.0											

Additional Notes:
1. Borehole open to approximately 12.1 m depth on completion.
2. Groundwater or water seepage not encountered during drilling.
3.
4.

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LOG OF BOREHOLE BHMW10

Project No.: 23354
Project Name: White Church Lands
Location: White Church Rd. & Airport Rd., Hamilton

Drill Date: 2024-07-08
Drilling Method: Solid Stem
Datum: Geodetic

Northing: 43.142154
Easting: -79.886746
Ground Surface Elevation: 226.8

Depth Scale (m)	Depth/Elevation (m)	Description	Number	Type	Blow Counts/150 mm	N Value	Moisture / Plasticity	Comments
	227.0							
0		**Organic Material** ~200 mm. Clayey silt, with organics. Brown, moist.	1	SS	2 3 4 5	7	24.4	
		Clayey Silt trace grey clay seams. Firm, brown, moist.						
1	226.0		2	SS	5 7 12	19	17.3	
		...very stiff.						
		...trace iron staining. Hard.	3	SS	6 18 21	39	16.4	
2	225.0							
			4	SS	8 12 20	32	16.3	
3	224.0							
			5	SS	15 25 30	55	14.9	
4	223.0							
		Clayey Silt Till trace gravel. Very stiff to hard, grey and brown, moist.	6	SS	9 13 17	30	14.1	
5	222.0							
6	221.0	...very stiff.	7	SS	7 11 17	28	15.3	
7	220.0							
		Silty Clay Till trace gravel. Very stiff, grey, moist.	8	SS	5 8 12	20	15.7	
8	219.0							
9	218.0		9	SS	5 11 15	26	16.0	
10	217.0							

Penetration / Strength Results: Undrained Shear Strength Values (kPa) 40 80 120 160; Penetration Test Values (Blows / 0.3m) 20 40 60 80

Moisture / Plasticity: PL MC LL; Moisture / Plasticity 10 20 30 40

Well Details: 36" Locking Vault; 3/8" Bentonite Pellets; #10 Well Slot Sand; 2" PVC Screen

Groundwater Conditions

Headspace / PID (ppm) [LEL(%)] / ppm

Additional Notes:
1. Borehole open to approximately 12.1 m depth on completion.
2. Groundwater or water seepage not encountered during drilling.
3.
4.

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LOG OF BOREHOLE BHMW10

Project No.: 23354
Project Name: White Church Lands
Location: White Church Rd. & Airport Rd., Hamilton

Drill Date: 2024-07-08
Drilling Method: Solid Stem
Datum: Geodetic

Northing: 43.142154
Easting: -79.886746
Ground Surface Elevation: 226.8

Depth Scale (m)	Stratigraphic Symbol	Depth/Elevation (m)	Description	Number	Type	Blow Counts/150 mm	N Value	Comments
			(continued)					
11		216.0	...hard, moist to very moist.	10	SS	9 20 21	41	
12		215.0	...very moist.	11	SS	16 26 28	54	
13		214.0	End of Log					
14		213.0						
15		212.0						
16		211.0						
17		210.0						
18		209.0						
19		208.0						
20		207.0						
21		206.0						

Penetration / Strength Results

Undrained Shear Strength Values (kPa)
40 80 120 160

Penetration Test Values (Blows / 0.3m)
20 40 60 80

Moisture / Plasticity

PL MC LL

Moisture / Plasticity
10 20 30 40

16.4
15.1

Well Details

Groundwater Conditions

Headspace / PID (ppm) [LEL(%)] / ppm

Additional Notes:
1. Borehole open to approximately 12.1 m depth on completion.
2. Groundwater or water seepage not encountered during drilling.
3.
4.

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LOG OF BOREHOLE BHMW11

Project No.: 23354
Project Name: White Church Lands
Location: White Church Rd. & Airport Rd., Hamilton

Drill Date: 2024-07-08
Drilling Method: Solid Stem
Datum: Geodetic

Northing: 43.13907
Easting: -79.888437
Ground Surface Elevation: 227.6

Depth Scale (m)	Depth/Elevation (m)	Description	Number	Type	Blow Counts/150 mm	N Value	Undrained Shear Strength (kPa) / Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity (PL MC LL)	Moisture / Plasticity	Well Details	Groundwater Conditions	Headspace / PID (ppm) [LEL(%)] / ppm	Comments
0	228.0									36" Locking Vault			
		Organic Material ~200 mm. Silty clay, some organics. Brown, dry.	1	SS	3 5 4 3	9			15.4				
1	227.0	**Clayey Silt** some gravel, some grey clay seams, trace iron staining. Very stiff, brown, moist.	2	SS	5 8 15	23			16.6	3/8" Bentonite Pellets			
2	226.0	**Clayey Silt Till** some iron staining, trace gravel. Hard, brown, moist.	3	SS	6 20 16	36			17.6				
	225.0		4	SS	8 22 31	53			14.2				
3		...grey.	5	SS	13 21 25	46			15.8				
4	224.0									#10 Well Slot Sand			
	223.0	...very stiff, very moist.	6	SS	9 10 15	25			18.4				
5										2" PVC Screen			
6	222.0		7	SS	5 10 12	22			19.0				
	221.0	End of Log											
7													
	220.0												
8													
	219.0												
9													
	218.0												
10													

Additional Notes:
1. Borehole open to approximately 6.0 m depth on completion.
2. Groundwater or water seepage not encountered during drilling.
3.
4.

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LOG OF BOREHOLE BHMW12

Project No.: 23354
Project Name: White Church Lands
Location: White Church Rd. & Airport Rd., Hamilton

Drill Date: 2024-07-05
Drilling Method: Solid Stem
Datum: Geodetic

Northing: 43.140212
Easting: -79.902967
Ground Surface Elevation: 222.4

Depth Scale (m)	Depth/Elevation (m)	Description	Number	Type	Blow Counts/150 mm	N Value	Undrained Shear Strength (kPa)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Well Details	Groundwater Conditions	Headspace / PID (ppm) [LEL(%)] / ppm	Comments
0	223.0												
	222.0	**Organic Material** ~100 mm. Clayey silt, trace organics. Brown, moist.	1	SS	2 4 4 5	8			19.4	36" Locking Vault			
1		**Clayey Silt** trace iron staining, trace grey clay seams. Firm to stiff, brown, moist.	2	SS	4 10 13	23			17.3				
	221.0	...very stiff.	3	SS	6 12 15	27			16.7	3/8" Bentonite Pellets			
2													
	220.0	...moist to very moist.	4	SS	5 8 15	23			17.2				
3			5	SS	5 11 17	28			16.8				
	219.0												
4		**Silty Clay Till**											
	218.0	...trace gravel. Stiff, grey, moist.	6	SS	4 7 7	14			16.8	#10 Well Slot Sand			
5										2" PVC Screen			
	217.0												
6		...trace red shale fragments. Stiff to very stiff, very moist.	7	SS	4 6 9	15			18.4				
	216.0	End of Log											
7													
	215.0												
8													
	214.0												
9													
	213.0												
10													

Additional Notes:
1. Borehole open to approximately 6.0 m depth on completion.
2. Groundwater or water seepage not encountered during drilling.
3.
4.

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LOG OF BOREHOLE BH13

Project No.: 23354
Project Name: White Church Lands
Location: White Church Rd. & Airport Rd., Hamilton

Drill Date: 2024-07-04
Drilling Method: Solid Stem
Datum: Geodetic

Northing: 43.138818
Easting: -79.90685
Ground Surface Elevation: 220.1

Depth Scale (m)	Stratigraphic Symbol	Depth/Elevation (m)	Description	Number	Type	Blow Counts/150 mm	N Value	Undrained Shear Strength Values (kPa) 40 80 120 160 / Penetration Test Values (Blows / 0.3m) 20 40 60 80	Moisture / Plasticity PL MC LL / Moisture / Plasticity 10 20 30 40	Well Details	Groundwater Conditions	Headspace / PID (ppm) [LEL(%)] / ppm	Comments
0		220.0	**Organic Material** ~50 mm. Silt, trace clay, trace organics. Brown, moist.	1	SS	4 5 4 4	9		17.6				
			Clayey Silt trace grey clay seams. Stiff, brown, moist.										
1		219.0	...very stiff.	2	SS	4 7 18	25		19.1				
			Clayey Silt Till trace gravel, trace iron staining. Very stiff to hard, grey, moist.	3	SS	5 10 20	30		19.3				
2		218.0	...no iron staining. Very stiff.	4	SS	4 8 12	20		18.3				
3		217.0	...stiff.	5	SS	3 6 8	14		19.8				
4		216.0		6	SS	2 5 5	10		20.2				
5		215.0											
6		214.0	...very moist.	7	SS	2 4 6	10		21.8				
			End of Log										
7		213.0											
8		212.0											
9		211.0											
10													

Additional Notes:
1. Borehole open to approximately 6.0 m depth on completion.
2. Groundwater or water seepage not encountered during drilling.
3.
4.

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LOG OF BOREHOLE BHMW16

Project No.: 23354
Project Name: White Church Lands
Location: White Church Rd. & Airport Rd., Hamilton

Drill Date: 2024-08-06
Drilling Method: Solid Stem
Datum: Geodetic

Northing: 43.14914
Easting: -79.893228
Ground Surface Elevation: 227.4

Depth Scale (m)	Depth/Elevation (m)	Description	Number	Type	Blow Counts/150 mm	N Value	Undrained Shear Strength (kPa) / Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity (PL MC LL)	Comments
	228.0								
0	227.0	**Organic Material** ~100 mm. Silty clay, some organics. Brown, dry to moist.	1	SS	4 3 4 5	7		18.7	
		Clayey Silt Firm, brown, moist.							
1		...very stiff.	2	SS	5 7 11	18		19.4	
	226.0								
			3	SS	6 10 16	26		17.1	
2									
	225.0	...trace red shale fragments. Hard.	4	SS	6 14 20	34		17.7	
3		**Clayey Silt Till** some iron staining, trace gravel. Hard, grey, moist.	5	SS	10 16 25	41		16.2	
	224.0								
4									
	223.0	...no iron staining. Very stiff.	6	SS	6 6 13	19		16.4	
5									
	222.0								
6			7	SS	6 11 14	25		16.4	
	221.0	End of Log							
7									
	220.0								
8									
	219.0								
9									
	218.0								
10									

Well Details: 3/8" Bentonite Pellets; #10 Well Slot Sand; 2" PVC Screen; 36" Locking Vault

Groundwater Conditions

Headspace / PID (ppm) [LEL(%)] / ppm

Additional Notes:
1. Borehole open to approximately 6.0 m depth on completion.
2. Groundwater or water seepage not encountered during drilling.
3.
4.

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LOG OF BOREHOLE BHMW17

Project No.: 23354
Project Name: White Church Lands
Location: White Church Rd. & Airport Rd., Hamilton

Drill Date: 2024-08-06
Drilling Method: Solid Stem
Datum: Geodetic

Northing: 43.147912
Easting: -79.886182
Ground Surface Elevation: 223.9

Depth Scale (m)	Depth/Elevation (m)	Description	Number	Type	Blow Counts/150 mm	N Value	Undrained Shear Strength (kPa) / Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity (PL, MC, LL)	Well Details	Groundwater Conditions	Headspace / PID (ppm) [LEL(%)] / ppm	Comments
0	224.0	**Organic Material** ~100 mm. Silty clay, trace organics. Brown, moist.	1	SS	3 6 8 7	14		16.4	36" Locking Vault			
		Silty Clay trace gravel. Stiff, brown, moist.										
1	223.0	...very stiff.	2	SS	7 11 15	26		15.6	3/8" Bentonite Pellets			
		...hard, brown and grey.	3	SS	10 15 16	31		15.0				
2	222.0	**Clayey Silt Till** trace gravel. Hard, grey, moist.	4	SS	10 16 19	35		16.7				
3	221.0	**Silty Clay Till** trace gravel. Very stiff, grey, moist.	5	SS	5 7 10	17		17.5				
4	220.0								#10 Well Slot Sand			
			6	SS	4 7 9	16		15.1	2" PVC Screen			
5	219.0											
6	218.0	...stiff, very moist.	7	SS	3 5 7	12		15.8				
		End of Log										
7	217.0											
8	216.0											
9	215.0											
10	214.0											

Additional Notes:
1. Borehole open to approximately 6.0 m depth on completion.
2. Groundwater or water seepage not encountered during drilling.
3.
4.

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LOG OF BOREHOLE BHMW18

Project No.: 23354
Project Name: White Church Lands
Location: White Church Rd. & Airport Rd., Hamilton

Drill Date: 2024-08-08
Drilling Method: Solid Stem
Datum: Geodetic

Northing: 43.147067
Easting: -79.892351
Ground Surface Elevation: 227.1

Depth Scale (m)	Depth/Elevation (m)	Description	Number	Type	Blow Counts/150 mm	N Value	Undrained Shear Strength (kPa) / Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity (PL MC LL)	Comments
	228.0								
0	227.0	**Organic Material** ~100 mm. Clayey silt, trace organics. Brown, moist.	1	SS	3 5 5 6	10		24.1	
		Clayey Silt trace grey clay seams. Stiff, brown, moist.	2	SS	3 5 9	14		17.5	
1	226.0								
		...trace iron staining. Very stiff.	3	SS	6 12 15	27		15.2	
2	225.0								
		Clayey Silt Till trace gravel, trace iron staining. Very stiff, brown, moist.	4	SS	6 13 15	28		15.5	
3	224.0	...hard.	5	SS	6 14 19	33		16.4	
4	223.0								
		...no iron staining. Grey.	6	SS	12 21 32	53		14.4	
5	222.0								
6	221.0		7	SS	7 12 22	34		14.7	
7	220.0	...very stiff to hard, very moist.							
			8	SS	8 12 18	30		13.6	
8	219.0								
9	218.0	...very stiff.	9	SS	4 8 12 31	20		14.5	
10		End of Log							

Well Details: 36" Locking Vault; 3/8" Bentonite Pellets; #10 Well Slot Sand; 2" PVC Screen

Groundwater Conditions

Headspace / PID (ppm) [LEL(%)] / ppm

Additional Notes:
1. Borehole open, with cave, to approximately 8.4 m depth on completion.
2. Groundwater or water seepage not encountered during drilling.
3.
4.

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LOG OF BOREHOLE BHMW19D

Project No.: 23354
Project Name: White Church Lands
Location: White Church Rd. & Airport Rd., Hamilton

Drill Date: 2024-08-07
Drilling Method: Solid Stem
Datum: Geodetic

Northing: 43.141857
Easting: -79.894982
Ground Surface Elevation: 227.1

Depth Scale (m)	Depth/Elevation (m)	Description	Number	Type	Blow Counts/150 mm	N Value	Undrained Shear Strength (kPa) / Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity (PL, MC, LL)	Comments
	228.0								
0	227.0	**Organic Material** ~100 mm. Clayey silt, trace organics. Brown, moist.	1	SS	3 5 8 11	13		14.6	
		Clayey Silt trace sand, trace gravel. Stiff, brown, moist.	2	SS	5 7 12	19		18.2	
1	226.0	...very stiff.							
			3	SS	6 7 9	16		19.2	
2	225.0								
		...hard, very moist to wet.	4	SS	7 16 17	33		16.3	
3	224.0	**Silty Clay Till** trace gravel. Stiff to very stiff, grey, very moist.	5	SS	4 6 9	15		19.5	
4	223.0	...stiff.	6	SS	3 5 8	13		19.5	
5	222.0								
6	221.0	...very stiff.	7	SS	6 9 10	19		14.0	
7	220.0	...moist.	8	SS	6 9 12	21		15.1	
8	219.0								
9	218.0	...stiff.	9	SS	3 4 6 8	10		17.2	
10		End of Log							

Well Details: 36" Locking Vault; 3/8" Bentonite Pellets; #10 Well Slot Sand; 2" PVC Screen

Groundwater Conditions

Headspace / PID (ppm) [LEL(%)] / ppm

Additional Notes:
1. Borehole open to approximately 9.1 m depth on completion.
2. Groundwater or water seepage not encountered during drilling.
3.
4.

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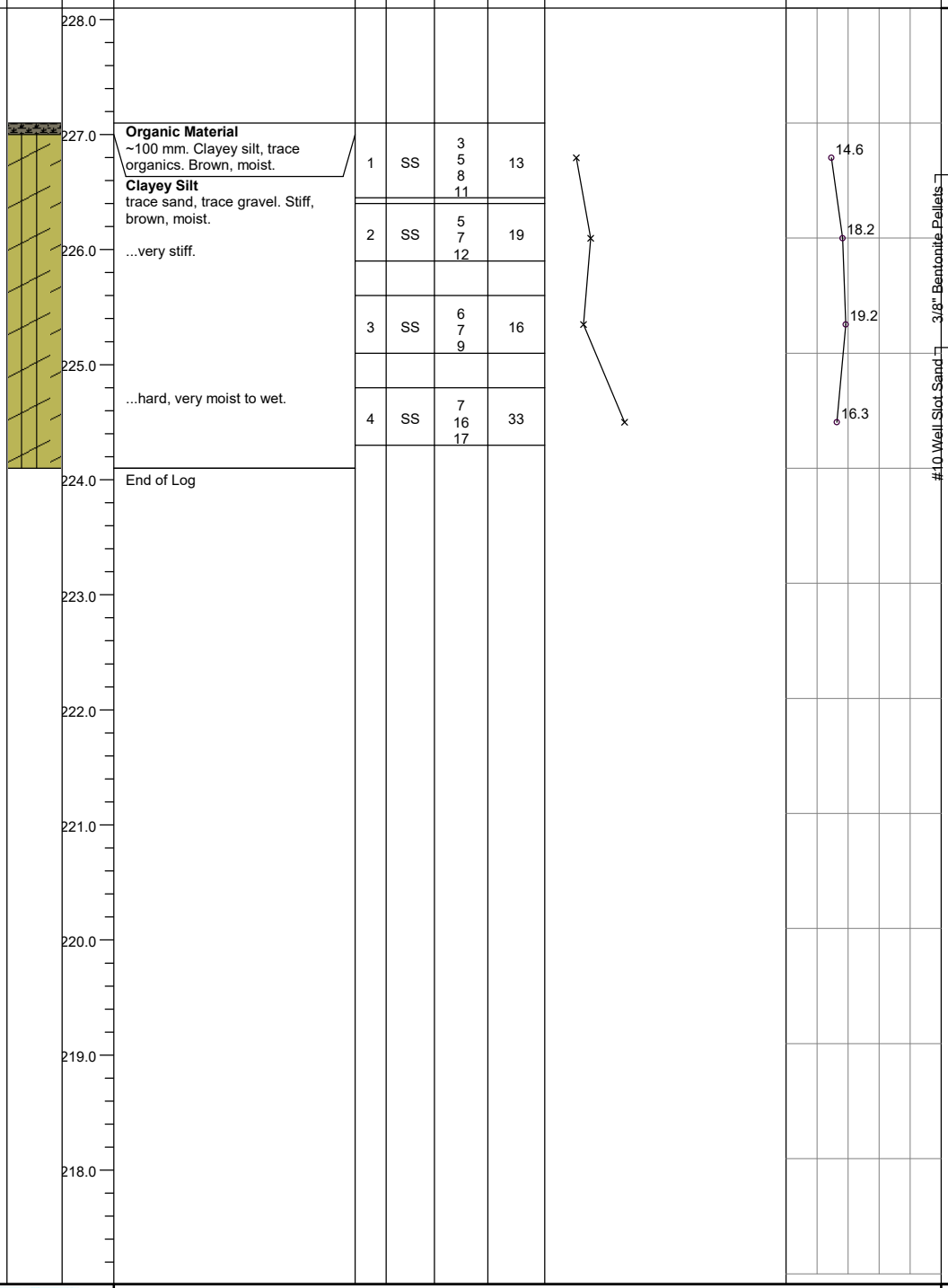
LOG OF BOREHOLE BHMW19S

Project No.: 23354
Project Name: White Church Lands
Location: White Church Rd. & Airport Rd., Hamilton

Drill Date: 2024-08-07
Drilling Method: Solid Stem
Datum: Geodetic

Northing: 43.141812
Easting: -79.894825
Ground Surface Elevation: 227.1

Depth Scale (m)	Depth/Elevation (m)	Description	Number	Type	Blow Counts/150 mm	N Value	Undrained Shear Strength (kPa) / Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity (PL MC LL)	Well Details	Comments
	228.0									
0	227.0	**Organic Material** ~100 mm. Clayey silt, trace organics. Brown, moist.	1	SS	3 5 8 11	13		14.6		
		Clayey Silt trace sand, trace gravel. Stiff, brown, moist.	2	SS	5 7 12	19		18.2		
1	226.0	...very stiff.								
			3	SS	6 7 9	16		19.2		
2	225.0	...hard, very moist to wet.	4	SS	7 16 17	33		16.3		
3	224.0	End of Log								
4	223.0									
5	222.0									
6	221.0									
7	220.0									
8	219.0									
9	218.0									
10										



Additional Notes:
1. Borehole open to approximately 3.0 m depth on completion.
2. Groundwater or water seepage not encountered during drilling.
3.
4.

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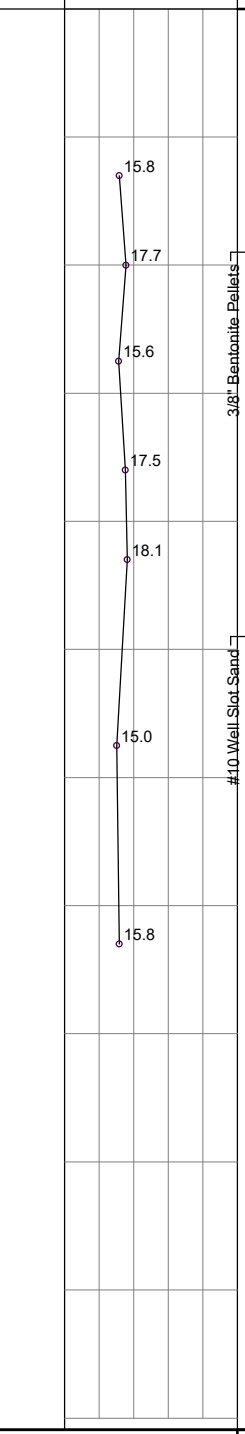
LOG OF BOREHOLE BHMW20

Project No.: 23354
Project Name: White Church Lands
Location: White Church Rd. & Airport Rd., Hamilton

Drill Date: 2024-08-07
Drilling Method: Solid Stem
Datum: Geodetic

Northing: 43.144462
Easting: -79.884115
Ground Surface Elevation: 224.4

Depth Scale (m)	Depth/Elevation (m)	Description	Number	Type	Blow Counts/150 mm	N Value	Undrained Shear Strength (kPa) / Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity (PL MC LL)	Comments
	225.0								
0	224.0	**Organic Material** ~100 mm. Clayey silt, some organics.	1	SS	4 5 6 8	11		15.8	
		Clayey Silt trace sand, trace grey clay seams. Stiff, brown, moist.	2	SS	6 8 21	29		17.7	
1		...trace iron staining. Very stiff.							
	223.0	...no iron staining. Hard.	3	SS	7 11 21	32		15.6	
2									
	222.0		4	SS	4 8 15	23		17.5	
3		**Clayey Silt Till** trace gravel, trace grey clay seams. Hard, grey and brown, very moist.	5	SS	10 20 26	46		18.1	
	221.0								
4									
	220.0	...no grey clay seams. Very stiff, grey, moist.	6	SS	4 11 15	26		15.0	
5									
	219.0								
6			7	SS	5 10 16	26		15.8	
	218.0	End of Log							
7									
	217.0								
8									
	216.0								
9									
	215.0								
10									



Additional Notes:
1. Borehole open to approximately 6.0 m depth on completion.
2. Groundwater or water seepage not encountered during drilling.
3.
4.

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LOG OF BOREHOLE BH/MW22

Project No.: 23354
Project Name: White Church Lands
Location: White Church Rd. & Airport Rd., Hamilton

Drill Date: 2025-01-06
Drilling Method: Solid Stem
Datum: Geodetic

Northing: 43.153432
Easting: -79.906401
Ground Surface Elevation: 231.8

Depth Scale (m)	Depth / Elevation (m)	Description	Number	Type	Blow Counts/150 mm	N Value	Undrained Shear Strength (kPa) / Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity	Well Details	Groundwater Levels	Headspace Concentrations / PID (ppm) [LEL(%)] / ppm	Comments
0	232.0	**Organic Material** ~75 mm. Clayey silt, some organics. Brown, moist.	1	SS	2 1 2 2	3		21.8	36" Locking Vault			
1	231.0	**Silt** trace gravel, trace iron staining, trace clay. Loose, brown, moist.										
2	230.0	...no clay. Compact.	2	SS	7 8 11	19		21.6	3/8" Bentonite Pellets			
3	229.0	**Clayey Silt** Very stiff, brown and grey, moist. Wet seam at 3.0 m.	3	SS	6 10 12	22		20.6				
4	228.0											
5	227.0	...grey, wet.	4	SS	5 6 10	16		15.8	#10 Well Slot Sand			
6	226.0	**Clayey Silt Till** trace gravel. Stiff, grey, wet.	5	SS	3 4 5	9		18.5	2" PVC Screen			
7	225.0											
8	224.0	...very stiff.	6	SS	8 8 14	22		17.4				
		End of Log										
9	223.0											
10	222.0											

Additional Notes:
1. Borehole open to approximately 7.6 m depth on completion.
2. Groundwatere or water seepage encountered during drilling at approximately 3.0 m depth below the ground surface.
3.
4.

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LOG OF BOREHOLE BH23

Project No.: 23354
Project Name: White Church Lands
Location: White Church Rd. & Airport Rd., Hamilton

Drill Date: 2025-01-06
Drilling Method: Solid Stem
Datum: Geodetic

Northing: 43.150856
Easting: -79.903838
Ground Surface Elevation: 230.9

Depth Scale (m)	Depth / Elevation (m)	Description	Number	Type	Blow Counts/150 mm	N Value	Undrained Shear Strength (kPa) 40 80 120 160 / Penetration Test Values (Blows / 0.3m) 20 40 60 80	Moisture / Plasticity PL MC LL / 10 20 30 40	Well Details	Groundwater Levels	Headspace Concentrations / PID (ppm) [LEL(%)] / ppm	Comments
0	230.9	**Organic Material** ~150 mm. Clayey silt, some organics. Brown, moist.	1	SS	2 1 3 4	4		22.6				
		Silt some clay, some iron staining, some gravel. Loose, brown, moist.										
1	230.0											
		...compact.	2	SS	2 8 9	17		17.5				
2	229.0											
3	228.0	...brownish grey.	3	SS	6 7 9	16		14.8				
4	227.0	...grey.	4	SS	5 11 11	22		16.0				
5	226.0											
6	225.0	...trace clay, trace red shale fragments.	5	SS	3 5 11	16		16.7				
7	224.0											
		Silt Till trace gravel. Compact, grey, moist.	6	SS	7 11 16	27		13.5				
8	223.0	End of Log										
9	222.0											
10	221.0											

Additional Notes:
1. Borehole open to approximately 7.6 m depth on completion.
2. Groundwater or water seepage not encountered during drilling.
3.
4.

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LOG OF BOREHOLE BH/MW24

Project No.: 23354
Project Name: White Church Lands
Location: White Church Rd. & Airport Rd., Hamilton

Drill Date: 2025-01-06
Drilling Method: Solid Stem
Datum: Geodetic

Northing: 43.151608
Easting: -79.900743
Ground Surface Elevation: 230.8

Depth Scale (m)	Depth / Elevation (m)	Description	Number	Type	Blow Counts/150 mm	N Value	Undrained Shear Strength (kPa) / Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity (PL MC LL)	Comments
	231.0								
0		**Organic Material** ~200 mm. Silty clay, some organics. Brown, moist.	1	SS	1 1 2 2	3		21.2	
		Silt with iron staining, some clay. Loose, brown, moist.							
1	230.0								
		...compact.	2	SS	8 8 11	19		14.7	
2	229.0								
	228.0								
3		**Silt Till** with iron staining, trace gravel. Dense, brown, moist.	3	SS	11 21 24	45		13.3	
	227.0								
4		...trace clay. Loose to compact, grey.	4	SS	4 4 6	10		15.2	
5	226.0								
	225.0								
6		...no iron staining. Dense.	5	SS	9 14 17	31		13.9	
	224.0								
7									
		...no clay. Dry to moist.	6	SS	12 22 21	43		10.4	
8	223.0	End of Log							
	222.0								
9									
	221.0								
10									

Well Details: 36" Locking Vault; 3/8" Bentonite Pellets; #10 Well Slot Sand; 2" PVC Screen

Groundwater Levels

Headspace Concentrations / PID (ppm) [LEL(%)] / ppm

Additional Notes:
1. Borehole open to approximately 7.6 m depth on completion.
2. Groundwatere or water seepage not encountered during drilling.
3.
4.

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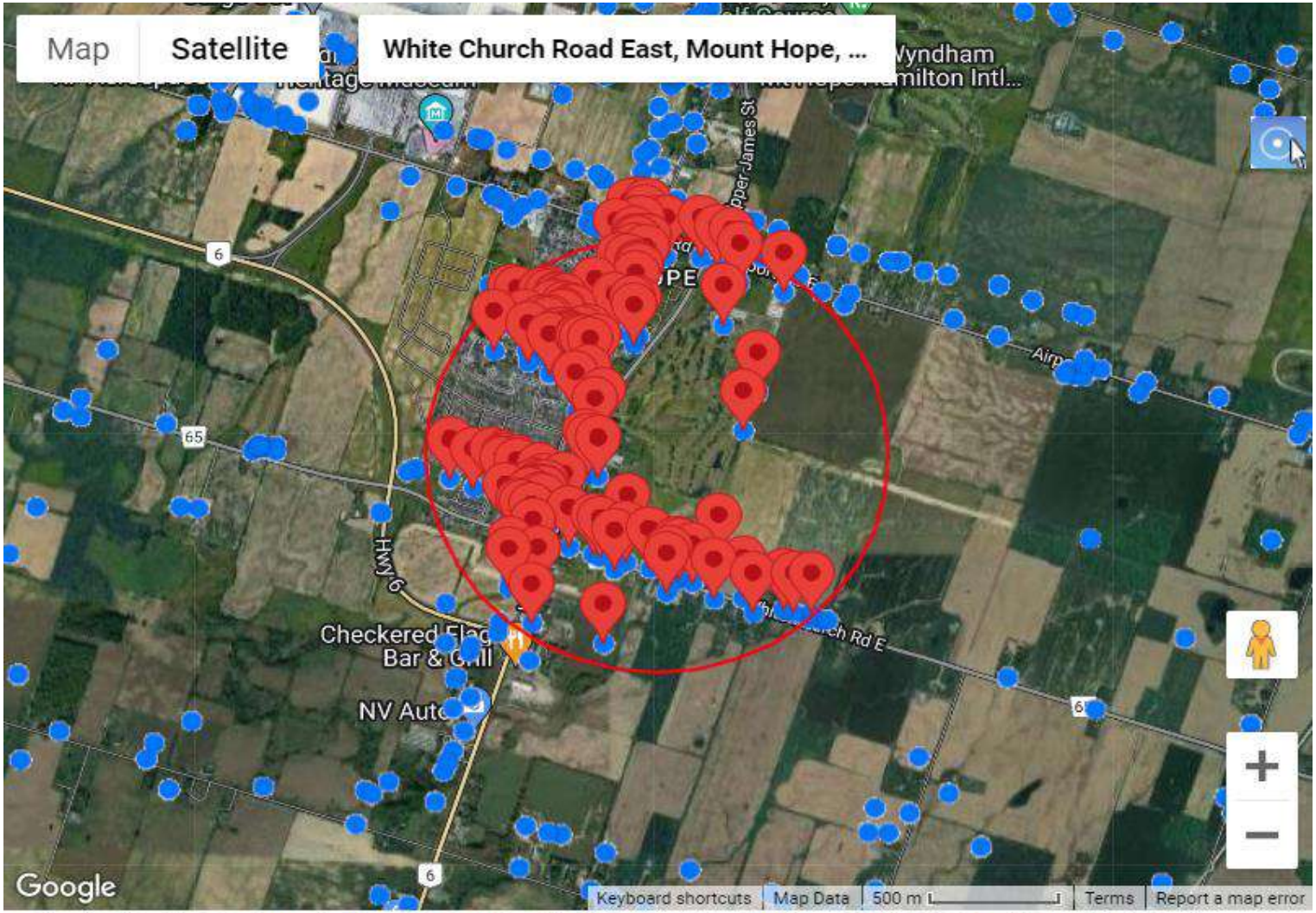
APPENDIX C

MECP WELLS LOCATIONS



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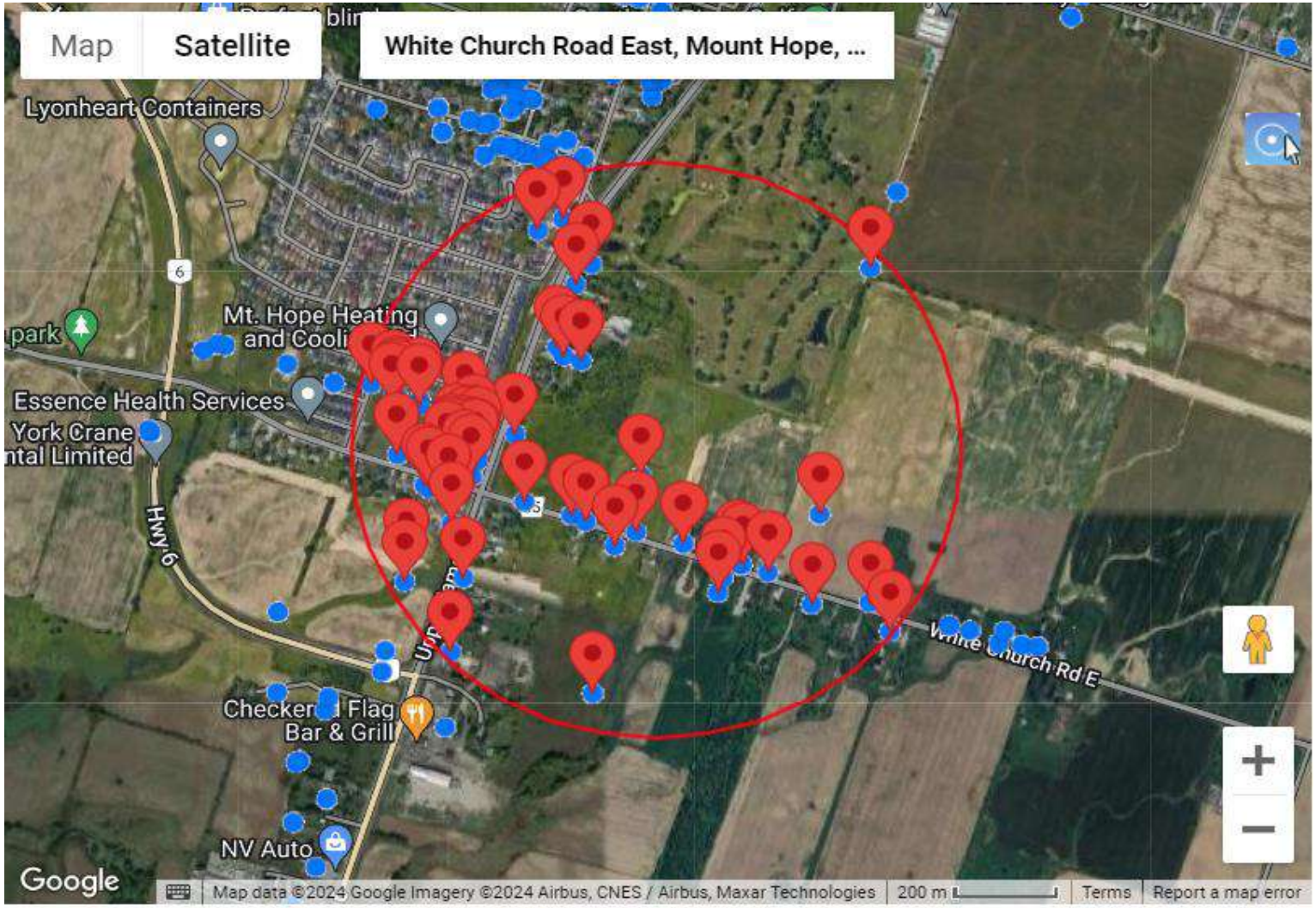
● MECP Wells

	LANDTEK LIMITED ***CONSULTING ENGINEERS*** **205 NEBO ROAD, HAMILTON, ONTARIO, L8W 2E1**	
	Scale: On Map	Date:September 2024
Project:	Hydrogeological Investigation White Church Road East & Upper James Street Hamilton, Ontario	
Title:	Figure 1: MECP Wells Locations	
Project No.	23355	



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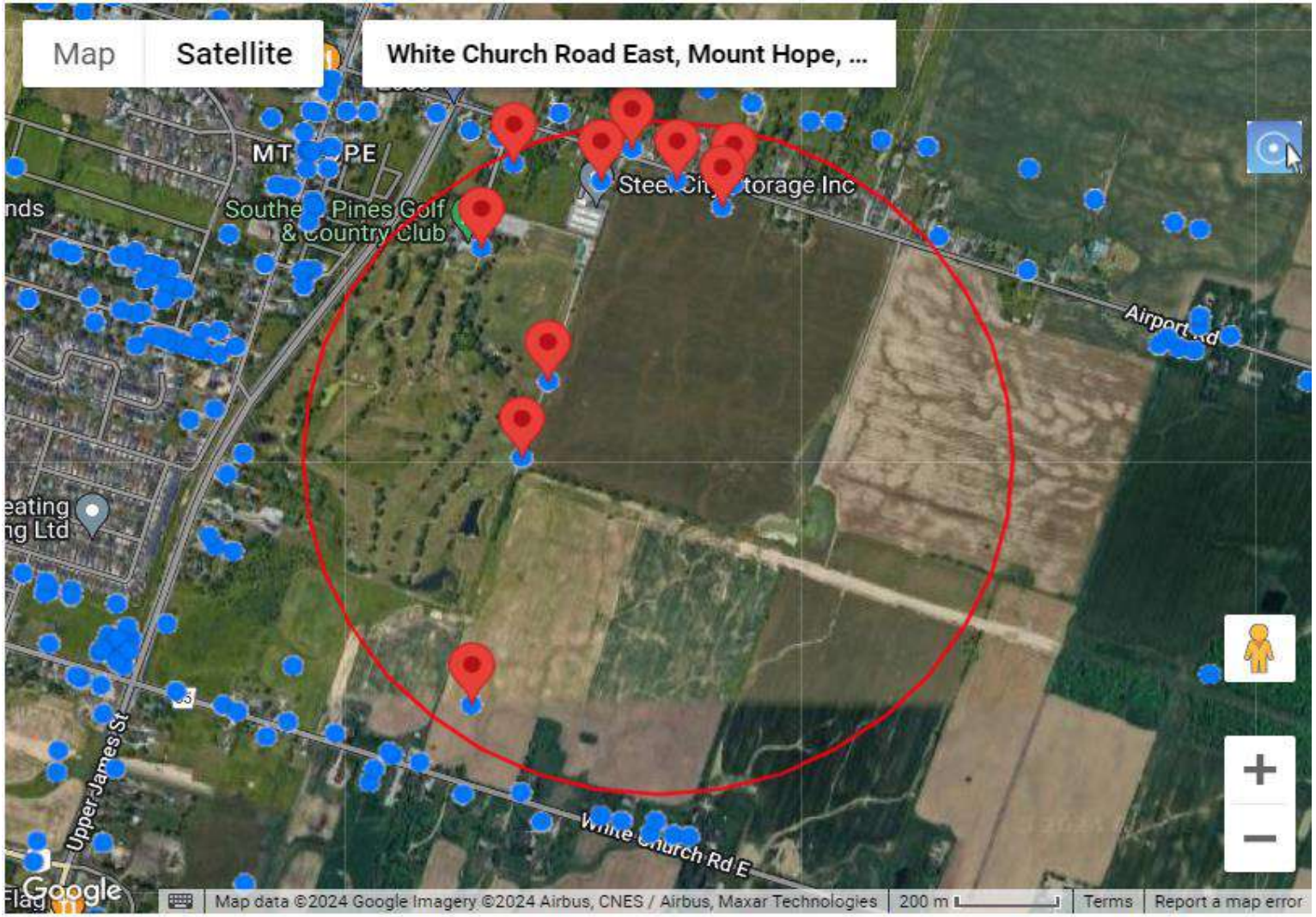
● MECP Wells

	LANDTEK LIMITED ***CONSULTING ENGINEERS*** **205 NEBO ROAD, HAMILTON, ONTARIO, L8W 2E1**	
	Scale: On Map	Date:September 2024
Project:	Hydrogeological Investigation White Church & Upper James Street Hamilton, Ontario	
Title:	Figure 2: MECP Wells Locations	
Project No.	23355	



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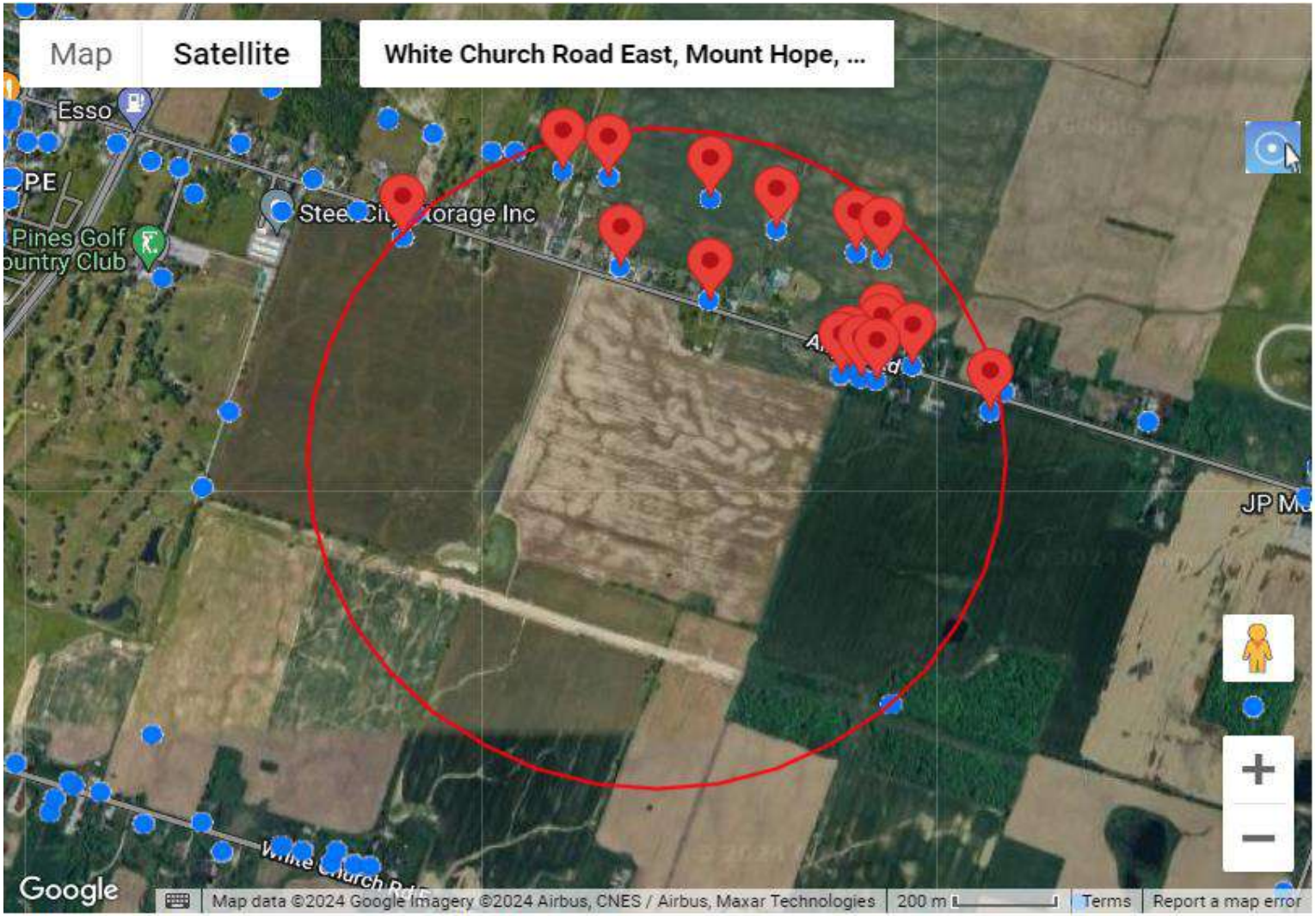
● MECP Wells

LANDTEK LIMITED
CONSULTING ENGINEERS
205 NEBO ROAD, HAMILTON, ONTARIO, L8W 2E1

	Scale: On Map	Date:September 2024
Project:	Hydrogeological Investigation White Church & Upper James Street Hamilton, Ontario	
Title:	Figure 3: MECP Wells Locations	
Project No.	23355	



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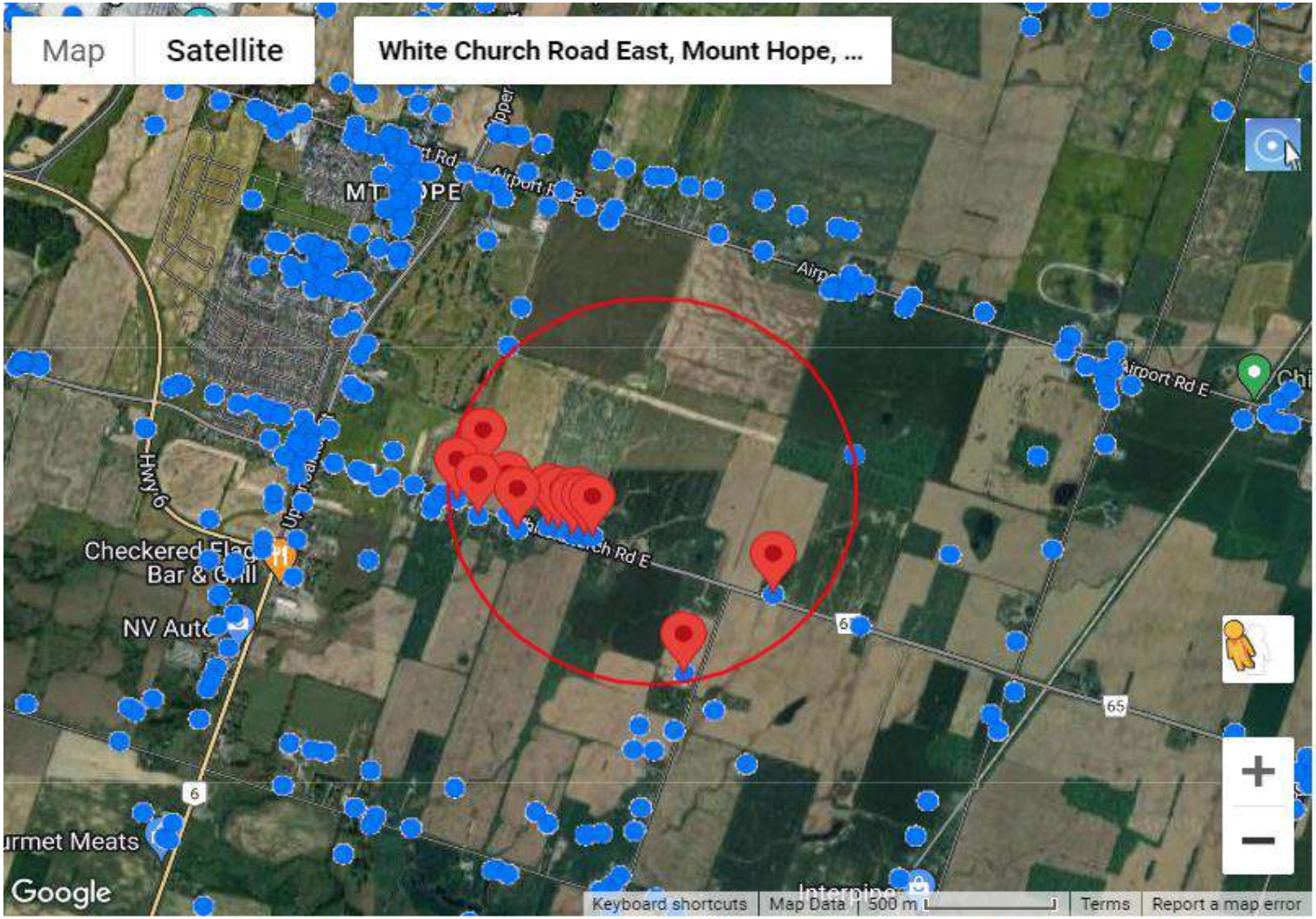
● MECP Wells

LANDTEK LIMITED *CONSULTING ENGINEERS* 205 NEBO ROAD, HAMILTON, ONTARIO, L8W 2E1		
	Scale: On Map	Date:September 2024
Project:	Hydrogeological Investigation White Church & Upper James Street Hamilton, Ontario	
Title:	Figure 4: MECP Wells Locations	
Project No.	23355	



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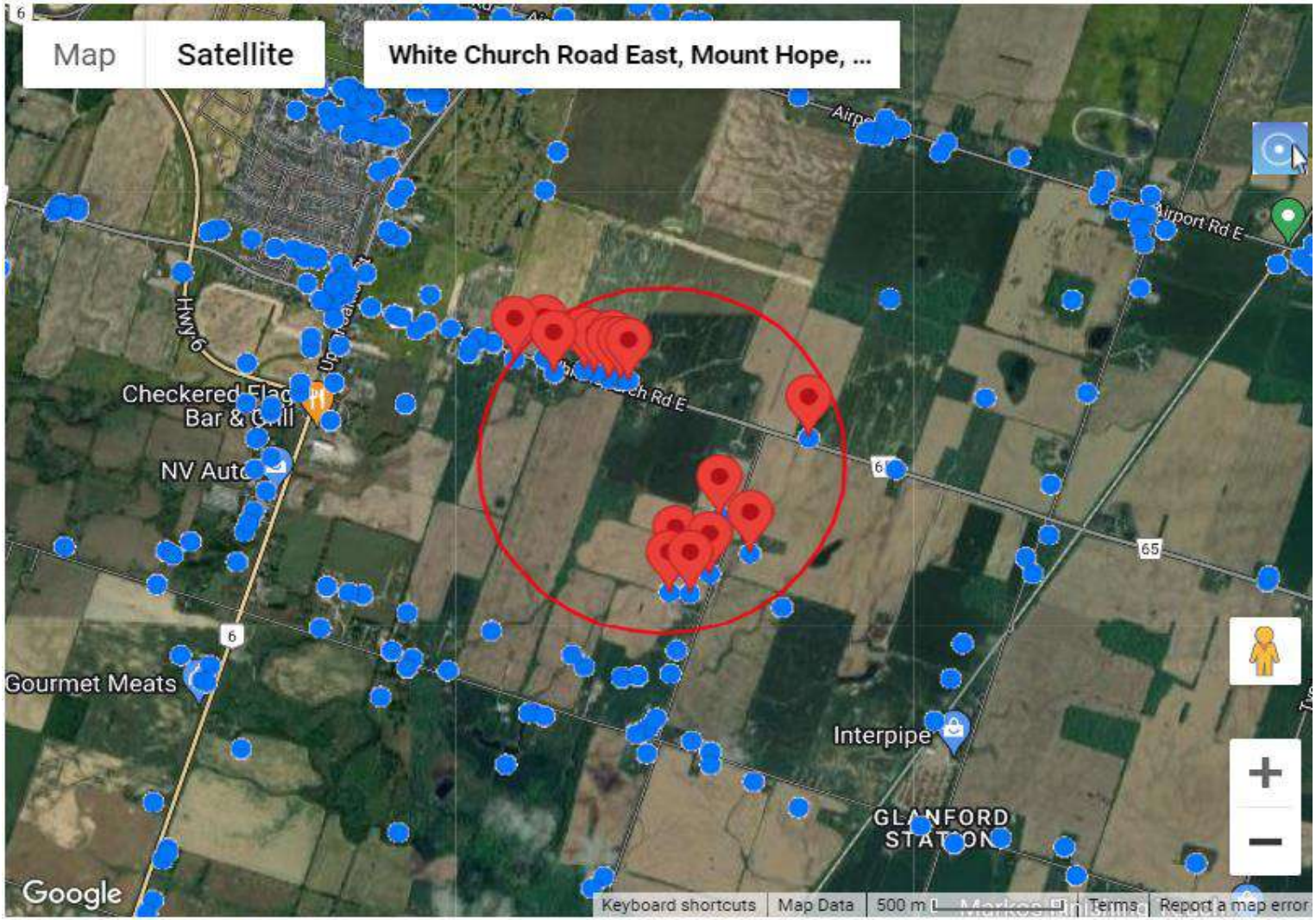
● MECP Wells

LANDTEK LIMITED *CONSULTING ENGINEERS* 205 NEBO ROAD, HAMILTON, ONTARIO, L8W 2E1		
	Scale: On Map	Date:September 2024
Project:	Hydrogeological Investigation White Church & Upper James Street Hamilton, Ontario	
Title:	Figure 5: MECP Wells Locations	
Project No.	23355	



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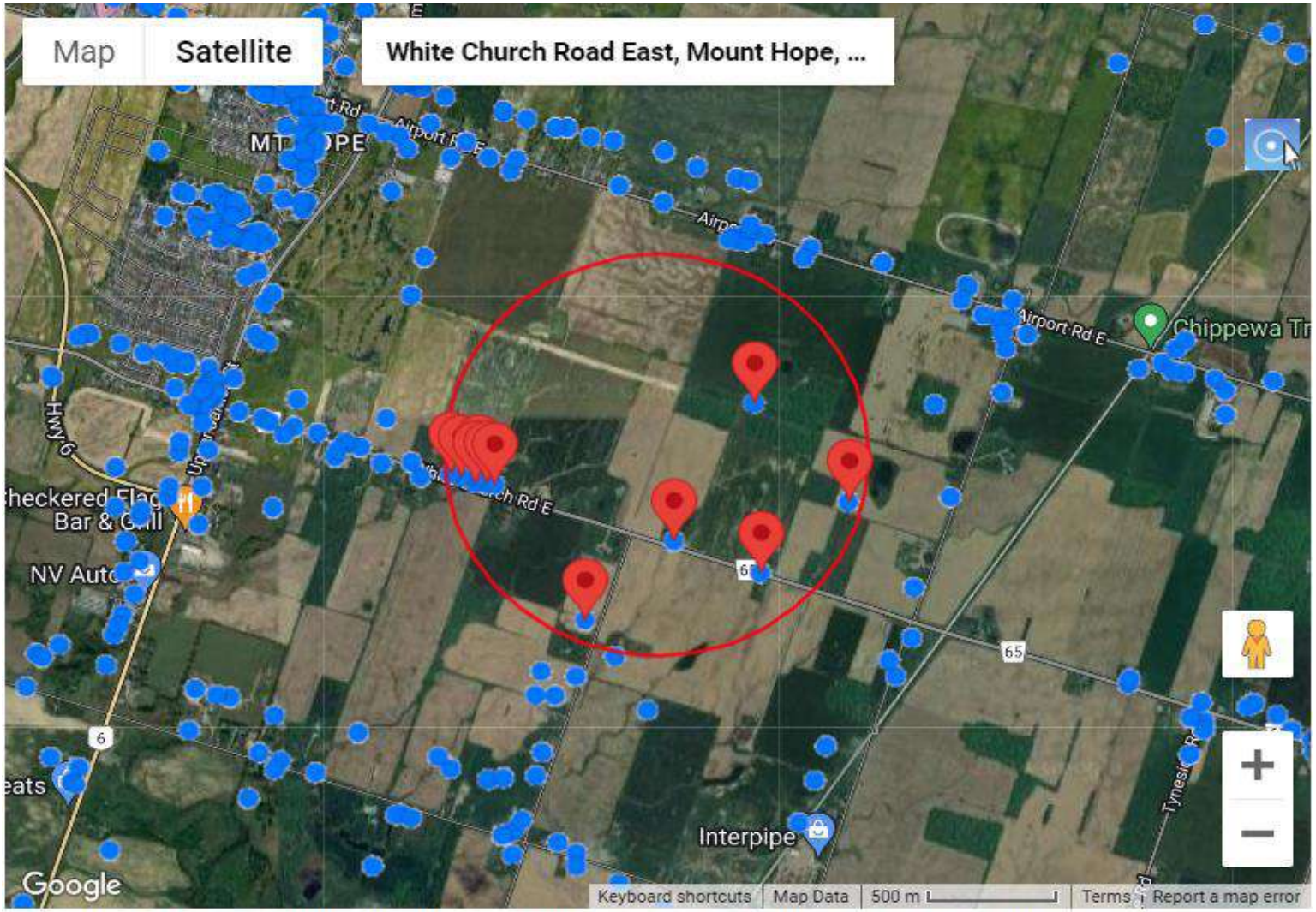
● MECP Wells

	LANDTEK LIMITED ***CONSULTING ENGINEERS*** **205 NEBO ROAD, HAMILTON, ONTARIO, L8W 2E1**	
	Scale: On Map	Date:September 2024
Project:	Hydrogeological Investigation White Church & Upper James Street Hamilton, Ontario	
Title:	Figure 6: MECP Wells Locations	
Project No.	23355	



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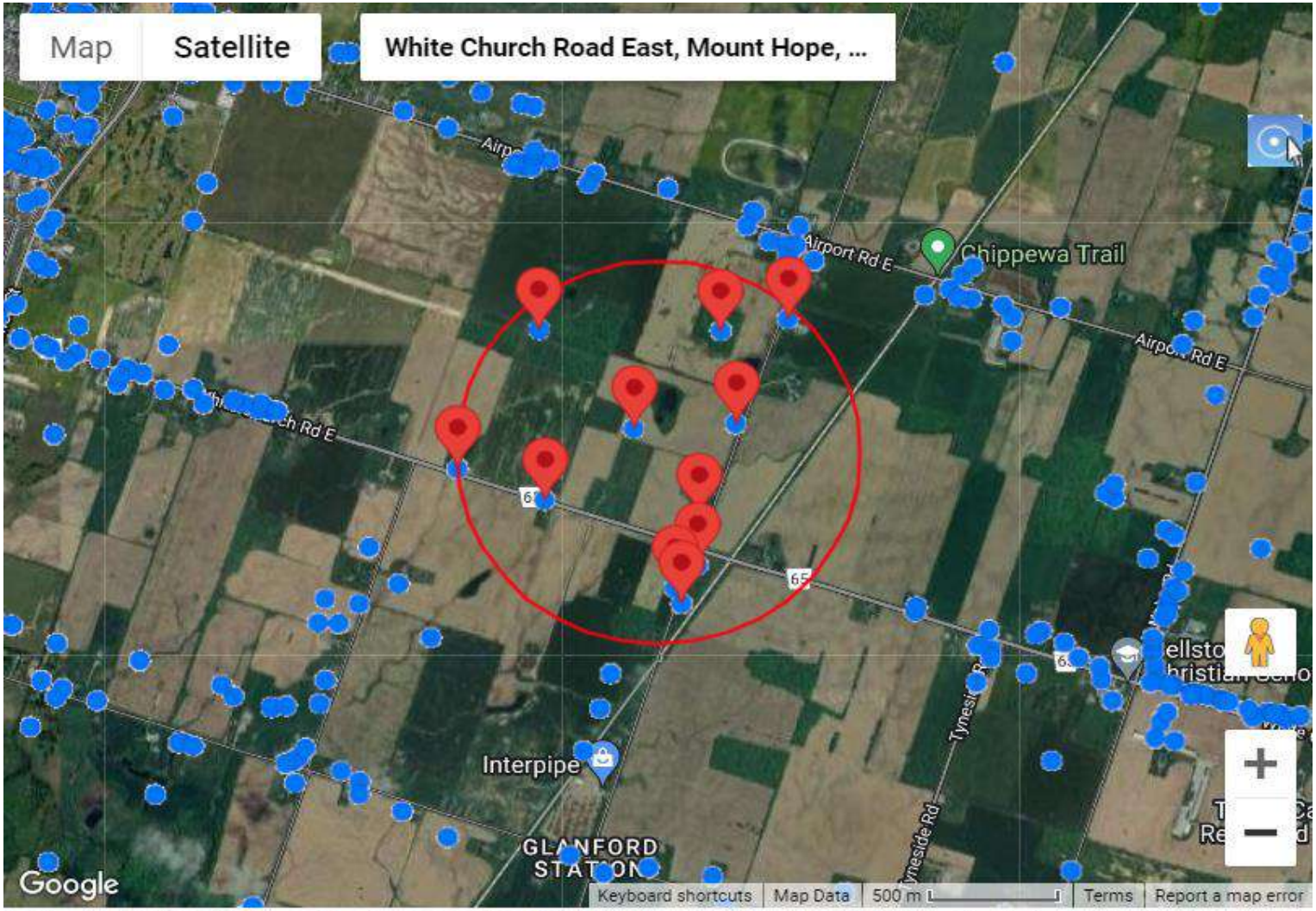
● MECP Wells

LANDTEK LIMITED
CONSULTING ENGINEERS
205 NEBO ROAD, HAMILTON, ONTARIO, L8W 2E1

	Scale: On Map	Date:September 2024
Project:	Hydrogeological Investigation	
	White Church & Upper James Street	
	Hamilton, Ontario	
Title:	Figure 7: MECP Wells Locations	
Project No.	23355	



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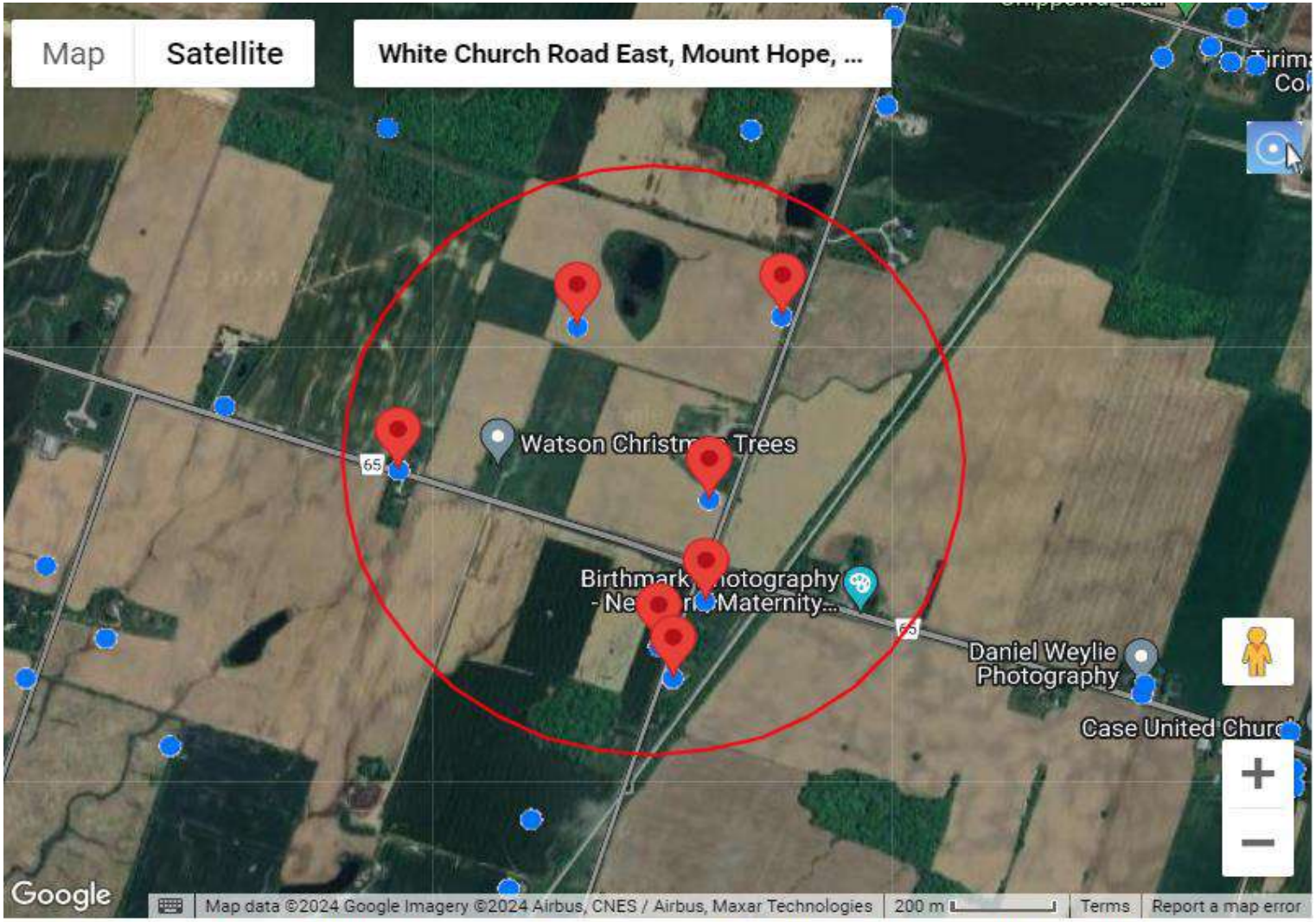
● MECP Wells

	LANDTEK LIMITED *CONSULTING ENGINEERS* **205 NEBO ROAD, HAMILTON, ONTARIO, L8W 2E1**	
	Scale: On Map	Date:September 2024
Project:	Hydrogeological Investigation White Church & Upper James Street Hamilton, Ontario	
Title:	Figure 8: MECP Wells Locations	
Project No.	23355	



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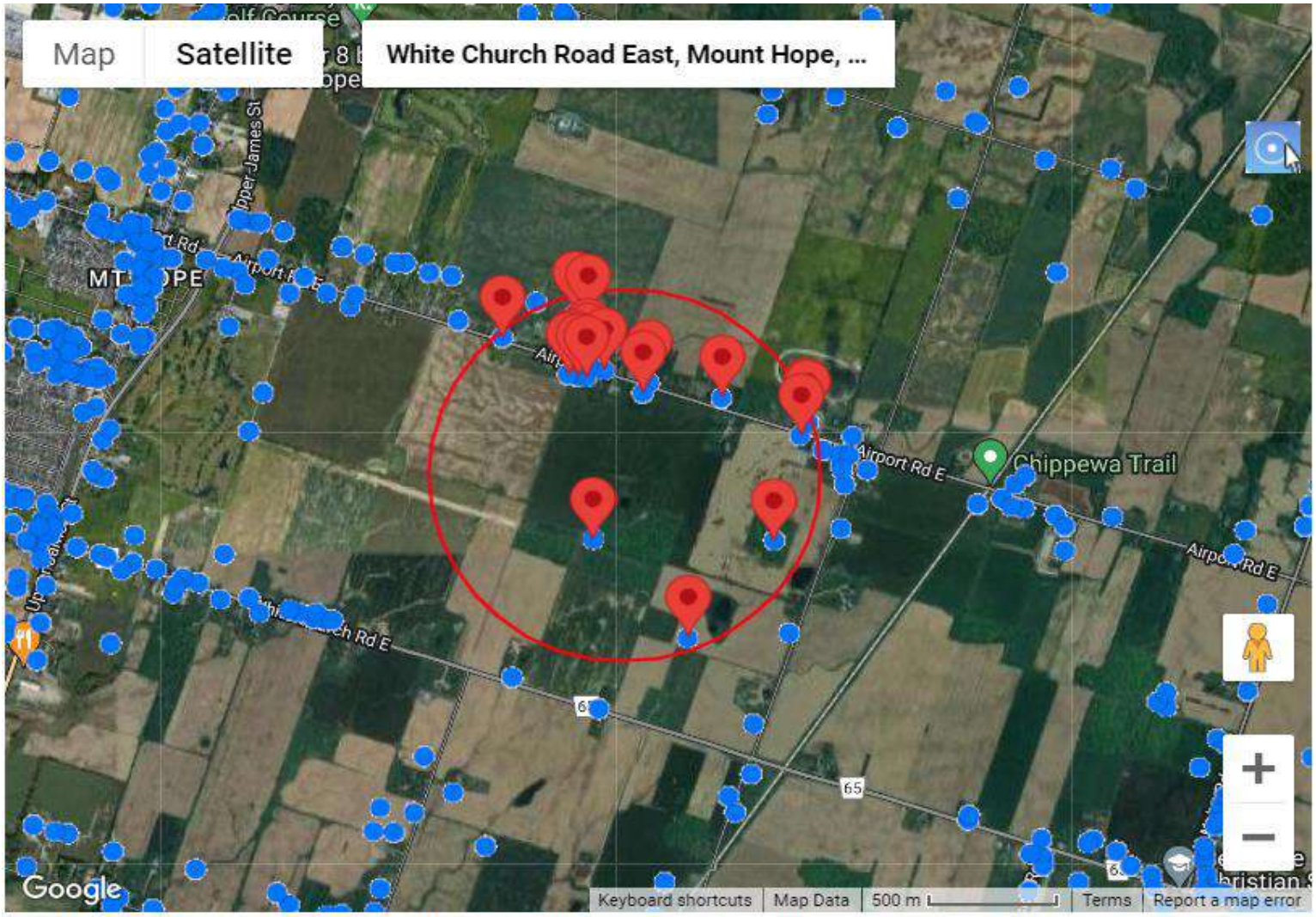
● MECP Wells

	LANDTEK LIMITED *CONSULTING ENGINEERS* **205 NEBO ROAD, HAMILTON, ONTARIO, L8W 2E1**	
	Scale: On Map	Date:September 2024
Project:	Hydrogeological Investigation White Church & Upper James Street Hamilton, Ontario	
Title:	Figure 9: MECP Wells Locations	
Project No.	23355	



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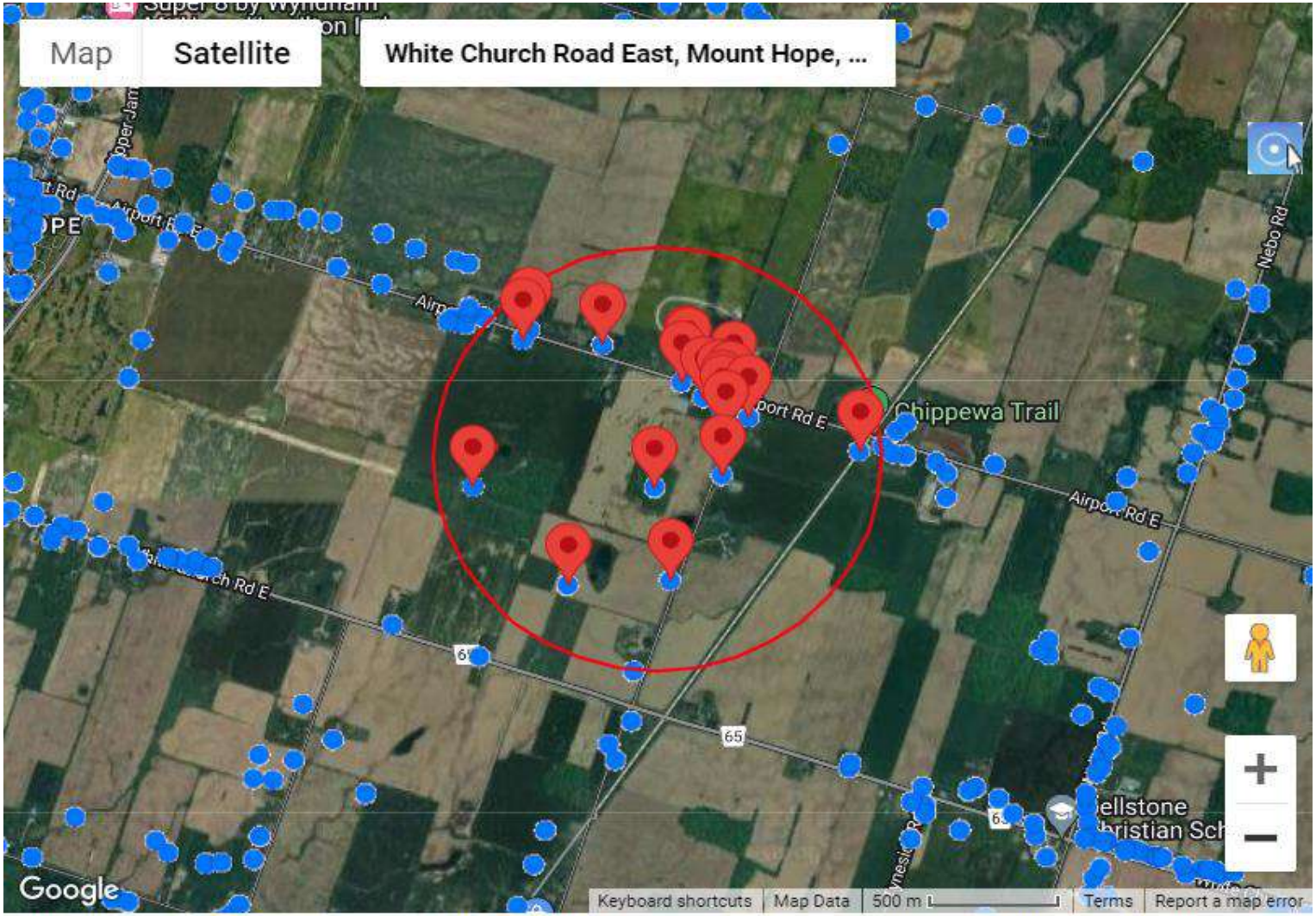
● MECP Wells

	LANDTEK LIMITED ***CONSULTING ENGINEERS*** **205 NEBO ROAD, HAMILTON, ONTARIO, L8W 2E1**	
	Scale: On Map	Date:September 2024
Project:	Hydrogeological Investigation White Church & Upper James Street Hamilton, Ontario	
Title:	Figure 10: MECP Wells Locations	
Project No.	23355	



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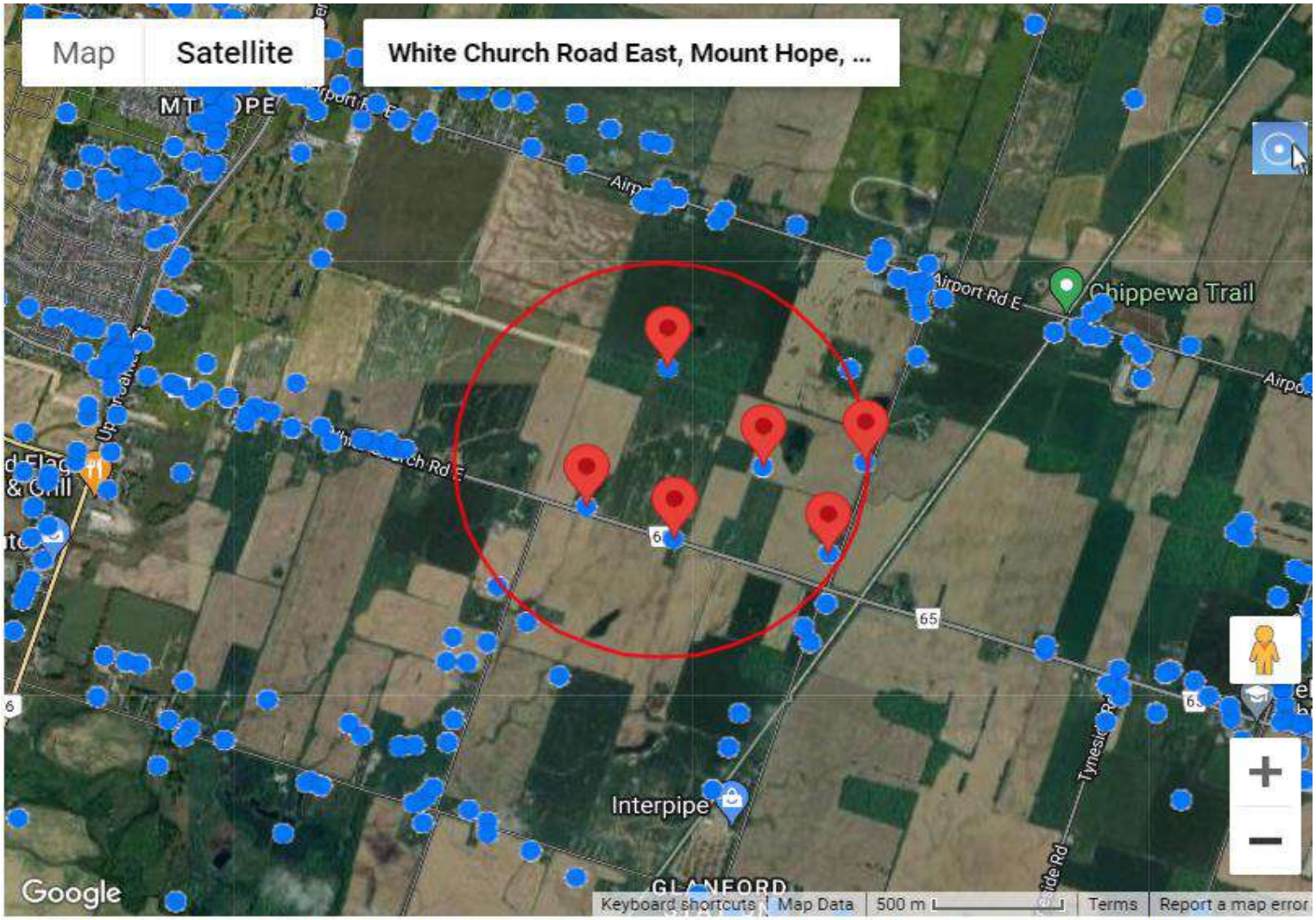
● MECP Wells

	LANDTEK LIMITED *CONSULTING ENGINEERS* **205 NEBO ROAD, HAMILTON, ONTARIO, L8W 2E1**	
	Scale: On Map	Date:September 2024
Project:	Hydrogeological Investigation White Church & Upper James Street Hamilton, Ontario	
Title:	Figure 11: MECP Wells Locations	
Project No.	23355	



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● MECP Wells

	LANDTEK LIMITED ***CONSULTING ENGINEERS*** **205 NEBO ROAD, HAMILTON, ONTARIO, L8W 2E1**	
	Scale: On Map	Date:September 2024
Project:	Hydrogeological Investigation White Church & Upper James Street Hamilton, Ontario	
Title:	Figure 12: MECP Wells Locations	
Project No.	23355	

APPENDIX D

SUMMARY OF MECP WELLS RECORDS

Summary of MECP Well Records: Table 1

Well #	WELL_ID	DIAMETER (inches)	DATE_COMPLETED	EAST83	NORTH83	WATER_FOUND_DEPTH (FT)	Static Water Level (ft)	KIND	FINAL_STATUS	USE_1ST	USE_2ND	DEPTH_TO (ft)	DEPTH_TO (m)	Well Construction	STREET	CITY/TOWNSHIP
1	6803950	6	29/Aug/58	588582.1	4778560	113	30	Fresh	Water Suppy	Domestic	NA	113	34.45	CLAY	NA	Wentworth
2	6804002	6	25/Apr/47	588150.4	4778728	NA	40	Fresh	Water Suppy	Domestic	NA	108	32.93	QSND	NA	Wentworth
3	6804003	6	28/Jul/49	588198.4	4778661	100	25	Fresh	Water Suppy	Domestic	NA	100	30.49	CLAY/QSND	NA	Wentworth
4	6804004	5	18/May/51	588197.4	4778736	106	27	Fresh	Water Suppy	Domestic	NA	107	32.62	CLAY	NA	Wentworth
5	6804005	6	14/Jul/51	588173.4	4778583	112	12	Fresh	Water Suppy	Domestic	NA	112	34.15	CLAY	NA	Wentworth
6	6804006	6	24/Jan/53	588180.4	4778581	112	12	Fresh	Water Suppy	Domestic	NA	114	34.76	CLAY	NA	Wentworth
7	6804007	6	25/Apr/53	588184.4	4778581	108	18	Fresh	Water Suppy	Domestic	NA	109	33.23	CLAY	NA	Wentworth
8	6804008	6	10/Jun/53	588097.4	4778347	100	16	Fresh	Water Suppy	Domestic	NA	100	30.49	CLAY	NA	Wentworth
9	6804009	6	20/Aug/53	588147.4	4778505	110	10	Fresh	Water Suppy	Domestic	NA	114	34.76	CLAY	NA	Wentworth
10	6804011	6	7/Aug/54	587973.4	4778203	100	35	Fresh	Water Suppy	Domestic	NA	101	30.79	CLAY	NA	Wentworth
11	6804012	6	16/Sep/54	588187.4	4778580	111	18	Fresh	Water Suppy	Domestic	NA	112	34.15	CLAY	NA	Wentworth
12	6804013	6	3/Jun/55	588041.4	4778176	108	25	Fresh	Water Suppy	Domestic	NA	109	33.23	CLAY	NA	Wentworth
13	6804014	6	14/Oct/55	587923.4	4778180	105	22	Fresh	Water Suppy	Domestic	NA	109	33.23	CLAY/LMSN	NA	Wentworth
14	6804015	6	20/Mar/56	587938.4	4778180	101	25	Fresh	Water Suppy	Domestic	NA	103	31.40	CLAY	NA	Wentworth
15	6804016	6	11/May/56	587977.4	4778167	101	25	Fresh	Water Suppy	Domestic	NA	102	31.10	CLAY/MSND	NA	Wentworth
16	6804017	6	1/Jun/56	587856.4	4778244	107	30	Fresh	Water Suppy	Domestic	NA	107	32.62	CLAY/LMSN	NA	Wentworth
17	6804018	6	25/Jul/56	587923.4	4778186	100	45	Fresh	Water Suppy	Domestic	NA	100	30.49	CLAY/LMSN	NA	Wentworth
18	6804019	6	19/Sep/56	587906.4	4778194	100	45	Fresh	Water Suppy	Domestic	NA	100	30.49	CLAY/LMSN	NA	Wentworth
19	6804020	6	24/Oct/56	588009.4	4778160	104	18	Fresh	Water Suppy	Domestic	NA	104	31.71	CLAY/QSND	NA	Wentworth
20	6804021	6	8/Nov/56	587847.4	4778176	100	60	Fresh	Water Suppy	Domestic	NA	105	32.01	CLAY/LMSN	NA	Wentworth
21	6804022	6	2/Dec/56	587877.4	4778197	107	45	Fresh	Water Suppy	Domestic	NA	107	32.62	CLAY	NA	Wentworth
22	6804023	6	29/Jan/57	587956.4	4778173	105	45	Fresh	Water Suppy	Domestic	NA	105	32.01	CLAY	NA	Wentworth
23	6804024	6	24/May/57	587906.4	4778279	100	40	Fresh	Water Suppy	Domestic	NA	100	30.49	CLAY	NA	Wentworth
24	6804026	6	20/May/58	588002.4	4778046	107	27	Fresh	Water Suppy	Domestic	NA	109	33.23	CLAY	NA	Wentworth
25	6804028	6	2/Aug/58	587696.4	4778371	112	40	Fresh	Water Suppy	Domestic	NA	112	34.15	CLAY	NA	Wentworth
26	6804029	6	26/Aug/58	587880.4	4778343	97	30	Fresh	Water Suppy	Domestic	NA	97	29.57	CLAY	NA	Wentworth
27	6804030	6	19/Sep/58	587719.4	4778363	103	30	Fresh	Water Suppy	Domestic	NA	103	31.40	CLAY	NA	Wentworth
28	6804031	6	30/Sep/58	587859.4	4778312	98	40	Fresh	Water Suppy	Domestic	NA	100	30.49	MUCK/LMSN	NA	Wentworth
29	6804032	6	3/Oct/58	588008.4	4778209	100	30	Fresh	Water Suppy	Domestic	NA	100	30.49	CLAY	NA	Wentworth
30	6804033	6	6/Nov/58	587940.4	4778292	96	40	Fresh	Water Suppy	Domestic	NA	96	29.27	CLAY	NA	Wentworth
31	6804034	6	14/Nov/58	588185.4	4778738	100	28	Fresh	Water Suppy	Domestic	NA	100	30.49	CLAY/MSND	NA	Wentworth
32	6804035	6	31/Dec/58	587933.4	4778297	90	20	Fresh	Water Suppy	Domestic	NA	90	27.44	CLAY	NA	Wentworth
33	6804036	6	12/Jan/59	587844.4	4778241	100	20	Fresh	Water Suppy	Domestic	NA	100	30.49	CLAY/LMSN	NA	Wentworth
34	6804037	6	6/May/59	587869.4	4778344	90	20	Fresh	Water Suppy	Domestic	NA	93	28.35	CLAY/QSND	NA	Wentworth
35	6804038	6	24/Sep/59	587896.4	4778334	102	62	Fresh	Water Suppy	Domestic	NA	102	31.10	CLAY/QSND	NA	Wentworth
36	6804039	6	13/Oct/59	587965.4	4778171	103	45	Fresh	Water Suppy	Domestic	NA	103	31.40	CLAY	NA	Wentworth
37	6804040	5	27/Oct/59	587842.4	4778368	100	45	Fresh	Water Suppy	Domestic	NA	100	30.49	CLAY	NA	Wentworth
38	6804041	6	29/Oct/59	587816.4	4778249	110	60	Fresh	Water Suppy	Domestic	NA	110	33.54	CLAY/QSND	NA	Wentworth
39	6804042	6	8/Jan/60	587838.4	4778353	102	62	Fresh	Water Suppy	Domestic	NA	102	31.10	CLAY/QSND	NA	Wentworth
40	6804043	5	14/Jan/60	587870.4	4778316	101	30	Fresh	Water Suppy	Domestic	NA	101	30.79	CLAY	NA	Wentworth
41	6804044	6	11/Jun/60	587830.4	4777514	103	40	Fresh	Water Suppy	Commercial	NA	103	31.40	CLAY/QSND	NA	Wentworth
42	6804045	6	12/Sep/60	587811.4	4778361	100	60	Fresh	Water Suppy	Domestic	NA	100	30.49	CLAY/QSND	NA	Wentworth
43	6804046	6	6/Oct/60	587904.4	4778305	95	28	Fresh	Water Suppy	Domestic	NA	97	29.57	CLAY	NA	Wentworth
44	6804047	6	9/Nov/60	587912.4	4778334	102	40	Fresh	Water Suppy	Domestic	NA	104	31.71	CLAY	NA	Wentworth
45	6804049	6	4/Sep/62	587907.4	4778187	94	30	Fresh	Water Suppy	Domestic	NA	98	29.88	CLAY/LMSN	NA	Wentworth
46	6804050	6	24/Sep/62	588184.4	4778664	102	60	Fresh	Water Suppy	Domestic	NA	104	31.71	CLAY	NA	Wentworth
47	6804051	6	15/Oct/62	587893.4	4778194	94	35	Fresh	Water Suppy	Domestic	NA	96	29.27	CLAY	NA	Wentworth
48	6804052	6	28/Jun/63	588216.4	4778705	112	40	Sulphur	Water Suppy	Domestic	NA	112	34.15	CLAY/QSND	NA	Wentworth
49	6804053	6	8/Jul/63	588105.4	4778647	105	40	Fresh	Water Suppy	Domestic	NA	105	32.01	CLAY/QSND	NA	Wentworth
50	6804056	6	7/Aug/64	588117.4	4778510	105	57	Fresh	Water Suppy	Domestic	NA	108	32.93	CLAY/LMSN	NA	Wentworth
51	6804057	6	2/Feb/65	588224.4	4778729	112	55	Sulphur	Water Suppy	Commercial	NA	114	34.76	CLAY	NA	Wentworth
52	6804058	6	22/Aug/66	588171.4	4778619	100	60	Fresh	Water Suppy	Domestic	NA	101	30.79	CLAY	NA	Wentworth
53	6804059	6	12/Apr/49	588220.4	4778589	110	30	Fresh	Water Suppy	Domestic	NA	115	35.06	CLAY/QSND	NA	Wentworth
54	6804060	5	22/Jun/50	588225.4	4778589	98	23	Fresh	Water Suppy	Domestic	NA	102	31.10	CLAY/QSND	NA	Wentworth
55	6804061	6	7/Jul/51	588195.4	4778464	126	30	Fresh	Water Suppy	Domestic	NA	131	39.94	CLAY/LMSN	NA	Wentworth
56	6804062	6	15/Jun/53	588059.4	4777955	100	30	Fresh	Water Suppy	Domestic	NA	100	30.49	LOAM	NA	Wentworth
57	6804063	6	8/Oct/53	588188.4	4778469	106	23	Fresh	Water Suppy	Domestic	NA	108	32.93	CLAY/LMSN	NA	Wentworth
58	6804064	6	24/May/55	588026.4	4777436	110	35	Fresh	Water Suppy	Domestic	NA	120	36.59	CLAY/LMSN	NA	Wentworth
59	6804065	6	13/Jun/55	588042.4	4777754	110	100	Fresh	Abandoned-Other	Not Used	NA	115	35.06	CLAY/LMSN	NA	Wentworth
60	6804066	6	23/Jun/55	588007.4	4777764	100	20	Fresh	Water Suppy	Domestic	Livestock	108	32.93	CLAY/LMSN	NA	Wentworth
61	6804067	6	25/Oct/55	588190.4	4778479	108	24	Fresh	Water Suppy	Domestic	NA	110	33.54	CLAY/LMSN	NA	Wentworth
62	6804068	6	27/Mar/58	588429.4	4778662	111	35	Fresh	Water Suppy	Domestic	NA	112	34.15	CLAY	NA	Wentworth
63	6804069	7	25/Mar/60	588247.4	4777380	105	28	Fresh	Water Suppy	Domestic	Commercial	104	31.71	CLAY	NA	Wentworth
64	6804070	6	24/May/60	588220.4	4778544	104	45	Fresh	Water Suppy	Domestic	NA	104	31.71	CLAY	NA	Wentworth
65	6804071	6	24/Aug/60	588552.4	4778614	120	40	Fresh	Water Suppy	Domestic	NA	120	36.59	CLAY	NA	Wentworth
66	6804072	6	4/Oct/61	588521.4	4778386	112	50	Fresh	Water Suppy	Irrigation	NA	112	34.15	CLAY/QSND	NA	Wentworth
67	6804073	6	7/May/62	588606.4	4777954	122	40	Fresh	Water Suppy	Irrigation	NA	124	37.80	CLAY/QSND	NA	Wentworth
68	6804074	6	12/May/62	588029.4	4777912	118	30	Fresh	Water Suppy	Domestic	NA	120	36.59	CLAY/FSND/LMSN	NA	Wentworth
69	6804075	8	30/Jun/64	588656.4	4778112	135	55	Fresh	Water Suppy	Irrigation	NA	191	58.23	CLAY/QSND	NA	Wentworth
70	6804076	6	16/Sep/64	588362.4	4777337	102	35	Fresh	Water Suppy	Domestic	NA	105	32.01	CLAY/SILT	NA	Wentworth
71	6804077	6	21/Jan/65	588496.4	4778627	120	50	Fresh	Water Suppy	Domestic	NA	121	36.89	CLAY/QSND	NA	Wentworth
72	6804078	6	31/Jan/67	588755.4	4778526	130	83	Fresh	Water Suppy	Domestic	NA	133	40.55	CLAY/LMSN	NA	Wentworth
73	6804082	6	27/Apr/59	588879.4	4777207	105	30	Fresh	Water Suppy	Domestic	NA	105	32.01	CLAY/QSND	NA	Wentworth
74	6804083	6	17/Aug/59	588811.4	4777207	116	50	Fresh	Water Suppy	Domestic	NA	117	35.67	CLAY/FSND	NA	Wentworth
75	6804084	6	6/Jun/63	588771.4	4777217	113	35	Fresh	Water Suppy	Domestic	NA	114	34.76	CLAY	NA	Wentworth
76	6804085	6	27/Mar/65	588771.4	4777217	112	30	Fresh	Water Suppy	Domestic	NA	112	34.15	CLAY/QSND	NA	Wentworth
77	6804132	6	10/Sep/51	587681.4	4777675	97	6	Fresh	Water Suppy	Domestic	NA	97	29.57	LOAM/LMSN	NA	Wentworth
78	6804133	6	21/Mar/54	587681.4	4777667	120	40	Fresh	Water Suppy	Domestic	NA	120	36.59	CLAY/LMSN	NA	Wentworth
79	6804134	6	16/Mar/57	587726.4	4777670	90	10	Fresh	Water Suppy	Domestic	NA	91	27.74	CLAY	NA	Wentworth
80	6804135	6	30/Apr/57	587558.4	4777702	114	40	Fresh	Water Suppy	Domestic	NA	114	34.76	CLAY	NA	Wentworth
81	6804136	6	13/Jun/57	587630.4	4777702	110	32	Fresh	Water Suppy	Domestic	NA	116	35.37	CLAY	NA	Wentworth

Summary of MECP Well Records: Table 1

82	6804138	6	17/Jun/58	587673.4	4777662	105	25	Fresh	Water Suppy	Commercial	NA	105	32.01	CLAY	NA	Wentworth
83	6804139	6	27/Aug/58	587683.4	4777557	76	14	Fresh	Water Suppy	Domestic	NA	79	24.09	CLAY	NA	Wentworth
84	6804143	6	7/Feb/58	587676.4	4777685	108	20	Fresh	Water Suppy	Public	NA	108	32.93	CLAY	NA	Wentworth
85	6804144	6	4/Mar/61	587726.4	4777657	100	30	Fresh	Water Suppy	Public	NA	102	31.10	CLAY/LMSN	NA	Wentworth
86	6804145	6	5/Aug/61	587465.4	4777740	102	35	Fresh	Water Suppy	Domestic	NA	104	31.71	CLAY/LMSN	NA	Wentworth
87	6804151	6	13/May/47	587786.4	4777474	NA	20	Fresh	Water Suppy	Domestic	NA	120	36.59	QSND/LMSN	NA	Wentworth
88	6804152	6	15/Nov/48	587914.4	4777602	113	35	Fresh	Water Suppy	Domestic	NA	118	35.98	CLAY/MSND	NA	Wentworth
89	6804154	6	2/Oct/53	587781.4	4777542	73	4	Fresh	Water Suppy	Domestic	NA	75	22.87	CLAY/LMSN	NA	Wentworth
90	6804155	6	29/Sep/54	588163.4	4777518	113	35	Fresh	Water Suppy	Domestic	NA	113	34.45	CLAY/FSND	NA	Wentworth
91	6804156	6	8/Dec/54	587746.4	4777487	102	35	Fresh	Water Suppy	Domestic	NA	111	33.84	CLAY	NA	Wentworth
92	6804159	7	18/Aug/59	587701.4	4777294	100	50	Fresh	Water Suppy	Domestic	NA	100	30.49	CLAY	NA	Wentworth
93	6804160	6	17/Oct/59	587704.4	4777339	100	50	Fresh	Water Suppy	Domestic	NA	100	30.49	CLAY	NA	Wentworth
94	6804168	6	2/Dec/67	588073.4	4777068	114	30	Fresh	Water Suppy	Domestic	NA	115	35.06	CLAY	NA	Wentworth
95	6806912	6	26/Apr/68	587994.4	4777783	115	85	Sulphur	Water Suppy	Domestic	NA	120	36.59	CLAY/LMSN	NA	Wentworth
96	6806915	6	24/Jun/68	588174.4	4778303	106	60	Fresh	Water Suppy	Domestic	NA	106	32.32	CLAY	NA	Wentworth
97	6807084	6	21/Apr/69	587954.4	4778023	93	32	Fresh	Water Suppy	Domestic	NA	102	31.10	CLAY	NA	Wentworth
98	6807293	6	1/Sep/69	587754.4	4778273	85	43	Fresh	Water Suppy	Domestic	NA	105	32.01	CLAY/LMSN	NA	Wentworth
99	6807492	6	18/Feb/70	588254.4	4778663	112	42	Fresh	Water Suppy	Domestic	NA	112	34.15	CLAY	NA	Wentworth
100	6807546	6	28/Aug/70	588654.4	4777203	106	50	Fresh	Water Suppy	Domestic	NA	106	32.32	CLAY	NA	Wentworth
101	6807997	6	17/Aug/71	588199.4	4778733	114	75	Fresh	Water Suppy	Domestic	NA	115	35.06	CLAY	NA	Wentworth
102	6808170	6	6/Apr/72	588614.4	4777263	112	45	Fresh	Water Suppy	Domestic	NA	112	34.15	CLAY	NA	Wentworth
103	6808326	6	23/Mar/72	588294.4	4778663	112	64	Fresh	Water Suppy	Domestic	NA	113	34.45	CLAY	NA	Wentworth
104	6808327	16	7/Jun/72	587764.4	4778223	109	55	Fresh	Water Suppy	Domestic	NA	110	33.54	CLAY/LMSN	NA	Wentworth
105	6808435	6	19/Jan/73	588154.4	4777403	125	50	Fresh	Water Suppy	Domestic	NA	126	38.41	CLAY/LMSN	NA	Wentworth
106	6808728	6	15/Dec/73	587794.4	4777150	98	20	Fresh	Water Suppy	Industrial	NA	100	30.49	CLAY	NA	Wentworth
107	6808779	6	30/Nov/73	587897.4	4778270	106	39	Fresh	Water Suppy	Domestic	NA	107	32.62	CLAY/LMSN	NA	Wentworth
108	6809339	6	29/Oct/75	588183.4	4778435	106	50	Sulphur	Water Suppy	Domestic	NA	106	32.32	CLAY	NA	Wentworth
109	6809521	6	7/Jun/76	588514.4	4777443	215	70	Sulphur	Water Suppy	Irrigation	NA	247	75.30	CLAY/LMSN	NA	Wentworth
110	6809560	6	19/Mar/76	588054.4	4777423	109	45	Fresh	Water Suppy	Domestic	NA	109	33.23	CLAY	NA	Wentworth
111	6809565	6	1/Jul/76	587934.4	4777463	108	49	Fresh	Water Suppy	Domestic	NA	108	32.93	CLAY	NA	Wentworth
112	6809566	6	3/Aug/76	588414.4	4777323	115	55	Fresh	Water Suppy	Domestic	NA	115	35.06	CLAY	NA	Wentworth
113	6809577	6	11/Nov/76	588354.4	4777343	110	40	Fresh	Water Suppy	Domestic	NA	110	33.54	CLAY	NA	Wentworth
114	6809628	6	2/Jun/77	587814.4	4777643	97	45	Fresh	Water Suppy	Domestic	NA	97	29.57	CLAY	NA	Wentworth
115	6810803	6	19/Jun/84	588112.4	4777373	109	60	Fresh	Water Suppy	Domestic	NA	115	35.06	CLAY	NA	Wentworth
116	6811407	6	24/Mar/88	588316.2	4777280	102	40	Fresh	Water Suppy	Domestic	NA	110	33.54	CLAY	NA	Wentworth
117	6812313	6	30/Nov/92	587792.4	4777415	89	35	Sulphur	Water Suppy	Commercial	NA	92	28.05	CLAY	NA	Wentworth
118	6812466	6	20/Jun/94	587738.4	4777493	130	55	Fresh	Water Suppy	Domestic	NA	135	41.16	CLAY/LMSN	NA	Wentworth
119	6812613	6	8/Jun/95	588325.2	4777309	99	50	Fresh	Water Suppy	Domestic	NA	100	30.49	CLAY	NA	Wentworth
120	6814029	6	11/Jun/04	588500.0	4777258	103	41	Fresh	Water Suppy	Domestic	NA	104	31.71	CLAY	8321 White Church Rd	Wentworth
121	7268137	8	24/May/16	587817.0	4777303	NA	NA	NA	Observation Wells	Monitoring	NA	30	9.15	CLAY/SILT	3659 Upper James St	Wentworth
122	7282068	2	22/Dec/16	588026.0	4778406	NA	NA	NA	Observation Wells	Monitoring	NA	25	7.62	CLAY	80 Mario St C Approc 40m East OGF Marion St	Mount Hope
123	7305831	2	30/Nov/12	588192.0	4778335	NA	NA	NA	Observation Wells	Monitoring	Test Hole	22	6.71	CLAY	3311 Homestead RD	Mount Hope
124	7308095	NA	12/Feb/18	588176.0	4778545	NA	NA	NA	Observation Wells	Test Hole	NA	66	20.12	TILL/CLAY	3253 Homestead DR	Mount Hope
125	7318512	6	25/Jun/18	588175.0	4778335	NA	NA	NA	Observation Wells	Monitoring	Test Hole	NA	NA	NA	3311 Homestead DR	Mount Hope
126	7318513	6	25/Jun/18	588169.0	4778333	NA	NA	NA	Observation Wells	Monitoring	Test Hole	NA	NA	NA	3311 Homestead DR	Mount Hope
127	7338140	NA	9/Jul/19	587633.0	4778268	NA	NA	NA	Abandoned-Other	Not Used	NA	91	27.74	NA	91 Strothearne PL	Wentworth
128	7342203	8	2/Jul/19	587813.0	4777552	NA	NA	NA	Observation Wells	Monitoring	NA	25	7.62	CLAY	3530 Upper James St	Wentworth
129	7342204	4	2/Jul/19	587831.0	4777550	NA	NA	NA	Observation Wells	Monitoring	NA	25	7.62	SAND/CLAY	3530 Upper James St	Wentworth
130	7342205	4	2/Jul/19	587841.0	4777547	NA	NA	NA	Observation Wells	Monitoring	NA	30	9.15	SAND/CLAY	3530 Upper James St	Wentworth
131	7342206	4	3/Jul/19	587845.0	4777570	NA	NA	NA	Observation Wells	Monitoring	NA	25	7.62	SAND/CLAY	3530 Upper James St	Wentworth
132	7342207	4	2/Jul/19	587832.0	4777574	NA	NA	NA	Observation Wells	Monitoring	NA	20	6.10	GRVL/CLAY	3530 Upper James St	Wentworth
133	7348321	6	4/Oct/19	587799.0	4777577	NA	NA	NA	Observation Wells	Monitoring	NA	25	7.62	SAND	3530 Highway 6	Wentworth
134	7348322	6	4/Oct/19	587836.0	4777595	NA	NA	NA	Observation Wells	Monitoring	NA	25	7.62	SILT/CLAY	3530 Highway 6	Wentworth
135	7375111	6	28/Oct/20	587816.0	4777524	NA	NA	NA	Observation Wells	Monitoring	NA	15	4.57	CLAY	3530 Upper James St	Wentworth
136	7375112	6	29/Oct/20	587792.0	4777555	NA	NA	NA	Observation Wells	Monitoring	NA	15	4.57	CLAY	3530 Upper James St	Wentworth
137	7375113	6	29/Oct/20	587819.0	4777570	NA	NA	NA	Observation Wells	Monitoring	NA	17	5.18	CLAY	3530 Upper James St	Wentworth
138	7375114	6	29/Oct/20	587840.0	4777547	NA	NA	NA	Observation Wells	Monitoring	NA	15	4.57	SAND/CLAY	3530 Upper James St	Wentworth
139	7433892	6	30/Oct/22	587788.0	4777549	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Wentworth

Summary of MECP Well Records: Table 2

Well #	WELL_ID	DIAMETER (inches)	DATE_COMPLETED	EAST83	NORTH83	WATER_FOUND_DEPTH (FT)	Static Water Level (ft)	KIND	FINAL_STATUS	USE_1ST	USE_2ND	DEPTH_TO (ft)	DEPTH_TO (m)	Well Construction	STREET	CITY/TOWNSHIP
1	6804026	6	20/May/58	588002.4	4778046	107	27	Fresh	Water Suppy	Domestic	NA	109	33.23	CLAY	NA	Wentworth
2	6804044	6	11/Jun/60	587830.4	4777514	103	40	Fresh	Water Suppy	Commercial	NA	103	31.40	CLAY/QSND	NA	Wentworth
3	6804062	6	15/Jun/53	588059.4	4777955	100	30	Fresh	Water Suppy	Domestic	NA	100	30.49	LOAM	NA	Wentworth
4	6804064	6	24/May/55	588026.4	4777436	110	35	Fresh	Water Suppy	Domestic	NA	120	36.59	CLAY/LMSN	NA	Wentworth
5	6804065	6	13/Jun/55	588042.4	4777754	110	100	Fresh	Abandoned-Other	Not Used	NA	115	35.06	CLAY/LMSN	NA	Wentworth
6	6804066	6	23/Jun/55	588007.4	4777764	100	20	Fresh	Water Suppy	Domestic	Livestock	108	32.93	CLAY/LMSN	NA	Wentworth
7	6804069	7	25/Mar/60	588247.4	4777380	105	28	Fresh	Water Suppy	Domestic	Commercial	104	31.71	CLAY	NA	Wentworth
8	6804073	6	7/May/62	588606.4	4777954	122	40	Fresh	Water Suppy	Irrigation	NA	124	37.80	CLAY/QSND	NA	Wentworth
9	6804074	6	12/May/62	588029.4	4777912	118	30	Fresh	Water Suppy	Domestic	NA	120	36.59	CLAY/FSND/LMSN	NA	Wentworth
10	6804076	6	16/Sep/64	588362.4	4777337	102	35	Fresh	Water Suppy	Domestic	NA	105	32.01	CLAY/SILT	NA	Wentworth
11	6804132	6	10/Sep/51	587681.4	4777675	97	6	Fresh	Water Suppy	Domestic	NA	97	29.57	LOAM/LMSN	NA	Wentworth
12	6804133	6	21/Mar/54	587681.4	4777667	120	40	Fresh	Water Suppy	Domestic	NA	120	36.59	CLAY/LMSN	NA	Wentworth
13	6804134	6	16/Mar/57	587726.4	4777670	90	10	Fresh	Water Suppy	Domestic	NA	91	27.74	CLAY	NA	Wentworth
14	6804136	6	13/Jun/57	587630.4	4777702	110	32	Fresh	Water Suppy	Domestic	NA	116	35.37	CLAY	NA	Wentworth
15	6804138	6	17/Jun/58	587673.4	4777662	105	25	Fresh	Water Suppy	Commercial	NA	105	32.01	CLAY	NA	Wentworth
16	6804139	6	27/Aug/58	587683.4	4777557	76	14	Fresh	Water Suppy	Domestic	NA	79	24.09	CLAY	NA	Wentworth
17	6804143	6	7/Feb/58	587676.4	4777685	108	20	Fresh	Water Suppy	Public	NA	108	32.93	CLAY	NA	Wentworth
18	6804144	6	4/Mar/61	587726.4	4777657	100	30	Fresh	Water Suppy	Public	NA	102	31.10	CLAY/LMSN	NA	Wentworth
19	6804151	6	13/May/47	587786.4	4777474	NA	20	Fresh	Water Suppy	Domestic	NA	120	36.59	QSND/LMSN	NA	Wentworth
20	6804152	6	15/Nov/48	587914.4	4777602	113	35	Fresh	Water Suppy	Domestic	NA	118	35.98	CLAY/MSND	NA	Wentworth
21	6804154	6	2/Oct/53	587781.4	4777542	73	4	Fresh	Water Suppy	Domestic	NA	75	22.87	CLAY/LMSN	NA	Wentworth
22	6804155	6	29/Sep/54	588163.4	4777518	113	35	Fresh	Water Suppy	Domestic	NA	113	34.45	CLAY/FSND	NA	Wentworth
23	6804156	6	8/Dec/54	587746.4	4777487	102	35	Fresh	Water Suppy	Domestic	NA	111	33.84	CLAY	NA	Wentworth
24	6804159	7	18/Aug/59	587701.4	4777294	100	50	Fresh	Water Suppy	Domestic	NA	100	30.49	CLAY	NA	Wentworth
25	6804160	6	17/Oct/59	587704.4	4777339	100	50	Fresh	Water Suppy	Domestic	NA	100	30.49	CLAY	NA	Wentworth
26	6804168	6	2/Dec/67	588073.4	4777068	114	30	Fresh	Water Suppy	Domestic	NA	115	35.06	CLAY	NA	Wentworth
27	6806912	6	26/Apr/68	587994.4	4777783	115	85	Sulphur	Water Suppy	Domestic	NA	120	36.59	CLAY/LMSN	NA	Wentworth
28	6807084	6	21/Apr/69	587954.4	4778023	93	32	Fresh	Water Suppy	Domestic	NA	102	31.10	CLAY	NA	Wentworth
29	6807546	6	28/Aug/70	588654.4	4777203	106	50	Fresh	Water Suppy	Domestic	NA	106	32.32	CLAY	NA	Wentworth
30	6808170	6	6/Apr/72	588614.4	4777263	112	45	Fresh	Water Suppy	Domestic	NA	112	34.15	CLAY	NA	Wentworth
31	6808435	6	19/Jan/73	588154.4	4777403	125	50	Fresh	Water Suppy	Domestic	NA	126	38.41	CLAY/LMSN	NA	Wentworth
32	6808728	6	15/Dec/73	587794.4	4777150	98	20	Fresh	Water Suppy	Industrial	NA	99	30.18	CLAY	NA	Wentworth
33	6809521	6	7/Jun/76	588514.4	4777443	215	70	Sulphur	Water Suppy	Irrigation	NA	247	75.30	CLAY/LMSN	NA	Wentworth
34	6809560	6	19/Mar/76	588054.4	4777423	109	45	Fresh	Water Suppy	Domestic	NA	109	33.23	CLAY	NA	Wentworth
35	6809565	6	1/Jul/76	587934.4	4777463	108	49	Fresh	Water Suppy	Domestic	NA	108	32.93	CLAY	NA	Wentworth
36	6809566	6	3/Aug/76	588414.4	4777323	115	55	Fresh	Water Suppy	Domestic	NA	115	35.06	CLAY	NA	Wentworth
37	6809577	6	11/Nov/76	588354.4	4777343	110	40	Fresh	Water Suppy	Domestic	NA	110	33.54	CLAY	NA	Wentworth
38	6809628	6	2/Jun/77	587814.4	4777643	97	45	Fresh	Water Suppy	Domestic	NA	97	29.57	CLAY	NA	Wentworth
39	6810803	6	19/Jun/84	588112.4	4777373	109	60	Fresh	Water Suppy	Domestic	NA	115	35.06	CLAY	NA	Wentworth
40	6811407	6	24/Mar/88	588316.2	4777280	102	40	Fresh	Water Suppy	Domestic	NA	110	33.54	CLAY	NA	Wentworth
41	6812313	6	30/Nov/92	587792.4	4777415	89	35	Sulphur	Water Suppy	Commercial	NA	92	28.05	CLAY	NA	Wentworth
42	6812466	6	20/Jun/94	587738.4	4777493	130	55	Fresh	Water Suppy	Domestic	NA	135	41.16	CLAY/LMSN	NA	Wentworth
43	6812613	6	8/Jun/95	588325.2	4777309	99	50	Fresh	Water Suppy	Domestic	NA	100	30.49	CLAY	NA	Wentworth
44	6814029	6	11/Jun/04	588500.0	4777258	103	41	Fresh	Water Suppy	Domestic	NA	104	31.71	CLAY	8321 White Church Rd	Wentworth
45	7268137	8	24/May/16	587817.0	4777303	NA	NA	NA	Observation Wells	Monitoring	NA	30	9.15	CLAY/SILT	3659 Upper James St	Wentworth
46	7342203	8	2/Jul/19	587813.0	4777552	NA	NA	NA	Observation Wells	Monitoring	NA	25	7.62	CLAY	3530 Upper James St	Wentworth
47	7342204	4	2/Jul/19	587831.0	4777550	NA	NA	NA	Observation Wells	Monitoring	NA	25	7.62	SAND/CLAY	3530 Upper James St	Wentworth
48	7342205	4	2/Jul/19	587841.0	4777547	NA	NA	NA	Observation Wells	Monitoring	NA	30	9.15	SAND/CLAY	3530 Upper James St	Wentworth
49	7342206	4	3/Jul/19	587845.0	4777570	NA	NA	NA	Observation Wells	Monitoring	NA	25	7.62	SAND/CLAY	3530 Upper James St	Wentworth
50	7342207	4	2/Jul/19	587832.0	4777574	NA	NA	NA	Observation Wells	Monitoring	NA	20	6.10	GRVL/CLAY	3530 Upper James St	Wentworth
51	7348321	6	4/Oct/19	587799.0	4777577	NA	NA	NA	Observation Wells	Monitoring	NA	25	7.62	SAND	3530 Highway 6	Wentworth
52	7348322	6	4/Oct/19	587836.0	4777595	NA	NA	NA	Observation Wells	Monitoring	NA	25	7.62	SILT/CLAY	3530 Highway 6	Wentworth
53	7375111	6	28/Oct/20	587816.0	4777524	NA	NA	NA	Observation Wells	Monitoring	NA	15	4.57	CLAY	3530 Upper James St	Wentworth
54	7375112	6	29/Oct/20	587792.0	4777555	NA	NA	NA	Observation Wells	Monitoring	NA	15	4.57	CLAY	3530 Upper James St	Wentworth
55	7375113	6	29/Oct/20	587819.0	4777570	NA	NA	NA	Observation Wells	Monitoring	NA	17	5.18	CLAY	3530 Upper James St	Wentworth
56	7375114	6	29/Oct/20	587840.0	4777547	NA	NA	NA	Observation Wells	Monitoring	NA	15	4.57	SAND/CLAY	3530 Upper James St	Wentworth
57	7433892	6	30/Oct/22	587788.0	4777549	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Wentworth

Summary of MECP Well Records: Table 3

Well #	WELL_ID	DIAMETER (inches)	DATE_COMPLETED	EAST83	NORTH83	WATER_FOUND_DEPTH (FT)	Static Water Level (ft)	KIND	FINAL_STATUS	USE_1ST	USE_2ND	DEPTH_TO (ft)	DEPTH_TO (m)	Well Construction	STREET	CITY/TOWNSHIP
1	6803950	6	29-Aug-58	588582.1	4778560	113	30	Fresh	Water Suppy	Domestic	NA	113	34.45	CLAY/SHLE	NA	Wentworth
2	6804072	6	4-Oct-61	588521.4	4778386	112	50	Fresh	Water Suppy	Irrigation	NA	112	34.15	CLAY/QSND	NA	Wentworth
3	6804073	6	7-May-62	588606.4	4777954	122	40	Fresh	Water Suppy	Irrigation	NA	124	37.80	CLAY/QSND	NA	Wentworth
4	6804075	8	30-Jun-64	588656.4	4778112	135/190	45	Fresh/Sulphur	Water Suppy	Irrigation	NA	191	58.23	CLAY/QSND	NA	Wentworth
5	6804078	6	31-Jan-67	588755.4	4778526	130	83	Fresh	Water Suppy	Domestic	NA	133	40.55	CLAY	NA	Wentworth
6	6804079	6	16-May-56	588993.4	4778476	124	40	Fresh	Water Suppy	Domestic	NA	124	37.80	CLAY/QSND	NA	Wentworth
7	6808175	6	20-May-72	588814.4	4778593	130	45	Fresh	Water Suppy	Domestic	NA	138	42.07	CLAY	NA	Wentworth
8	6809329	6	3-May-75	589014.4	4778523	104	61	Fresh	Water Suppy	Domestic	NA	106	32.32	CLAY	NA	Wentworth
9	6809521	6	7-Jun-76	588514.4	4777443	215	70	Sulphur	Water Suppy	Irrigation	NA	247	75.30	CLAY/LMSN	NA	Wentworth
10	6811559	6	21-Sep-88	616391.6	4861579	102	60	Fresh	Water Suppy	Domestic	NA	104	31.71	CLAY	NA	Wentworth

Summary of MECP Well Records: Table 4

Well #	WELL_ID	DIAMETER (inches)	DATE_COMPLETED	EAST83	NORTH83	WATER_FOUND_DEPTH (FT)	Static Water Level (ft)	KIND	FINAL_STATUS	USE_1ST	USE_2ND	DEPTH_TO (ft)	DEPTH_TO (m)	Well Construction	STREET	CITY/TOWNSHIP
1	6803965	6	2-Oct-56	589303.4	4778618	108	20	Fresh	Water Suppy	Domestic	NA	110	33.54	CLAY	NA	Wentworth
2	6803971	6	31-Jul-57	589724.4	4778501	110	45	Fresh	Water Suppy	Domestic	NA	110	33.54	CLAY	NA	Wentworth
3	6803973	5	16-May-59	589880.4	4778456	103	38	Fresh	Water Suppy	Domestic	NA	105	32.01	CLAY	NA	Wentworth
4	6803974	6	3-Jun-61	589393.4	4778606	112	55	Fresh	Water Suppy	Domestic	NA	114	34.76	CLAY	NA	Wentworth
5	6803975	4	29-Oct-54	589930.4	4778443	99	23	Fresh	Water Suppy	Domestic	NA	100	30.49	CLAY/MSND	NA	Wentworth
6	6804079	6	16-May-56	588993.4	4778476	124	40	Fresh	Water Suppy	Domestic	NA	133	40.55	CLAY/QSND	NA	Wentworth
7	6804086	6	6-Sep-56	589893.4	4778197	98	30	Fresh	Water Suppy	Domestic	NA	100	30.49	CLAY	NA	Wentworth
8	6804087	6	24-May-58	589871.4	4778217	98	37	Fresh	Water Suppy	Domestic	NA	100	30.49	CLAY	NA	Wentworth
9	6806911	6	12-Aug-68	589594.4	4778353	99	65	Fresh	Water Suppy	Domestic	NA	102	31.10	CLAY	NA	Wentworth
10	6807395	6	21-Nov-69	589924.4	4778193	120	40	Fresh	Water Suppy	Domestic	NA	140	42.68	CLAY/QSND	NA	Wentworth
11	6809305	6	7-Jun-75	590147.4	4778131	100	49	Fresh	Water Suppy	Domestic	NA	110	33.54	CLAY/LMSN	NA	Wentworth
12	6810236	6	8-Oct-80	589594.4	4778563	83	45	Fresh	Water Suppy	Livestock	NA	150	45.73	CLAY/LMSN	NA	Wentworth
13	6810237	6	7-Jul-80	589994.4	4778223	95	56	Fresh	Water Suppy	Domestic	NA	96	29.27	CLAY/LMSN	NA	Wentworth
14	6810238	6	30-Jun-80	589934.4	4778243	95	64	Fresh	Water Suppy	Domestic	NA	99	30.18	CLAY/LMSN	NA	Wentworth
15	6810239	6	25-Jun-80	589934.4	4778263	89	50	Fresh	Water Suppy	Domestic	NA	90	27.44	CLAY	NA	Wentworth
16	6810369	6	18-Aug-81	589854.4	4778203	96	72	Fresh	Water Suppy	Domestic	NA	132	40.24	CLAY/LMSN	NA	Wentworth
17	6812962	6	29-Jul-97	589419.2	4778420	87	45	Not Stated	Water Suppy	Domestic	NA	90	27.44	CLAY	NA	Wentworth

Summary of MECP Well Records: Table 5

Well #	WELL_ID	DIAMETER (inches)	DATE_COMPLETED	EAST83	NORTH83	WATER_FOUND_DEPTH (FT)	Static Water Level (ft)	KIND	FINAL_STATUS	USE_1ST	USE_2ND	DEPTH_TO (ft)	DEPTH_TO (m)	Well Construction	STREET	CITY/TOWNSHIP
1	6804080	6	4/Jul/56	588914.4	4777179	82	10	Fresh	Water Suppy	Domestic	Livestock	84	25.61	CLAY	NA	Wentworth
2	6804081	6	20/Jan/59	588869.4	4777182	115	30	Fresh	Water Suppy	Domestic	NA	115	35.06	CLAY	NA	Wentworth
3	6804082	6	27/Apr/59	588879.4	4777207	105	30	Fresh	Water Suppy	Domestic	NA	105	32.01	CLAY/QSND	NA	Wentworth
4	6804083	6	17/Aug/59	588811.4	4777207	116	50	Fresh	Water Suppy	Domestic	NA	117	35.67	CLAY	NA	Wentworth
5	6804084	6	6/Jun/63	588771.4	4777217	113	35	Fresh	Water Suppy	Domestic	NA	114	34.76	CLAY	NA	Wentworth
6	6804085	6	27/Mar/65	588771.4	4777217	112	30	Fresh	Water Suppy	Domestic	NA	112	34.15	CLAY/QSND	NA	Wentworth
7	6804088	6	23/Apr/59	588944.4	4777176	102	30	Fresh	Water Suppy	Domestic	NA	102	31.10	CLAY/QSND	NA	Wentworth
8	6807546	6	28/Aug/70	588654.4	4777203	106	50	Fresh	Water Suppy	Domestic	NA	106	32.32	CLAY	NA	Wentworth
9	6808170	6	6/Apr/72	588614.4	4777263	112	45	Fresh	Water Suppy	Domestic	NA	112	34.15	CLAY	NA	Wentworth
10	6809521	6	7/Jun/76	588514.4	4777443	215	70	Sulphur	Water Suppy	Irrigation	NA	247	75.30	CLAY/LMSN	NA	Wentworth
11	6809566	6	3/Aug/76	588414.4	4777323	115	55	Fresh	Water Suppy	Domestic	NA	115	35.06	CLAY	NA	Wentworth
12	6811293	6	25/May/87	589652.2	4776949	105	55	Fresh	Water Suppy	Domestic	NA	105	32.01	CLAY	NA	Wentworth
13	6812123	6	16/Aug/91	589309.2	4776618	110	40	Fresh	Water Suppy	Domestic	NA	110	33.54	CLAY	NA	Wentworth
14	6814029	6	11/Jun/04	588500.0	4777258	103	41	Fresh	Water Suppy	Domestic	NA	104	31.71	CLAY	White Church Rd	Wentworth

Summary of MECP Well Records: Table 6

Well #	WELL_ID	DIAMETER (inches)	DATE_COMPLETED	EAST83	NORTH83	WATER_FOUND_DEPTH (FT)	Static Water Level (ft)	KIND	FINAL_STATUS	USE_1ST	USE_2ND	DEPTH_TO (ft)	DEPTH_TO (m)	Well Construction	STREET	CITY/TOWNSHIP
1	6804080	6	4/Jul/56	588914.4	4777179	82	10	Fresh	Water Suppy	Domestic	Livestock	84	25.61	CLAY	NA	Wentworth
2	6804081	6	20/Jan/59	588869.4	4777182	115	30	Fresh	Water Suppy	Domestic	NA	115	35.06	CLAY	NA	Wentworth
3	6804082	6	27/Apr/59	588879.4	4777207	105	30	Fresh	Water Suppy	Domestic	NA	105	32.01	CLAY/QSND	NA	Wentworth
4	6804083	6	17/Aug/59	588811.4	4777207	116	50	Fresh	Water Suppy	Domestic	NA	117	35.67	CLAY	NA	Wentworth
5	6804084	6	6/Jun/63	588771.4	4777217	113	35	Fresh	Water Suppy	Domestic	NA	114	34.76	CLAY	NA	Wentworth
6	6804085	6	27/Mar/65	588771.4	4777217	112	30	Fresh	Water Suppy	Domestic	NA	112	34.15	CLAY/QSND	NA	Wentworth
7	6804088	6	23/Apr/59	588944.4	4777176	102	30	Fresh	Water Suppy	Domestic	NA	102	31.10	CLAY/QSND	NA	Wentworth
8	6804176	6	14/May/58	589138.4	4776405	83	40	Fresh	Water Suppy	Domestic	NA	83	25.30	CLAY	NA	Wentworth
9	6804177	6	17/Nov/60	589115.4	4776307	90	28	Fresh	Water Suppy	Domestic	NA	92	28.05	CLAY/LMSN	NA	Wentworth
10	6807546	6	28/Aug/70	588654.4	4777203	106	50	Fresh	Water Suppy	Irrigation	NA	106	32.32	CLAY	NA	Wentworth
11	6808170	6	6/Apr/72	588614.4	4777263	112	45	Fresh	Water Suppy	Domestic	NA	112	34.15	CLAY	NA	Wentworth
12	6810248	6	2/Jul/80	589194.4	4776303	59	35	Fresh	Water Suppy	Domestic	NA	60	18.29	CLAY	NA	Wentworth
13	6811293	6	25/May/87	589652.2	4776949	105	55	Fresh	Water Suppy	Domestic	NA	105	32.01	CLAY	NA	Wentworth
14	6811483	6	18/Jun/88	589273.2	4776386	88	35	Fresh	Water Suppy	Domestic	NA	88	26.83	CLAY	NA	Wentworth
15	6812123	6	16/Aug/91	589309.2	4776618	110	40	Fresh	Water Suppy	Domestic	NA	110	33.54	CLAY	NA	Wentworth
16	6813257	6	6/Dec/99	589427.2	4776471	113	52	Fresh	Water Suppy	Domestic	NA	113	34.45	CLAY/SAND	NA	Wentworth
17	6814029	6	11/Jun/04	588500.0	4777258	103	41	Fresh	Water Suppy	Domestic	NA	104	31.71	CLAY	White Church Rd	Wentworth

Summary of MECP Well Records: Table 7

Well #	WELL_ID	DIAMETER (inches)	DATE_COMPLETED	EAST83	NORTH83	WATER_FOUND_DEPTH (FT)	Static Water Level (ft)	KIND	FINAL_STATUS	USE_1ST	USE_2ND	DEPTH_TO (ft)	DEPTH_TO (m)	Well Construction	STREET	CITY/TOWNSHIP
1	6804080	6	4/Jul/56	588914.4	4777179	82	10	Fresh	Water Suppy	Domestic	Livestock	84	25.61	CLAY	NA	Wentworth
2	6804081	6	20/Jan/59	588869.4	4777182	115	30	Fresh	Water Suppy	Domestic	NA	115	35.06	CLAY	NA	Wentworth
3	6804082	6	27/Apr/59	588879.4	4777207	105	30	Fresh	Water Suppy	Domestic	NA	105	32.01	CLAY/QSND	NA	Wentworth
4	6804083	6	17/Aug/59	588811.4	4777207	116	50	Fresh	Water Suppy	Domestic	NA	117	35.67	CLAY	NA	Wentworth
5	6804084	6	6/Jun/63	588771.4	4777217	113	35	Fresh	Water Suppy	Domestic	NA	114	34.76	CLAY	NA	Wentworth
6	6804085	6	27/Mar/65	588771.4	4777217	112	30	Fresh	Water Suppy	Domestic	NA	112	34.15	CLAY/QSND	NA	Wentworth
7	6804088	6	23/Apr/59	588944.4	4777176	102	30	Fresh	Water Suppy	Domestic	NA	102	31.10	CLAY/QSND	NA	Wentworth
8	6807880	6	24/Aug/71	589994.4	4776823	101	48	Fresh	Water Suppy	Domestic	NA	101	30.79	CLAY	NA	Wentworth
9	6812846	6	2/May/97	589962.4	4777525	107	52	Not Stated	Water Suppy	Domestic	NA	110	33.54	CLAY	NA	Wentworth
10	6812847	6	2/May/97	589962.4	4777525	NA	NA	Not Stated	Abandoned-Other	Not Used	NA	100	30.49	PRDG	NA	Wentworth
11	6811293	6	25/May/87	589652.2	4776949	105	55	Fresh	Water Suppy	Domestic	NA	105	32.01	CLAY	NA	Wentworth
12	6812123	6	16/Aug/91	589309.2	4776618	110	40	Fresh	Water Suppy	Domestic	NA	110	33.54	CLAY	NA	Wentworth
13	7447983	6	2/Mar/23	590338.0	4777122	NA	NA	Not Stated	NA	NA	NA	NA	NA	NA	NA	Wentworth

Summary of MECP Well Records: Table 8

Well #	WELL_ID	DIAMETER (inches)	DATE_COMPLETED	EAST83	NORTH83	WATER_FOUND_DEPTH (FT)	Static Water Level (ft)	KIND	FINAL_STATUS	USE_1ST	USE_2ND	DEPTH_TO (ft)	DEPTH_TO (m)	Well Construction	STREET	CITY/TOWNSHIP
1	6804181	6	9/Feb/53	590534.4	4776403	114	24	Fresh	Water Suppy	Domestic	Livestock	118	35.98	CLAY	NA	Wentworth
2	6807153	6	27/Jun/69	590934.4	4777583	96	55	Fresh	Water Suppy	Domestic	NA	100	30.49	CLAY/LMSN	NA	Wentworth
3	6811165	6	17/Jun/86	590506.2	4776468	100	50	Fresh	Water Suppy	Domestic	NA	100	30.49	CLAY	NA	Wentworth
4	6812252	6	7/Oct/92	590736.2	4777147	100	60	Fresh	Water Suppy	Domestic	NA	118	35.98	CLAY/LMSN	NA	Wentworth
5	6812646	6	24/Jul/95	590600.2	4776770	122	75	Sulphur	Water Suppy	Domestic	NA	130	39.63	CLAY/LMSN	NA	Wentworth
6	6807880	6	24/Aug/71	589994.4	4776823	101	48	Fresh	Water Suppy	Domestic	NA	101	30.79	CLAY	NA	Wentworth
7	6812846	6	2/May/97	589962.4	4777525	107	52	Not Stated	Water Suppy	Domestic	NA	110	33.54	CLAY	NA	Wentworth
8	6812847	6	2/May/97	589962.4	4777525	NA	NA	Not Stated	Abandoned-Other	Not Used	NA	100	30.49	PRDG	NA	Wentworth
9	6811293	6	25/May/87	589652.2	4776949	105	55	Fresh	Water Suppy	Domestic	NA	105	32.01	CLAY	NA	Wentworth
10	7447985	6	2/Mar/23	590672.0	4777529	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Wentworth
11	7447983	6	2/Mar/23	590338.0	4777122	NA	NA	Not Stated	NA	NA	NA	NA	NA	NA	NA	Wentworth

Summary of MECP Well Records: Table 9

Well #	WELL_ID	DIAMETER (inches)	DATE_COMPLETED	EAST83	NORTH83	WATER_FOUND_DEPTH (FT)	Static Water Level (ft)	KIND	FINAL_STATUS	USE_1ST	USE_2ND	DEPTH_TO (ft)	DEPTH_TO (m)	Well Construction	STREET	CITY/TOWNSHIP
1	6804181	6	9/Feb/53	590534.4	4776403	114	24	Fresh	Water Suppy	Domestic	Livestock	118	35.98	CLAY	NA	Wentworth
2	6804094	6	19/Jun/62	590594.4	4776563	112	60	Fresh	Water Suppy	Domestic	NA	130	39.63	CLAY/LMSN	NA	Wentworth
3	6811165	6	17/Jun/86	590506.2	4776468	100	50	Fresh	Water Suppy	Domestic	NA	100	30.49	CLAY	NA	Wentworth
4	6812252	6	7/Oct/92	590736.2	4777147	100	60	Fresh	Water Suppy	Domestic	NA	118	35.98	CLAY/LMSN	NA	Wentworth
5	6812646	6	24/Jul/95	590600.2	4776770	122	75	Sulphur	Water Suppy	Domestic	NA	130	39.63	CLAY/LMSN	NA	Wentworth
6	6807880	6	24/Aug/71	589994.4	4776823	101	48	Fresh	Water Suppy	Domestic	NA	101	30.79	CLAY	NA	Wentworth
7	7447983	6	2/Mar/23	590338.0	4777122	NA	NA	Not Stated	NA	NA	NA	NA	NA	NA	NA	Wentworth

Summary of MECP Well Records: Table 10

Well #	WELL_ID	DIAMETER (inches)	DATE_COMPLETED	EAST83	NORTH83	WATER_FOUND_DEPTH (FT)	Static Water Level (ft)	KIND	FINAL_STATUS	USE_1ST	USE_2ND	DEPTH_TO (ft)	DEPTH_TO (m)	Well Construction	STREET	CITY/TOWNSHIP
1	6803973	6	16/May/59	589880.4	4778456	103	38	Fresh	Water Suppy	Domestic	NA	105	32.01	CLAY/LMSN	NA	Wentworth
2	6803975	6	29/Oct/54	589930.4	4778443	99	23	Fresh	Water Suppy	Domestic	NA	100	30.49	MSND/LMSN	NA	Wentworth
3	6811750	6	8/Jul/89	590798.2	4778017	90	40	Fresh	Water Suppy	Domestic	NA	111	33.84	CLAY/LMSN	NA	Wentworth
4	6812846	6	2/May/97	589962.4	4777525	107	52	Not Stated	Water Suppy	Domestic	NA	110	33.54	CLAY	NA	Wentworth
5	6812847	6	2/May/97	589962.4	4777525	NA	NA	Not Stated	Abandoned-Other	Not Used	NA	100	30.49	PRDG	NA	Wentworth
6	6804086	6	6/Sep/56	589893.4	4778197	98	30	Fresh	Water Suppy	Domestic	NA	98	29.88	CLAY/LMSN	NA	Wentworth
7	6804087	6	24/May/58	589871.4	4778217	98	37	Fresh	Water Suppy	Domestic	NA	113	34.45	CLAY/LMSN	NA	Wentworth
8	6806911	6	12/Aug/68	589594.4	4778353	99	65	Fresh	Water Suppy	Domestic	NA	102	31.10	CLAY/LMSN	NA	Wentworth
9	6807395	6	21/Nov/69	589924.4	4778193	120	40	Fresh	Water Suppy	Domestic	NA	140	42.68	QSND/LMSN	NA	Wentworth
10	6810237	6	7/Jul/80	589994.4	4778223	95	56	Fresh	Water Suppy	Domestic	NA	96	29.27	CLAY/LMSN	NA	Wentworth
11	6807848	6	15/Jul/71	590174.4	4778173	90	40	Fresh	Water Suppy	Domestic	NA	110	33.54	CLAY/LMSN	NA	Wentworth
12	6810238	6	30/Jun/80	589934.4	4778243	95	64	Fresh	Water Suppy	Domestic	NA	99	30.18	CLAY/LMSN	NA	Wentworth
13	6809305	6	7/Jun/75	590147.4	4778131	100	49	Fresh	Water Suppy	Domestic	NA	110	33.54	CLAY/LMSN	NA	Wentworth
14	6810239	6	25/Jun/80	589934.4	4778263	89	50	Fresh	Water Suppy	Domestic	NA	90	27.44	CLAY	NA	Wentworth
15	6810369	6	18/Aug/81	589854.4	4778203	96	72	Fresh	Water Suppy	Domestic	NA	132	40.24	CLAY/LMSN	NA	Wentworth
16	6812866	6	17/Mar/97	590458.2	4778114	95	40	Fresh	Water Suppy	Domestic	NA	105	32.01	CLAY/LMSN	NA	Wentworth
17	7048155	6	13/Jun/07	590792.0	4778025	NA	33	Fresh	Abandoned-Other	NA	NA	113	34.45	PRDR	NA	Wentworth
18	7447983	6	2/Mar/23	590338.0	4777122	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Wentworth
19	7447984	6	6/Mar/23	590770.0	4777964	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Wentworth
20	7447985	6	2/Mar/23	590672.0	4777529	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Wentworth

Summary of MECP Well Records: Table 11

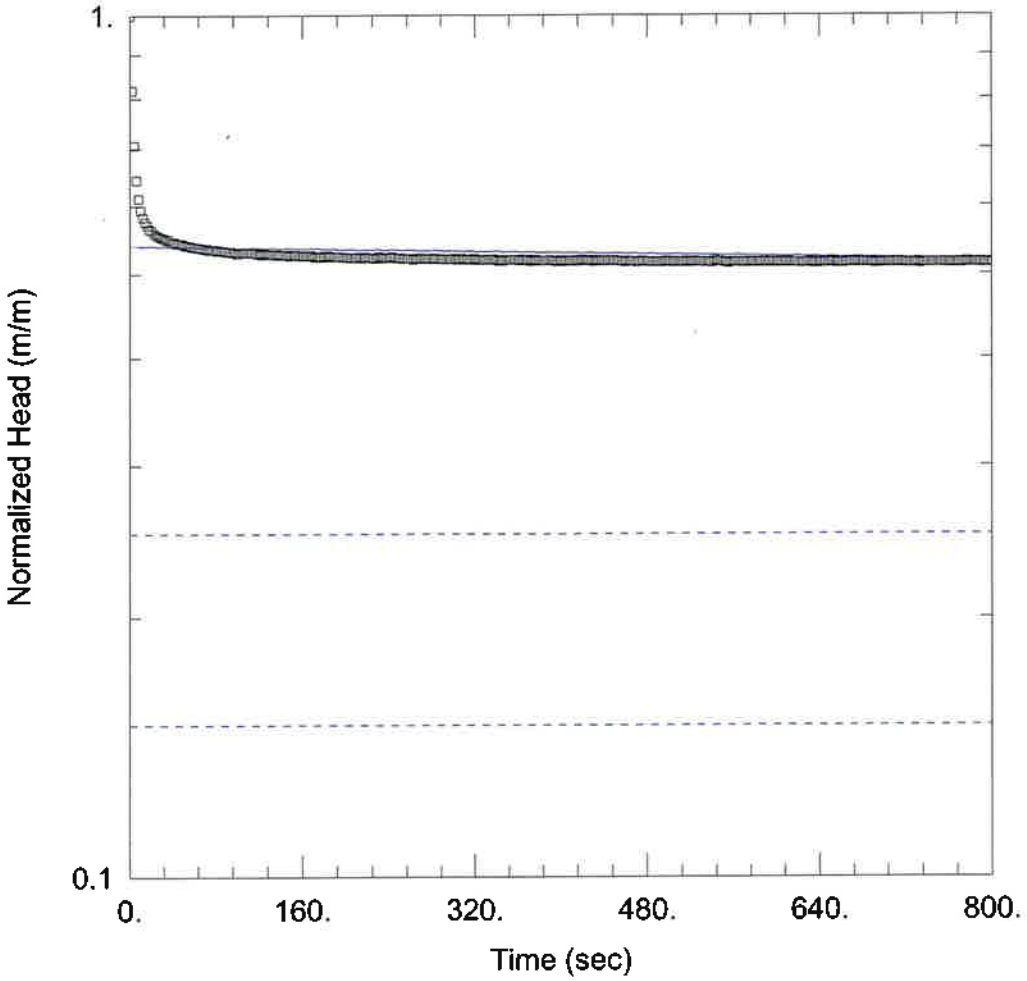
Well #	WELL_ID	DIAMETER (inches)	DATE_COMPLETED	EAST83	NORTH83	WATER_FOUND_DEPTH (FT)	Static Water Level (ft)	KIND	FINAL_STATUS	USE_1ST	USE_2ND	DEPTH_TO (ft)	DEPTH_TO (m)	Well Construction	STREET	CITY/TOWNSHIP
1	6812252	6	7/Oct/92	590736.2	4777147	100	60	Fresh	Water Suppy	Domestic	NA	118	35.98	CLAY/LMSN	NA	Wentworth
2	6812575	6	1/Dec/94	590964.2	4777885	98	65	Sulphur	Water Suppy	Domestic	NA	110	33.54	CLAY/LMSN	NA	Wentworth
3	6811750	6	8/Jul/89	590798.2	4778017	90	40	Fresh	Water Suppy	Domestic	NA	111	33.84	CLAY/LMSN	NA	Wentworth
4	6812846	6	2/May/97	589962.4	4777525	107	52	Not Stated	Water Suppy	Domestic	NA	110	33.54	CLAY	NA	Wentworth
5	6812847	6	2/May/97	589962.4	4777525	NA	NA	Not Stated	Abandoned-Other	Not Used	NA	100	30.49	PRDG	NA	Wentworth
6	6804089	6	10/Feb/52	590939.4	4777890	94	20	Fresh	Water Suppy	Domestic	NA	98	29.88	CLAY/QSND	NA	Wentworth
7	6804090	6	19/Oct/61	590931.4	4777842	100	35	Fresh	Water Suppy	Domestic	NA	113	34.45	CLAY/LMSN	NA	Wentworth
8	6804091	6	26/Feb/64	590921.4	4777887	108	60	Fresh	Water Suppy	Domestic	Livestock	110	33.54	CLAY/LMSN	NA	Wentworth
9	6804092	6	1/Apr/48	591470.4	4777689	106	18	Fresh	Water Suppy	Livestock	NA	107	32.62	CLAY	NA	Wentworth
10	6807153	6	27/Jun/69	590934.4	4777583	96	55	Fresh	Water Suppy	Domestic	NA	100	30.49	CLAY	NA	Wentworth
11	6807848	6	15/Jul/71	590174.4	4778173	90	40	Fresh	Water Suppy	Domestic	NA	110	33.54	CLAY/LMSN	NA	Wentworth
12	6808140	6	17/Mar/72	590974.4	4777963	76	32	Fresh	Water Suppy	Domestic	NA	76	23.17	CLAY	NA	Wentworth
13	6809305	6	7/Jun/75	590147.4	4778131	100	49	Fresh	Water Suppy	Domestic	NA	110	33.54	CLAY/LMSN	NA	Wentworth
14	6811170	6	29/Apr/86	590947.2	4777765	96	50	Fresh	NA	NA	NA	NA	NA	CLAY/LMSN	NA	Wentworth

Summary of MECP Well Records: Table 12

Well #	WELL_ID	DIAMETER (inches)	DATE_COMPLETED	EAST83	NORTH83	WATER_FOUND_DEPTH (FT)	Static Water Level (ft)	KIND	FINAL_STATUS	USE_1ST	USE_2ND	DEPTH_TO (ft)	DEPTH_TO (m)	Well Construction	STREET	CITY/TOWNSHIP
1	6812252	6	7/Oct/92	590736.2	4777147	100	60	Fresh	Water Suppy	Domestic	NA	118	35.98	CLAY/LMSN	NA	Wentworth
2	6812646	6	24/Jul/95	590600.2	4776770	122	75	Sulphur	Water Suppy	Domestic	NA	130	39.63	CLAY/LMSN	NA	Wentworth
3	6807880	6	24/Aug/71	589994.4	4776823	101	48	Fresh	Water Suppy	Domestic	NA	101	30.79	CLAY	NA	Wentworth
4	6812846	6	2/May/97	589962.4	4777525	107	52	Not Stated	Water Suppy	Domestic	NA	110	33.54	CLAY	NA	Wentworth
5	6812847	6	2/May/97	589962.4	4777525	NA	NA	Not Stated	Abandoned-Other	Not Used	NA	100	30.49	PRDG	NA	Wentworth
6	6811293	6	25/May/87	589652.2	4776949	105	55	Fresh	Water Suppy	Domestic	NA	105	32.01	CLAY	NA	Wentworth
7	7447983	6	2/Mar/23	590338.0	4777122	NA	NA	Not Stated	NA	NA	NA	NA	NA	NA	NA	Wentworth

APPENDIX E

HYDRAULIC CONDUCTIVITY TESTING ANALYSIS RESULTS



HDROGEOLOGICAL INVESTIGATION

Data Set: M:\...\MW3S.aqt
Date: 09/30/24 Time: 13:47:02

PROJECT INFORMATION

Company: Landtek Limited
Client: White Church Landowners Group
Project: 23355
Location: White Church Rd E /Upper James
Test Well: MW3S
Test Date: September 5, 2024

AQUIFER DATA

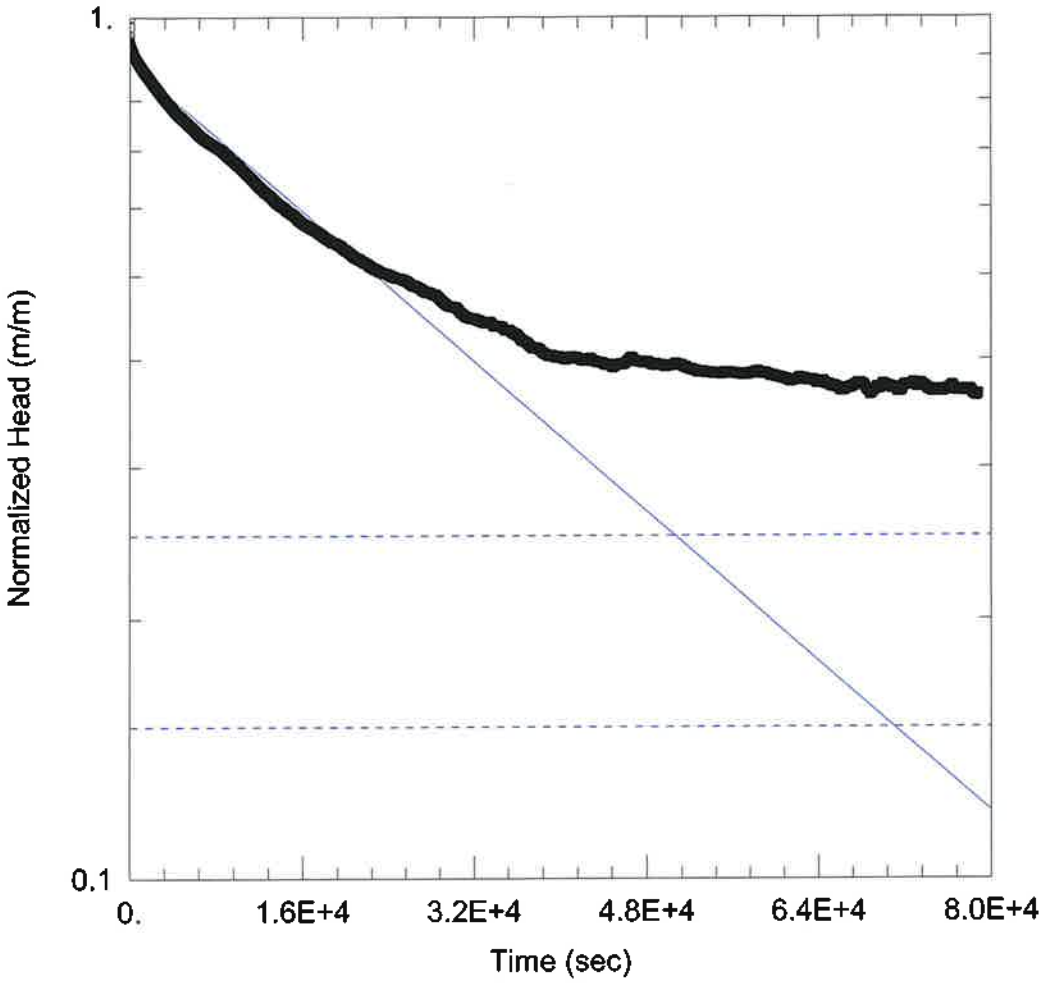
Saturated Thickness: 1.67 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW3S)

Initial Displacement: 0.4086 m
Total Well Penetration Depth: 1.67 m
Casing Radius: 0.0254 m
Static Water Column Height: 1.67 m
Screen Length: 1.5 m
Well Radius: 0.0254 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
K = 4.689E-8 m/sec y0 = 0.2202 m



HDROGEOLOGICAL INVESTIGATION

Data Set: M:\...\MW3D.aqt
Date: 09/30/24 Time: 13:46:41

PROJECT INFORMATION

Company: Landtek Limited
Client: White Church Landowners Group
Project: 23355
Location: White Church Rd E /Upper James
Test Well: MW3D
Test Date: September 5, 2024

AQUIFER DATA

Saturated Thickness: 4.59 m Anisotropy Ratio (Kz/Kr): 1.

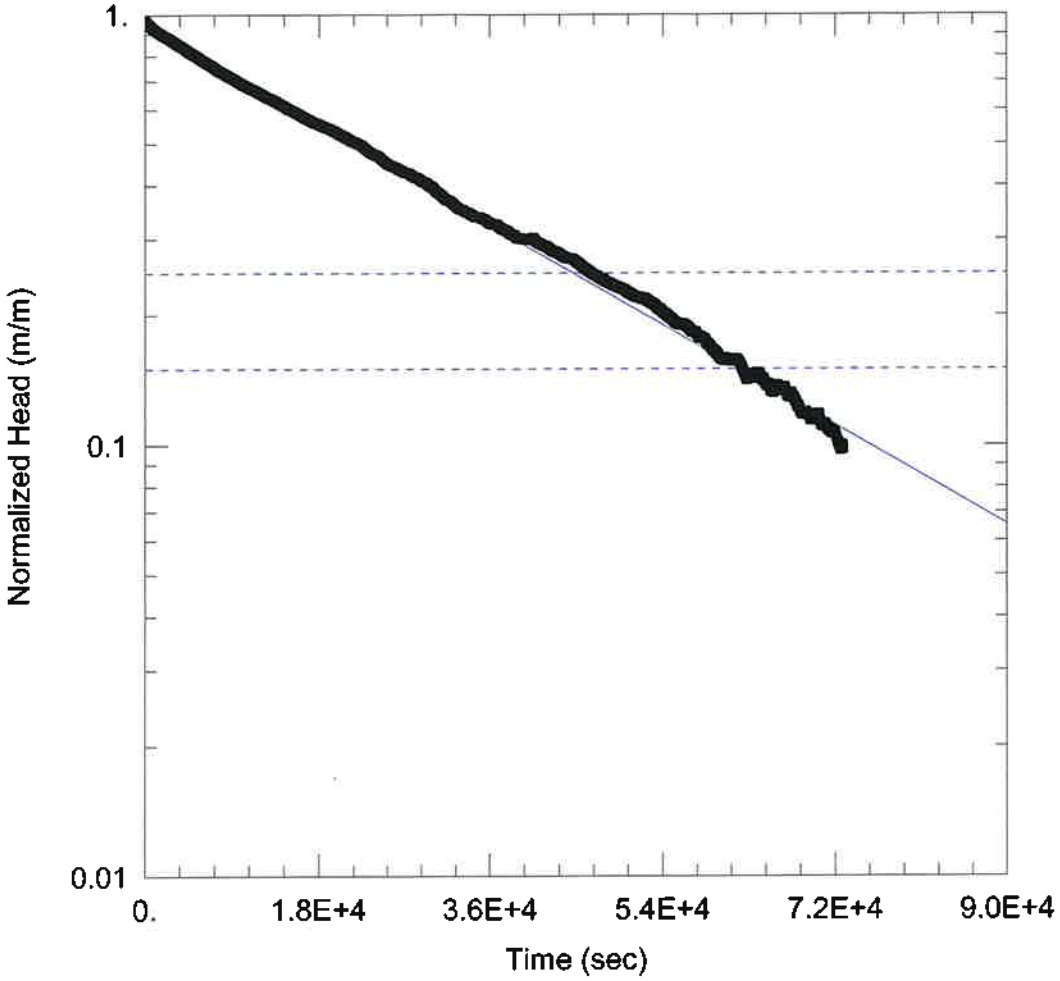
WELL DATA (MW3D)

Initial Displacement: 0.3989 m
Total Well Penetration Depth: 5.59 m
Casing Radius: 0.0254 m
Static Water Column Height: 4.59 m
Screen Length: 3. m
Well Radius: 0.0254 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev

K = 1.47E-8 m/sec y0 = 0.3533 m



HDROGEOLOGICAL INVESTIGATION

Data Set: M:\...\MW4.aqt
Date: 09/30/24 Time: 13:47:29

PROJECT INFORMATION

Company: Landtek Limited
Client: White Church Landowners Group
Project: 23355
Location: White Church Rd E /Upper James
Test Well: MW4
Test Date: September 5, 2024

AQUIFER DATA

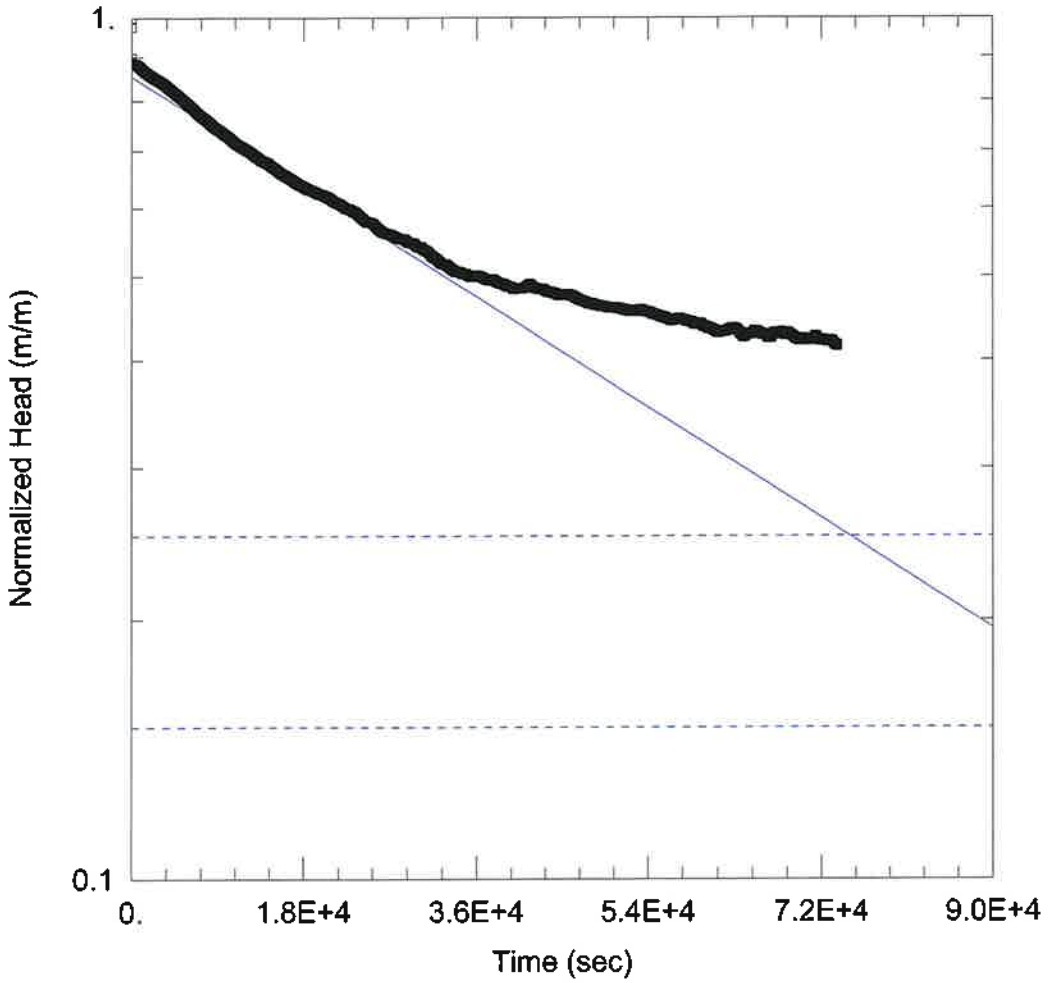
Saturated Thickness: 4.97 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW4)

Initial Displacement: 0.3913 m
Total Well Penetration Depth: 4.97 m
Casing Radius: 0.0254 m
Static Water Column Height: 4.97 m
Screen Length: 3. m
Well Radius: 0.0254 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 1.738E-8 m/sec
y0 = 0.366 m



HDROGEOLOGICAL INVESTIGATION

Data Set: M:\...\MW6.aqt
Date: 09/30/24 Time: 13:47:58

PROJECT INFORMATION

Company: Landtek Limited
Client: White Church Landowners Group
Project: 23355
Location: White Church Rd E /Upper James
Test Well: MW6
Test Date: September 5, 2024

AQUIFER DATA

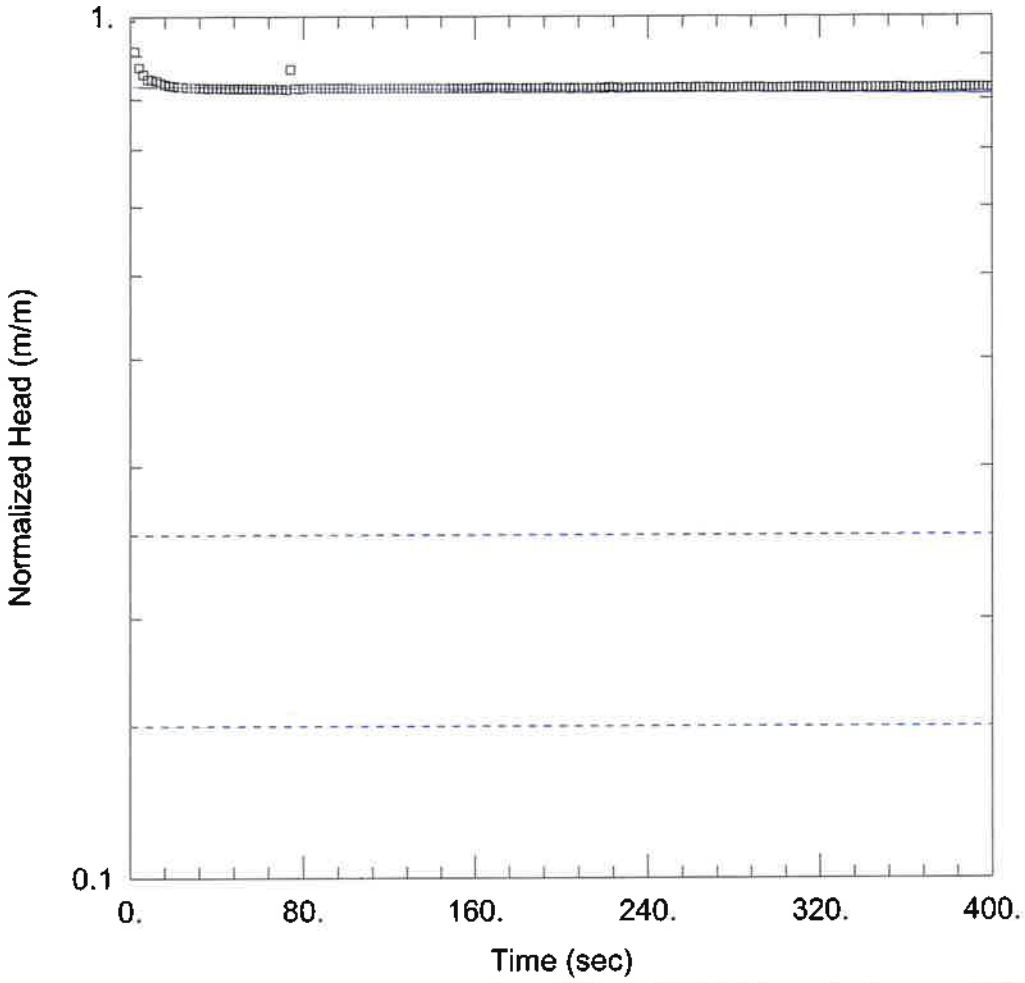
Saturated Thickness: 5.15 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW6)

Initial Displacement: 0.4343 m
Total Well Penetration Depth: 5.15 m
Casing Radius: 0.0254 m
Static Water Column Height: 5.15 m
Screen Length: 3. m
Well Radius: 0.0254 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 9.618E-9 m/sec
y0 = 0.3704 m



HDROGEOLOGICAL INVESTIGATION

Data Set: M:\...\MW9.aqt
Date: 09/30/24 Time: 13:48:15

PROJECT INFORMATION

Company: Landtek Limited
Client: White Church Landowners Group
Project: 23355
Location: White Church Rd E /Upper James
Test Well: MW9
Test Date: September 5, 2024

AQUIFER DATA

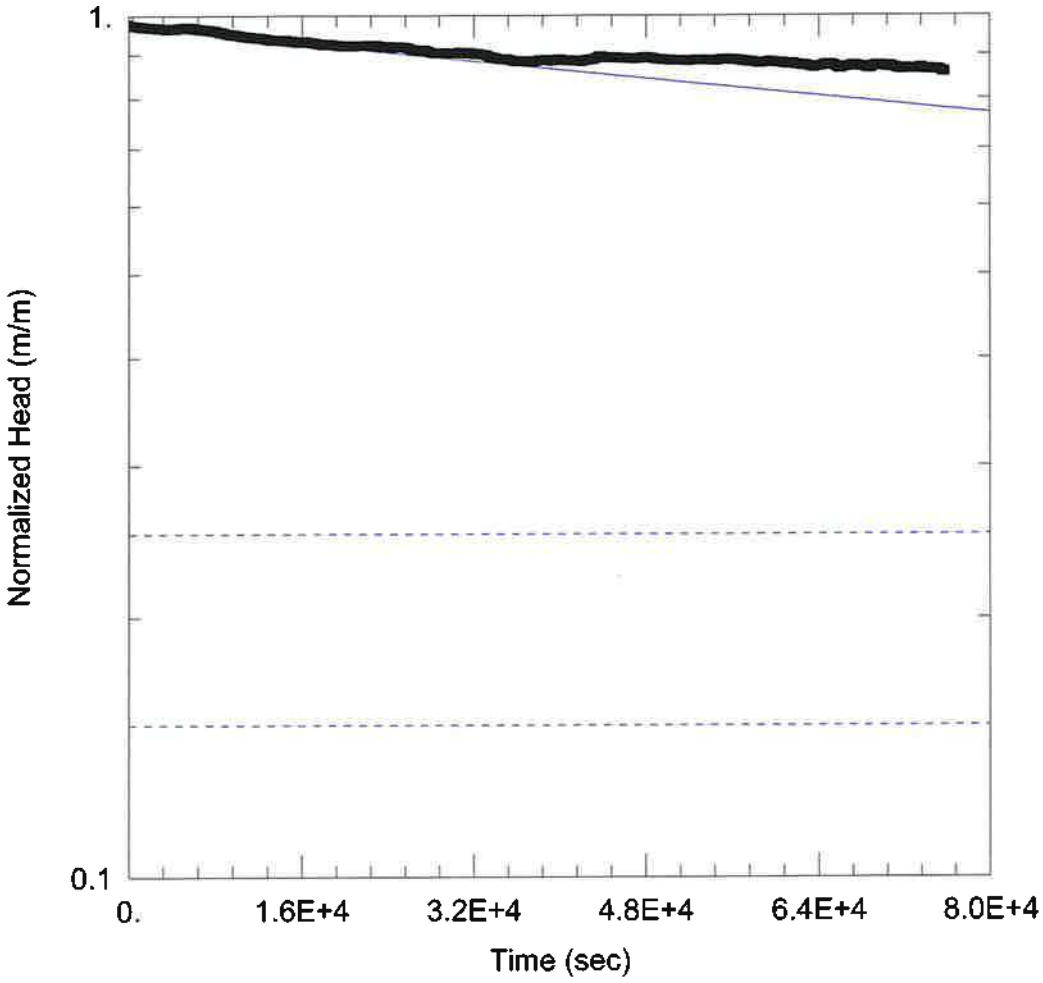
Saturated Thickness: 4.43 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW9)

Initial Displacement: 0.4521 m
Total Well Penetration Depth: 4.43 m
Casing Radius: 0.0254 m
Static Water Column Height: 4.43 m
Screen Length: 3. m
Well Radius: 0.0254 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 3.133E-8 m/sec
y0 = 0.3745 m



HDROGEOLOGICAL INVESTIGATION

Data Set: M:\...\MW10.aqt
Date: 09/30/24 Time: 13:48:43

PROJECT INFORMATION

Company: Landtek Limited
Client: White Church Landowners Group
Project: 23355
Location: White Church Rd E /Upper James
Test Well: MW10
Test Date: September 5, 2024

AQUIFER DATA

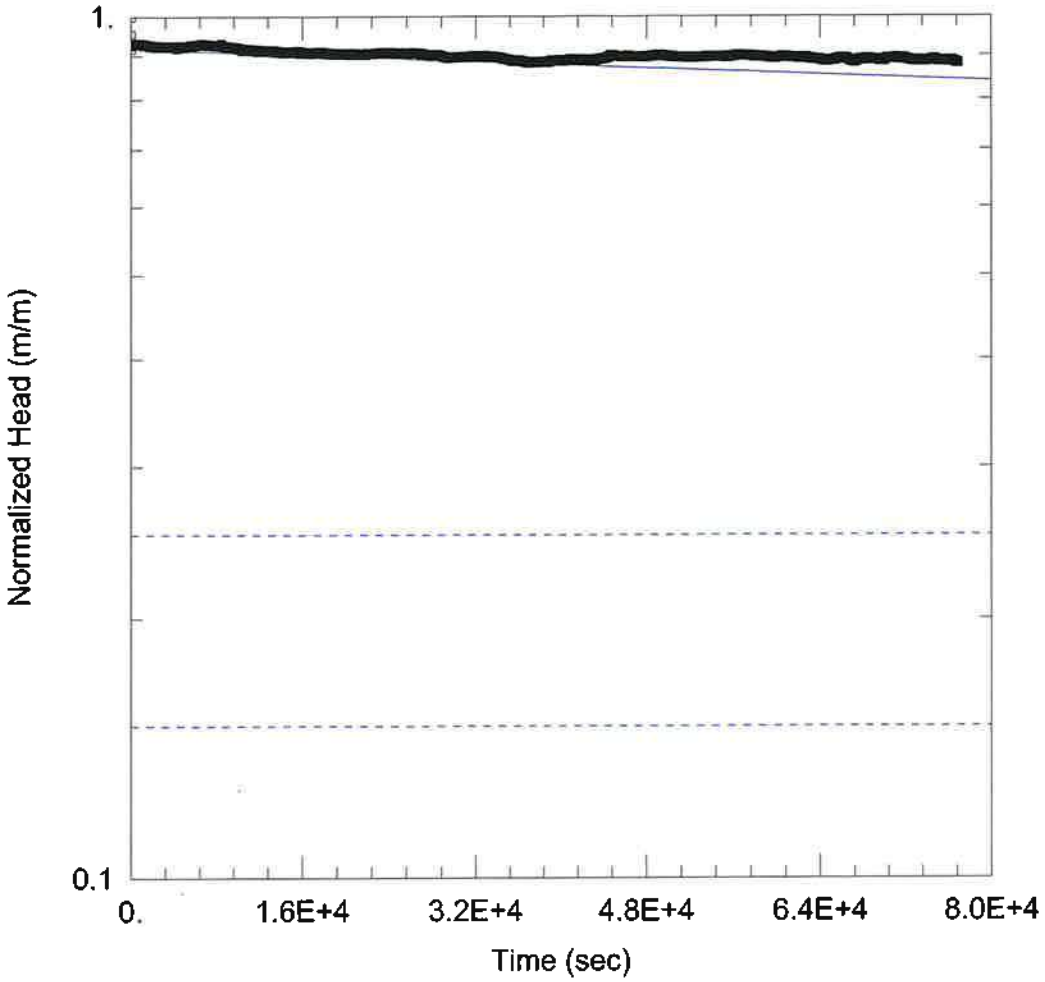
Saturated Thickness: 5.735 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW10)

Initial Displacement: 0.4216 m
Total Well Penetration Depth: 5.735 m
Casing Radius: 0.0254 m
Static Water Column Height: 5.735 m
Screen Length: 3. m
Well Radius: 0.0254 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 1.482E-9 m/sec
y0 = 0.4086 m



HDROGEOLOGICAL INVESTIGATION

Data Set: M:\...\MW18.aqt
Date: 09/30/24 Time: 13:49:13

PROJECT INFORMATION

Company: Landtek Limited
Client: White Church Landowners Group
Project: 23355
Location: White Church Rd E /Upper James
Test Well: MW18
Test Date: September 5, 2024

AQUIFER DATA

Saturated Thickness: 7.42 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW18)

Initial Displacement: 0.4525 m
Total Well Penetration Depth: 7.42 m
Casing Radius: 0.0254 m
Static Water Column Height: 7.42 m
Screen Length: 3. m
Well Radius: 0.0254 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 6.416E-10 m/sec
y0 = 0.4144 m

APPENDIX F

LABORATORY CERTIFICATE OF ANALYSIS

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

CLIENT NAME: LANDTEK LTD.
205 NEBO ROAD, UNIT 3
HAMILTON, ON L8W2E1
(905) 383-3733
ATTENTION TO: Henry Erebor
PROJECT: 23355
AGAT WORK ORDER: 24H198294
MICROBIOLOGY ANALYSIS REVIEWED BY: Nivine Basily, Inorganic Team Lead
TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist
WATER ANALYSIS REVIEWED BY: Nivine Basily, Inorganic Team Lead
DATE REPORTED: Sep 27, 2024
PAGES (INCLUDING COVER): 43
VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*Notes

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.*
- *AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.*
- *This Certificate shall not be reproduced except in full, without the written approval of the laboratory.*
- *The test results reported herewith relate only to the samples as received by the laboratory.*
- *Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.*
- *All reportable information is available on request from AGAT Laboratories, in accordance with ISO/IEC 17025:2017, ISO/IEC 17025:2005 (Quebec), DR-12-PALA and/or NELAP Standards.*
- *This document is signed by an authorized signatory who meets the requirements of the MELCCFP, CALA, CCN and NELAP.*
- *For environmental samples in the Province of Quebec: The analysis is performed on and results apply to samples as received. A temperature above 6°C upon receipt, as indicated in the Sample Reception Notification (SRN), could indicate the integrity of the samples has been compromised if the delay between sampling and submission to the laboratory could not be minimized.*

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 24H198294

PROJECT: 23355

CLIENT NAME: LANDTEK LTD.

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

E.Coli (MI-Agar)

DATE RECEIVED: 2024-09-18

DATE REPORTED: 2024-09-27

				SAMPLE DESCRIPTION:	MW3D	MW4	MW10
				SAMPLE TYPE:	Water	Water	Water
				DATE SAMPLED:	2024-09-18 09:50	2024-09-18 12:00	2024-09-18 11:00
Parameter	Unit	G / S	RDL		6154165	6154182	6154183
Escherichia coli	CFU/100mL	100			0	0	0

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

6154165-6154183 Escherichia coli RDL = 1 CFU/100mL.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 24H198294

PROJECT: 23355

CLIENT NAME: LANDTEK LTD.

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

Base Neutrals and Acids [Water]

DATE RECEIVED: 2024-09-18

DATE REPORTED: 2024-09-27

SAMPLE DESCRIPTION:				MW3D	MW4	MW10
SAMPLE TYPE:				Water	Water	Water
DATE SAMPLED:				2024-09-18 09:50	2024-09-18 12:00	2024-09-18 11:00
Parameter	Unit	G / S	RDL	6154165	6154182	6154183
Naphthalene	µg/L	7	0.30	<0.30	<0.30	<0.30
Acenaphthylene	µg/L		0.31	<0.31	<0.31	<0.31
Acenaphthene	µg/L		0.30	<0.30	<0.30	<0.30
Fluorene	µg/L	0.2	0.31	<0.31	<0.31	<0.31
Phenanthrene	µg/L	0.03	0.32	<0.32	<0.32	<0.32
Anthracene	µg/L	0.0008	0.30	<0.30	<0.30	<0.30
Fluoranthene	µg/L	0.0008	0.27	<0.27	<0.27	<0.27
Pyrene	µg/L		0.20	<0.20	<0.20	<0.20
Benzo(a)anthracene	µg/L	0.0004	0.20	<0.20	<0.20	<0.20
Chrysene	µg/L	0.0001	0.27	<0.27	<0.27	<0.27
Benzo(b)fluoranthene	µg/L		0.20	<0.20	<0.20	<0.20
Benzo(k)fluoranthene	µg/L	0.0002	0.20	<0.20	<0.20	<0.20
Benzo(a)pyrene	µg/L		0.01	<0.01	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	µg/L		0.20	<0.20	<0.20	<0.20
Dibenzo(a,h)anthracene	µg/L	0.002	0.20	<0.20	<0.20	<0.20
Benzo(g,h,i)perylene	µg/L	0.00002	0.20	<0.20	<0.20	<0.20
Phenol	µg/L		1.0	<1.0	<1.0	<1.0
Bis(2-chloroethyl)ether	µg/L		0.5	<0.5	<0.5	<0.5
2-Chlorophenol	µg/L		0.5	<0.5	<0.5	<0.5
o-Cresol	µg/L	1	0.5	<0.5	<0.5	<0.5
Bis(2-chloroisopropyl)ether	µg/L		0.5	<0.5	<0.5	<0.5
m&p-Cresol	µg/L		0.5	<0.5	<0.5	<0.5
Hexachloroethane	µg/L		0.5	<0.5	<0.5	<0.5
2,4-Dimethylphenol	µg/L		0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	µg/L		0.3	<0.3	<0.3	<0.3
1,2,4-Trichlorobenzene	µg/L		0.5	<0.5	<0.5	<0.5
p-Chloroaniline	µg/L		1.0	<1.0	<1.0	<1.0
Hexachlorobutadiene	µg/L		0.4	<0.4	<0.4	<0.4
2-and 1-methyl Napthalene	µg/L	2	0.5	<0.5	<0.5	<0.5

Certified By: N Popnikolof

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Certificate of Analysis

AGAT WORK ORDER: 24H198294
PROJECT: 23355

CLIENT NAME: LANDTEK LTD.
SAMPLING SITE:White Church Lands

ATTENTION TO: Henry Erebor
SAMPLED BY:LB

Base Neutrals and Acids [Water]

DATE RECEIVED: 2024-09-18

DATE REPORTED: 2024-09-27

				SAMPLE DESCRIPTION:	MW3D	MW4	MW10
				SAMPLE TYPE:	Water	Water	Water
				DATE SAMPLED:	2024-09-18 09:50	2024-09-18 12:00	2024-09-18 11:00
Parameter	Unit	G / S	RDL		6154165	6154182	6154183
2,4,6-Trichlorophenol	µg/L	18	0.2		<0.2	<0.2	<0.2
2,4,5-Trichlorophenol	µg/L	18	0.2		<0.2	<0.2	<0.2
1,1-Biphenyl	µg/L		0.5		<0.5	<0.5	<0.5
Dimethyl phthalate	µg/L		0.5		<0.5	<0.5	<0.5
2,6-Dinitrotoluene	µg/L		0.5		<0.5	<0.5	<0.5
2,4-Dinitrotoluene	µg/L		0.5		<0.5	<0.5	<0.5
2,3,4,6-Tetrachlorophenol	µg/L	1	0.5		<0.5	<0.5	<0.5
Diethyl phthalate	µg/L		0.5		1.4	<0.5	<0.5
Hexachlorobenzene	µg/L	0.0065	0.5		<0.5	<0.5	<0.5
Pentachlorophenol	µg/L		0.5		<0.5	<0.5	<0.5
3,3'-dichlorobenzidine	µg/L		0.5		<0.5	<0.5	<0.5
Bis(2-Ethylhexyl)phthalate	µg/L		0.5		<0.5	<0.5	<0.5
2,4-Dinitrophenol	µg/L		10		<10	<10	<10
Sediment					3	3	3
Surrogate	Unit	Acceptable Limits					
2-Fluorophenol	%	50-140			74	71	85
phenol-d6 surrogate	%	50-140			85	85	99
2,4,6-Tribromophenol	%	50-140			99	99	85
Chrysene-d12	%	50-140			85	74	96

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

6154165-6154183 Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column.
2- and 1-Methyl Naphthalene is a calculated parameter. The calculated value is the sum of 2-Methyl Naphthalene and 1-Methyl Naphthalene.

Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.
Legend: 1 = no sediment present; 2 = sediment present; 3 = sediment present in trace amounts

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popnikolof

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Certificate of Analysis

AGAT WORK ORDER: 24H198294

PROJECT: 23355

CLIENT NAME: LANDTEK LTD.

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

Carbamate Pesticides (Water)

DATE RECEIVED: 2024-09-18

DATE REPORTED: 2024-09-27

SAMPLE DESCRIPTION:				MW3D	MW4	MW10
SAMPLE TYPE:				Water	Water	Water
DATE SAMPLED:				2024-09-18 09:50	2024-09-18 12:00	2024-09-18 11:00
Parameter	Unit	G / S	RDL	6154165	6154182	6154183
Aldicarb	µg/L		2.0	<2.0	<2.0	<2.0
Bendiocarb	µg/L		2	<2	<2	<2
Carbofuran	µg/L		5	<5	<5	<5
Carbaryl	µg/L		5	<5	<5	<5
Diuron	µg/L		10	<10	<10	<10
Triallate	µg/L		1	<1	<1	<1
Temephos	µg/L		10	<10	<10	<10

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

6154165-6154183 Results relate only to the items tested.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popnikolof

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Certificate of Analysis

AGAT WORK ORDER: 24H198294

PROJECT: 23355

CLIENT NAME: LANDTEK LTD.

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

Diquat/Paraquat in Water (µg/L)

DATE RECEIVED: 2024-09-18

DATE REPORTED: 2024-09-27

				SAMPLE DESCRIPTION:	MW3D	MW4	MW10
				SAMPLE TYPE:	Water	Water	Water
				DATE SAMPLED:	2024-09-18 09:50	2024-09-18 12:00	2024-09-18 11:00
Parameter	Unit	G / S	RDL		6154165	6154182	6154183
Diquat	µg/L		5		<5	<5	<5
Paraquat	µg/L		1		<1	<1	<1

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Certified By: N Popnikolof

AGAT Laboratories

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http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 24H198294

PROJECT: 23355

CLIENT NAME: LANDTEK LTD.

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

Ethanolamines in Water by HPLC - Low Level

DATE RECEIVED: 2024-09-18

DATE REPORTED: 2024-09-27

				SAMPLE DESCRIPTION:	MW3D	MW4	MW10
				SAMPLE TYPE:	Water	Water	Water
				DATE SAMPLED:	2024-09-18 09:50	2024-09-18 12:00	2024-09-18 11:00
Parameter	Unit	G / S	RDL		6154165	6154182	6154183
Diethanolamine (DEA)	mg/L		0.040		<0.04	<0.04	<0.04
Ethanolamine (MEA)	mg/L		0.05		<0.05	<0.05	<0.05
Diisopropanolamine (DIPA)	mg/L		0.1		<0.1	<0.1	<0.1
Monoisopropanolamine (MIPA)	mg/L		0.1		<0.1	<0.1	<0.1

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Calgary (unless marked by *)

Certified By: N Popnikolof

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Certificate of Analysis

AGAT WORK ORDER: 24H198294

PROJECT: 23355

CLIENT NAME: LANDTEK LTD.

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

Glycols Analysis in Water

DATE RECEIVED: 2024-09-18

DATE REPORTED: 2024-09-27

				SAMPLE DESCRIPTION:	MW3D	MW4	MW10
				SAMPLE TYPE:	Water	Water	Water
				DATE SAMPLED:	2024-09-18 09:50	2024-09-18 12:00	2024-09-18 11:00
Parameter	Unit	G / S	RDL		6154165	6154182	6154183
Propylene Glycol	mg/L		10		<10	<10	<10
Monoethylene Glycol	mg/L		8		<8	<8	<8
Diethylene Glycol	mg/L		5.0		<5	<5	<5
Triethylene Glycol	mg/L		8		<8	<8	<8
Tetraethylene Glycol	mg/L		10		<10	<10	<10
Surrogate	Unit	Acceptable Limits					
Heptanol	%	50-140			94	94	81

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

6154165-6154183 Analysis by GC/FID.
Identification based on retention time relative to standards.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By: N Popnikolof

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AGAT WORK ORDER: 24H198294

PROJECT: 23355

CLIENT NAME: LANDTEK LTD.

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

OC Pesticides + PCBs (Water)

DATE RECEIVED: 2024-09-18

DATE REPORTED: 2024-09-27

SAMPLE DESCRIPTION:				MW3D	MW4	MW10
SAMPLE TYPE:				Water	Water	Water
DATE SAMPLED:				2024-09-18 09:50	2024-09-18 12:00	2024-09-18 11:00
Parameter	Unit	G / S	RDL	6154165	6154182	6154183
Gamma-Hexachlorocyclohexane	ug/L		0.01	<0.01	<0.01	<0.01
Heptachlor	ug/L		0.01	<0.01	<0.01	<0.01
Aldrin	ug/L		0.01	<0.01	<0.01	<0.01
Heptachlor Epoxide	ug/L		0.01	<0.01	<0.01	<0.01
Endosulfan I	µg/L		0.05	<0.05	<0.05	<0.05
Endosulfan II	µg/L		0.05	<0.05	<0.05	<0.05
Endosulfan	ug/L		0.05	<0.05	<0.05	<0.05
alpha - chlordane	µg/L		0.1	<0.1	<0.1	<0.1
gamma-Chlordane	µg/L		0.2	<0.2	<0.2	<0.2
Chlordane	ug/L		0.04	<0.04	<0.04	<0.04
op'-DDE	µg/L		0.01	<0.01	<0.01	<0.01
pp'-DDE	µg/L		0.01	<0.01	<0.01	<0.01
DDE	ug/L		0.01	<0.01	<0.01	<0.01
op'-DDD	µg/L		0.05	<0.05	<0.05	<0.05
pp'-DDD	µg/L		0.05	<0.05	<0.05	<0.05
DDD	ug/L		0.05	<0.05	<0.05	<0.05
op'-DDT	µg/L		0.04	<0.04	<0.04	<0.04
pp'-DDT	µg/L		0.05	<0.05	<0.05	<0.05
DDT	ug/L		0.04	<0.04	<0.04	<0.04
Dieldrin	ug/L		0.02	<0.02	<0.02	<0.02
Endrin	ug/L		0.05	<0.05	<0.05	<0.05
Methoxychlor	ug/L		0.04	<0.04	<0.04	<0.04
Hexachlorobenzene	ug/L	0.0065	0.01	<0.01	<0.01	<0.01
Hexachlorobutadiene	ug/L		0.01	<0.01	<0.01	<0.01
Hexachloroethane	ug/L		0.01	<0.01	<0.01	<0.01
Aroclor 1242	ug/L		0.1	<0.1	<0.1	<0.1
Aroclor 1248	ug/L		0.1	<0.1	<0.1	<0.1
Aroclor 1254	ug/L		0.1	<0.1	<0.1	<0.1
Aroclor 1260	ug/L		0.1	<0.1	<0.1	<0.1

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Certificate of Analysis

AGAT WORK ORDER: 24H198294

PROJECT: 23355

CLIENT NAME: LANDTEK LTD.

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

OC Pesticides + PCBs (Water)

DATE RECEIVED: 2024-09-18

DATE REPORTED: 2024-09-27

				SAMPLE DESCRIPTION:	MW3D	MW4	MW10
				SAMPLE TYPE:	Water	Water	Water
				DATE SAMPLED:	2024-09-18 09:50	2024-09-18 12:00	2024-09-18 11:00
Parameter	Unit	G / S	RDL		6154165	6154182	6154183
Polychlorinated Biphenyls	ug/L	0.001	0.1		<0.1	<0.1	<0.1
Surrogate	Unit	Acceptable Limits					
TCMX	%	50-140			72	76	75
Decachlorobiphenyl	%	50-140			102	83	103

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

6154165-6154183 DDT total is a calculated parameter. The calculated value is the sum of op'DDT and pp'DDT.
DDD total is a calculated parameter. The calculated value is the sum of op'DDD and pp'DDD.
DDE total is a calculated parameter. The calculated value is the sum of op'DDE and pp'DDE.
Endosulfan total is a calculated parameter. The calculated value is the sum of Endosulfan I and Endosulfan II.
Chlordane total is a calculated parameter. The calculated value is the sum of Alpha-Chlordane and Gamma-Chlordane.
PCB total is a calculated parameter. The calculated value is the sum of Aroclor 1242, Aroclor 1248, Aroclor 1254 and Aroclor 1260.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popnikolof

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AGAT WORK ORDER: 24H198294

PROJECT: 23355

CLIENT NAME: LANDTEK LTD.

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

Oil and Grease (Total) in Water

DATE RECEIVED: 2024-09-18

DATE REPORTED: 2024-09-27

				SAMPLE DESCRIPTION:	MW3D	MW4	MW10
				SAMPLE TYPE:	Water	Water	Water
				DATE SAMPLED:	2024-09-18 09:50	2024-09-18 12:00	2024-09-18 11:00
Parameter	Unit	G / S	RDL		6154165	6154182	6154183
Total Oil and Grease in water	mg/L		0.5		<0.5	<0.5	<0.5

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popnikolof

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AGAT WORK ORDER: 24H198294

PROJECT: 23355

CLIENT NAME: LANDTEK LTD.

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

Phenoxy Acid Herbicides (Water)

DATE RECEIVED: 2024-09-18

DATE REPORTED: 2024-09-27

				SAMPLE DESCRIPTION:	MW3D	MW4	MW10
				SAMPLE TYPE:	Water	Water	Water
				DATE SAMPLED:	2024-09-18 09:50	2024-09-18 12:00	2024-09-18 11:00
Parameter	Unit	G / S	RDL		6154165	6154182	6154183
2,4-D	µg/L		0.5		<0.5	<0.5	<0.5
2,4,5-T	µg/L		0.5		<0.5	<0.5	<0.5
2,4,5-TP	µg/L		0.5		<0.5	<0.5	<0.5
Dicamba	µg/L		0.5		<0.5	<0.5	<0.5
Dichlorprop	µg/L		0.5		<0.5	<0.5	<0.5
Dinoseb	µg/L		0.5		<0.5	<0.5	<0.5
Picloram	µg/L		0.5		<0.5	<0.5	<0.5
Diclofop-methyl	µg/L		0.5		<0.5	<0.5	<0.5
2,3,4,6-Tetrachlorophenol	µg/L	1	0.5		<0.5	<0.5	<0.5
2,4-Dichlorophenol	µg/L		0.2		<0.2	<0.2	<0.2
2,4,5-Trichlorophenol	µg/L	18	0.5		<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	µg/L	18	0.5		<0.5	<0.5	<0.5
Bromoxynil	µg/L		0.3		<0.3	<0.3	<0.3
MCPA	µg/L		5.0		<5.0	<5.0	<5.0
MCPP	µg/L		5.0		<5.0	<5.0	<5.0
Pentachlorophenol	µg/L		0.1		<0.1	<0.1	<0.1
Surrogate	Unit	Acceptable Limits					
DCAA	%	50-140			100	104	96

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popnikolof

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AGAT WORK ORDER: 24H198294

PROJECT: 23355

CLIENT NAME: LANDTEK LTD.

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

Polycyclic Aromatic Hydrocarbons in Water - Ultra-Low Level

DATE RECEIVED: 2024-09-18

DATE REPORTED: 2024-09-27

SAMPLE DESCRIPTION:				MW3D	MW4	MW10
SAMPLE TYPE:				Water	Water	Water
DATE SAMPLED:				2024-09-18 09:50	2024-09-18 12:00	2024-09-18 11:00
Parameter	Unit	G / S	RDL	6154165	6154182	6154183
1-Methylnaphthalene, Ultra-low	µg/L		0.001	0.103	<0.001	<0.001
2-Methylnaphthalene, Ultra-low	µg/L		0.001	0.160	0.142	<0.001
Acenaphthene, Ultra-low	µg/L		0.001	<0.001	<0.001	<0.001
Acenaphthylene, Ultra-low	µg/L		0.001	<0.001	<0.001	<0.001
Acridine, Ultra-low	µg/L		0.001	<0.001	<0.001	<0.001
Anthracene, Ultra-low	µg/L		0.001	<0.001	<0.001	<0.001
Benzo(a)anthracene, Ultra-low	µg/L		0.001	<0.001	<0.001	<0.001
Benzo(a)pyrene, Ultra-low	µg/L		0.001	<0.001	<0.001	<0.001
Benzo(b)fluoranthene, Ultra-low	µg/L		0.001	<0.001	<0.001	<0.001
Benzo(j+k)fluoranthene	µg/L		0.001	<0.01	<0.01	<0.01
Benzo(e)pyrene, Ultra-low	µg/L		0.001	<0.001	<0.001	<0.001
Benzo(ghi)perylene, Ultra-low	µg/L		0.001	<0.001	<0.001	<0.001
Chrysene, Ultra-low	µg/L		0.001	<0.001	<0.001	<0.001
Dibenzo(a,h)anthracene, Ultra-low	µg/L		0.001	<0.001	<0.001	<0.001
Fluoranthene, Ultra-low	µg/L		0.001	0.200	0.180	0.112
Fluorene, Ultra-low	µg/L		0.001	<0.001	<0.001	<0.001
Indeno(1,2,3-cd)pyrene, Ultra-low	µg/L		0.001	<0.001	<0.001	<0.001
Naphthalene, Ultra-low	µg/L		0.001	<0.001	<0.001	<0.001
Perylene, Ultra-low	µg/L		0.001	<0.001	<0.001	<0.001
Phenanthrene, Ultra-low	µg/L		0.001	<0.001	<0.001	<0.001
Pyrene, Ultra-low	µg/L		0.001	<0.001	<0.001	<0.001
Quinoline, Ultra-low	µg/L		0.001	<0.001	<0.001	<0.001
Sediment				N	N	N
PAH - Extraction (Ultra-low)				Y	Y	Y
Surrogate	Unit	Acceptable Limits				
Naphthalene-d8	%	50-140		86	91	86
Terphenyl-d14	%	50-140		90	95	78
Pyrene-d10	%	50-140		84	89	87

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AGAT WORK ORDER: 24H198294

PROJECT: 23355

CLIENT NAME: LANDTEK LTD.

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

Polycyclic Aromatic Hydrocarbons in Water - Ultra-Low Level

DATE RECEIVED: 2024-09-18

DATE REPORTED: 2024-09-27

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

6154165-6154183 Benzo(b)fluoranthene may include contributions from benzo(j)fluoranthene, if also present in the sample.
Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:

AGAT Laboratories

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AGAT WORK ORDER: 24H198294

PROJECT: 23355

CLIENT NAME: LANDTEK LTD.

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

Resin and Fatty acid (water)

DATE RECEIVED: 2024-09-18

DATE REPORTED: 2024-09-27

		SAMPLE DESCRIPTION:		MW3D	MW4	MW10
		SAMPLE TYPE:		Water	Water	Water
		DATE SAMPLED:		2024-09-18 09:50	2024-09-18 12:00	2024-09-18 11:00
Parameter	Unit	G / S	RDL	6154165	6154182	6154183
Linoleic acid	µg/L		10	<10	<10	<10
Linolenic acid	µg/L		10	<10	<10	<10
Oleic acid	µg/L		10	<10	<10	<10
9,10-Dichlorostearic acid	µg/L		10	<10	<10	<10
Stearic acid	µg/L		10	<10	13	<10
Fatty acid total	µg/L		10	<10	13	<10
Pimaric acid	µg/L		10	<10	<10	<10
Sandaracopimaric acid	µg/L		10	<10	<10	<10
Isopimaric acid	µg/L		10	<10	<10	<10
Palustric acid	µg/L		10	<10	<10	<10
Levopimaric acid	µg/L		10	<10	<10	<10
Dehydroabietic acid	µg/L		10	<10	<10	<10
Abietic acid	µg/L		10	<10	<10	<10
Neoabietic acid	µg/L		10	<10	<10	<10
14-Chlorodehydroabietic acid	µg/L		10	<10	<10	<10
12-Chlorodehydroabietic acid	µg/L		10	<10	<10	<10
12,14-Dichlorodehydroabietic acid	µg/L		10	<10	<10	<10
Resin acid total	µg/L		10	<10	<10	<10
Resin and Fatty acid total	µg/L		10	<10	13	<10
Surrogate	Unit	Acceptable Limits				
O-methylpodocarpic	%	40-140		79	87	82

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

6154165-6154183 Elevated RDLs indicate the degree of sample dilutions prior to the analysis to keep analytes within the calibration range or reduce matrix interference.

Sample was analyzed in Montreal.

Analysis performed at AGAT Montréal (unless marked by *)

Certified By: NPopnikolof

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 24H198294

PROJECT: 23355

CLIENT NAME: LANDTEK LTD.

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

Triazine Pesticides [Water]

DATE RECEIVED: 2024-09-18

DATE REPORTED: 2024-09-27

				SAMPLE DESCRIPTION:	MW3D	MW4	MW10
				SAMPLE TYPE:	Water	Water	Water
				DATE SAMPLED:	2024-09-18 09:50	2024-09-18 12:00	2024-09-18 11:00
Parameter	Unit	G / S	RDL		6154165	6154182	6154183
Trifluralin	µg/L		1.0		<1.0	<1.0	<1.0
Simazine	µg/L		1.0		<1.0	<1.0	<1.0
Atrazine	µg/L		0.5		<0.5	<0.5	<0.5
Metribuzin	µg/L		0.25		<0.25	<0.25	<0.25
Prometryne	µg/L		0.25		<0.25	<0.25	<0.25
Metolachlor	µg/L		0.11		<0.11	<0.11	<0.11
Alachlor	µg/L		0.5		<0.5	<0.5	<0.5
Cyanazine	µg/L		1.0		<1.0	<1.0	<1.0
Surrogate	Unit	Acceptable Limits					
Triphenyl phosphate (surr)	%	30-130			104	107	79

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to ODWS - Table D
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

6154165-6154183 Results relate only to the items tested.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popnikolof

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AGAT WORK ORDER: 24H198294

PROJECT: 23355

CLIENT NAME: LANDTEK LTD.

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

Volatile Organic Compounds in Water (ug/L)

DATE RECEIVED: 2024-09-18

DATE REPORTED: 2024-09-27

SAMPLE DESCRIPTION:				MW3D	MW4	MW10
SAMPLE TYPE:				Water	Water	Water
DATE SAMPLED:				2024-09-18 09:50	2024-09-18 12:00	2024-09-18 11:00
Parameter	Unit	G / S	RDL	6154165	6154182	6154183
Dichlorodifluoromethane	µg/L		0.40	<0.40	<0.40	<0.40
Chloromethane	µg/L	700	0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	600	0.17	<0.17	<0.17	<0.17
Bromomethane	µg/L	0.9	0.20	<0.20	<0.20	<0.20
Chloroethane	µg/L		0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane	µg/L		0.40	<0.40	<0.40	<0.40
Acetone	µg/L		1.0	<1.0	<1.0	<1.0
1,1-Dichloroethylene	µg/L		0.2	<0.2	<0.2	<0.2
Methylene Chloride	µg/L	100	0.30	<0.30	<0.30	<0.30
trans- 1,2-dichloroethylene	µg/L	200	0.20	<0.20	<0.20	<0.20
Methyl tert-butyl ether	µg/L	200	0.20	<0.20	<0.20	<0.20
1,1-Dichloroethane	µg/L	200	0.30	<0.30	<0.30	<0.30
Methyl Ethyl Ketone	µg/L	400	1.0	<1.0	<1.0	<1.0
cis- 1,2-Dichloroethylene	µg/L	200	0.20	<0.20	<0.20	<0.20
Chloroform	µg/L		0.20	<0.20	<0.20	<0.20
1,2-Dichloroethane	µg/L	100	0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	10	0.30	<0.30	<0.30	<0.30
Carbon Tetrachloride	µg/L		0.20	<0.20	<0.20	<0.20
Benzene	µg/L	100	0.20	<0.20	<0.20	<0.20
1,2-Dichloropropane	µg/L	0.7	0.20	<0.20	<0.20	<0.20
Trichloroethylene	µg/L	20	0.20	<0.20	<0.20	<0.20
Bromodichloromethane	µg/L	200	0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	µg/L		0.20	<0.20	<0.20	<0.20
Methyl Isobutyl Ketone	µg/L		1.0	<1.0	<1.0	<1.0
trans-1,3-Dichloropropene	µg/L	7	0.30	<0.30	<0.30	<0.30
1,1,2-Trichloroethane	µg/L	800	0.20	<0.20	<0.20	<0.20
Toluene	µg/L	0.8	0.20	<0.20	<0.20	<0.20
2-Hexanone	µg/L		1.0	<1.0	<1.0	<1.0
Dibromochloromethane	µg/L	40	0.10	<0.10	<0.10	<0.10

Certified By: N Popnikolof

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Certificate of Analysis

AGAT WORK ORDER: 24H198294

PROJECT: 23355

CLIENT NAME: LANDTEK LTD.

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

Volatile Organic Compounds in Water (ug/L)

DATE RECEIVED: 2024-09-18

DATE REPORTED: 2024-09-27

				SAMPLE DESCRIPTION:	MW3D	MW4	MW10
				SAMPLE TYPE:	Water	Water	Water
				DATE SAMPLED:	2024-09-18 09:50	2024-09-18 12:00	2024-09-18 11:00
Parameter	Unit	G / S	RDL		6154165	6154182	6154183
Ethylene Dibromide	µg/L	5	0.10		<0.10	<0.10	<0.10
Tetrachloroethylene	µg/L	50	0.20		<0.20	<0.20	<0.20
1,1,1,2-Tetrachloroethane	µg/L	20	0.10		<0.10	<0.10	<0.10
Chlorobenzene	µg/L	15	0.10		<0.10	<0.10	<0.10
Ethylbenzene	µg/L	8	0.10		<0.10	<0.10	<0.10
m & p-Xylene	µg/L	32	0.20		<0.20	<0.20	<0.20
Bromoform	µg/L	60	0.10		<0.10	<0.10	<0.10
Styrene	µg/L	4	0.10		<0.10	<0.10	<0.10
1,1,2,2-Tetrachloroethane	µg/L	70	0.10		<0.10	<0.10	<0.10
o-Xylene	µg/L	40	0.10		<0.10	<0.10	<0.10
1,3-Dichlorobenzene	µg/L	2.5	0.10		<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	4	0.10		<0.10	<0.10	<0.10
1,2-Dichlorobenzene	µg/L	2.5	0.10		<0.10	<0.10	<0.10
1,2,4-Trichlorobenzene	µg/L	0.5	0.30		<0.30	<0.30	<0.30
1,3-Dichloropropene (Cis + Trans)	µg/L		0.30		<0.30	<0.30	<0.30
Xylenes (Total)	µg/L		0.20		<0.20	<0.20	<0.20
n-Hexane	µg/L		0.20		<0.20	<0.20	<0.20
Surrogate	Unit	Acceptable Limits					
Toluene-d8	% Recovery	50-140			99	98	98
4-Bromofluorobenzene	% Recovery	50-140			91	94	92

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

6154165-6154183 Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene + o-Xylene.
1,3-Dichloropropene total is a calculated parameter. The calculated value is the sum of Cis-1,3-Dichloropropene and Trans-1,3-Dichloropropene. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: NPopnikolof

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Certificate of Analysis

AGAT WORK ORDER: 24H198294

PROJECT: 23355

CLIENT NAME: LANDTEK LTD.

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

Dissolved Oxygen in Water - mg/L

DATE RECEIVED: 2024-09-18

DATE REPORTED: 2024-09-27

				SAMPLE DESCRIPTION:	MW3D	MW4	MW10
				SAMPLE TYPE:	Water	Water	Water
				DATE SAMPLED:	2024-09-18 09:50	2024-09-18 12:00	2024-09-18 11:00
Parameter	Unit	G / S	RDL		6154165	6154182	6154183
Dissolved Oxygen	mg/L		0.05		7.88	5.12	8.08

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

6154165-6154183 Dissolved Oxygen was measured on as received sample. Due to the potential for rapid change in sample equilibrium chemistry laboratory results may differ from field measured results.

Analysis performed at AGAT Toronto (unless marked by *)

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Certificate of Analysis

AGAT WORK ORDER: 24H198294

PROJECT: 23355

CLIENT NAME: LANDTEK LTD.

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

PWQO Parameters

DATE RECEIVED: 2024-09-18

DATE REPORTED: 2024-09-27

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: MW3D SAMPLE TYPE: Water DATE SAMPLED: 2024-09-18 09:50 6154165	MW4 Water 2024-09-18 12:00 6154182	MW10 Water 2024-09-18 11:00 6154183
pH	pH Units	6.5-8.5	NA	7.79	7.68	7.79
Cyanide, WAD	mg/L	0.005	0.002	<0.002	<0.002	<0.002
Alkalinity (as CaCO3)	mg/L		5	456	405	319
Turbidity	NTU		0.5	4.7	4.4	2.7
Sulphide	mg/L		0.01	<0.01	<0.01	<0.01
Phenols	mg/L	0.001	0.001	<0.001	<0.001	<0.001
Ammonia as N	mg/L		0.02	<0.02	<0.02	<0.02
Ammonia-Un-ionized	mg/L	0.02	NA	<0.000002	<0.000002	<0.000002
Total Phosphorus	mg/L	*	0.02	0.07	0.06	1.38
Aluminum-dissolved	mg/L	*	0.004	<0.004	0.011	<0.004
Total Antimony	mg/L	0.020	0.003	<0.003	<0.003	<0.003
Total Arsenic	mg/L	0.1	0.003	0.005	<0.003	<0.003
Total Barium	mg/L		0.002	0.085	0.033	0.036
Total Boron	mg/L	0.2	0.010	0.121	0.072	0.186
Total Cadmium	mg/L	0.0002	0.0001	0.0001	<0.0001	<0.0001
Total Chromium	mg/L		0.003	<0.003	<0.003	<0.003
Total Cobalt	mg/L	0.0009	0.0005	0.0019	0.0048	0.0023
Total Copper	mg/L	0.005	0.002	<0.002	<0.002	<0.002
Total Iron	mg/L	0.3	0.050	0.863	0.172	0.153
Total Lead	mg/L	*	0.0005	<0.0005	<0.0005	<0.0005
Dissolved Mercury	mg/L	0.0002	0.0001	<0.0001	<0.0001	<0.0001
Total Molybdenum	mg/L	0.040	0.002	0.002	0.002	<0.002
Total Nickel	mg/L	0.025	0.003	<0.003	0.004	0.003
Total Selenium	mg/L	0.1	0.002	<0.002	0.004	<0.002
Total Silver	mg/L	0.0001	0.0001	<0.0001	0.0002	<0.0001
Total Thallium	mg/L	0.0003	0.0003	<0.0003	<0.0003	<0.0003
Total Tungsten	mg/L	0.030	0.010	<0.010	<0.010	<0.010
Total Uranium	mg/L	0.005	0.0005	0.0028	0.0067	0.0078
Total Vanadium	mg/L	0.006	0.002	<0.002	<0.002	<0.002

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AGAT WORK ORDER: 24H198294

PROJECT: 23355

CLIENT NAME: LANDTEK LTD.

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

PWQO Parameters

DATE RECEIVED: 2024-09-18

DATE REPORTED: 2024-09-27

				SAMPLE DESCRIPTION:	MW3D	MW4	MW10
				SAMPLE TYPE:	Water	Water	Water
				DATE SAMPLED:	2024-09-18 09:50	2024-09-18 12:00	2024-09-18 11:00
Parameter	Unit	G / S	RDL		6154165	6154182	6154183
Total Zinc	mg/L	0.030	0.020		<0.020	0.026	<0.020
Total Zirconium	mg/L	0.004	0.004		<0.004	<0.004	<0.004
Lab Filtration Aluminum Dissolved					1	1	1
Lab Filtration mercury					1	1	1

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to PWQO * Variable - refer to guideline reference document
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

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AGAT WORK ORDER: 24H198294

PROJECT: 23355

CLIENT NAME: LANDTEK LTD.

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

Residual Chlorine

DATE RECEIVED: 2024-09-18

DATE REPORTED: 2024-09-27

				SAMPLE DESCRIPTION:	MW3D	MW4		MW10
				SAMPLE TYPE:	Water	Water		Water
				DATE SAMPLED:	2024-09-18 09:50	2024-09-18 12:00		2024-09-18 11:00
Parameter	Unit	G / S	RDL		6154165	6154182	RDL	6154183
Total Residual Chlorine	mg/L		0.02		0.36	0.25	0.01	0.16

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

6154165-6154182 Due to the instability of chlorine in aqueous solutions, the results reported may be biased low and should be reviewed with discretion.

Dilution required, RDL has been increased accordingly.

6154183 Due to the instability of chlorine in aqueous solutions, the results reported may be biased low and should be reviewed with discretion.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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Exceedance Summary

AGAT WORK ORDER: 24H198294

PROJECT: 23355

CLIENT NAME: LANDTEK LTD.

ATTENTION TO: Henry Erebor

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
6154165	MW3D	ON PWQO	PWQO Parameters	Total Cobalt	mg/L	0.0009	0.0019
6154165	MW3D	ON PWQO	PWQO Parameters	Total Iron	mg/L	0.3	0.863
6154182	MW4	ON PWQO	PWQO Parameters	Total Cobalt	mg/L	0.0009	0.0048
6154182	MW4	ON PWQO	PWQO Parameters	Total Silver	mg/L	0.0001	0.0002
6154182	MW4	ON PWQO	PWQO Parameters	Total Uranium	mg/L	0.005	0.0067
6154183	MW10	ON PWQO	PWQO Parameters	Total Cobalt	mg/L	0.0009	0.0023
6154183	MW10	ON PWQO	PWQO Parameters	Total Uranium	mg/L	0.005	0.0078

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Quality Assurance

CLIENT NAME: LANDTEK LTD.

AGAT WORK ORDER: 24H198294

PROJECT: 23355

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

Microbiology Analysis

RPT Date: Sep 27, 2024			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
E.Coli (MI-Agar)															
Escherichia coli	6154253		0	0	NA										

Comments: NA - % RPD Not Applicable.

Certified By:

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Quality Assurance

CLIENT NAME: LANDTEK LTD.
PROJECT: 23355
SAMPLING SITE:White Church Lands

AGAT WORK ORDER: 24H198294
ATTENTION TO: Henry Erebor
SAMPLED BY:LB

Trace Organics Analysis

RPT Date: Sep 27, 2024			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Base Neutrals and Acids [Water]															
Naphthalene	6163229		<0.30	<0.30	NA	< 0.30	93%	50%	140%	76%	50%	140%	78%	50%	140%
Acenaphthylene	6163229		<0.31	<0.31	NA	< 0.31	79%	50%	140%	74%	50%	140%	86%	50%	140%
Acenaphthene	6163229		<0.30	<0.30	NA	< 0.30	85%	50%	140%	67%	50%	140%	72%	50%	140%
Fluorene	6163229		<0.31	<0.31	NA	< 0.31	106%	50%	140%	104%	50%	140%	74%	50%	140%
Phenanthrene	6163229		<0.32	<0.32	NA	< 0.32	99%	50%	140%	90%	50%	140%	93%	50%	140%
Anthracene	6163229		<0.30	<0.30	NA	< 0.30	96%	50%	140%	91%	50%	140%	79%	50%	140%
Fluoranthene	6163229		<0.27	<0.27	NA	< 0.27	98%	50%	140%	76%	50%	140%	92%	50%	140%
Pyrene	6163229		<0.20	<0.20	NA	< 0.20	95%	50%	140%	76%	50%	140%	70%	50%	140%
Benzo(a)anthracene	6163229		<0.20	<0.20	NA	< 0.20	92%	50%	140%	73%	50%	140%	76%	50%	140%
Chrysene	6163229		<0.27	<0.27	NA	< 0.27	92%	50%	140%	84%	50%	140%	69%	50%	140%
Benzo(b)fluoranthene	6163229		<0.20	<0.20	NA	< 0.20	80%	50%	140%	95%	50%	140%	67%	50%	140%
Benzo(k)fluoranthene	6163229		<0.20	<0.20	NA	< 0.20	88%	50%	140%	108%	50%	140%	96%	50%	140%
Benzo(a)pyrene	6163229		<0.01	<0.01	NA	< 0.01	87%	50%	140%	116%	50%	140%	100%	50%	140%
Indeno(1,2,3-cd)pyrene	6163229		<0.20	<0.20	NA	< 0.20	86%	50%	140%	109%	50%	140%	99%	50%	140%
Dibenzo(a,h)anthracene	6163229		<0.20	<0.20	NA	< 0.20	70%	50%	140%	71%	50%	140%	74%	50%	140%
Benzo(g,h,i)perylene	6163229		<0.20	<0.20	NA	< 0.20	79%	50%	140%	91%	50%	140%	72%	50%	140%
Phenol	6163229		<1.0	<1.0	NA	< 1.0	90%	50%	140%	76%	50%	140%	77%	50%	140%
Bis(2-chloroethyl)ether	6163229		<0.5	<0.5	NA	< 0.5	82%	50%	140%	72%	50%	140%	92%	50%	140%
2-Chlorophenol	6163229		<0.5	<0.5	NA	< 0.5	86%	50%	140%	96%	50%	140%	72%	50%	140%
o-Cresol	6163229		<0.5	<0.5	NA	< 0.5	80%	50%	140%	87%	50%	140%	78%	50%	140%
Bis(2-chloroisopropyl)ether	6163229		<0.5	<0.5	NA	< 0.5	70%	50%	140%	69%	50%	140%	94%	50%	140%
m&p-Cresol	6163229		<0.5	<0.5	NA	< 0.5	97%	50%	140%	81%	50%	140%	50%	50%	140%
Hexachloroethane	6163229		<0.5	<0.5	NA	< 0.5	82%	50%	140%	62%	50%	140%	95%	50%	140%
2,4-Dimethylphenol	6163229		<0.5	<0.5	NA	< 0.5	104%	30%	130%	107%	30%	130%	104%	30%	130%
2,4-Dichlorophenol	6163229		<0.3	<0.3	NA	< 0.3	88%	50%	140%	97%	50%	140%	78%	50%	140%
1,2,4-Trichlorobenzene	6163229		<0.5	<0.5	NA	< 0.5	88%	50%	140%	68%	50%	140%	65%	50%	140%
p-Chloroaniline	6163229		<1.0	<1.0	NA	< 1.0	71%	50%	140%	68%	50%	140%	112%	50%	140%
Hexachlorobutadiene	6163229		<0.4	<0.4	NA	< 0.4	90%	50%	140%	62%	50%	140%	86%	50%	140%
2,4,6-Trichlorophenol	6163229		<0.2	<0.2	NA	< 0.2	81%	50%	140%	116%	50%	140%	79%	50%	140%
2,4,5-Trichlorophenol	6163229		<0.2	<0.2	NA	< 0.2	92%	50%	140%	62%	50%	140%	82%	50%	140%
1,1-Biphenyl	6163229		<0.5	<0.5	NA	< 0.5	92%	50%	140%	75%	50%	140%	65%	50%	140%
Dimethyl phthalate	6163229		<0.5	<0.5	NA	< 0.5	86%	50%	140%	67%	50%	140%	74%	50%	140%
2,6-Dinitrotoluene	6163229		<0.5	<0.5	NA	< 0.5	97%	50%	140%	92%	50%	140%	103%	50%	140%
2,4-Dinitrotoluene	6163229		<0.5	<0.5	NA	< 0.5	94%	50%	140%	66%	50%	140%	81%	50%	140%
2,3,4,6-Tetrachlorophenol	6163229		<0.5	<0.5	NA	< 0.5	97%	50%	140%	72%	50%	140%	104%	50%	140%
Diethyl phthalate	6163229		<0.5	<0.5	NA	< 0.5	104%	50%	140%	101%	50%	140%	79%	50%	140%
Hexachlorobenzene	6163229		<0.5	<0.5	NA	< 0.5	100%	50%	140%	73%	50%	140%	62%	50%	140%
Pentachlorophenol	6163229		<0.5	<0.5	NA	< 0.5	84%	50%	140%	91%	50%	140%	91%	50%	140%
3,3'-dichlorobenzidine	6163229		<0.5	<0.5	NA	< 0.5	106%	30%	130%	76%	30%	130%	76%	30%	130%

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Quality Assurance

CLIENT NAME: LANDTEK LTD.
PROJECT: 23355
SAMPLING SITE:White Church Lands

AGAT WORK ORDER: 24H198294
ATTENTION TO: Henry Erebor
SAMPLED BY:LB

Trace Organics Analysis (Continued)

RPT Date: Sep 27, 2024			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Bis(2-Ethylhexyl)phthalate	6163229		<0.5	<0.5	NA	< 0.5	90%	50%	140%	110%	50%	140%	74%	50%	140%
2,4-Dinitrophenol	6163229		<10	<10	NA	< 10	64%	30%	130%	41%	30%	130%	113%	30%	130%
Carbamate Pesticides (Water)															
Aldicarb	6155223		< 2.0	< 2.0	NA	< 2.0	89%	50%	140%	92%	50%	140%	100%	50%	140%
Bendiocarb	6155223		< 2	< 2	NA	< 2	90%	50%	140%	89%	50%	140%	96%	50%	140%
Carbofuran	6155223		< 5	< 5	NA	< 5	101%	50%	140%	100%	50%	140%	91%	50%	140%
Carbaryl	6155223		< 5	< 5	NA	< 5	88%	50%	140%	89%	50%	140%	83%	50%	140%
Diuron	6155223		< 10	< 10	NA	< 10	96%	50%	140%	93%	50%	140%	99%	50%	140%
Triallate	6155223		< 1	< 1	NA	< 1	100%	50%	140%	97%	50%	140%	101%	50%	140%
Temephos	6155223		< 10	< 10	NA	< 10	93%	60%	130%	99%	60%	130%	95%	60%	130%
OC Pesticides + PCBs (Water)															
Gamma-Hexachlorocyclohexane	6141817		< 0.01	< 0.01	NA	< 0.01	91%	50%	140%	108%	50%	140%	109%	50%	140%
Heptachlor	6141817		< 0.01	< 0.01	NA	< 0.01	110%	50%	140%	104%	50%	140%	107%	50%	140%
Aldrin	6141817		< 0.01	< 0.01	NA	< 0.01	93%	50%	140%	99%	50%	140%	94%	50%	140%
Heptachlor Epoxide	6141817		< 0.01	< 0.01	NA	< 0.01	80%	50%	140%	84%	50%	140%	86%	50%	140%
Endosulfan I	6141817		< 0.05	< 0.05	NA	< 0.05	90%	50%	140%	96%	50%	140%	97%	50%	140%
Endosulfan II	6141817		< 0.05	< 0.05	NA	< 0.05	87%	50%	140%	100%	50%	140%	99%	50%	140%
alpha - chlordane	6141817		< 0.1	< 0.1	NA	< 0.1	92%	50%	140%	100%	50%	140%	99%	50%	140%
gamma-Chlordane	6141817		< 0.2	< 0.2	NA	< 0.2	88%	50%	140%	96%	50%	140%	97%	50%	140%
op'-DDE	6141817		< 0.01	< 0.01	NA	< 0.01	105%	50%	140%	94%	50%	140%	109%	50%	140%
pp'-DDE	6141817		< 0.01	< 0.01	NA	< 0.01	99%	50%	140%	104%	50%	140%	104%	50%	140%
op'-DDD	6141817		< 0.05	< 0.05	NA	< 0.05	107%	50%	140%	85%	50%	140%	109%	50%	140%
pp'-DDD	6141817		< 0.05	< 0.05	NA	< 0.05	91%	50%	140%	99%	50%	140%	114%	50%	140%
op'-DDT	6141817		< 0.04	< 0.04	NA	< 0.04	113%	50%	140%	112%	50%	140%	108%	50%	140%
pp'-DDT	6141817		< 0.05	< 0.05	NA	< 0.05	86%	50%	140%	104%	50%	140%	106%	50%	140%
Dieldrin	6141817		< 0.02	< 0.02	NA	< 0.02	90%	50%	140%	99%	50%	140%	101%	50%	140%
Endrin	6141817		< 0.05	< 0.05	NA	< 0.05	111%	50%	140%	102%	50%	140%	88%	50%	140%
Methoxychlor	6141817		< 0.04	< 0.04	NA	< 0.04	80%	50%	140%	94%	50%	140%	86%	50%	140%
Hexachlorobenzene	6141817		< 0.01	< 0.01	NA	< 0.01	99%	50%	140%	101%	50%	140%	92%	50%	140%
Hexachlorobutadiene	6141817		< 0.01	< 0.01	NA	< 0.01	106%	50%	140%	95%	50%	140%	92%	50%	140%
Hexachloroethane	6141817		< 0.01	< 0.01	NA	< 0.01	92%	50%	140%	108%	50%	140%	94%	50%	140%
Aroclor 1242	6141817		< 0.1	< 0.1	NA	< 0.1	102%	60%	140%	NA	60%	140%	NA	60%	140%
Aroclor 1248	6141817		< 0.1	< 0.1	NA	< 0.1	92%	60%	140%	NA	60%	140%	NA	60%	140%
Aroclor 1254	6141817		< 0.1	< 0.1	NA	< 0.1	106%	60%	140%	NA	60%	140%	NA	60%	140%
Aroclor 1260	6141817		< 0.1	< 0.1	NA	< 0.1	98%	60%	140%	NA	60%	140%	NA	60%	140%
Polychlorinated Biphenyls	6141817		< 0.1	< 0.1	NA	< 0.1	104%	60%	140%	92%	60%	140%	NA	60%	140%
Phenoxy Acid Herbicides (Water)															
2,4-D			< 0.5	< 0.5	NA	< 0.5	97%	50%	140%	90%	50%	140%	NA	50%	140%

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Quality Assurance

CLIENT NAME: LANDTEK LTD.
PROJECT: 23355
SAMPLING SITE:White Church Lands

AGAT WORK ORDER: 24H198294
ATTENTION TO: Henry Erebor
SAMPLED BY:LB

Trace Organics Analysis (Continued)

RPT Date: Sep 27, 2024			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
2,4,5-T			< 0.5	< 0.5	NA	< 0.5	87%	50%	140%	82%	50%	140%	NA	50%	140%
2,4,5-TP			< 0.5	< 0.5	NA	< 0.5	90%	50%	140%	90%	50%	140%	NA	50%	140%
Dicamba			< 0.5	< 0.5	NA	< 0.5	92%	50%	140%	91%	50%	140%	NA	50%	140%
Dichlorprop			< 0.5	< 0.5	NA	< 0.5	86%	50%	140%	80%	50%	140%	NA	50%	140%
Dinoseb			< 0.5	< 0.5	NA	< 0.5	72%	50%	140%	79%	50%	140%	NA	50%	140%
Picloram			< 0.5	< 0.5	NA	< 0.5	80%	50%	140%	80%	50%	140%	NA	50%	140%
Diclofop-methyl			< 0.5	< 0.5	NA	< 0.5	90%	50%	140%	86%	50%	140%	NA	50%	140%
2,3,4,6-Tetrachlorophenol			< 0.5	< 0.5	NA	< 0.5	97%	50%	140%	92%	50%	140%	NA	50%	140%
2,4-Dichlorophenol			< 0.2	< 0.2	NA	< 0.2	90%	50%	140%	80%	50%	140%	NA	50%	140%
2,4,5-Trichlorophenol			< 0.5	< 0.5	NA	< 0.5	91%	50%	140%	81%	50%	140%	NA	50%	140%
2,4,6-Trichlorophenol			< 0.5	< 0.5	NA	< 0.5	97%	50%	140%	94%	50%	140%	NA	50%	140%
Bromoxynil			< 0.3	< 0.3	NA	< 0.3	98%	50%	140%	84%	50%	140%	NA	50%	140%
MCPA			< 5.0	< 5.0	NA	< 5.0	97%	50%	140%	92%	50%	140%	NA	50%	140%
MCPP			< 5.0	< 5.0	NA	< 5.0	101%	50%	140%	88%	50%	140%	NA	50%	140%
Pentachlorophenol			< 0.1	< 0.1	NA	< 0.1	100%	50%	140%	98%	50%	140%	NA	50%	140%
Triazine Pesticides [Water]															
Trifluralin	6151779		< 1.0	< 1.0	NA	< 1.0	109%	50%	140%	111%	50%	140%	95%	50%	140%
Simazine	6151779		< 1.0	< 1.0	NA	< 1.0	114%	50%	140%	99%	50%	140%	93%	50%	140%
Atrazine	6151779		< 0.5	< 0.5	NA	< 0.5	110%	50%	140%	96%	50%	140%	89%	50%	140%
Metribuzin	6151779		< 0.25	< 0.25	NA	< 0.25	112%	50%	140%	92%	50%	140%	78%	50%	140%
Prometryne	6151779		< 0.25	< 0.25	NA	< 0.25	92%	50%	140%	96%	50%	140%	96%	50%	140%
Metolachlor	6151779		< 0.11	< 0.11	NA	< 0.11	113%	50%	140%	99%	50%	140%	110%	50%	140%
Alachlor	6151779		< 0.5	< 0.5	NA	< 0.5	105%	50%	140%	110%	50%	140%	112%	50%	140%
Cyanazine	6151779		< 1.0	< 1.0	NA	< 1.0	108%	50%	140%	91%	50%	140%	106%	50%	140%
Volatile Organic Compounds in Water (ug/L)															
Dichlorodifluoromethane	6154183	6154183	<0.40	<0.40	NA	< 0.40	91%	50%	140%	74%	50%	140%	63%	50%	140%
Chloromethane	6154183	6154183	<0.20	<0.20	NA	< 0.20	79%	50%	140%	66%	50%	140%	64%	50%	140%
Vinyl Chloride	6154183	6154183	<0.17	<0.17	NA	< 0.17	116%	50%	140%	93%	50%	140%	81%	50%	140%
Bromomethane	6154183	6154183	<0.20	<0.20	NA	< 0.20	109%	50%	140%	74%	50%	140%	85%	50%	140%
Chloroethane	6154183	6154183	<0.20	<0.20	NA	< 0.20	95%	50%	140%	83%	50%	140%	81%	50%	140%
Trichlorofluoromethane	6154183	6154183	<0.40	<0.40	NA	< 0.40	103%	50%	140%	97%	50%	140%	76%	50%	140%
Acetone	6154183	6154183	<1.0	<1.0	NA	< 1.0	94%	50%	140%	88%	50%	140%	88%	50%	140%
1,1-Dichloroethylene	6154183	6154183	<0.2	<0.2	NA	< 0.2	93%	50%	140%	77%	60%	130%	92%	50%	140%
Methylene Chloride	6154183	6154183	<0.30	<0.30	NA	< 0.30	96%	50%	140%	78%	60%	130%	117%	50%	140%
trans- 1,2-dichloroethylene	6154183	6154183	<0.20	<0.20	NA	< 0.20	102%	50%	140%	77%	60%	130%	92%	50%	140%
Methyl tert-butyl ether	6154183	6154183	<0.20	<0.20	NA	< 0.20	103%	50%	140%	68%	60%	130%	91%	50%	140%
1,1-Dichloroethane	6154183	6154183	<0.30	<0.30	NA	< 0.30	105%	50%	140%	77%	60%	130%	99%	50%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

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Quality Assurance

CLIENT NAME: LANDTEK LTD.
PROJECT: 23355
SAMPLING SITE:White Church Lands

AGAT WORK ORDER: 24H198294
ATTENTION TO: Henry Erebor
SAMPLED BY:LB

Trace Organics Analysis (Continued)

RPT Date: Sep 27, 2024

PARAMETER	Batch	Sample Id	DUPLICATE Dup #1	DUPLICATE Dup #2	DUPLICATE RPD	Method Blank	REFERENCE MATERIAL Measured Value	REFERENCE MATERIAL Acceptable Limits Lower	REFERENCE MATERIAL Acceptable Limits Upper	METHOD BLANK SPIKE Recovery	METHOD BLANK SPIKE Acceptable Limits Lower	METHOD BLANK SPIKE Acceptable Limits Upper	MATRIX SPIKE Recovery	MATRIX SPIKE Acceptable Limits Lower	MATRIX SPIKE Acceptable Limits Upper
Methyl Ethyl Ketone	6154183	6154183	<1.0	<1.0	NA	< 1.0	104%	50%	140%	89%	50%	140%	110%	50%	140%
cis- 1,2-Dichloroethylene	6154183	6154183	<0.20	<0.20	NA	< 0.20	104%	50%	140%	84%	60%	130%	107%	50%	140%
Chloroform	6154183	6154183	<0.20	<0.20	NA	< 0.20	113%	50%	140%	85%	60%	130%	95%	50%	140%
1,2-Dichloroethane	6154183	6154183	<0.20	<0.20	NA	< 0.20	96%	50%	140%	77%	60%	130%	86%	50%	140%
1,1,1-Trichloroethane	6154183	6154183	<0.30	<0.30	NA	< 0.30	101%	50%	140%	80%	60%	130%	80%	50%	140%
Carbon Tetrachloride	6154183	6154183	<0.20	<0.20	NA	< 0.20	112%	50%	140%	92%	60%	130%	92%	50%	140%
Benzene	6154183	6154183	<0.20	<0.20	NA	< 0.20	76%	50%	140%	73%	60%	130%	68%	50%	140%
1,2-Dichloropropane	6154183	6154183	<0.20	<0.20	NA	< 0.20	78%	50%	140%	73%	60%	130%	71%	50%	140%
Trichloroethylene	6154183	6154183	<0.20	<0.20	NA	< 0.20	89%	50%	140%	64%	60%	130%	80%	50%	140%
Bromodichloromethane	6154183	6154183	<0.20	<0.20	NA	< 0.20	97%	50%	140%	66%	60%	130%	83%	50%	140%
cis-1,3-Dichloropropene	6154183	6154183	<0.20	<0.20	NA	< 0.20	84%	50%	140%	65%	60%	130%	70%	50%	140%
Methyl Isobutyl Ketone	6154183	6154183	<1.0	<1.0	NA	< 1.0	113%	50%	140%	98%	50%	140%	98%	50%	140%
trans-1,3-Dichloropropene	6154183	6154183	<0.30	<0.30	NA	< 0.30	120%	50%	140%	79%	60%	130%	93%	50%	140%
1,1,2-Trichloroethane	6154183	6154183	<0.20	<0.20	NA	< 0.20	111%	50%	140%	86%	60%	130%	96%	50%	140%
Toluene	6154183	6154183	<0.20	<0.20	NA	< 0.20	112%	50%	140%	101%	60%	130%	87%	50%	140%
2-Hexanone	6154183	6154183	<1.0	<1.0	NA	< 1.0	98%	50%	140%	97%	50%	140%	95%	50%	140%
Dibromochloromethane	6154183	6154183	<0.10	<0.10	NA	< 0.10	114%	50%	140%	105%	60%	130%	108%	50%	140%
Ethylene Dibromide	6154183	6154183	<0.10	<0.10	NA	< 0.10	109%	50%	140%	94%	60%	130%	99%	50%	140%
Tetrachloroethylene	6154183	6154183	<0.20	<0.20	NA	< 0.20	112%	50%	140%	105%	60%	130%	106%	50%	140%
1,1,1,2-Tetrachloroethane	6154183	6154183	<0.10	<0.10	NA	< 0.10	114%	50%	140%	103%	60%	130%	112%	50%	140%
Chlorobenzene	6154183	6154183	<0.10	<0.10	NA	< 0.10	113%	50%	140%	94%	60%	130%	100%	50%	140%
Ethylbenzene	6154183	6154183	<0.10	<0.10	NA	< 0.10	117%	50%	140%	80%	60%	130%	90%	50%	140%
m & p-Xylene	6154183	6154183	<0.20	<0.20	NA	< 0.20	117%	50%	140%	82%	60%	130%	97%	50%	140%
Bromoform	6154183	6154183	<0.10	<0.10	NA	< 0.10	119%	50%	140%	75%	60%	130%	111%	50%	140%
Styrene	6154183	6154183	<0.10	<0.10	NA	< 0.10	113%	50%	140%	68%	60%	130%	92%	50%	140%
1,1,2,2-Tetrachloroethane	6154183	6154183	<0.10	<0.10	NA	< 0.10	107%	50%	140%	65%	60%	130%	100%	50%	140%
o-Xylene	6154183	6154183	<0.10	<0.10	NA	< 0.10	113%	50%	140%	80%	60%	130%	105%	50%	140%
1,3-Dichlorobenzene	6154183	6154183	<0.10	<0.10	NA	< 0.10	115%	50%	140%	71%	60%	130%	103%	50%	140%
1,4-Dichlorobenzene	6154183	6154183	<0.10	<0.10	NA	< 0.10	109%	50%	140%	68%	60%	130%	102%	50%	140%
1,2-Dichlorobenzene	6154183	6154183	<0.10	<0.10	NA	< 0.10	104%	50%	140%	67%	60%	130%	104%	50%	140%
1,2,4-Trichlorobenzene	6154183	6154183	<0.30	<0.30	NA	< 0.30	104%	50%	140%	64%	60%	130%	81%	50%	140%
n-Hexane	6154183	6154183	<0.20	<0.20	NA	< 0.20	101%	50%	140%	113%	60%	130%	100%	50%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Oil and Grease (Total) in Water

Total Oil and Grease in water	6116773		< 0.5	< 0.5	NA	< 0.5	98%	70%	130%	85%	70%	130%	110%	70%	130%

Polycyclic Aromatic Hydrocarbons in Water - Ultra-Low Level

Benzo(j+k)fluoranthene	1	6166573	< 0.001	< 0.001	NA	< 0.001	101%	50%	140%	131%	50%	140%	110%	50%	140%

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Quality Assurance

CLIENT NAME: LANDTEK LTD.

AGAT WORK ORDER: 24H198294

PROJECT: 23355

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

Trace Organics Analysis (Continued)

RPT Date: Sep 27, 2024			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Resin and Fatty acid (water)															
Fatty acid total	1	NA	NA	NA	0.0%	< 10	NA	70%	130%	86%	70%	130%	NA	70%	130%
Resin acid total	1	NA	NA	NA	0.0%	< 10	NA	70%	130%	78%	70%	130%	NA	70%	130%
Resin and Fatty acid total	1	NA	NA	NA	0.0%	< 10	NA	70%	130%	82%	70%	130%	NA	70%	130%
O-methylpodocarpic	1	NA	NA	NA	0.0%	108	NA	40%	140%	81%	40%	140%	NA	40%	140%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution. Matrix spike performed on a different sample than the duplicate.
If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Comments: The QC criteria are only applicable to the total resins and total fatty acids.

NA : Non applicable.

If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.

NA in the spike blank or CRM indicates that it is not required by the procedure.

Glycols Analysis in Water															
Propylene Glycol	971	6162721	<10	<10	NA	< 10	110%	50%	140%	112%	50%	140%	107%	50%	140%
Monoethylene Glycol	971	6162721	<8	<8	NA	< 8	108%	50%	140%	110%	50%	140%	105%	50%	140%
Diethylene Glycol	971	6162721	<5	<5	NA	< 5.0	107%	50%	140%	111%	50%	140%	106%	50%	140%
Triethylene Glycol	971	6162721	<8	<8	NA	< 8	107%	50%	140%	114%	50%	140%	109%	50%	140%
Tetraethylene Glycol	971	6162721	<10	<10	NA	< 10	100%	50%	140%	99%	50%	140%	93%	50%	140%

Comments: Duplicate NA: results are less than 5X the RDL and RDP will not be calculated.
The sample spikes and dups are not from the same sample ID.

Ethanolamines in Water by HPLC - Low Level															
Diethanolamine (DEA)	1359	6154165	<0.04	<0.04	NA	< 0.040	104%	80%	120%	102%	70%	130%	105%	60%	140%
Ethanolamine (MEA)	1359	6154165	<0.05	<0.05	NA	< 0.05	100%	80%	120%	100%	70%	130%	99%	60%	140%
Diisopropanolamine (DIPA)	1359	6154165	<0.1	<0.1	NA	< 0.1	101%	80%	120%	106%	70%	130%	94%	60%	140%
Monoisopropanolamine (MIPA)	1359	6154165	<0.1	<0.1	NA	< 0.1	115%	80%	120%	102%	70%	130%	106%	60%	140%

Comments: Duplicate NA: results are less than 5X the RDL and RDP will not be calculated.
The sample spikes and dups are not from the same sample ID.

Certified By: N Popowkof

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Quality Assurance

CLIENT NAME: LANDTEK LTD.
PROJECT: 23355
SAMPLING SITE:White Church Lands

AGAT WORK ORDER: 24H198294
ATTENTION TO: Henry Erebor
SAMPLED BY:LB

Water Analysis

RPT Date: Sep 27, 2024			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Dissolved Oxygen in Water - mg/L															
Dissolved Oxygen	6154165	6154165	7.88	7.72	2.1%	< 0.1	NA								
PWQO Parameters															
pH	6154204		6.98	7.00	0.3%	NA	100%	90%	110%						
Cyanide, WAD	6148769		<0.002	<0.002	NA	< 0.002	107%	70%	130%	87%	80%	120%	99%	70%	130%
Alkalinity (as CaCO3)	6154204		164	166	1.2%	< 5	98%	80%	120%						
Turbidity	6154165	6154165	4.7	5.3	12.0%	< 0.5	89%	80%	120%						
Sulphide	6159442		<0.01	<0.01	NA	< 0.01	103%	90%	110%	102%	90%	110%	101%	80%	120%
Phenols	6151508		<0.001	<0.001	NA	< 0.001	103%	90%	110%	95%	90%	110%	100%	80%	120%
Ammonia as N	6154165	6154165	<0.02	<0.02	NA	< 0.02	91%	70%	130%	99%	80%	120%	83%	70%	130%
Total Phosphorus	6151121		6.49	6.50	0.2%	< 0.02	99%	70%	130%	101%	80%	120%	NA	70%	130%
Aluminum-dissolved	6162681		0.006	<0.004	NA	< 0.004	95%	70%	130%	101%	80%	120%	76%	70%	130%
Total Antimony	6154165	6154165	<0.003	<0.003	NA	< 0.003	103%	70%	130%	102%	80%	120%	102%	70%	130%
Total Arsenic	6154165	6154165	0.005	<0.003	NA	< 0.003	101%	70%	130%	101%	80%	120%	97%	70%	130%
Total Barium	6154165	6154165	0.085	0.087	2.3%	< 0.002	99%	70%	130%	102%	80%	120%	102%	70%	130%
Total Boron	6154165	6154165	0.121	0.118	2.5%	< 0.010	100%	70%	130%	102%	80%	120%	103%	70%	130%
Total Cadmium	6154165	6154165	0.0001	<0.0001	NA	< 0.0001	100%	70%	130%	100%	80%	120%	100%	70%	130%
Total Chromium	6154165	6154165	<0.003	<0.003	NA	< 0.003	100%	70%	130%	98%	80%	120%	98%	70%	130%
Total Cobalt	6154165	6154165	0.0019	0.0021	NA	< 0.0005	96%	70%	130%	97%	80%	120%	102%	70%	130%
Total Copper	6154165	6154165	<0.002	<0.002	NA	< 0.002	103%	70%	130%	103%	80%	120%	102%	70%	130%
Total Iron	6154165	6154165	0.863	0.909	5.2%	< 0.050	93%	70%	130%	98%	80%	120%	99%	70%	130%
Total Lead	6154165	6154165	<0.0005	<0.0005	NA	< 0.0005	98%	70%	130%	99%	80%	120%	95%	70%	130%
Dissolved Mercury	6154165	6154165	<0.0001	<0.0001	NA	< 0.0001	98%	70%	130%	96%	80%	120%	105%	70%	130%
Total Molybdenum	6154165	6154165	0.002	0.002	NA	< 0.002	100%	70%	130%	110%	80%	120%	108%	70%	130%
Total Nickel	6154165	6154165	<0.003	0.005	NA	< 0.003	96%	70%	130%	98%	80%	120%	100%	70%	130%
Total Selenium	6154165	6154165	<0.002	<0.002	NA	< 0.002	99%	70%	130%	100%	80%	120%	101%	70%	130%
Total Silver	6154165	6154165	<0.0001	<0.0001	NA	< 0.0001	99%	70%	130%	111%	80%	120%	106%	70%	130%
Total Thallium	6154165	6154165	<0.0003	<0.0003	NA	< 0.0003	98%	70%	130%	98%	80%	120%	96%	70%	130%
Total Tungsten	6154165	6154165	<0.010	<0.010	NA	< 0.010	98%	70%	130%	102%	80%	120%	97%	70%	130%
Total Uranium	6154165	6154165	0.0028	0.0028	0.0%	< 0.0005	103%	70%	130%	106%	80%	120%	100%	70%	130%
Total Vanadium	6154165	6154165	<0.002	<0.002	NA	< 0.002	94%	70%	130%	103%	80%	120%	107%	70%	130%
Total Zinc	6154165	6154165	<0.020	<0.020	NA	< 0.020	96%	70%	130%	103%	80%	120%	107%	70%	130%
Total Zirconium	6154165	6154165	<0.004	<0.004	NA	< 0.004	103%	70%	130%	105%	80%	120%	102%	70%	130%

Comments: NA signifies Not Applicable.
Duplicate NA: results are under 5X the RDL and will not be calculated.

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Duplicate NA: results are under 5X the RDL and will not be calculated.

Matrix spike NA: Spike level < native concentration. Matrix spike acceptance limits do not apply and are not calculated.

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Quality Assurance

CLIENT NAME: LANDTEK LTD.

AGAT WORK ORDER: 24H198294

PROJECT: 23355

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

Water Analysis (Continued)

RPT Date: Sep 27, 2024			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Residual Chlorine															
Total Residual Chlorine	6137904		0.05	0.05	0%	< 0.01	94%	80%	120%	97%	90%	110%	90%	80%	120%

Comments: NA signifies Not Applicable.
Duplicate NA: results are under 5X the RDL and will not be calculated.

Certified By:

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Method Summary

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PROJECT: 23355

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration

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Method Summary

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Acenaphthylene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Acenaphthene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Fluorene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Phenanthrene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Anthracene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Fluoranthene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Pyrene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Benzo(a)anthracene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Chrysene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Benzo(b)fluoranthene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Benzo(k)fluoranthene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Benzo(a)pyrene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Dibenzo(a,h)anthracene	ORG-91-5114	modified from EPA 3510C and EPA 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Phenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Bis(2-chloroethyl)ether	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2-Chlorophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
o-Cresol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Bis(2-chloroisopropyl)ether	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
m&p-Cresol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Hexachloroethane	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2,4-Dimethylphenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2,4-Dichlorophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
1,2,4-Trichlorobenzene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
p-Chloroaniline	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS

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Method Summary

CLIENT NAME: LANDTEK LTD.
AGAT WORK ORDER: 24H198294
PROJECT: 23355
ATTENTION TO: Henry Erebor
SAMPLING SITE:White Church Lands
SAMPLED BY:LB

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Hexachlorobutadiene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2-and 1-methyl Napthalene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2,4,6-Trichlorophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2,4,5-Trichlorophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
1,1-Biphenyl	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Dimethyl phthalate	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2,6-Dinitrotoluene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2,4-Dinitrotoluene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2,3,4,6-Tetrachlorophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Diethyl phthalate	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Hexachlorobenzene	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Pentachlorophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
3,3'-dichlorobenzidine	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Bis(2-Ethylhexyl)phthalate	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2,4-Dinitrophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2-Fluorophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
phenol-d6 surrogate	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
2,4,6-Tribromophenol	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Chrysene-d12	ORG-91-5114	modified from EPA 3510C, 8270E & ON MOECC E3265	GC/MS
Sediment			N/A
Aldicarb	ORG-91-5101	EPA 632 531.1 & MOE E3158	HPLC
Bendiocarb	ORG-91-5101	EPA 632 531.1 & MOE E3158	HPLC
Carbofuran	ORG-91-5101	EPA 632 531.1 & MOE E3158	HPLC
Carbaryl	ORG-91-5101	EPA 632 531.1 & MOE E3158	HPLC
Diuron	ORG-91-5101	EPA 632 531.1 & MOE E3158	HPLC
Triallate	ORG-91-5101	EPA 632 531.1 & MOE E3158	HPLC
Temephos	ORG-91-5101	EPA 632 531.1 & MOE E3158	HPLC
Diquat	ORG-91-5102	EPA 549.1	HPLC
Paraquat	ORG-91-5102	EPA 549.1	HPLC
Diethanolamine (DEA)	TO-2240	"In house" developed method	HPLC/UV
Ethanolamine (MEA)	TO-2240	"In house" developed method	HPLC/UV
Diisopropanolamine (DIPA)	TO-2240	"In house" developed method	HPLC/UV
Monoisopropanolamine (MIPA)	TO-2240	"In house" developed method	HPLC/UV
Propylene Glycol	TO-1410	EPA SW-846 8015	GC/FID
Monoethylene Glycol	TO-1410	EPA SW-846 8015	GC/FID

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Method Summary

CLIENT NAME: LANDTEK LTD.

AGAT WORK ORDER: 24H198294

PROJECT: 23355

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Diethylene Glycol	TO-1410	EPA SW-846 8015	GC/FID
Triethylene Glycol	TO-1410	EPA SW-846 8015	GC/FID
Tetraethylene Glycol	TO-1410	EPA SW-846 8015	GC/FID
Heptanol	TO-1410	EPA SW-846 8015	GC/FID
Gamma-Hexachlorocyclohexane	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	GC/ECD
Heptachlor	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	GC/ECD
Aldrin	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	GC/ECD
Heptachlor Epoxide	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	GC/ECD
Endosulfan I	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	GC/ECD
Endosulfan II	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	GC/ECD
Endosulfan	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	CALCULATION
alpha - chlordane	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	GC/ECD
gamma-Chlordane	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	GC/ECD
Chlordane	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	CALCULATION
op'-DDE	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	GC/ECD
pp'-DDE	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	GC/ECD
DDE	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	CALCULATION
op'-DDD	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	GC/ECD
pp'-DDD	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	GC/ECD
DDD	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	CALCULATION
op'-DDT	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	GC/ECD
pp'-DDT	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	GC/ECD
DDT	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	CALCULATION
Dieldrin	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	GC/ECD
Endrin	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	GC/ECD
Methoxychlor	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	GC/ECD
Hexachlorobenzene	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	GC/ECD
Hexachlorobutadiene	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	GC/ECD
Hexachloroethane	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	GC/ECD
Aroclor 1242	ORG-91-5112	modified from EPA SW-846 3510C & 8082A	GC/ECD

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Method Summary

CLIENT NAME: LANDTEK LTD.
AGAT WORK ORDER: 24H198294
PROJECT: 23355
ATTENTION TO: Henry Erebor
SAMPLING SITE:White Church Lands
SAMPLED BY:LB

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Aroclor 1248	ORG-91-5112	modified from EPA SW-846 3510C & 8082A	GC/ECD
Aroclor 1254	ORG-91-5112	modified from EPA SW-846 3510C & 8082A	GC/ECD
Aroclor 1260	ORG-91-5112	modified from EPA SW-846 3510C & 8082A	GC/ECD
Polychlorinated Biphenyls	ORG-91-5112	modified from EPA SW-846 3510C & 8082A	GC/ECD
TCMX	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	GC/ECD
Decachlorobiphenyl	ORG-91-5112	modified from EPA SW-846 3510C & 8081B	GC/ECD
Total Oil and Grease in water	VOL-91-5011	SM 5520 & EPA SW846 3510C & EPA 1664	BALANCE
2,4-D	ORG-91-5110	modified from EPA 515.2, EPA SW-846 8151A	GC/ECD
2,4,5-T	ORG-91-5510	modified from EPA 515.2, EPA SW-846 8151A	GC/ECD
2,4,5-TP	ORG-91-5110	modified from EPA 515.2, EPA SW-846 8151A	GC/ECD
Dicamba	ORG-91-5110	modified from EPA 515.2, EPA SW-846 8151A	GC/ECD
Dichlorprop	ORG-91-5110	modified from EPA 515.2, EPA SW-846 8151A	GC/ECD
Dinoseb	ORG-91-5110	modified from EPA 515.2, EPA SW-846 8151A	GC/ECD
Picloram	ORG-91-5110	modified from EPA 515.2, EPA SW-846 8151A	GC/ECD
Diclofop-methyl	ORG-91-5110	modified from EPA 515.2, EPA SW-846 8151A	GC/ECD
2,3,4,6-Tetrachlorophenol	ORG-91-5110	modified from EPA 515.2, EPA SW-846 8151A	GC/ECD
2,4-Dichlorophenol	ORG-91-5110	modified from EPA 515.2, EPA SW-846 8151A	GC/ECD
2,4,5-Trichlorophenol	ORG-91-5100	modified from EPA 515.2, EPA SW-846 8151A	GC/ECD
2,4,6-Trichlorophenol	ORG-91-5110	modified from EPA 515.2, EPA SW-846 8151A	GC/ECD
Bromoxynil	ORG-91-5110	modified from EPA 515.2, EPA SW-846 8151A	GC/ECD
MCPA	ORG-91-5110	modified from EPA 515.2, EPA SW-846 8151A	GC/ECD
MCPP	ORG-91-5110	modified from EPA 515.2, EPA SW-846 8151A	GC/ECD
Pentachlorophenol	ORG-91-5110	modified from EPA 515.2, EPA SW-846 8151A	GC/ECD
DCAA	ORG-91-5110	EPA SW-846 8151	GC/ECD
1-Methylnaphthalene, Ultra-low	ORG-120-5119	EPA 3510C/8270E	GC/MS
2-Methylnaphthalene, Ultra-low	ORG-120-5119	EPA 3510C/8270E	GC/MS
Acenaphthene, Ultra-low	ORG-120-5119	EPA 3510C/8270E	GC/MS
Acenaphthylene, Ultra-low	ORG-120-5119	EPA 3510C/8270E	GC/MS
Acridine, Ultra-low	ORG-120-5119	EPA 3510C/8270E	GC/MS
Anthracene, Ultra-low	ORG-120-5119	EPA 3510C/8270E	GC/MS
Benzo(a)anthracene, Ultra-low	ORG-120-5119	EPA 3510C/8270E	GC/MS
Benzo(a)pyrene, Ultra-low	ORG-120-5119	EPA 3510C/8270E	GC/MS

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Benzo(b)fluoranthene, Ultra-low	ORG-120-5119	EPA 3510C/8270E	GC/MS
Benzo(j+k)fluoranthene	ORG-120-5119	EPA 3510C/8270E	GC/MS
Benzo(e)pyrene, Ultra-low	ORG-120-5119	EPA 3510C/8270E	GC/MS
Benzo(ghi)perylene, Ultra-low	ORG-120-5119	EPA 3510C/8270E	GC/MS
Chrysene, Ultra-low	ORG-120-5119	EPA 3510C/8270E	GC/MS
Dibenzo(a,h)anthracene, Ultra-low	ORG-120-5119	EPA 3510C/8270E	GC/MS
Fluoranthene, Ultra-low	ORG-120-5119	EPA 3510C/8270E	GC/MS
Fluorene, Ultra-low	ORG-120-5119	EPA 3510C/8270E	GC/MS
Indeno(1,2,3-cd)pyrene, Ultra-low	ORG-120-5119	EPA 3510C/8270E	GC/MS
Naphthalene, Ultra-low	ORG-120-5119	EPA 3510C/8270E	GC/MS
Perylene, Ultra-low	ORG-120-5119	EPA 3510C/8270E	GC/MS
Phenanthrene, Ultra-low	ORG-120-5119	EPA 3510C/8270E	GC/MS
Pyrene, Ultra-low	ORG-120-5119	EPA 3510C/8270E	GC/MS
Quinoline, Ultra-low	ORG-120-5119	EPA 3510C/8270E	GC/MS
Sediment			GC/MS/FID
Naphthalene-d8	ORG-120-5119	EPA 3510C/8270E	GC/MS
Terphenyl-d14	ORG-120-5119	EPA 3510C/8270E	GC/MS
Pyrene-d10	ORG-120-5119	EPA 3510C/8270E	GC/MS
PAH - Extraction (Ultra-low)			GC/MS
Linoleic acid	ORG-100-5112F	MA.414–Aci-g-r 1.0	GC/MS
Linolenic acid	ORG-100-5112F	MA.414–Aci-g-r 1.0	GC/MS
Oleic acid	ORG-100-5112F	MA.414–Aci-g-r 1.0	GC/MS
9,10-Dichlorostearic acid	ORG-100-5112F	MA.414–Aci-g-r 1.0	GC/MS
Stearic acid	ORG-100-5112F	MA.414–Aci-g-r 1.0	GC/MS
Fatty acid total	ORG-100-5112F	MA.414–Aci-g-r 1.0	GC/MS
Pimaric acid	ORG-100-5112F	MA.414–Aci-g-r 1.0	GC/MS
Sandaracopimaric acid	ORG-100-5112F	MA.414–Aci-g-r 1.0	GC/MS
Isopimaric acid	ORG-100-5112F	MA.414–Aci-g-r 1.0	GC/MS
Palustric acid	ORG-100-5112F	MA.414–Aci-g-r 1.0	GC/MS
Levopimaric acid	ORG-100-5112F	MA.414–Aci-g-r 1.0	GC/MS
Dehydroabietic acid	ORG-100-5112F	MA.414–Aci-g-r 1.0	GC/MS
Abietic acid	ORG-100-5112F	MA.414–Aci-g-r 1.0	GC/MS
Neoabietic acid	ORG-100-5112F	MA.414–Aci-g-r 1.0	GC/MS
14-Chlorodehydroabietic acid	ORG-100-5112F	MA.414–Aci-g-r 1.0	GC/MS
12-Chlorodehydroabietic acid	ORG-100-5112F	MA.414–Aci-g-r 1.0	GC/MS
12,14-Dichlorodehydroabietic acid	ORG-100-5112F	MA.414–Aci-g-r 1.0	GC/MS
Resin acid total	ORG-100-5112F	MA.414–Aci-g-r 1.0	GC/MS
Resin and Fatty acid total	ORG-100-5112F	MA.414–Aci-g-r 1.0	GC/MS
O-methylpodocarpic	ORG-100-5112F	MA.414–Aci-g-r 1.0	GC/MS
Trifluralin	ORG-91-5104	EPA SW-846 3510C, 8270D & MOE E3121	GC/MS
Simazine	ORG-91-5104	EPA SW-846 3510C, 8270D & MOE E3121	GC/MS
Atrazine	ORG-91-5104	EPA SW-846 3510C, 8270D & MOE E3121	GC/MS
Metribuzin	ORG-91-5104	EPA SW-846 3510C, 8270D & MOE E3121	GC/MS
Prometryne	ORG-91-5104	EPA SW-846 3510C, 8270D & MOE E3121	GC/MS
Metolachlor	ORG-91-5104	EPA SW-846 3510C, 8270D & MOE E3121	GC/MS

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Method Summary

CLIENT NAME: LANDTEK LTD.

AGAT WORK ORDER: 24H198294

PROJECT: 23355

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Alachlor	ORG-91-5104	EPA SW-846 3510C, 8270D & MOE E3121	GC/MS
Cyanazine	ORG-91-5104	EPA SW-846 3510C, 8270D & MOE E3121	GC/MS
Triphenyl phosphate (surr)	ORG-91-5104	EPA SW-846 3510C, 8270D & MOE E3121	GC/MS
Dichlorodifluoromethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Chloromethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Vinyl Chloride	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Bromomethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Chloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Acetone	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Methylene Chloride	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
trans- 1,2-dichloroethylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Methyl tert-butyl ether	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
cis- 1,2-Dichloroethylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Chloroform	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Benzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Trichloroethylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Bromodichloromethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
cis-1,3-Dichloropropene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
trans-1,3-Dichloropropene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Method Summary

CLIENT NAME: LANDTEK LTD.

AGAT WORK ORDER: 24H198294

PROJECT: 23355

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
1,1,2-Trichloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Toluene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
2-Hexanone	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Dibromochloromethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Chlorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
m & p-Xylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Bromoform	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Styrene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,2,4-Trichlorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,3-Dichloropropene (Cis + Trans)	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
n-Hexane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Method Summary

CLIENT NAME: LANDTEK LTD.

AGAT WORK ORDER: 24H198294

PROJECT: 23355

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Dissolved Oxygen	INOR-93-6006	Modified from SM 4500-O G	DO METER
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Cyanide, WAD	INOR-93-6052	modified from ON MOECC E3015,SM 4500-CN- I, G-387	SEGMENTED FLOW ANALYSIS
Alkalinity (as CaCO3)	INOR-93-6000	Modified from SM 2320 B	PC TITRATE
Turbidity	INOR-93-6000	modified from SM 2130 B	PC TITRATE
Sulphide	INOR-93-6054	modified from SM 4500 S2- D	SPECTROPHOTOMETER
Phenols	INOR-93-6072	modified from SM 5530 D	LACHAT FIA
Ammonia as N	INOR-93-6059	modified from SM 4500-NH3 H	LACHAT FIA
Ammonia-Un-ionized		MOE REFERENCE, PWQOs Tab 2	CALCULATION
Total Phosphorus	INOR-93-6022	modified from SM 4500-P B and SM 4500-P E	SPECTROPHOTOMETER
Aluminum-dissolved	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Total Antimony	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Arsenic	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Barium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Boron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cadmium	MET -93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Chromium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cobalt	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Copper	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Iron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Lead	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Dissolved Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Total Molybdenum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Nickel	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Selenium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Silver	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Thallium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tungsten	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Uranium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Vanadium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zinc	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS

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Method Summary

CLIENT NAME: LANDTEK LTD.

AGAT WORK ORDER: 24H198294

PROJECT: 23355

ATTENTION TO: Henry Erebor

SAMPLING SITE:White Church Lands

SAMPLED BY:LB

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Zirconium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Lab Filtration Aluminum Dissolved	SR-78-9001		FILTRATION
Lab Filtration mercury	SR-78-9001		FILTRATION
Total Residual Chlorine	INOR-93-6060	modified from SM 4500-CL- G	SPECTROPHOTOMETER

AGAT Laboratories

Have feedback? Scan here for a quick survey!

Short Holding Time

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Phone: 905.712.5100 Fax: 905.712.5122
www.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: LANDTEK LIMITED
Contact: HENRY EREBOR
Address: 205 NEBO RD UNIT 4B
HAMILTON
Phone: 905-383-3733 Fax:
Reports to be sent to:
1. Email: henrye@landtek.ca
2. Email:

Project Information:

Project: 23355
Site Location: White Church lands
Sampled By: LB
AGAT Quote #: 2119478640 PO: 23355
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☒ No ☐
Company: LANDTEK
Contact: KATHY CRISTOI
Address: 205 NEBO RD, HAMILTON
Email: Kathy@landtek.ca

Regulatory Requirements:

(Please check all applicable boxes)

☐ Regulation 153/04
Table (Indicate One) ☐ Ind/Com ☐ Res/Park ☐ Agriculture
Soil Texture (Check One) ☐ Coarse ☐ Fine

☐ Regulation 406
Table (Indicate One) ☐ Ind/Com ☐ Res/Park ☐ Agriculture

☐ Regulation 558
☐ CCME

☐ Sewer Use ☐ Sanitary ☐ Storm
Region
☒ Prov. Water Quality Objectives (PWQO)
☐ Other Hamilton (Indicate One)

Is this submission for a Record of Site Condition (RSC)? ☐ Yes ☐ No

Report Guideline on Certificate of Analysis ☐ Yes ☐ No

Legal Sample ☐

Sample Matrix Legend

GW	Ground Water	SD	Sediment
O	Oil	SW	Surface Water
P	Paint	R	Rock/Shale
S	Soil		

Laboratory Use Only

Work Order #: 24H198294
Cooler Quantity: 6 LG COOLERS
Arrival Temperatures: SEE ATTACHED
Depot Temperatures:
Custody Seal Intact: ☐ Yes ☐ No ☐ N/A
Notes: LOOSE ICE

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days
Rush TAT (Rush Surcharges Apply)
☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day
OR Date Required (Rush Surcharges May Apply):
Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*
For 'Same Day' analysis, please contact your AGAT CSR

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI, DOC (Y/N)	O. Reg 153: Metals & Inorganics	O. Reg 153: Metals - ☐ CrVI, ☐ Hg, ☐ HWSB	O. Reg 153: BTEX, F1-F4 PHCs	VOC	PAHs	PCBs: Aroclors ☐	O. Reg 406: Regulation 406 Characterization Package pH, Metals, BTEX, F1-F4	O. Reg 406: EC, SAR	O. Reg 406: Regulation 406 SPLP Rainwater Leach mSPLP: ☐ Metals ☐ VOCs ☐ SVOCs ☐ DOC	O. Reg 558: Landfill Disposal Characterization TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Corrosivity: ☐ Moisture ☐ Sulphide	PWQO							Potentially Hazardous or High Concentration (Y/N)
1. MW30	Sept.18	9:50 AM/PM	4	GW		N												X							
2. MW4	Sept.18	12:00 AM/PM	4	GW		N												X							
3. MW10	Sept.18	11:00 AM/PM	4	GW		N												X							
4.		AM/PM																							
5.		AM/PM																							
6.		AM/PM																							
7.		AM/PM																							
8.		AM/PM																							
9.		AM/PM																							
10.		AM/PM																							
11.		AM/PM																							

Samples Relinquished By (Print Name and Sign): Lauren Blair	Date: Sept.18	Time: 7:00 pm	Samples Received By (Print Name and Sign):	Date: SEPT 18/24	Time: 1 PM		
Samples Relinquished By (Print Name and Sign): Lauren Blair	Date: Sept.18	Time: 7:00 pm	Samples Received By (Print Name and Sign):	Date: 18 Sept	Time: 16:00	Page ___ of ___	
Samples Relinquished By (Print Name and Sign):	Date: Sept 18/24	Time: 3PM	Samples Received By (Print Name and Sign):	Date:	Time:	№	T-162310

Pink Copy - Client | Yellow Copy - AGAT 1 White Copy - AGAT

AGAT Laboratories

Sample Temperature Log

Client: LANDTEK.

Work Order #: 24H198294.

Arrival Temperatures - Branch/Driver

Cooler #1:	16.6	16.8	17.0
Cooler #2:	18.0	18.6	18.2
Cooler #3:	17.4	17.0	17.9
Cooler #4:	16.0	16.5	17.0
Cooler #5:	14.7	14.9	15.2
Cooler #6:	17.2	17.7	18.0
Cooler #7:			
Cooler #8			
Cooler #9:			
Cooler #10:			

IR Gun ID:

Taken By:

Date Received/Time: Time: AM / PM

Arrival Temperatures - Laboratory

Cooler #1:	3.8	4.1	4.4
Cooler #2:	4.5	4.6	4.9
Cooler #3:	5.1	4.7	4.8
Cooler #4:	3.9	4.2	4.5
Cooler #5:	4.6	4.8	5.4
Cooler #6:	4.9	5.1	5.2
Cooler #7:			
Cooler #8			
Cooler #9:			
Cooler #10:			

IR Gun ID: AB

Taken By: Anmol Batth

Date Received/Time: 18 Sept Time: 16:00 AM / PM

Document ID: SR-78-9511.001
Date Issued: February 24, 2015

Page:

SGS

Request for Laboratory Services and CHAIN OF CUSTODY (specific SDWA/HPPA - 1st Party)

SGS Environmental Services - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Toll Free: 877-747-7658 Fax: 705-652-6365 Web: www.ca.sgs.com

Laboratory Information Section

Received Date (mm/dd/yyyy): SEP 20 2024 — LAB LIMS #: SLP 18886

Received Time (After Hours Only): ___:___ — Temperature Upon Receipt (°C): 14.3

Billing & Reporting Information

Invoice/ Receipt to:	Company:	Accounts Payable			Quote #: N/A
	Attention:	AGAT Laboratories - Mississauga			Attached Parameter List: ☐ YES ☑ NO
	Address:	5835 Coopers Avenue, Mississauga, ON, L4Z1Y2			
	Email:	janzen@agatlabs.com			**Turnaround Time**
Report to: {3}	Attention:	Eva Janzen; Neil Ramnaraign	PO #:	227847	Is *Rush Turnaround Time Required? ☐ YES ☑ NO
	Email:	janzen@agatlabs.com; ramnaraign@agatlabs.com	Job #:	24H198294	Specify: Regular TAT
	Phone:	905-712-5096; 905-712-5131	Fax:		* Rush TA Requests Require Lab Approval

Drinking Water System Information (Exceedance Reporting Information)

System Name:		**Waterworks/DWS #:**	**Client Lab #:**
Physical Address:		**Contact Phone Number:**	
Contact Name:		**Contact Fax Number:**	
MOH Unit (Ministry of Health):		**Day Care Licence # or SFIS #:**	

Please check the regulation that applies to your water samples: O.Reg. 170/03 ☐ — O.Reg 318/08 O.Reg 319/08 ☐ — O.Reg 243/07 ☐ — Certificate of Approval Requirement ☐ — Samples NOT Regulated ☑

As per the Ontario Safe Drinking Water Act and Health Protection and Promotion Act, the water facility information and the sample information sections **must be filled out prior to processing samples**. Sample Source Codes * indicate whether samples are Reportable or Not Reportable. The laboratory will report all exceedances to the SDWA/HPPA as per sample the applicable regulation and source codes.

Sample Information

Bottle #	Sample Source Code*	Sample Location Name	Check if Re-Sample From an Adverse Report	Date Sampled (mm/dd/yy)	Time Sampled	# of Bottles	Field Total Residual Chlorine	Field Free Residual Chlorine	Analysis Requested (please enter the analysis required below and check off which analysis applies to each sample)				
									Bisphenol A (unpreserved)				
1	GW	24H198294 - 6154165 - MW3D		9/9/2024	9:50	2			x				
2	GW	24H198294 - 6154182 - MW4		9/9/2024	12:00	2			x				
3	GW	24H198294 - 6154183 - MW10		9/9/2024	11:00	2			x				
4													
5													
6													
7													
8													
9													
10													
11									For NP/NPE work please report in mg/L				
12													

NR ↓ as per selected regulation. CL

Sampled By {1}:	(Name)	(Signature)	Date: ___ / ___ / ___	(mm/dd/yy)
Relinquished by {2}:	(Name) Jackel Ly	(Signature)	Date: 09 / 18 / 24	(mm/dd/yy)

*** Sample Source Codes**

DW-Distribution Water: Water in the DWS that is in the distribution system. These samples are reportable under applicable Ontario drinking water regulations
TW-Treated Water: Water in the DWS at the point of entry to the distribution system. These samples are reportable under applicable Ontario drinking water regulations
RW-Raw Water: Water source for a DWS that has a treatment system. These samples are not for consumption and not reportable under applicable Ontario drinking water regulations
RWFC-Raw Water For Consumption: Water source for a DWS that **does not** have a treatment system. These samples **are for consumption** and are reportable under applicable Ontario drinking water regulations
TAP-Tap Water: Water taken for the purposes of lead testing under O.Reg. 243/07
NR-Not Reportable: Water samples that are not reportable under applicable Ontario drinking water regulations

Note: {1} Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. {2} Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). {3} Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request.

Revision # 3.1
Date of Issue 06 Sep 2011

3349360869 69
AM 10:15

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

25-September-2024

AGAT Laboratories - Mississauga
Attn : Eva Janzen

5835 Coopers Avenue
Mississauga, ON
L4Z 1Y2, Canada

Phone: 905-712-5096
Fax:

Date Rec. : 20 September 2024
LR Report: **CA18886-SEP24**
Reference: PO#: 227847 - AGAT Job #: 24H198294

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Sample ID	Sample Date & Time	Temperature Upon Receipt °C	Bisphenol A ug/L
1: Analysis Start Date		---	23-Sep-24
2: Analysis Start Time		---	12:49
3: Analysis Completed Date		---	25-Sep-24
4: Analysis Completed Time		---	12:32
5: MDL		---	1
6: NR 24H198294 - 6154165 - MW3D	09-Sep-24 09:50	14.0	< 1
7: NR 24H198294 - 6154182 - MW4	09-Sep-24 12:00	14.0	< 1
8: NR 24H198294 - 6154183 - MW10	09-Sep-24 11:00	14.0	< 1

MDL - SGS Method Detection Limit
NR - Not regulated under applicable Provincial drinking water regulations as per client.

Method Descriptions

Parameter	Description	SGS Method Code	Reference Method Code
Bisphenol A	SVOC wtr - custom	ME-CA-[ENV]GC-LAK-AN-005	EPA 3510C/8270D

Kimberley Didsbury
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0003869213

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

LR Report : **CA18886-SEP24**

Quality Control Report

Organic Analysis														
Parameter	Reporting Limit	Unit	Method Blank	Duplicate				LCS / Spike Blank			Matrix Spike / Reference Material			
				Result 1	Result 2	RPD	Acceptance Criteria	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)		
							%		Low	High		Low	High	
Semi-Volatile Organics - QCBatchID: GCM0313-SEP24														
Bisphenol A	1	ug/L	< 1			NSS	30	107	50	140	NSS	50	140	

CERTIFICATE OF ANALYSIS

Work Order	: **WT2427747**	Page	: 1 of 3
Amendment	: **1**		
Client	: **AGAT Laboratories Ltd.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Eva Janzen	Account Manager	: Emily Smith
Address	: 8600 Glenlyon Parkway Burnaby BC Canada V5J 0B6	Address	: 60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	: ----	Telephone	: +1 519 886 6910
Project	: 24H198294	Date Samples Received	: 19-Sep-2024 14:20
PO	: 227836	Date Analysis Commenced	: 23-Sep-2024
C-O-C number	: ----	Issue Date	: 26-Sep-2024 07:38
Sampler	: ----		
Site	: ----		
Quote number	: 2022 Price List		
No. of samples received	: 3		
No. of samples analysed	: 3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Sarah Birch	VOC Section Supervisor	VOC, Waterloo, Ontario

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances

LOR: Limit of Reporting (detection limit).

Unit	*Description*
µg/L	micrograms per litre

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Workorder Comments

Amendment (26/09/2024): This report has been amended following minor LIMS report formatting corrections. All analysis results are as per the previous report.

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	24H198294-6154165 (Zl, Zm, Zn)-MW3D	24H198294-6154182 (Zl, Zm, Zn)-MW4	24H198294-6154183 (Zl, Zm, Zn)-MW10	----	----
					Client sampling date / time	19-Sep-2024 06:50	19-Sep-2024 09:00	19-Sep-2024 08:00	----	----
						WT2427747-001	WT2427747-002	WT2427747-003	--------	--------
						Result	Result	Result	----	----
Volatile Organic Compounds										
Dioxane, 1,4-	123-91-1	E611I/WT	20	µg/L		<20	<20	<20	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611I/WT	1.0	%		88.2	88.5	89.6	----	----
Difluorobenzene, 1,4-	540-36-3	E611I/WT	1.0	%		101	100	101	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2427747**	Page	: 1 of 5
Amendment	: 1		
Client	: **AGAT Laboratories Ltd.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Eva Janzen	Account Manager	: Emily Smith
Address	: 8600 Glenlyon Parkway Burnaby BC Canada V5J 0B6	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: ----	Telephone	: +1 519 886 6910
Project	: 24H198294	Date Samples Received	: 19-Sep-2024 14:20
PO	: 227836	Issue Date	: 26-Sep-2024 07:38
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: 2022 Price List		
No. of samples received	: 3		
No. of samples analysed	: 3		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Volatile Organic Compounds : VOCs (Dioxane) by Headspace GC-MS										
Compliant container										
24H198294-6154165 (ZI, Zm, Zn)-MW3D	E611I	19-Sep-2024	23-Sep-2024	14 days	4 days	✓	23-Sep-2024	14 days	4 days	✓
Volatile Organic Compounds : VOCs (Dioxane) by Headspace GC-MS										
Compliant container										
24H198294-6154182 (ZI, Zm, Zn)-MW4	E611I	19-Sep-2024	23-Sep-2024	14 days	4 days	✓	23-Sep-2024	14 days	4 days	✓
Volatile Organic Compounds : VOCs (Dioxane) by Headspace GC-MS										
Compliant container										
24H198294-6154183 (ZI, Zm, Zn)-MW10	E611I	19-Sep-2024	23-Sep-2024	14 days	4 days	✓	23-Sep-2024	14 days	4 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
VOCs (Dioxane) by Headspace GC-MS	E611I	1667345	1	17	5.8	5.0	✓
Laboratory Control Samples (LCS)							
VOCs (Dioxane) by Headspace GC-MS	E611I	1667345	1	17	5.8	5.0	✓
Method Blanks (MB)							
VOCs (Dioxane) by Headspace GC-MS	E611I	1667345	1	17	5.8	5.0	✓
Matrix Spikes (MS)							
VOCs (Dioxane) by Headspace GC-MS	E611I	1667345	1	17	5.8	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VOCs (Dioxane) by Headspace GC-MS	E611I ALS Environmental - Waterloo	Water	EPA 8260D/1624C (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Waterloo	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into a GC-MS-FID.

ALS Canada Ltd.

QUALITY CONTROL REPORT

Work Order	: **WT2427747**	Page	: 1 of 3
Amendment	: **1**		
Client	: AGAT Laboratories Ltd.	Laboratory	: ALS Environmental - Waterloo
Contact	: Eva Janzen	Account Manager	: Emily Smith
Address	: 8600 Glenlyon Parkway Burnaby BC Canada V5J 0B6	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: ----	Telephone	: +1 519 886 6910
Project	: 24H198294	Date Samples Received	: 19-Sep-2024 14:20
PO	: 227836	Date Analysis Commenced	: 23-Sep-2024
C-O-C number	: ----	Issue Date	: 26-Sep-2024 07:38
Sampler	: ----		
Site	: ----		
Quote number	: 2022 Price List		
No. of samples received	: 3		
No. of samples analysed	: 3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Sarah Birch	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Volatile Organic Compounds (QC Lot: 1667345)											
EO2408068-001	Anonymous	Dioxane, 1,4-	123-91-1	E611I	20	µg/L	<20	<20	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1667345)						
Dioxane, 1,4-	123-91-1	E611I	20	µg/L	<20	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1667345)									
Dioxane, 1,4-	123-91-1	E611I	20	µg/L	100 µg/L	102	70.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1667345)										
EO2408068-001	Anonymous	Dioxane, 1,4-	123-91-1	E611I	91 µg/L	100 µg/L	91.1	60.0	140	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 21 -

Page 1 of 1

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Canada Toll Free: 1 800 668 9878

Environmental Division Waterloo

Work Order Reference

WT2427747

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report	Reports / Recipients	Turnaround Time (TAT) Requested
Company:	AGAT Laboratories	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	☑ Routine [R] if received by 3pm M-F - no surcharges apply
Contact:	Eva Janzen; Neil Ramnaraign	Merge QC/QCI Reports with COA ☐ YES ☑ NO ☐ N/A	☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
Phone:	905-712-5096; 905-712-5131	☑ Compare Results to Criteria on Report - provide details below if box checked	☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
Street:	5835 Coopers Avenue	Email 1 or Fax janzen@agatlabs.com	☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
City/Province	Mississauga/ON	Email 2 ramnaraign@agatlabs.com	☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.
Postal Code:	L4Z 1Y2	Email 3	Additional fees may apply to rush requests on weekends.
Invoice To	Same as Report To ☑ YES ☐ NO	Invoice Recipients	Date and Time Required for all E&P TATs:
	Copy of Invoice with Report ☑ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	For all tests with rush TATs requested, please contact your AM to confirm availability.
Company:		Email 1 or Fax janzen@agatlabs.com	
Contact:		Email 2 ramnaraign@agatlabs.com	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:	24H198294	Major/Minor Code:	Routing Code:
PO / AFE:	227836	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (ALS use only):	WT2427747 AH	ALS Contact:	Sampler:

Analysis Request

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	1, 4-Dioxane	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	24H198294 - 6154165 (Zl, Zm, Zn) - MW3D	18-Sep-24	9:50	GW	3	R			
	24H198294 - 6154182 (Zl, Zm, Zn) - MW4	18-Sep-24	12:00	GW	3	R			
	24H198294 - 6154183 (Zl, Zm, Zn) - MW10	18-Sep-24	11:00	GW	3	R			

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	Ontario Provincial Water Quality Objectives (JULY, 1994)
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments Identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				4.8			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by: Jackal Ly	Date: Sep 18 2024	Time: 6PM	Received by:	Date:	Time:	Received by: VM	Date: 9-19-24	Time: 17:20

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

VW-066

Chain of Custody (COC) / Analytical Request Form

COC Number: 21 -

Page 1 of 1

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Canada Toll Free: 1 800 668 9878

Environmental Division Waterloo

Work Order Reference

WT2427747

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report	Reports / Recipients	Turnaround Time (TAT) Requested
Company:	AGAT Laboratories	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	☑ Routine [R] if received by 3pm M-F - no surcharges apply
Contact:	Eva Janzen; Neil Ramnaraign	Merge QC/QCI Reports with COA ☐ YES ☑ NO ☐ N/A	☐ 1 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
Phone	905-712-5096; 905-712-5131	☑ Compare Results to Criteria on Report - provide details below if box checked	☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
Street:	5835 Coopers Avenue	Email 1 or Fax janzen@agatlabs.com	☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
City/Province:	Mississauga/ON	Email 2 ramnaraign@agatlabs.com	☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.
Postal Code:	L4Z 1Y2	Email 3	Additional fees may apply to rush requests on weekends,
Invoice To	Same as Report To ☑ YES ☐ NO	Invoice Recipients	Date and Time Required for all E&P TATs:
	Copy of Invoice with Report ☑ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	For all tests with rush TATs requested, please contact your AM to confirm availability.
Company:		Email 1 or Fax janzen@agatlabs.com	
Contact:		Email 2 ramnaraign@agatlabs.com	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:	24H198294	Major/Minor Code:	Routing Code:
PO / AFE:	227836	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (ALS use only):	WT2427747 AH	ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	1, 4-Dioxane	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	24H198294 - 6154165 (Zl, Zm, Zn) - MW3D	18-Sep-24	9:50	GW	3	R			
	24H198294 - 6154182 (Zl, Zm, Zn) - MW4	18-Sep-24	12:00	GW	3	R			
	24H198294 - 6154183 (Zl, Zm, Zn) - MW10	18-Sep-24	11:00	GW	3	R			

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	Ontario Provincial Water Quality Objectives (JULY, 1994)
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				4.8			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by: Jackal Ly	Date: Sep 18 2024	Time: 6pm	Received by:	Date:	Time:	Received by: VM	Date: 9-19-24	Time: 17:20

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

ALS 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

VW-066

APPENDIX G

ROOTED CROPS/PASTURE & CROP AREA WATER BUDGET AND RUN-OFF

APPENDIX G: ROOTED CROPS/PASTURE SCRUBS AREA, PRE-DEVELOPMENT WATER BUDGET- White Church Rd. E. Upper James St. Hamilton

1. Climate Information

Precipitation (collected from Env. Canada data)	930	mm/a
Evapotranspiration (calculated by Thornthwaite method)	609	mm/a
Water Surplus	321	mm/a

2. Infiltration Rates

MOE Hydrogeological Technical Information (April 1995) - Infiltration Factors (Table 2)

Flat Land (average slope 2.8 m to 3.8 m per km)	0.2
Medium combinations of clay and loam	0.2
Cultivated Lands	0.1
TOTAL	0.5

Infiltration	161	mm/a
Run-off	161	mm/a

Typical Recharge Rates (Table 3)

Clayey Silt/Clayey Silt	100	mm/a
Silt	125-150	mm/a
silty sand to sandy silt	150-200	mm/a

Site development area is underlain by glaciolacustrine material (clayey silt/silty clay material).

Based on the above, the recharge rate is approximately 100 mm/a
with runoff of 221 mm/a

3. Site Statistics

Pre-Development:

Building roof Area	1.447	ha	14,471 m^2
Hardscape Area	4.344	ha	43,442 m^2
Softscape Area	340.996	ha	3,409,960 m^2
TOTAL	346.787	ha	3,467,874 m^2

APPENDIX G: ROOTED CROPS/PASTURE SCRUBS AREA, PRE-DEVELOPMENT WATER BUDGET- White Church Rd. E. Upper James St. Hamilton

4. Annual Pre-Development Water Balance

Land Use	Area (m^2)	Precipitation (m^3)	Evapotranspiration (m^3)	Infiltration (m^3)	Run-Off (m^3)
Building Roofs	14,471	13,458	-	-	13,458
Green Space	3,409,960	3,171,263	2,076,666	340,996	753,601
Roads, Other impervious	43,442	40,401	-	-	40,401
TOTAL	3,467,874	3,225,122	2,076,666	340,996	807,461

5. Pre-Development Water Balance Summary

		Precipitation (m^3)	Evapotranspiration (m^3)	Infiltration (m^3)	Run-Off (m^3)
Pre-Development		3,225,122	2,076,666	340,996	807,461

Thornthwaite method for determining potential evapotranspiration

A monthly index is obtained from the equation:

$i = (t/5)^{1.514}$

Summation of the 12 monthly values gives an appropriate heat index, I.

To calculate a, the expression is:

$a = 0.000000675I^3 - 0.0000771I^2 + 0.01792I + 0.49239$

From these relations, a general equation for potential evapotranspiration is obtained. It is:

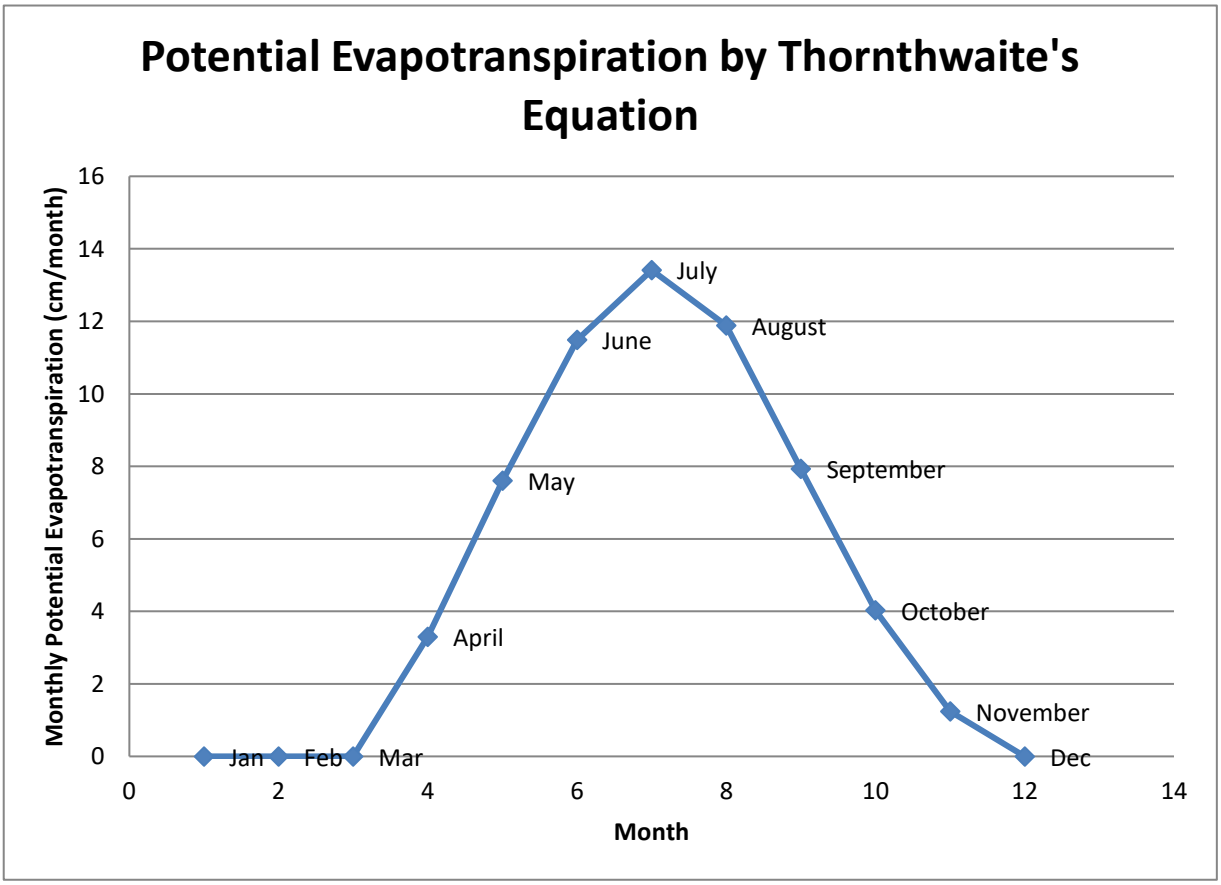
$$e = 1.6\left(\frac{10t}{I}\right)^a$$

in which a has the value given in the equation above.

APPENDIX G: Thornthwaite Method For Calculating Evapotranspiration

Hamilton Airport Climate Data

	Daily Average Temp (C^o)	Monthly index (i)	Potential Evapotranspiration (cm)	Adjusted Potential Evaportranspiration (cm)
Jan	-5.5			0
Feb	-4.6			0
Mar	-0.1			0
April	6.7	1.557530876	2.946791827	3.300406846
May	12.8	4.150260027	6.038429267	7.608420877
June	18.3	7.13034204	8.973741023	11.48638851
July	20.9	8.718883818	10.39718	13.4123622
August	20	8.156781464	9.902149829	11.88257979
September	15.8	5.708555702	7.625570812	7.930593644
October	9.3	2.558836857	4.238152363	4.026244745
November	3.7	0.633894267	1.526004012	1.236063249
Dec	-2.3			0
	HEAT INDEX (I) =	38.61508505		**60.88** **cm/year**
				608.83 **mm/year**
	a =	1.108273042		



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Consulting Engineers

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Annual to Monthly Pre-Development Surface Water Run-Off Values

Pre-Development Breakdown

Annual Pre-Development Precipitation and Run-Off

Land Use	*Area (m^2)*	*Precip. (m^3)*	*Run-Off (m^3)*
Building Roofs	14,471	13,458	**13,458**
Impevous Area	43,442	40,401	**40,401**
Landscape Area	3,409,960	3,171,263	**753,601**
Totals	3,467,873	3,225,122	**807,460**

Snow Water Equivalency (SWE) Factor

Canadian historical Snow Water Equivalent dataset (CanSWE, 1928-2023)

Temperature	*mm of Snow per 1 mm Water*	
-40°C to -29°C	100 mm	0.1
-28°C to -18°C	50 mm	0.5
-17°C to -13°C	40 mm	0.6
-12°C to -10°C	30 mm	0.7
-9°C to -7°C	20 mm	0.8
-6°C to -3°C	15 mm	0.85
-2°C to 1°C	10 mm	0.9

Monthly Water Balance Summary

Month	*Average Temperature*		*Average Snowfall*			*Average Rainfall*		*Average Precipitation*		*Average Monthly Run-Off*	
	Daily (°C)	*Active Factor*	*Monthly (cm)*	*Ratio (%)*	*SWE (mm)*	*Monthly (mm)*	*Ratio (%)*	*Monthly (mm)*	*Ratio (%)*	*Run-Off Factor*	*Run-Off (m^3)*
January	-5.5	0	32.4	27.43	27.54	27.4	3.51	56.8	6.33	Sub-zero	0
February	-4.6	0	31.1	26.33	26.44	26.4	3.38	57.2	6.37	Sub-zero	0
March	-0.1	0	18.3	15.50	16.47	43.3	5.55	63.7	7.10	Sub-zero	0
April	6.7	1	2.8	2.37	2.52	70.1	8.98	73.3	8.17	6.51%	233,189
May	12.8	1	0.00	0.00	0.00	85.5	10.96	85.5	9.53	6.83%	244,683
June	18.3	1	0.00	0.00	0.00	72.7	9.32	72.7	8.10	5.81%	46,884
July	20.9	1	0.00	0.00	0.00	82.7	10.60	82.7	9.22	6.61%	53,333
August	20	1	0.00	0.00	0.00	89.7	11.50	89.7	10.00	7.16%	57,847
September	15.8	1	0.00	0.00	0.00	80.9	10.37	80.9	9.02	6.46%	52,172
October	9.3	1	0.00	0.00	0.00	71.6	9.18	71.6	7.98	5.72%	46,174
November	3.7	1	7.5	6.35	6.60	83.2	10.66	91.3	10.17	9.06%	73,178
December	-2.3	0	26	22.02	25.10	46.8	6.00	71.9	8.01	Sub-zero	0
		Totals	118.1		105	780.3		897.3		Total Run-Off (m^3)	807,460

NOTES:

Dataset: 1981 to 2010 Climate Normals for Hamilton Airport (as averages)

Rationale of the assessment is based on the relationships between monthly averages of temperature, precipitation and snowfall (SWE).

Snow melt periods based on Environment Canada data and Farmers Almanac for Southern Ontario. Defined as March/April and May.

APPENDIX H

WOODED AREAS WATER BUDGET AND RUN-OFF

APPENDIX H: SIGNIFICANT WOODLAND AREA, PRE-DEVELOPMENT WATER BALANCE - White Church Rd. E. Upper James St. Hamilton

1. Climate Information

Precipitation (collected from Env. Canada data)	930	mm/a
Evapotranspiration (calculated by Thornthwaite method)	609	mm/a
Water Surplus	321	mm/a

2. Infiltration Rates

MOE Hydrogeological Technical Information (April 1995) - Infiltration Factors (Table 2)

Flat Land (average slope 2.8 m to 3.8 m per km)	0.2
Medium combinations of clay and loam	0.2
Cultivated Lands	0.2
TOTAL	0.6

Infiltration	193	mm/a
Run-off	128	mm/a

Typical Recharge Rates (Table 3)

Clayey Silt/Clayey Silt	100	mm/a
Silt	125-150	mm/a
silty sand to sandy silt	150-200	mm/a

Site development area is underlain by glaciolacustrine material (clayey silt/silty clay material).

Based on the above, the recharge rate is approximately 100 mm/a
with runoff of 221 mm/a

3. Site Statistics

Pre-Development:

Building roof Area	0.000	ha	0 m^2
Hardscape Area	0.000	ha	0 m^2
Wooded Area	17.580	ha	175,800 m^2
TOTAL	17.580	ha	175,800 m^2

4. Annual Pre-Development Water Balance

Land Use	Area (m^2)	Precipitation (m^3)	Evapotranspiration (m^3)	Infiltration (m^3)	Run-Off (m^3)
Building Roofs	0	0	-	-	0
Green Space	175,800	163,494	107,062	17,580	38,852
Roads, Other impervious	0	0	-	-	0
TOTAL	175,800	163,494	107,062	17,580	38,852

5. Pre-Development Water Balance Summary

		Precipitation (m^3)	Evapotranspiration (m^3)	Infiltration (m^3)	Run-Off (m^3)
Pre-Development		163,494	107,062	17,580	38,852

Thornthwaite method for determining potential evapotranspiration

A monthly index is obtained from the equation:

$i = (t/5)^{1.514}$

Summation of the 12 monthly values gives an appropriate heat index, I.

To calculate a, the expression is:

$a = 0.000000675I^3 - 0.0000771I^2 + 0.01792I + 0.49239$

From these relations, a general equation for potential evapotranspiration is obtained. It is:

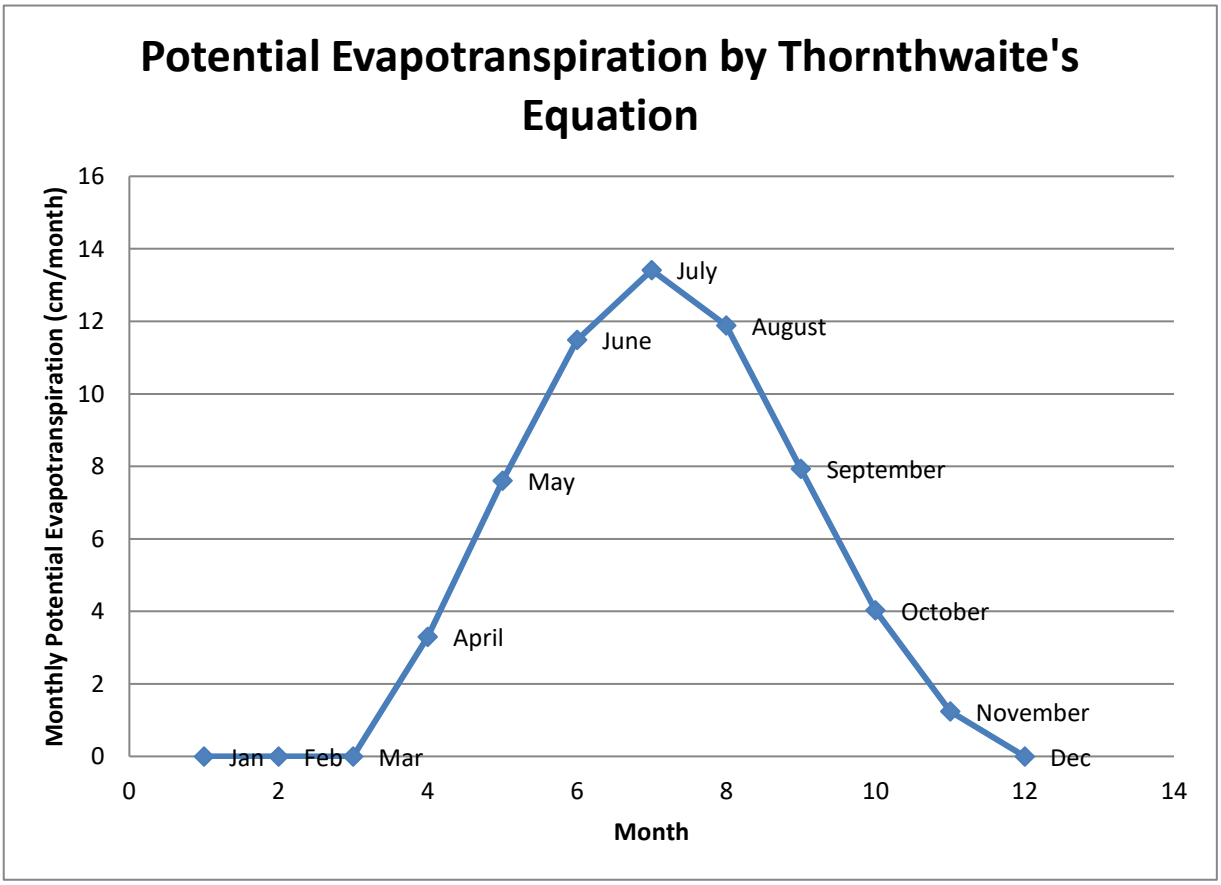
$$e = 1.6\left(\frac{10t}{I}\right)^a$$

in which a has the value given in the equation above.

APPENDIX H: Thornthwaite Method For Calculating Evapotranspiration

Hamilton Airport Climate Data

	Daily Average Temp (C^o)	Monthly index (i)	Potential Evapotranspiration (cm)	Adjusted Potential Evaportranspiration (cm)
Jan	-5.5			0
Feb	-4.6			0
Mar	-0.1			0
April	6.7	1.557530876	2.946791827	3.300406846
May	12.8	4.150260027	6.038429267	7.608420877
June	18.3	7.13034204	8.973741023	11.48638851
July	20.9	8.718883818	10.39718	13.4123622
August	20	8.156781464	9.902149829	11.88257979
September	15.8	5.708555702	7.625570812	7.930593644
October	9.3	2.558836857	4.238152363	4.026244745
November	3.7	0.633894267	1.526004012	1.236063249
Dec	-2.3			0
	HEAT INDEX (I) =	38.61508505		**60.88 cm/year**
				608.83 mm/year
	a =	1.108273042		



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Land Use	*Area (m^2)*	*Precip. (m^3)*	*Run-Off (m^3)*
Building Roofs	0	0	**0**
Impevous Area	0	0	**0**
Landscape Area	175,800	163,494	**38,852**
Totals	175,800	163,494	**38,852**

Snow Water Equivalency (SWE) Factor

Canadian historical Snow Water Equivalent dataset (CanSWE, 1928-2023)

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Monthly Water Balance Summary

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February	-4.6	0	31.1	26.33	26.44	26.4	3.38	57.2	6.37	Sub-zero	0
March	-0.1	0	18.3	15.50	16.47	43.3	5.55	63.7	7.10	Sub-zero	0
April	6.7	1	2.8	2.37	2.52	70.1	8.98	73.3	8.17	6.51%	11,220
May	12.8	1	0.00	0.00	0.00	85.5	10.96	85.5	9.53	6.83%	11,773
June	18.3	1	0.00	0.00	0.00	72.7	9.32	72.7	8.10	5.81%	2,256
July	20.9	1	0.00	0.00	0.00	82.7	10.60	82.7	9.22	6.61%	2,566
August	20	1	0.00	0.00	0.00	89.7	11.50	89.7	10.00	7.16%	2,783
September	15.8	1	0.00	0.00	0.00	80.9	10.37	80.9	9.02	6.46%	2,510
October	9.3	1	0.00	0.00	0.00	71.6	9.18	71.6	7.98	5.72%	2,222
November	3.7	1	7.5	6.35	6.60	83.2	10.66	91.3	10.17	9.06%	3,521
December	-2.3	0	26	22.02	25.10	46.8	6.00	71.9	8.01	Sub-zero	0
		Totals	118.1		105	780.3		897.3		Total Run-Off (m^3)	38,852

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