

# HYDROGEOLOGICAL INVESTIGATION WHISTLE BARE PIT EXPANSION

Part Lots 27 and 28, Concession 12 Township of North Dumfries

> SUBMITTED TO: 1476545 Ontario Inc. 270 Shoemaker Street Kitchener, Ontario N2E 3E1

FILE NO / H19109 / September 25 2020



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September 25, 2020 FILE NO.: H19109

1476545 Ontario Inc. 270 Shoemaker Street Kitchener, Ontario N2E 3E1

Dear Mr. Shawn Milloy:

# RE: HYDROGEOLOGICAL INVESTIGATION PROPOSED EXPANSION of WHISTLE BARE PIT Part of Lots 27 and 28, Concession 12, Township of North Dumfries

This report summarizes the results of a hydrogeological investigation in support of a proposed expansion of the Whistle Bare Pit located on Whistle Bare Road in North Dumfries Township.

An Environmental Impact Statement (EIS, Natural Resource Solutions Inc.) and Site Development Plans (WalterFedy) are also being undertaken concurrent to this hydrogeological investigation, although the results of that work have not yet been incorporated into this report.

If you have any questions or concerns regarding the report, please contact the undersigned.

# Yours truly, CHUNG & VANDER DOELEN ENGINEERING LTD.

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William (Sandy) Anderson, M.Sc., P.Eng. Senior Hydrogeologist and Engineer

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### 1.0 INTRODUCTION

This report presents a hydrogeological investigation of a proposed expansion of the Whistle Bare Pit (known previously as the Tullis Pit). The existing licenced pit is located at Part Lot 29, Concession 12 in North Dumfries Township and the expansion property is located to the immediate east at Part of Lots 27 and 28, Concession 12 (Figure 1).

The objectives of the investigation are as follows:

- 1. To characterize the hydrogeological setting at the expansion property, in particular: the geological / aggregate characteristics, the water table configuration, groundwater recharge and water balance and the inter-relationship between groundwater, surface water and wetland features.
- 2. To evaluate the potential impacts to groundwater, surface water and wetland features from the proposed pit expansion and make recommendations to address these potential impacts, where appropriate.

# 2.0 INVESTIGATION SCOPE

#### 2.1 BACKGROUND DATA REVIEW

The following background information have been considered as part of this investigation:

- Regional-scale topographic mapping (Figure 1).
- Quaternary Geology (i.e. surficial geology) mapping for the area (Figure 2).
- Water well records within 500 m of the property (Appendix B, with locations shown in Figure 1).
- Pit development plans for the existing Tullis Pit (June 1991, Planning and Engineering Initiatives).
- The hydrogeological characterization report for the recently-completed Upper Cedar Creek Subwatershed Study (Matrix Solutions Inc., 2019).

#### 2.2 TEST PIT EXCAVATIONS

The soil / aggregate investigation was initiated with the excavation of twenty-one (21) test pits (TP1 to TP21) on April 17, 2019 at the located shown in Figure 3. Excavation depths typically ranged from 4.9 to 7.3 m, with two of the pits falling outside this range (TP6 to 3.2 m and TP13 to 1.7 m). The pits were excavated using an excavator supplied by Gateman-Milloy Inc.

The soils were logged in the field and eight (8) representative samples were later analysed for grain size distribution at the CVD soils laboratory. Observations regarding any water seepage and/or accumulation were also made before the test pit was backfilled. Logs and grain size results are provided in Appendix C.

All test pits were surveyed for location and geodetic elevation by Van Harten Surveying on May 16, 2019.



### 2.3 BOREHOLE DRILLING & MONITORING WELL INSTALLATION

Borehole drilling and installation of eight (8) monitoring wells was completed on April 24-25, 2019 at the locations shown in Figure 3. This work was completed to provide additional soil / aggregate information and confirm the water table level across the property and drilling depths ranged from 5.0 to 13.1 m, a range based primarily on the depth necessary to reach the water table at different locations at the property. Standard hollow stem auger (HSA) drilling and installation methods were employed using a track-mounted drill rig operated by London Soil Test Limited and no water was introduced during drilling and well installation.

The soils were logged in the field and five (5) representative soil samples were later analysed for grain size distribution at the CVD soils laboratory. Borehole logs, with well installation details and the initial April 30 water levels, and grain size analysis results are provided in Appendix D.

All boreholes/ wells were surveyed for location and geodetic elevation by Van Harten Surveying on May 16, 2019.

# 2.4 DRIVE-POINT PIEZOMETER /STAFF GAUGE INSTALLATION

Shallow drive-point piezometers were installed at three (3) wetland locations (DP1 to DP3, Figure 3) on April 30, 2019. The piezometers were installed to investigate the hydrogeological conditions of the wetland features on the property. In addition, on July 3, 2019, a water level staff gauge was installed in the wetland pond that straddles the southern property line, since the wetland had become dry at the piezometer locations.

The procedure for installing each drive-point piezometer was as follows: 1) auger a 5-cm hole through the upper soil layers to observe the nature and thickness of the organic soil layers down to the mineral soil layer, 2) attach a 0.30-m long, 1.9-cm diameter stainless steel piezometer tip (or screen) to a length of 1.9-cm threaded steel riser pipe, 3) drive the assembled piezometer from the bottom of the auger hole to the depth desired using a post hammer, and 4) fill the annular space around the pipe with bentonite to prevent surface water from moving directly along the annulus to the piezometer screen.

The following details summarize each piezometer installation:

<u>Piezometer</u>	Auger Depth & Materials Encountered* De	<u>epth Driven</u>
DP1 (southeast wetland)	0.76 (peat to 0.10, sandy silt tr gravel tr organics rootlets to 0.76)	1.1 m
DP2 (southwest wetland)	0.72 (peat/silt 0.32, sandy silt tr gravel to 0.72)	1.3 m
DP3 (southwest wetland)	0.74 (peat/silt to 0.21, sandy silt tr gravel tr organics rootlets to 0	.74) 1.2 m
*All depths listed are in meters	s below sediment / ground surface (i.e. not including ponded water).	

All piezometers were surveyed for location and geodetic elevation by Van Harten Surveying on May 16, 2019.

#### 2.5 WELL DEVELOPMENT & WATER LEVEL MONITORING

Each monitoring well and piezometer was developed using Waterra polyethylene tubing and foot-valve hand pumps on April 30, 2019.

Manual water level monitoring was conducted on seven (7) occasions between April 30, 2019 and May 4, 2020. In addition, data loggers were installed on June 27, 2019 in monitoring wells BH4, BH5 and piezometer DP2, although after DP2 became dry, that latter data logger was moved on July 3 to the Staff Gauge for daily monitoring of the wetland pond. Appendix E provides a summary of the groundwater levels and calculated elevations (Table 1) as well has hydrographs of the water level data. It is notable that the water level dataset included two spring seasons.

#### 3.0 SITE CHARACTERIZATION

#### 3.1 TOPOGRAPHY & DRAINAGE

Regional topography and drainage features are shown in Figure 1. On-site topographic contours and wetland features from a site survey by Van Harten Surveying May 16, 2019 are presented in Figure 3.

The subject property is located at the topographic divide between the Blair Creek and Cedar Creek watersheds (Figure 1). Due to the hummocky topography at the expansion property, the divide is only loosely defined by several knolls (with peek elevations in the 212-313.5 mASL range) straddling from west to east across the property (Figure 3). From the divide, ground surface generally falls to the north and south, although there are numerous topographic depressions across the property, with bottom elevations in the 310.1 to 311.8 mASL range north of the divide and in the 305.5 to 309.4 mASL range south of the divide (Figure 3). The lowest depression contains a wetland and pond that straddles the southern property boundary with the neighbouring Grand Valley Golf Course. The golf course uses this pond for irrigation purposes and also pumps water to the pond from an adjacent well (Figure 3).

Owing in part to the hummocky topography, it is expected that little or no surface water runoff leaves the property toward either Blair or Cedar Creeks. Rather, on-site runoff is directed to the many topographic depressions and either evapotranspires or infiltrates. This hydrogeological phenomenon is referred to as "depression-focused recharge" and often results in much greater amounts of both evapotranspiration and groundwater recharge than would occur if there were runoff leaving the property.

At its closest, Blair Creek is located about 600 m north of the expansion property and flows easterly from Roseville Swamp to the Grand River about 2.5 km to the northeast at the hamlet of Blair (Figure 3). At its closest, Cedar Creek is located about 200 m southwest of the property and flows westerly along the southern edge of the existing pit before turning south adjacent to Highway 401.



#### 3.2 GEOLOGIC SETTING & AGGREGATE QUALITY

Surface geological mapping for the area (by Karrow, 1987) is presented in Figure 2. The mapping indicates the property is underlain by Outwash Gravel (Deposit 7, Figure 2). To the north, the mapping indicates that Blair Creek is located in a broad valley of Outwash Sand (Deposit 7, Figure 2) and the immediate riparian area is underlain by alluvial stream deposits (Deposit 16, Figure 2) with wide ranging textures, from clay and silt to sand and gravel. To the south, the mapping indicates that Cedar Creek is located in a narrower valley of Outwash Sand (Deposit 7, Figure 2).

The test pit and borehole data (Appendix C) are generally consistent with the geological mapping, confirming that the property is underlain mostly by extensive deposits of sand & gravel with some to trace cobbles, interlayered with deposits of primarily sand with some to trace gravel and cobbles. These deposits typically contain only trace amounts of silt (i.e. < 10%) and are thus considered to be high quality aggregate (as evidenced by four (4) test pit grain size analyses that fit within the Granular "A" envelope and three (3) test pit grain size analyses that fit within the Granular "B" envelope, Appendix C). These seven (7) samples had silt content ranging from 1.3 to 4.5%. Three (3) other grain size analyses (from borehole BH1, BH7 and BH8, Appendix D) had somewhat higher silt content (6.9 to 9.2%) but are nonetheless also considered to be of high-quality aggregate.

Variations from the predominant sand & gravel and sand deposits include the following non-aggregate materials:

- near-surface thin layers of sand & silt, sandy silt or silty sand (ranging in thickness from 0.15-3.8 m, with the majority less than 1 m thick), found at five (5) boreholes BH1, BH2, BH4, BH5 and BH6 and ten (10) test pits TP3, TP6, TP7, TP8, TP10, TP11, TP16, TP19, TP20 and TP21. Grain size analyses of samples from BH5 (at 1.5-2.0 m) is provided in Appendix D.
- surface layers of peat or peat/silt layers (0,1 to 0.3 m thick) overlying sandy silt at edges of the southern wetlands at DP1, DP2 and DP3.
- deeper silt layer beneath sand/gravel, at BH2 (at 4.4 to 7.0-m depth) and at TP10 (at 2.75 to 5.8-m depth). Grain size analyses of samples from these layers (BH2 at 4.6-5.0 m and TP10 at 3.4-3.7 m) are provided in Appendices C and D, respectively.

Information on the overburden deposits surrounding the property and also to depths much greater than the on-site boreholes is available from local water well records (Appendix B and Figure 1). Well records to the north confirm the widespread extent of the surficial sand and gravel deposits, with a range in thickness from about 5 to 15 m (note: Well A029255 suggests, perhaps erroneously, >33.5 m). To the south, three of the four closest wells indicate that the surficial granular deposit was not encountered. The latter finding seems at odds with the geological mapping but may be an indicator of the thinning granular deposit to the south toward upper portion of Cedar Creek. Most well records also confirm the presence of an intermediate-depth aquitard deposit to the north (and an 'apparent' surficial-aquitard to the south), separating the surficial granular deposits from deeper granular layers (and/or bedrock). Figure 1 provides the depth ranges at which the aquitard layers were found at each location.



### 3.3 HYDROGEOLOGIC SETTING

The hydrogeological setting in the area has three primary components:

- The *upper water table aquifer zone* within the surficial sand/gravel deposits and which is hydraulically connected to area creeks and wetlands.
- The low-permeability *aquitard* that separates the upper and deeper water bearing aquifer zones.
- The *deeper aquifer zone* within lower sand and gravel deposits and/or hydraulically-connected bedrock.

# 3.3.1 Water Table Depth and Configuration

The water table exists within the sand and gravel deposits and the finer sandy silt and peat deposits at southern wetlands. Table 1 (Appendix E) presents the water level depths and elevations as well as the fluctuations relative to the May 16, 2019 event. The Hydrograph in Appendix E also illustrates the fluctuations. Figure 3 presents the water table elevations from May 16, 2019 to go along with the 'standing-water' limits in the southern wetlands, as surveyed by Van Harten on May 15, 2019. Figures 4 and 5 present the April 30 and August 14, 2019 water table elevations and interpreted water table contours and shallow groundwater flow directions during these particular spring and summer events. Based on these data sets, it is apparent that the April 30, 2019 levels are about 0.7 m higher than the next highest manual levels in the spring of 2019 (May 16) and all the levels during the winter and spring of 2020 (noting the data logger sets, in particular).

The water table configuration is interpreted to have a generally similar pattern in the spring, summer and fall seasons, with shallow groundwater directed 'radially' away from the southern wetlands and depressions and then ultimately northward. The water table drop from north to south across the property is about 4.7 m (307.1 to 302.4 mASL) during the spring season and about 4.25 m (305.5 to 301.3 mASL) during the fall season. The precise extent of the interpreted 307-m contour in Figure 4 is uncertain and its existence is based on the April 30 water level at BH5 being higher than the water level in the adjacent wetland pond at DP2 and the staff gauge. It is likely that significant "depression-focused" recharge occurred in late April at the largest topographic depressions to the northeast of BH5 (i.e., near TP10 and TP13) and this resulted in a temporal mounding of the water table in this area in late April 2019. The similar water levels at BH5 and DP2 a short time later on May 16, 2019 indicates the 2019 spring mound is relatively short-lived. In the remainder of the monitoring period, from mid-spring 2019 through the summer and fall of 2019 and the winter and spring of 2020, the water levels at the wetland staff gauge were typically about 0.2 to 0.45 m higher than at BH5. On only one other occasion (briefly, in mid-January 2020) did the BH5 level rise slightly above the wetland.

The water table configuration indicates that most (if not all) shallow groundwater flow at the site is directed toward the Blair Creek watershed, which is consistent with the 'regional-scale' interpretation from the Upper Cedar Creek Subwatershed Study (Figure 6). Very little, if any, flow is directed toward the Cedar Creek watershed, except perhaps a very modest amount during spring that is first directed to the southern wetlands from the nearby topographic depressions. Notwithstanding this possibility, the near-



perpendicular orientation of water table contours crossing Cedar Creek (Figure 6), suggests that there is very little shallow groundwater flow and discharge to Cedar Creek in this upper reach.

The depths to the water table vary widely across the property. In the north and adjacent to the east and west property boundaries, the depth ranges from about 9 to 10.5 m beneath the highest knolls during the fall season to about 5-7.5 m (+/-) beneath the topographic depressions during the spring season. In the topographically lower southern area surrounding the wetlands, the depth ranges from about 5 to 6.5 m beneath the highest knolls during the fall season to about 0 to 2.5 m beneath the topographic depressions during the spring season and is only 0 to 0.5 m at the wetlands throughout the year.

# 3.3.2 Groundwater / Surface Water Interaction

The water level data from well BH5, drive-point piezometers DP1 to DP3, and the staff gauge provide insight on the relationship between shallow groundwater and the wetland features at the site. It is noted that the April 30, 2019 piezometer levels had not recovered from installation that same day, so the first available 'piezometric' water level data are from May 16, 2019, after the decline from the 2019 spring water table high had already begun.

On April 30, the BH5 water level was about 0.9 m higher than the ponded water in the main wetland. As indicated in Section 3.3.1, this indicates there is some localized southward shallow groundwater movement from nearby water table mounding and modest discharge to the wetland. The similar water levels at BH5, DP2 and the wetland pond by May 16, 2019 indicates the mound and discharge was relatively short-lived. In addition, the subsequent data in 2019 and 2020 indicate this mounding and modest discharge is <u>atypical</u>.

DP1 and DP2 are located on the northern edge of the main wetland. On both April 30 and May 16, 2019 there was approximately 0.4 and 0.3 m of standing water at these respective locations. The wetland pond had receded at both locations by June and the wetland remained dry at these locations through October and again on May 4, 2020. On May 16, 2019, the surface water level in the main wetland was 0.5 m higher than the DP1 piezometric level, suggesting a downward vertical hydraulic gradient at this edge of the wetland. Further east at DP2 and BH5, the May 16 levels were just 0.01 m higher than the surface water level, suggesting a very modest upward vertical gradient during this transitional period, as the apparent water table mound recedes.

The wetland pond levels (as measured at the staff gauge) in late-spring, summer and fall of 2019 and the vast majority in the winter and spring of 2020 (see hydrograph) were about 0.2 to 0.45 m higher than the water levels at BH5 and DP2 and about 0.75 to >1.1 m (+/-) higher than the water levels at DP1, which was dry by October 2019. These hydraulic gradients confirm that shallow groundwater moves away from the main wetland the vast majority of the time and the pond functions as a 'recharge' feature to the shallow groundwater regime.

DP3 is located on the northern edge of a smaller wetland. This monitoring location had 0.4 to 0.5 m of ponded water during the spring 2019 events and a modest downward gradient on May 16, 2019. On



the June event there was an apparent upward gradient from a 0.26 m higher piezometric level. Conversely, during the July, August and October events, the wetland pond became dry, the piezometric levels at DP3 fell below the bottom of the depression by 0.15 to >1.2 m, the latter when the piezometer became dry. There was 0.12 m of water on May 4, 2020, but no downward gradient at that time.

# 3.3.3 Groundwater Recharge & Water Balance

Based on the lack of any significant runoff leaving the property, as described in Section 3.1, the only significant water balance components at the property are groundwater recharge and evapotranspiration. The proportioning of annual precipitation between these two components is influenced heavily by the very permeable granular soils, but also by the hummocky topography, that undoubtedly directs on-site runoff into the many on-site depressions, including the southern wetlands. The runoff reaching these depressions, whether ponding for a brief period or remaining wet through many seasons, will not only create 'depression-focussed' recharge but will also result in higher evapotranspiration rates via evaporation from water surfaces and transpiration from the frequently 'wetted' vegetated soil or peat.

The Upper Cedar Creek Subwatershed Study (UCCSS) modelling estimates the recharge rate at this property to be on the order of 350-400 mm/yr (Figure 7), leaving the evapotranspiration rate to be about 500-550 mm/yr. For the reasons described above, the split could easily be even higher in favour of recharge (i.e. perhaps as high as 450 mm/yr recharge and 450 mm/yr evapotranspiration).

It is noted that the UCCSS modelling also indicates recharge rates as high as 450 to 500 mm/yr in the existing pit and other open pits in the area. This is not surprising since there is not only no off-site runoff, but no vegetated topsoil layer to facilitate evapotranspiration (i.e. infiltration rates are very high into open sand).

# 3.3.4 Water Receptors

The following three (3) potential water receptors are identified based on the hydrogeological setting described above:

- 1) The shallow sand & gravel aquifer that is used by water supply wells in the area.
- 2) Blair and Cedar Creek baseflow.
- 3) The surface water runoff and groundwater discharge to the wetlands located in the south end of the property.

Temporal water table mounding is occasionally apparent for very brief periods in the winter/spring in the area to the immediate northeast of the southern wetlands and this creates some modest temporal shallow groundwater flow from these topographic depressions toward the wetlands.

In summary, the sources of water that support the on-site wetlands include:

1) off-site groundwater and surface water that discharge <u>directly</u> from the south (i.e. the adjacent golf course property),



- 2) on-site surface water runoff from the pit property catchment areas that <u>directly</u> connect to the wetland,
- 3) water pumped seasonally from the golf course irrigation well that is discharged <u>directly</u> into the wetland pond, and
- 4) a very modest amount of on-site groundwater recharge, from depression-focused recharge in depressions that are located very close to but <u>not directly</u> connected to the wetland.

It is noted that the later contribution is considered to be a very modest contribution (compared to the first three) due to the brief temporal nature of the water table mounding and the prevailing northward groundwater flow away from the wetland.

# 4.0 ASSESSMENT OF AGGREGATE PIT DEVELOPMENT & IMPACTS

Several factors are considered in establishing the appropriate bit bottom design for the expansion site and potential impacts to water receptors, as follows:

- The Aggregate Resources Act requires that "above water table" pits maintain a pit bottom that is at least 1.5 m above the water table.
- The 'high' water table contour from April 30, 2019 (Figure 4) is a <u>conservative</u> baseline for establishing an appropriate 1.5-m offset from the pit bottom, although the water table slope of about 4.5 m from south to north across the property needs to be accounted for.
- Removal of topsoil during pit development is expected to result in a decline in evapotranspiration and an increase in groundwater recharge at the site. The resulting temporal rises in the water table that occur after recharge events are expected to be a few centimeters higher than at present, however, the very high transmissivity of the aquifer is anticipated to easily accommodate the additional recharge without any significant overall rise in the water table.

Based on the increased groundwater recharge that would accompany pit development, no water quantity impacts are expected to shallow aquifer wells in the area or to groundwater discharge to area surface water receptors (Blair Creek and possibly Cedar Creek).

Maintaining the surface water and modest temporal groundwater functions to the southern wetland receptors can be accomplished by maintaining the catchment areas that contribute directly to the wetland (#2 in Section 3.3.4) and leaving in place the closest topographic depressions to the west and northeast of the wetland (#4 in Section 3.3.4). In the latter case, this would also include preserving much of the lands contributing runoff to these depressions and not just the depressions themselves. IT would also involve directing surface water flows to these depressions as part of the rehabilitated pit.

Based on the above considerations, the following general pit design guidance is recommended:

 Within the area roughly formed by BH2, BH3 and along the 309 (+/-) mASL elevation contour in the area of the topographic depressions to the northeast of the wetlands, no aggregate extraction should occur, thereby preserving the surface water and temporal groundwater functions to the wetlands.



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2) North, west and east of the area described in 1), the pit bottom should be offset 1.5 m from the 'high' water table shown in Figure 4 (i.e., gradually sloped or benched from an elevation of 307.5 mASL in the southwest corner and 306.5 mASL along the north and east edges and no deeper than 304 mASL in the northwest corner).

Respectfully submitted, CHUNG & VANDER DOELEN ENGINEERING LTD.

duson.

William (Sandy) Anderson, M.Sc., P.Eng. Senior Hydrogeologist and Engineer





Hydrogeological Investigation Proposed Expansion of Whistle Bare Pit 1476545 Ontario Inc. Sept 25, 2020 FILE NO.: H19109 Page A

APPENDIX A Figures 1 to 7









	LEGEND
-	Test Pit
-	Borehole with Monitoring Well
•	Drive-point Piezometer
311.64	Ground Elevation (mASL)
[300.99]	Bottom of Test Pit / Borehole Elevation [mASL]
(304.91)	Water Table Elevation [mASL] (May 15 2019)
0	Ponded Water (May 16 2019)
$\frown$	Catchment Area Leading to Wetland Depressions
309.4	Topographic Depression & Bottom Elevation [mASL] (Depression Focussed Recahrge)
313.4	Topographic High & Top Elevation [mASL]
	0 m 80 m 160 m
	Figure 3
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	IUNG & VANDER DOELEN

ENGINEERING LTD. 311 VICTORIA STREET NORTH KITCHENER / ONTARIO / N2H 2E1 / 519-742-8979





![](_page_18_Figure_0.jpeg)

![](_page_19_Figure_0.jpeg)

Hydrogeological Investigation Proposed Expansion of Whistle Bare Pit 1476545 Ontario Inc. Sept 25, 2020 FILE NO.: H19109 Page B

APPENDIX B Water Well Records

![](_page_20_Picture_3.jpeg)

40 P8d 13,49 UTM Ontario Water Resources Commission Act Eley RECOR Basin Township, Village, Town or City ......Date completed Con..... Lot **Pumping Test Casing and Screen Record** 8 Static level Inside diameter of casing. Total length of casing. Test-pumping rate G.P.M. Type of screen Pumping level 6 Duration of test pumping ...... Length of screen. Water clear or cloudy at end of test Depth to top of screen. Recommended pumping rate Diameter of finished hole G.P.M. 00 with pump setting of..... feet below ground surface Water Record Well Log Depth(s) at which water(s) Kind of water From To ft. (fresh, salty, Overburden and Bedrock Record ft. found sulphur) 6.5 Location of Well For what propose(s) is the water to be used?. ouse In diagram below show distances of well from road and lot line. Indicate north b arrow. Is well on upland, in valley, or on hills 80 Drilling or Boring Firm Address 27 24 Licence Number (Roamille Rd) Name of Driller Address Date (Signature of Licensed Drilling or Boring Contractor) mo 97 H Way Form 7 15M-60-4138 CSS.28 OWRC COPY 25 lotlen

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15-18 1 _ FRESH 3 2 _ SALTY 4	SULPHUR 19	2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 17-14 I STEEL	"   188 "	0 0160	61 DLPTH SET	PLUGGING	& SEALING	RECORD	11
15-18         1         FRESH         3           2         SALTY         4           20-23         1         FRESH         3           2         SALTY         4	SULPHUR 19	2 GALVANIZED     3 GONCRETE     4 GOPEN HOLE     1 GALVANIZED     3 GALVANIZED     3 GONCRETE     4 GONCRETE	"   188 "	© ° 01 60 20-23	61 DLPTH SET FROM 10-13	PLUGGING AT - FEET TO 14-17	& SEALING	RECORD	ЕЕТ ЛТ 1С.)
15-m         1         FRESH         3           2         SALTY         4           20-23         1         FRESH         3           2         SALTY         4           20-24         1         FRESH         3           2         SALTY         4           20-24         1         FRESH         3           2         SALTY         4           20-24         1         FRESH         3           2         SALTY         4	SULPHUR 19 SULPHUR 19 SULPHUR 24 MINERAL SULPHUR 25 SULPHUR 25 MINERAL	4         GALVANIZED           3         CONCRETE           4         OPEN HOLE           5         GALVANIZED           6         OPEN HOLE           1         STEEL           2         GALVANIZED           3         CONCRETE           4         OPEN HOLE           4         OPEN HOLE           4         OPEN HOLE           4         OPEN HOLE	19 26	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	61 DLPTH SET FROM 10-13 18-21	РЦИЗСИ С	& SEALING	RECORD	££7
15-18         1         FRESH         3           2         SALTY         4           20-23         1         FRESH         3           2         SALTY         4           20-24         1         FRESH         3           2         SALTY         4         2         SALTY           30-33         1         FRESH         3         2         SALTY           30-33         1         FRESH         3         2         SALTY         4	SULPHUR 19 MINERAL SULPHUR 24 MINERAL SULPHUR 24 MINERAL SULPHUR 34 C SULPHUR 24 SULPHUR 2	2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 4 OPEN HOLE 4 CONCRETE 4 CONCRETE 4 OPEN HOLE	18 <sup>2</sup> 18 <sup>2</sup>	27-36	61 DLPTH SET FROM 10-13 18-21 26-29	PLUGGING AI - FEET MA 16-137 22-25 30-33 80	& SEALING	RECORD	££1
15-R         1         FRESH         3           2         SALTY         4           20-23         1         FRESH         3           2         SALTY         4           20-24         1         FRESH         3           2         SALTY         4           30-33         1         FRESH         3           2         SALTY         4           30-33         1         FRESH         3           2         SALTY         4           10         FRESH         3         1           1         FRESH         3         1         FRESH	SULPHUR 19     SULPHUR 19     SULPHUR 24     MINERAL     SULPHUR 24     MINERAL     SULPHUR 24     MINERAL     SULPHUR 34	2 GALVANIZED     3 CONCRETE     4 OPEN HOLE     2 GALVANIZED     3 CONCRETE     4 OPEN HOLE     4 OPEN HOLE     5 TEEL     1 STEEL     2 GALVANIZED     3 CONCRETE     4 OPEN HOLE     1 B-14 DUBATION OF //     1 GPN	PUMPING 19 28 PUMPING 5-16 00 17-1	0 01 60 20-23 27-36	61 DLPTH SET FROM 10-13 16-21 26-29 L O	РЦЦGGING AT - FELT 10 14-17 222-25 30-33 80 САТІОN OF	t, . & SEALING terial and type WELL	RECORD ICEMENT GROU	JT 1C.)
15.R         1         FRESH         3           2         SALTY         4           20-23         1         FRESH         3           2         SALTY         4           20-23         1         FRESH         3           2         SALTY         4           20-23         1         FRESH         3           2         SALTY         4           30-33         1         FRESH         3           2         SALTY         4           30-33         1         FRESH         3           2         SALTY         4         4           30-33         1         FRESH         3           2         SALTY         4         4           30-31         FRESH         3         2           3         PUMP         2         BALTY         4           WHING TEST METHOD         WHING         1         WHING           STATIC         ENO OF         PUMP HONG         2         SALTY	SULPHUR         1           SULPHUR         1           MINERAL         0           SULPHUR         0           MINERAL         0           SULPHUR         10           SULPHUR         20           MINERAL         20           SULPHUR         24           MINERAL         20	2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 4 OPEN HOLE 4 OPEN HOLE 4 OPEN HOLE 5 CONCRETE 4 OPEN HOLE 1 STELL 2 CONCRETE 4 OPEN HOLE 4 O	62         1 1 1 8         =           19	20-23 27-30	61 DLPTH SET FROM 10-13 16-21 26-29 L O SRAM BELOW NE INDICA	PLUGGING AT - FEET 10 14-17 222-25 30-33 80 CATION OF SHOW DISTANCES ITE NORTH BY ARR	K SEALING     SEALING     TERIAL AND TYPE     WELL     OF WELL FROM     OW.	RECORD ICEMENT GROU LEAD PACKER E	JT 1C.)
15-m       1       FRESH       3         2       SALTY       4         20-23       1       FRESH       3         2       SALTY       4         20-23       1       FRESH       3         2       SALTY       4         20-24       1       FRESH       3         2       SALTY       4         30-33       1       FRESH       3         2       SALTY       4         30-33       1       FRESH       3         2       SALTY       4         10-70       2       BALLY       4         STATIC       LEVEL       WATER LEVE         10-21       10-21       2       2	SULPHUR         1           SULPHUR         1           SULPHUR         1           SULPHUR         1           SULPHUR         24           MINERAL         1           SULPHUR         24           MINERAL         2           SULPHUR         24           MINERAL         2           MINERAL         2           MINERAL         2           VATER         24           VATER         24           VATER         24           VATER         24           VATER         24           VATER         24	2         GALVANIZED           3         CONCRETE           4         OPEN HOLE           7-14         1           3         CONCRETE           4         OPEN HOLE           3         CONCRETE           4         OPEN HOLE           3         CONCRETE           4         OPEN HOLE           6         OPEN HOLE           8         OPEN HOLE           8         OPEN HOLE           8         OPEN HOLE           9         ON           9         ON           9         ON           9         ON           9         ON           10         ON           11         STECL           12         GALVANIZED           13         ON           14         OPEN HOLE           15         ON           16         OPEN HOLE           17         ON           18         OPEN HOLE           19         OPEN HOLE           10         STEND           10         STEND           10         STEND	PUMPING 26 19 26 19 26 19 19 26 10 10 10 10 10 10 10 10 10 10	0 01 60 20-23 27-30	G1 DLPTH SET FROM 10-13 14-21 26-29 LO SRAM BELOW NE INDICA	PLUGGING AT - FELT TO 16-17 22-25 30-33 80 CATION OF SHOW DISTANCES STE NORTH BY ARR	K SEALING     SEALING     TERIAL AND TYPE     WELL     OF WELL FROM     OW.	RECORD ICLEAD PACKER E	JT 1C.)
13-10     1     FRESH     3       2     SALTY     4       20-23     1     FRESH     3       2     SALTY     4       20-24     1     FRESH     3       2     SALTY     4       30-33     1     FRESH     3       2     SALTY     4       30-33     1     FRESH     3       2     SALTY     4       30-33     1     FRESH     3       2     SALTY     4       10     PUMP     2     BALTY       11     PUMP     2     BALTE       12     PUMP     2     BALTE       35     Trice     Jonation       36     Trice     21       37     Trice     21       36     Trice     21       37     Trice     21       36     Trice     21       37     Trice     21       36     Trice     21	Image: Superior Superior         Image: Superior           SUPPUR         Image: Superior           Image: Superior         Image: Superior           SUPPUR         Image: Superior           ID         PUNFING Rate           ID         PUNFING Rate           ID         Image: Superior           ID         Ima	2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 4 OPEN HOLE 4 OPEN HOLE 4 OPEN HOLE 5 CONCRETE 4 OPEN HOLE 5 CONCRETE 5 CO	28 19 28 29 29 20 29 20 20 20 20 20 20 20 20 20 20	20-23 27-30 21 6 0 20-23 27-30	GI DLPTH SET FROM 10-13 16-21 26-29 LO SRAM BELOW NE INDIC/	PLUGGING AT -FLET 10 14-12 222-25 30-33 80 CATION OF SHOW DISTANCES ITE NORTH BY ARR	WELL WELL WELL WELL WELL WELL	RECORD	JT 10.)
15.m       1       FRESH       3         2       SALTY       4         20-23       1       FRESH       3         2       SALTY       4         20-23       1       FRESH       3         2       SALTY       4         20-23       1       FRESH       3         2       SALTY       4         30-33       1       FRESH       3         2       SALTY       4       30-33       1       FRESH         30-33       1       FRESH       3       2       SALTY       4         30-31       1       FRESH       3       2       SALTY       4         30-32       1       FRESH       3       2       SALTY       4         10       PUMP       2       BAICER       1       8       0         STATIC       LEVEL       19-81       21       BAICER       21         3       5       rccOHA       2       3       3       3       3         10-81       10-81       21       8       3       3       3       3       3       3       3       3       3	SULPHUR         1           SULPHUR         1           MINERAL         0           SULPHUR         0           SULPHUR         0           SULPHUR         0           SULPHUR         0           SULPHUR         20           MINERAL         20           SULPHUR         20           SULPHUR         20           WINERAL         20           WINERAL         20           WINERAL         20           WINERAL         20           WATER         20           L         25           SULPHUR         30 M           E224         15 MINUTES           SUP         7547           PUMP         21           Fett         75           PUMP         21	2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 4 OPE	#1         #2         #1         #2           19	0 0 0 60 20-23 27-30 27-30	61 DLPTH SET FROM 10-13 18-21 26-29 LO SRAM BELOW NE INDICA	PLUGGING AT - FEET 10 14-17 222-23 30-33 80 CATION OF SHOW DISTANCES ITE NORTH BY ARR	WELL WELL F WELL OF WELL FROM WELL Building	RECORD ICEMENT GROU LEAD PACKER E	лт 1с.)
15.m     1     FRESH     3       2     SALTY     4       20-23     1     FRESH     3       2     SALTY     4       20-23     1     FRESH     3       2     SALTY     4       30-33     1     FRESH     3       2     SALTY     4       30-33     1     FRESH     3       2     SALTY     4       30-33     1     FRESH     3       2     SALTY     4       10     PUMP     2     BALTY       11     PUMP     2     BALTY       12     SALTY     4       13     PUMP     2       13-21     21       35-7     re     24       36-33     re     24       37-21     21       37-21     21       37-21     21       37-21     21       37-21     21       37-21     21       37-21     21       37-21     21       37-21     21       37-21     21       37-21     21       37-21     21       37-3     21       37-3     21 <td>SULPHUR         1           SULPHUR         1           SULPHUR         1           SULPHUR         1           SULPHUR         1           SULPHUR         1           SULPHUR         2           MINERAL         2           COM         2           L         2           WATER         2           CH         2           MINERAL         2           RECOMNENDED         2           MP         3           PUMP         3           GMININT         3<!--</td--><td>2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 4 OPEN HOLE 4 OPEN HOLE 4 OPEN HOLE 0 CONCRETE 4 OPEN HOLE 0 CONCRETE 1 OPEN HOLE 1 OPEN 1 OPEN</td><td>#2         ////////////////////////////////////</td><td>20-23 27-36 2160 20-23 27-36</td><td>61 DLPTH SET FROM 10-D 16-21 26-29 L O SRAM BELOW NE INDICA</td><td>PLUGGING AT - FEET MA 10 14-17 222-25 30-33 80 CATION OF SHOW DISTANCES SHOW DISTANCES SHOW DISTANCES</td><td>WELL WELL FROM WELL WELL Building</td><td>RECORD LEAD MARKER E</td><td>JT 10.)</td></td>	SULPHUR         1           SULPHUR         1           SULPHUR         1           SULPHUR         1           SULPHUR         1           SULPHUR         1           SULPHUR         2           MINERAL         2           COM         2           L         2           WATER         2           CH         2           MINERAL         2           RECOMNENDED         2           MP         3           PUMP         3           GMININT         3 </td <td>2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 4 OPEN HOLE 4 OPEN HOLE 4 OPEN HOLE 0 CONCRETE 4 OPEN HOLE 0 CONCRETE 1 OPEN HOLE 1 OPEN 1 OPEN</td> <td>#2         ////////////////////////////////////</td> <td>20-23 27-36 2160 20-23 27-36</td> <td>61 DLPTH SET FROM 10-D 16-21 26-29 L O SRAM BELOW NE INDICA</td> <td>PLUGGING AT - FEET MA 10 14-17 222-25 30-33 80 CATION OF SHOW DISTANCES SHOW DISTANCES SHOW DISTANCES</td> <td>WELL WELL FROM WELL WELL Building</td> <td>RECORD LEAD MARKER E</td> <td>JT 10.)</td>	2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 4 OPEN HOLE 4 OPEN HOLE 4 OPEN HOLE 0 CONCRETE 4 OPEN HOLE 0 CONCRETE 1 OPEN HOLE 1 OPEN 1 OPEN	#2         ////////////////////////////////////	20-23 27-36 2160 20-23 27-36	61 DLPTH SET FROM 10-D 16-21 26-29 L O SRAM BELOW NE INDICA	PLUGGING AT - FEET MA 10 14-17 222-25 30-33 80 CATION OF SHOW DISTANCES SHOW DISTANCES SHOW DISTANCES	WELL WELL FROM WELL WELL Building	RECORD LEAD MARKER E	JT 10.)
13-m     1     FRESH     3       2     SALTY     4       20-23     1     FRESH     3       2     SALTY     4       20-23     1     FRESH     3       2     SALTY     4       20-23     1     FRESH     3       2     SALTY     4       30-33     1     FRESH     3       2     SALTY     4       30-33     1     FRESH     3       2     SALTY     4       30-33     1     FRESH     3       2     SALTY     4       10-04P     BALEE     1       3     FRESH     1     2       4     S     C     2	SULPHUR 19     SULPHUR 19     SULPHUR 14     MINERAL     SULPHUR 24     MINERAL     SULPHUR 24     MINERAL     SULPHUR 24     MINERAL     SULPHUR 34     CO     SULPHUR 34	2 GALVANIZED 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 3 CONCRETE 4 OPEN HOLE 3 CONCRETE 4 OPEN HOLE 1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 1 STEEL 3 CONCRETE 4 OPEN 4 OPE	#1         1         1         1         1           19         1         1         1         1           19         1         1         1         1           19         1         1         1         1         1           26         1 <td>20-23 20-23 27-30 20-23 27-30</td> <td>GI DLPTH SET FROM 10-13 10-13 10-13 10-13 10-13 10-13 10-13 10-13 10-13</td> <td>PLUGGING AT - FEET 10 14-17 222-25 30-33 10 CATION OF SHOW DISTANCES ITE NORTH BY ARR</td> <td>* SEALING * SEALING TERIAL AND TYPE * WELL OF WELL FROM  WELL BUILDING</td> <td>RECORD ICLMENT GROU LEAD PACKER E</td> <td>лт 1С.)</td>	20-23 20-23 27-30 20-23 27-30	GI DLPTH SET FROM 10-13 10-13 10-13 10-13 10-13 10-13 10-13 10-13 10-13	PLUGGING AT - FEET 10 14-17 222-25 30-33 10 CATION OF SHOW DISTANCES ITE NORTH BY ARR	* SEALING * SEALING TERIAL AND TYPE * WELL OF WELL FROM WELL BUILDING	RECORD ICLMENT GROU LEAD PACKER E	лт 1С.)
13.m       1       FRESH       3         2       SALTY       4         20-23       1       FRESH       3         2       SALTY       4         20-23       1       FRESH       3         2       SALTY       4         20-23       1       FRESH       3         2       SALTY       4         30-33       1       FRESH       3         2       SALTY       4         30-33       1       FRESH       3         2       SALTY       4         10-70       Yanth       4         STATIC       WATER LEVE       21         35-7       FEOWING       21       7         GIVE RATE       20       3       3         FIONAL       STATUS       20       20         GFWELL       1       20       3	SULPHUR 1 SULPHUR 1 SULPHUR 24 MINERAL SULPHUR 24 MINERAL SULPHUR 24 MINERAL SULPHUR 24 MINERAL SULPHUR 24 MINERAL 20 SULPHUR 24 MINERAL 20 SULPHUR 24 MINERAL 20 SULPHUR 24 MINERAL 20 SULPHUR 24 SULPHUR 24 SULP	2         GALVANIZED           2         GALVANIZED           4         OPEN HOLE           2         GALVANIZED           3         CONCRETE           4         OPEN HOLE           1         GALVANIZED           3         CONCRETE           4         OPEN HOLE           1         GALVANIZED	#2         ////////////////////////////////////	0 0160 20-23 27-30 27-30	G1 DLPTH SET FROM 10-13 16-21 26-29 LO SRAM BELOW NE INDICA	PLUGGING AT - FELT MA 10 14-17 222-25 30-33 80 CATION OF SHOW DISTANCES STE NORTH BY ARR	WELL WELL FROM WELL BUILDING	RECORD LICENENT GROU LEAD PACKER E	аст лт пс.)
13.10       1       FRESH       3         2       SALTY       4         20-23       1       FRESH       3         2       SALTY       4         20-23       1       FRESH       3         2       SALTY       4         20-23       1       FRESH       3         2       SALTY       4         30-33       1       FRESH       3         2       SALTY       4         30-33       1       FRESH       3         2       SALTY       4         10       PUMP       BALEON         1       PUMP       BALEON       BALEON         1       PUMP       BALEON       STATUS         0       STATUS       1       1         0       FUNAL       54       1       1         0       FINAL       54       1       1       1         0       FUNAL       54       1       1       1       1         0       FUNAL       54       1       1       1       1       1       1       1       1       1       1       1       1	SULPHUR         1           SULPHUR         2           MINERAL         1           SULPHUR         2           SULPUR         2           SULPUR </td <td>2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 4 OPEN HOLE 4 OPEN HOLE 5 GALVANIZED 3 CONCRETE 4 OPEN HOLE 4 OPEN HOLE 5 GALVANIZED 3 CONCRETE 4 OPEN HOLE 5 GALVANIZED 5 CONCRETE 4 OPEN HOLE 5 GALVANIZED 5 CONCRETE 4 OPEN HOLE 5 GALVANIZED 5 GALV</td> <td>#1         #2         #3         #2           19        </td> <td>20-23 20-23 27-30 27-30 27-30 27-30 27-30 27-30 27-30 27-30 27-30 27-30 27-30</td> <td>61 DLPTH SET FROM 10-13 16-21 26-29 L O SRAM BELOW NE INDIC/</td> <td>PLUGGING AT -FET 10 14-12 222-25 30-33 80 CATION OF SHOW DISTANCES ITE NORTH BY ARR</td> <td>WELL WELL F WELL FROM - WELL Building REG R</td> <td>RECORD ICLMENT GROU LEAD PACKER E</td> <td>аст лт 1(с.)</td>	2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 4 OPEN HOLE 4 OPEN HOLE 5 GALVANIZED 3 CONCRETE 4 OPEN HOLE 4 OPEN HOLE 5 GALVANIZED 3 CONCRETE 4 OPEN HOLE 5 GALVANIZED 5 CONCRETE 4 OPEN HOLE 5 GALVANIZED 5 CONCRETE 4 OPEN HOLE 5 GALVANIZED 5 GALV	#1         #2         #3         #2           19	20-23 20-23 27-30 27-30 27-30 27-30 27-30 27-30 27-30 27-30 27-30 27-30 27-30	61 DLPTH SET FROM 10-13 16-21 26-29 L O SRAM BELOW NE INDIC/	PLUGGING AT -FET 10 14-12 222-25 30-33 80 CATION OF SHOW DISTANCES ITE NORTH BY ARR	WELL WELL F WELL FROM - WELL Building REG R	RECORD ICLMENT GROU LEAD PACKER E	аст лт 1(с.)
15-10       1       FRESH       3         20-23       1       FRESH       3         20-23       1       FRESH       3         20-24       1       FRESH       3         21       SALTY       4         30-33       1       FRESH       3         2       SALTY       4         30-33       1       FRESH       3         2       SALTY       4         30-33       1       FRESH       3         2       SALTY       4       4       4         30-33       1       FRESH       3       2         STATIC       LEVEL       WATER       2       BAILEY         35-51       FEINAL       51-54       2       3         400-753       STATUS       51-54       4       4         WATER       1       1       2       3       4         WATER       1       1       2       3       1       1       1	SULPHUR         1           SULPHUR         1           SULPHUR         1           SULPHUR         24           MINERAL         0           SULPHUR         24           MINERAL         25           L         25           SULPHUR         24           MINERAL         30 M           CH         25           L         25           L         26           SULPHUR         30 M           CH         26           SUPHUR         30 M           CH         26           SUPARAMENDED         30 M           SUPARAMENDED         754           SUPARAMENDED         754           MATER SUPPLY         085674700 WELL           CHARRE SUPLY         0           STOCK         G           CHARE         0	2 GALVANIZED 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 4 GALVANIZED 3 CONCRETE 4 OPEN HOLE 4 OP	#1         #2         #3         #2           19	0 0160 20-23 27-30	G1 DLPTH SET FROM 16-13 16-21 26-29 L O SRAM BELOW NE INDICA	PLUGGING AT - FELT 10 14-17 222-25 30-33 80 CATION OF SHOW DISTANCES SHOW DISTANCES STE NORTH BY ARR	WELL WELL OF WELL FROM 	RECORD LICOMENT GROU LICAD PACKER E ROAD AND ROAD AND 046	
15-70     1     FRESH     3       20-23     1     FRESH     3       21     SALTY     4       30-33     1     FRESH     3       2     SALTY     4       UMPTING     2     SALTY       30-33     1     FRESH     3       30-33     1     FRESH     3       31     PUMP     2     SALTY       32     SALTY     4     4       30-33     1     FRESH     3       35     FRESH     1     2       35     FRESH     1     2       35     1     1     2       36     1     2	SULPHUR         1           SULPHUR         1           SULPHUR         1           SULPHUR         2           MINERAL         2           BUDYNERAL         2           CATER SUPPLY         3           OBSERVATION WELL         2           FEST HOLE         5           STOCK         4           OMERCHARC         5           INDUSTRIAL         0           OTHER         0	2 GALVANIZED 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 4 OPEN HOLE 4 OPEN HOLE 4 OPEN HOLE 4 OPEN HOLE 4 OPEN HOLE 5 CONCRETE 4 OPEN HOLE 1 GALVANIZED 3 MINUTES 2 GALVANIZED 3 MINUTES 4 MINUTES 4 ABANDONED INSIED 1 GOLING OR AIR COMI 4 ODINING CALL 1 GALVANIZED 1 GALVA	42         18         2           19         18         2           19         19         19           19         19         10           19         19         10           19         19         10           19         10         17-11           10         10         17-11           10         10         10           10         10         10           10         10         10           10         0         46-4           10         0         46-4           10         0         46-4           11         10         10           12         10         10           11         10         10           11         10         10	0 01 60 20-23 27-30 27-30 27-30 27-30 27-30 27-30 27-30 27-30 27-30 27-30 27-30 27-30	61 DLPTH SET FROM 16-21 16-21 26-29 L O SRAM BELOW NE INDICA	PLUGGING AT - FEET MA 10 14-17 222-25 30-33 60 CATION OF SHOW DISTANCES SHOW DISTANCES STE NORTH BY ARR	WELL WELL FROM WELL Building REG RI	RECORD LICENENT GROU LICENE MICH CHE LI ROAD AND ROAD AND	ат л.,
15-70     1     FRESH     3       2     SALTY     4       20-23     1     FRESH     3       2     SALTY     4       20-23     1     FRESH     3       2     SALTY     4       20-23     1     FRESH     3       2     SALTY     4       30-33     1     FRESH     3       2     SALTY     4       30-33     1     FRESH     3       2     SALTY     4       30-33     1     FRESH     3       2     SALTY     4       30-31     1     FRESH     3       2     SALTY     4       30-33     1     FRESH     3       2     SALTY     4       10     PUMP     2     BAILER       31     PUMP     2     BAILER     2       32     5     1     2     3       31     51     1     2     3       32     51     1     2     3       31     51     1     2     3       31     51     1     2     3       32     51     1     2     3<	SULPHUR 1 SULPHUR 1 SULPHUR 24 SULPHUR	2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 1 STEEL 3 CONCRETE 4 STEEL 3 CONCRETE 4 STEEL 4 STE	#2         ////////////////////////////////////	0 0160 20-23 27-30	G1 DLPTH SET FROM 10-13 18-21 26-29 L O SRAM BELOW NE INDICA	PLUGGING AT - FEET MA 10 14-17 222-23 30-33 E0 CATION OF SHOW DISTANCES SHOW DISTANCES SHOW DISTANCES	WELL WELL FWELL FROM 	RECORD LICOMAN GROU LEAD PACKER E	ат л. с.)
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	LC	OG OF OVERBURDEN AND BEDROCK	MATERIALS (SEE INSTRUCTIONS)	DEPTH	· FEET
NERAL COLOUR	COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	FROM	, TO
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FINAL STATUS OF WELL WATER USE	1         M WATER SUPPLY           2         DOBSERVATION           3         TEST HOLE           4         RECHARGE WCLI           55-54         1           7         DOMESTIC           2         DISTOCK           3         TRIGATION           4         RECHARGE WCLI           55-54         1           1         DOMESTIC           2         TRIGATION           1         INDUSTRIAL           1         NOUSTRIAL	A BANDONED. INSUFFICIENT SUPPLY ELL     ABANDONED POOR QUALITY     UNFINISHED     DEWATERING     COMMERCIAL     MUNICIPAL     PUBLIC SUPPLY     COOLING OR AIR CONDITIONING	Z WAT. REG. R	(p 71	
METHOD OF CONSTRUCT	57 i CABLE TOOL 2 ROTARY (CONVI 3 ROTARY (REVER ION 4 W ROTARY (AIR) 5 AIR PERCUSSIO		DRILLERS REMARKS	10	496
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1 • WAT	TER RECORD	51 CASING & OPEN HOLE F	RECORD	Z 5126+5 15107	OF OPENING 31	-33 DIANET	28 34-38	75 10 LENGTH 31-40
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METHOD	57 1 CABLE TOOL	6 D BORING		/				
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General co	lour Most con	nmon material	Oth	er materials			General de	escription	Dept	n - feet To
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32 41 Water found at - feet 10-13 5-18 20-23 25-28 30-33	Mail         Mail           VATER RECORD         Kind of wate           1         Kind of wate           2         Saity           3         Sus           1         Fresh           2         Saity           3         Sus           1         Fresh           2         Saity           6         Ga           1         Fresh           2	21 21 21 1 1 1 1 1 1 1 1 1 1 1 1 1	CASING & O     Material     Material     Material     Material     Accord a concrete     Open hole     S     Plastic     Open hole     Op	PEN HOLE R Wall thickness inches .188	Li L	feet To 13-16 <b>8-5</b> 20-23 27-30	Sizes of op. (Siot No.) Material and Material and Sizes of op. (Siot No.) Material and Material and Sizes of op. (Siot No.) Material and Sizes of op. (Siot No.) (Siot No.) Material and Sizes of op. (Siot No.) (Siot No.)	LUGGING & SEA unular space left 15 BEN 22-25 30-33 00	Leng Inches Depth at top Abandonm pe (Cement grout, be TON/TO	th 39-40 feet feet 30 for screen 41-44 feet 30 foot 41-44
71 Pumping 1 (Brunn Static lev 322, 11 flowing Recomme □ Shall 50:53	test method 10 Pi sp 2 Bailer Water level end of pumping 121 22:24 15 122 350 feet give rate give rate give rate GPM inded pump type Pi ATUS OF WELL	Imping rate     11       Water levels during     30 minutes       # 35-pet     30 minutes       # 45-freet     50       Impintake set at     35       scommended     45	14     Duration of pump Hours       1 X Pumping       45 minutes       9-31       45 minutes       9-31       45 minutes       9-34       6eet       X Clear       9-35       16eet       9-36       9-37       1000mended       9ump rate	ing		In diagram b Indicate norti	LOCA elow show o h by arrow.	ATION OF WELL distances of well f	rom road and lot	line.
1 Wai 2 Obs 3 Tes 4 Rec WATER U	ter supply 5 c servation well 6 c t hole 7 c charge well 8 c ISE nestic 5 c	Abandoned, insufficier Abandoned, poor qual Abandoned (Other) Dewatering 55-56 Commercial	nt supply 9  Unfinis lity 10  Beplac 9  Not us	hed ement well		280	E	DHOUSE	EN SETTLE	
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<sup>2</sup> Aot <sup>3</sup> Rot <sup>4</sup> Rot	ary (conventional) 6 [ ary (reverse) 7 [ ary (air) 8 [	Boring Diamond Jetting	10 Diggin 11 Other	9		5 y 20 5 5 7 11			224	15 <b>5</b>
Address	AM WELL	DRILLING.	Well Contract	or's Licence No. 36 2 <i>K0</i>	A Data source	e of inspection	23	36 Spector	JUN 1 1 2	001 ***
Name of Well	Technician Tim W Technician Contractor	it son	Well Technici Submission d day mo	an's Licence No. 924 ate	N AUTONIM	irks			CSS.ES	1

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Instructions for	Completin	ig Form	A 00	3404		_	page	of
<ul> <li>For use in the</li> <li>All Sections m</li> <li>Questions reg</li> <li>All metre meters</li> <li>Please print c</li> </ul>	Province on nust be con arding com asurement learly in blu	of Ontario only. The npleted in full to avoin upleting this applicat s shall be reported e or black ink only.	is document is a p bid delays in proce tion can be directe d to 1/10 <sup>th</sup> of a m	permanent leg essing. Further ed to the Wate etre.	al document. F instructions an r Well Manage	Please retain for futur d explanations are avai ment Coordinator at Ministry Us	re reference. ailable on the back o 416-235-6203. e Only	of this form.
Well Owner's Inf	formation	and Location of V	Nell Information	Township	5001 °	on CON	Concessio	
RR#/Street Number/ 1912	Whistle E	Bare Rd.	Nething	City/Town/A Cambo	Imfries /illage ridge	Site/Compa	29 1 artment/Block/Tract e	<b>2</b> tc.
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Hole Diama	ter		Construction	Record				1
Depth Metres	Diameter	lasida	Construction	Dooth	Mateaa	Pumping test method	Draw Down	Recovery
From To	Centimetres	diam Mate	rial thicknes	ss	wiettes	Pump	Time Water Level Tim	e Water Level
+.5 18.6	15.9	centimetres	centimet	res	10	Pump intake set at -	Static 100	10.0
• • •	•	Xsteel	Fibreolass			(metres)	Level 19.9	10
·		15.9 Plastic	Concrete 188	+.5	18.6	(litres/min) 45	10.1	19.0
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at 18.6 res	Sulphur	Steel	Fibreglass	8		Final water level end	3 10.1 3	19.9
Gas Salty	Minerals	Galvanize	d	·	·	or pumpin 10.2 etres	10.2	100
m Fresh	Sulphur	Steel	Fibreglass			type. Shallow Deep	4 10.2 4	13.5
Gas Salty	Minerals	Plastic	Concrete		·	Recommended pump depth. 15	5 <b>10.2</b> 5	19.9
m Fresh	Sulphur	Gaivahize	Screen	1		Recommended pump	10 10.2 10	19.9
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After test of well vield.	water was	Plastic	Concrete	i and		(litres/min)	20 10.2 20 25 10.2 25	19.9
Clear and sediment	free	• Galvanize	d .			If pumping discontin- ued, give reason.	30 10.2 30	19.9
Other, specify			No Casing or	Screen			40 10.2 40	19.9
Chlorinated X Yes	No	Open hole	8		•		60 10.2 60	19.9
Plugg	ging and Se	aling Record	Annular space	Abandonment		Location of	of Well	
Depth set at - Metres From To	Naterial and typ	e (bentonite slurry, neat ce	ement slurry) etc.	/olume Placed (cubic metres)	In diagram below	w show distances of well fr	road, lot line and b	uilding.
0 6	Bentoni	te	1	.5		Doon	#	17
	· .					Dodge Dr.		Blair
						1 and a second	401	Blan
· ·	· ·		· · · · ·		#12			
Head Provide State Constrained by Provide State Provide State								
Cable Tool	Rotary (	air)	Diamond	Digging	Rosevi	lle Rd. Well		- 1
Rotary (conventional     Rotary (reverse)	) Air perc	ussion	Jetting Driving	Other				
	Doning	Water Use	stiving		тъ	Dickie Settler e well is at 1912 Wh	ment Rd. nistle Bare Rd.	
Domestic Stock			Public Supply	C Other				•
	Municipa		Cooling & air conditioni	ng	Audit No. 7	NOCIO Dat	e Well Completed	MM DD.
Water Supplu	Recharge ver	Final Status of Wel	Infinished	andoned (Other)	L Was the well of	UJJIO Date Date	e Delivered	12 24
Observation well	Abandoned,	insufficient supply	Dewatering	anuoneu, (Otner)	package delivere	d? Yes No	03	12 24e
Test Hole	Abandoned, Well Cont	poor quality	Replacement well			Ministry Use	e Only	
Name of Packnam	Well D	rilling Inc.	W4207 act	or's Licence No.	Data Source	Cor		7
Business Recess	Δano anth	r. (Cant.)			Date Received	Yawa MM oo Dat	e of Inspection	MM DD
11.11.#2	Anceste	, onc	144 H T		APR 1	5 2004 1 00 000		
Name of Wielwynia	acknam	rst name)	T0058	an's Licence No.	Remarks	We	I Record Number	64 B
Signature of Technician	Contractor	h	Date Submitted	YYYY MM DD			650962	7
X Jenun	13420	Lun		C3 12 24		0-11-1	000002	

Contractor's Copy [] Ministry's Copy [] Well Owner's Copy [] Cette formule est disponible en franç

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netructions	for Complet	ing Form		A	029	255				1	bage	of
<ul> <li>For use in</li> <li>All Section</li> <li>Questions</li> <li>All metre</li> </ul>	the Province as must be considered and the province regarding considered and the province measurement clearly in the	e of Ontario ompleted in ompleting the nts shall be	only. This do full to avoid d is application a reported to ink only.	ocument lelays in can be d 1/10 <sup>th</sup> of	is a periprocess irected t a metro	manent lega ing. Further i to the Water e.	I document. F nstructions an Well Manage	Please retain for d explanations ar ment Coordinato Ministr	future re e availat or at 416 y Use O	eference. ble on the b 3-235-6203	ack of	this form.
Nell Owner's	s Informatio	n and Loc	ation of Wel	I Inform	ation	MUN	C	ON		T I I	LOT	
Wa	terioo											
RR#/Street Num	iber/Name				- 1	Narth Dun	ngjes	Site/Co	ompar <sup>2</sup>	ent/Block/T	acter	c.
SPS Reading	6 Dickie S	ettlemen Easti	nt Rd.	Northing		Unit Make/M	odel Mod	e of Operation:	Undiffere	entiated [	Aver	aged
og of Overb	8 3 1 ourden and	Bedrock M	る」のス laterials (see	4 8 D	tions)	Magellar	Blazer12		Different	iated, specify_		
General Colour	Most commo	on material	Oth	her Materia	als		Gener	al Description		De	oth om	Metres To
brown	oond	arava	1	silt						0		20
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3.01	Gand	9.2101					*					
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								No.				
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Hole D	iameter			Construc	ction Red	cord		Pumping test me	Test of	Well Yield		ecoverv
From T	o Centimetre	lnside s diam	Material	th	Wall	Depth	Metres		Tin	ne Water Leve	Time	Water Level
+2.5 3	2 15.9	centimetres	1	ce	ntimetres	From	To	Pump intake set	at - Sta	tic	man	Webes
31 3	3.5 13		Steel Fib	Ca reglass	sing			Pumping rate	Lev 1	<sup>el</sup> 11.7	1	11.7
		15.9	Plastic Cor	ncrete 1	88	+2.5	23.4	(litres/min) 54	ing o	12.0	2	11.0
Vater Vater found	Kind of Water	-	Galvanized	reglass Sci	reen d			1 hrs 10	_ min	13.1		11./
	resh 🗌 Sulphu	13		ncrete F	Hings 18X	31	33.5	Final water level of pumping	end 3 etres	13.2	3	11.7
Gas S Other:	aity 🗌 Minera		Galvanized	realess	100			Recommended p type.	ump 4	13.2	4	11.7
	resh Sulphu	ir Is	Plastic Cor	ncrete				Shallow Recommended p	Deep sump 5	40.0	5	44.7
Other:			Galvanized		lorear			Recommended r	etres	13.2	10	11.7
m □_F ⊡Gas □S	resh 🔄 Sulphu Salty 🗌 Minera	Is Outside	V Steel	reglass	Slot No			rate. (litresmin)	1	5 13.2 5 13.3	15	11.7
Other:	vield water was	diam		ncrete				If flowing give rat (litres/min)	e - 2	0 <b>13.3</b>	20	11.7
Clear and sed	liment free	13.5	Galvanized	2	5	31.4	32.6	If pumping disconued, give reason.	tin- 3	0 13.3	30	11.7
Other, specify	·		-	No Casi	ng or Sc	reen	-	-11	4	0 13.4	40	11.7
Chlorinated V	'es 🗌 No		· Open hole			•	•		6	0 13.4 13.4	60	11.7
Dopth opt of Mot	Plugging and	Sealing Rec	ord 🛛	Annular spa	ace	Abandonment	In discrem belo	Loca	tion of V	Vell road lot line	and b	ulding
From To	Material and	type (bentonite	slumy, neat cemer	nt slumy) etc.	(cut	bic metres)	Indicate north b	iy arrow.				nung.
0 6	Bentor	nite			1.5			Doon	N	#11		
					1:		1		///	ーレ	B	air K
								7	401	01	Mail	RD.
		Mathead	Construction						We	n		
Cable Tool	Rota	ry (air)	Dian	nond		Digging			histle Ba	e RL		
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20		Wat	ter Use	lie Currela				Dick	ie Settler	nent Rd.		
] Stock		mercial	Not	used					Det	Ioll Complet	4	
Irrigation	Mun	Final St	atus of Well	ling & air co	Inditioning		Audit No. Z	42719	Date V	Veli Complete	006	03 24
Water Supply	Recharge	well	Unfi	nished	Aban	doned, (Other)	Was the well o	wner's information red?	Date D	elivered	1006	MM DD
Observation w Test Hole	Abandon	ed, insumcient ed, poor quality	/ Dew	lacement w	ell		Passingly double	Mini-4	v lleo C	niv	200	
ame of Well Cor	Well C htractor	ontractor/Te	chnician Info	Well C	Contractor'	s Licence No.	Data Source	WINIST	Contra	10 0	N	
Pack	ham Well	Drilling In	ic,	420	)7		Date Received		Date o	f Inspection	77777	MM DD
	# 2 Ancas	ter. Ont	les.	her n=	a chaile	a l lagran bla	APR O	6 2006	144.00	langed blood		
Name of Well Tec	nniciah (last han	ne, first nahle)			echnician'	s Licence No.	Remarks		Well F	ecord Numbe	ſ	
Signature of Lech	nician/Contracto	211		Date St	Jomitted vv	WY HILL DD	1					
v 0)//	MANN M.	21 hour			2000	6 102127						

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	fee Come let	Ferry		A	0292	88				p	age _	of
For use in All Section Questions	for Completing the Province of ns must be comp regarding comp	f Ontario oleted in f leting this	only. This of full to avoid s application	docume delays i n can be	nt is a perma n processing directed to	anent <b>legal</b> g. Further in the Water V	document. Pl structions and Vell Manager	a ease retain for fut explanations are a nent Coordinator	ure refe ivailable at 416-2	erence. on the ba 235-6203	ick of '	this form.
Please pri	int clearly in blue	or black	ink only.	0 1/10	or a metre.			Ministry L	Ise Only	/		
ell Owner's	s Information a	nd Loca	tion of We	Il Infor	mation	MUN						
VVa	aterioo				N	orth Dur	nfries		28	3	1:	2
#/Street Num	nber/Name	Rd			.0	City/Town/Vill	age	Site/Con	partmer	nt/Block/Tra	act etc	3.
'S Reading	NAD Zone	Eastin	g d/ 3	Northi	12200	Jnit Make/Mo	del Mode	of Operation:	Indifferent Differentiat	iated U	Avera	aged
g of Overt	ourden and Be	drock Ma	aterials (se	e instr	uctions)	Magellar	Blazer12	•		Des		Hates
neral Colour	Most common n	naterial	o	ther Mate	erials		Genera	I Description		Dep	2m	To
brown	silt		1	sand	1		•			0		7
grey	sand							-		- 1	-	13.4
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										· · ·		
Hole D	liameter			Const	ruction Reco	ord	1.1.1		est of \	Nell Yield		
Depth Me	etres Diameter	Inside	Matad		Wall	Depth	Metres	Pumping test meth	od Dr	aw Down	R	ecovery Water Level
From 1	To Centimetres	diam centimetres	Matena	31	thickness centimetres	From	То	Pump	min	Metres	min	Metres
10.6	10.0 13.3				Casing			(metres) 13	- Static Level	1.2	+	1.2
10.0 -	13.4 13	15.0		ibreglass	188	+5	11.6	(litres/min) 58	1	3.4	1	5.2
Water	Record	15.9	Galvanized	oncrete	100	1.0	11.0	Duration of pumpin	g 2	4.6	2	3.4
Metres	Kind of Water	12		ibreglass	188	10.6	13.4	Final water level e	nd 3	5.3	3	3.1
	Salty Minerals	13	Galvanized	concrete	Screen Fitters	10.0	13.4	Recommended put	np A	5.8	4	29
	Fresh Sulphur		Steel F	ibreglass	, and the second s	•		type.	eep	0.0		2
Gas	Salty 🗌 Minerals	•	Galvanized	Concrete		·	·	depth. <u>12</u> met	np 5 res	6	5	2.6
m [	Fresh 🔲 Sulphur				Screen			Recommended pur	np 10	6.6	10	1.2
Gas Gas Other:	Salty Minerals	Outside diam		Fibreglass	Slot No.		105	(litres/min) If flowing give rate	- 20	7.1	20	1.2
ter test of well	yield, water was	135	Galvanized	Joncrete	.18	1,1,4	1 640	(litres/min)	- 30	7.3	25	1.2
Other, specif	ý			No C	asing or Scr	een		ued, give reason.	40	7.7	40	1.2
nlorinated IV	Yes 🗌 No		Open hole			• 7	•		50 60	8	50 60	1.2
	Plugging and Se	aling Rec	ord	Annula	space 🗌 Al	bandonment		Locatio	on of W	ell		1.2
From	o Material and typ	e (bentonite	slurry, neat cerr	nent slurry)	etc. Volun (cubi	ne Placed c metres)	In diagram belo Indicate north b	w show distances of w y arrow.	ell from ro	ad, lot line,	and bu	uilding.
0 6	Benton	te			1.5					-		
· ·	· ·				<u>.</u>						4	1
									1		Wall	
•	•				•			Roseville Rd.	$\mathcal{A}$	<u>7 1</u>	wei	
	N Naratany (	lethod of	Constructio	amond	F	Diaging	1992 I	e well is at Roseville Rd.			/	
Rotary (conve	entional) Air pero	ussion		etting	Ē	] Other		1	47 -	Dicki	e Settle	ement Rd.
Rotary (revers	se) Boring	Wat	ter Use	nving						1		
Domestic Stock		al rcial		ublic Supp ot used	ly 🗌	] Other						
Irrigation	Municip	al Elnol St		ooling & a	r conditioning		Audit No. 7	31368	Date We	Il Complete	ar-	MM DD
Water Supply	Recharge w	Final Sta		nfinished	Aband	oned, (Other)	Was the well of	wner's information	Date De	livered	YYYY	MM DD
Observation v Test Hole	well Abandoned,	insufficient poor quality	supply D	ewatering eplacemer	nt well		package delive	red?			5	07 02
mo childrell C	Well Con	tractor/Te	chnician In	formatio	ell Contractor's	Licence No.	Data Source	Ministry	Use Or Contrac	tor	-	
Pac	kham Well D	Drilling I	nc,		4207		Date Pacaburd	1000/ 10-	Date of	42	0	7
usiness Addres	s (street name, numb	er, city etc.) er, Ont.				1	DEC.	3 2005	Date Of I		1111	
ame of Well Te	vyn Packnar	irst name)		W	T0058	Licence No.	Remarks		Well Re	cord Numbe	1	
ignature of Tec	hnician/Contractor	h		Da	e Submitted YYY	Y MM DD						
	Lun PA	A1			mb	09 65						

	the Er	vironment		11.2255	Regulation	903 Ontario Wa	ater Reso	ources .
neasuremen	nts recorded in:	Metric 🕅 Impe	rial P	+102200		Fage		
Add	Vall L contine (Street N	mber/Name)	To	waship	Lot	COLICCOSI	511	
Address of W	La HITIERO	DE RO		AZORTH DU	MOFRIES 26		12.	
County/Distri	ict/Municipality	10 110	Ci	ty/Town/Village	1.11.	Province	Postal	Code
w	ATERLOO			CAMBRIN	) O.E	Officiario	NIR	250
UTM Coordina	ates Zone Easting	07448	01334	Incipal Plan and Sobio				
Overburder	n and Bedrock Mate	als/Abandonm	ent Sealing Recor	d (see instructions on the	back of this form)	CARE PAR	1997	
General Col	lour Most Corr	mon Material	Othe	er Materials	General Description		From	th (m/n
Roma	2 Sa	Au	.5	TONES			0	10
Ben	2 500	1A	G	2AUFL		1. C. C.	10	4
Guard	CIAN CIAN		5	and a	File		40	13
OREY DO	Chri	7	JA	NO	Cappes		155	11
BROWN	SAN	0	-		GUANJE		110	10
BROWN	ORAN	NEL	SAI	00	COARSE		160	10
						1-71	112	15
					TOTAL	DEPIA	165	
		Mar Carlos			and the second second		1. No.	-
		and the second						1
	an a	Annular Sp	ace	na la transferi	Results of W	ell Yield Testir	Ig	
Depth Set	t at (m/ft) To	Type of Sealan	t Used	Volume Placed (m <sup>3</sup> /ft <sup>2</sup> )	After test of well yield, water was:	Time Water Le	evel Time	Water
0	20 5	F. Toulu	F		Other, specify	(min) (m/ft)	(min)	(m
0	40 D	ENIONII	E		If pumping discontinued, give reason	Level 28	1	
						1 37	1	6
Sec. Sec.				and the second second	Pump intake set at (m/ft)	2 45	2	1
Sec.	ALL PROPERTY.				90FT	- 10		0
Meth	od of Construction	104 6 19 19 19	Well Us	e	Pumping rate (I/min / GPM)	3 53	3	3
Cable To	ol 🗌 Diamo	nd Dublic	Comme	rcial 🗌 Not used	Duration of pumping	4 59	4	4
Rotary (C	Conventional) Usetting	Dome	stic Municipi ock Test Ho	al Dewatering	/ hrs + 0 min	5 63	5	4
Boring	Diggir	g 🛛 🗌 Irrigati	ion 🗌 Cooling	& Air Conditioning	Final water level end of pumping (m/	10 67	10	-
Air percus	ssion AR ROTA	CY Other	rial specify		79"	15 1	15	2
	Construction	Record - Casin	a	Status of Well	] If flowing give rate ( <i>Imin / GPW</i> )			4
Inside		Wall	Depth (m/ft)	Water Supply	Recommended pump depth (m/ft)	20 / 9	20	2
FR.1.	Open Hole OR Materia			Replacement Well	OAFT	25 71	OF	
Diameter (cm/in)	Open Hole OR Materia (Galvanized, Fibreglass Concrete, Plastic, Steel	Thickness	From To	Toet Hole	70.	20 16	2 25	2
Diameter (cm/in)	Open Hole OR Materia (Galvanized, Fibreglass Concrete, Plastic, Steel	(cm/in)	From To	Test Hole	Recommended pump rate	30 78	30	22
Diameter (cm/in)	Open Hole OR Materia (Galvanized, Fibreglass Concrete, Plastic, Steel	. Thickness (am/in) . 188 .	From To + 2 /63	Test Hole  Recharge Well  Dewatering Well	Recommended pump rate ( <i>Vmin / GPM</i> ) 10-12 G-PM.	30 78	25 7 30 7 40	227
Diameter (cm/in)	Open Hole OR Materia (Galvanized, Fibreglass Concrete, Plastic, Steel STEEL	. Thickness (cm/in) .185	From To + 2 /63	Test Hole Recharge Well Dewatering Well Observation and/or Monitoring Hole	Recommended pump rate ( <i>Umin / GPM</i> ) -0-12.6-Pm. Well production ( <i>Umin / GPM</i> )	30 78 40 79	25 30 40	22
Diameter (cm/in)	Open Hole OR Materia (Galvanized, Fibreglass Concrete, Plastic, Steel STEEL	· 188	From To + 2 //63	Test Hole     Recharge Well     Dewatering Well     Observation and/or     Monitoring Hole     Alteration     (Construction)	Recommended pump rate ( <i>Imin / GPM</i> ) 10-12 G-PM. Well production ( <i>Imin / GPM</i> ) 12 G-PM Disinfected?	30 78 40 79 50 79	25       30       40       50	222
Diameter (cm/in)	Open Hole OR Materia (Galvanized, Fibreglass Concrete, Plastic, Steel STEEL	· 185	From To	Test Hole     Recharge Well     Dewatering Well     Observation and/or     Monitoring Hole     Alteration     (Construction)     Abandoned,	Recommended pump rate ( <i>I/min / GPM</i> ) <i>IO - I 2 G-P M</i> . Well production ( <i>I/min / GPM</i> ) <i>I 2 G-P M</i> Disinfected? Yes No	30         78           40         76           50         76           60         79	25       30       7     40       7     50       60	2 2 2 2 2
Diameter (cm/in)	Open Hole OR Materia (Galvanized, Fibreglass Concrete, Plastic, Steel STEEL Construction	Crrv(m)     C	From To # 2 //63	Test Hole Recharge Well Dewatering Well Observation and/or Monitoring Hole Alteration (Construction) Abandoned, Insufficient Supply Abandoned, Poor	Recommended pump rate ( <i>Vimin / GPM</i> ) <i>IO - 12 G-PM</i> . Well production ( <i>Vimin / GPM</i> ) <i>I 2 G-PM</i> Disinfected? Yes No Map of V	30 78 40 79 50 79 60 79	25       30       7     40       7     50       60	222
Diameter (cm/in) 6 1/8 Outside Diameter	Open Hole OR Materia (Galvanized, Fibreglass Concrete, Plastic, Steel STEEL Construction Material	Record - Screen	From To # 2 //63 Depth (m/ft)	Test Hole     Recharge Well     Dewatering Well     Observation and/or     Monitoring Hole     Alteration     (Construction)     Abandoned,     Insufficient Supply     Abandoned, Poor     Water Quality	Recommended pump rate ( <i>Vmin / GPM</i> ) <i>IO - 12 G-PM</i> . Well production ( <i>Vmin / GPM</i> ) <i>IZ G-PM</i> Disinfected? Yes No Map of V Please provide a map below followin	30 78 40 76 50 76 60 79	25       30       7     40       7     50       7     60	2222
Diameter (cm/in) C 1/8 Outside Diameter (cm/in)	Open Hole OR Materia (Galvanized, Fibreglass Concrete, Plastic, Steel STEEL Construction Material (Plastic, Galvanized, Ste	Inickness     (crrsim	From To <b>2</b> 163 Depth ( <i>m</i> /ft) From To	Test Hole     Recharge Well     Dewatering Well     Observation and/or     Monitoring Hole     Alteration     (Construction)     Abandoned,     Insufficient Supply     Abandoned, Pcor     Water Quality     Abandoned, other,     specify	Recommended pump rate ( <i>Vimin / GPM</i> ) <i>IO - 12 G-PM</i> . Well production ( <i>Vimin / GPM</i> ) <i>IZ G-PM</i> Disinfected? Yes No Map of V Please provide a map below followin	23         78           30         78           40         76           50         76           60         79           Vell Location         g	<ul> <li>25</li> <li>30</li> <li>40</li> <li>50</li> <li>60</li> <li>60</li> </ul>	2222
Diameter (cm/in)	Open Hole OR Materia (Galvanized, Fibreglass Concrete, Plastic, Steel STEEL Construction Material (Plastic, Galvanized, Ste	Thickness (cm/in)           · 188           Record - Screen el)           Slot No.	From To <b>2</b> 163 Depth (m/ft) From To	Test Hole     Recharge Well     Dewatering Well     Observation and/or     Monitoring Hole     Alteration     (Construction)     Abandoned,     Insufficient Supply     Abandoned, Poor     Water Quality     Abandoned, other,     specify	Recommended pump rate ( <i>Vimin / GPM</i> ) <i>IO - 12 G-PM</i> . Well production ( <i>Vimin / GPM</i> ) <i>I 2 G-PM</i> Disinfected? Yes No No Nap of V Please provide a map below followin	23         78           30         78           40         76           50         76           60         79           Vell Location           g instructions on the	25       30       7     40       7     50       60	2 2 2 2 2
Diameter (cm/in) 6 1/8 Outside Diameter (cm/in)	Open Hole OR Materia (Galvanized, Fibreglass Concrete, Plastic, Steel STEEL Construction Material (Plastic, Galvanized, Ste	Thickness (cm/in)           · 188           · Record - Screen el)	From To <b>72</b> <b>163</b> Depth (m/ft) From To	Test Hole     Recharge Well     Dewatering Well     Observation and/or     Monitoring Hole     Alteration     (Construction)     Abandoned,     Insufficient Supply     Abandoned, Poor     Water Quality     Abandoned, other,     specify     Other, specify	Recommended pump rate ( <i>Umin / GPM</i> ) <i>IO - 12 G-PM</i> . Well production ( <i>Umin / GPM</i> ) <i>I 2 G-PM</i> Disinfected? Yes No Map of V Please provide a map below followin	23 78 30 78 40 79 50 79 60 79 Vell Location g instructions on th	25       30       40       50       60	2 2 2 2 2
Diameter (cm/in) 6 1/8 Outside Diameter (cm/in)	Open Hole OR Materia (Galvarized, Fibreglass Concrete, Plastic, Steel STEEL Construction Material (Plastic, Galvanized, Ste	IRecord - Screen	From To <b>72</b> <b>163</b> Depth ( <i>m</i> / <i>t</i> ) From To H	Test Hole      Recharge Well      Dewatering Well      Observation and/or     Monitoring Hole      Alteration     (Construction)      Abandoned,     Insufficient Supply      Abandoned, other,     specify      Other, specify      Iole Diameter	Recommended pump rate (Umin / GPM) IO - 12 G-PM. Well production (Umin / GPM) I 2 G-PM Disinfected? Yes No Map of V Please provide a map below followin WHISTLE B.	23 78 30 78 40 79 50 79 60 79 Vell Location g instructions on the	25 30 40 50 60 10 10 10 10 10 10 10 10 10 1	2 2 2 2 2
Diameter (cm/in) 6 1/8 Outside Diameter (cm/in) Water four	Open Hole OR Materia (Galvanized, Fibreglass Concrete, Plastic, Steel STEEL Construction Material (Plastic, Galvanized, Ste Water I d at Depth Kind of Wa	Record - Screen	From To F2 //63 Depth (m/ft) From To H Untested Dep From From	Test Hole     Recharge Well     Dewatering Well     Observation and/or     Monitoring Hole     Alteration     (Construction)     Abandoned, Poor     Water Quality     Abandoned, other,     specify     Other, specify      Other, specify      To Diameter     (m/ft)     Diameter     (m/ft)	Recommended pump rate (Vmin / GPM) IO-12 G-PM. Well production (Vmin / GPM) IZ G-PM Disinfected? Yes No Map of V Please provide a map below followin Map State B	23         78           30         78           40         76           50         76           60         79           Vell Location         ginstructions on the second sec	2 25 3 30 4 40 5 50 6 60 1 60 1 60	2 2 2 2 2
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Diameter (cm/in) 6 '/8 Outside Diameter (cm/in) Water foun Water foun (m Water foun (m Water foun (m Water foun (m Water foun (m Water foun (m Water foun (m Water foun (m Water foun (m) Water foun (m) Water foun (m) Water foun (m) Water foun (m) Water foun (m) Water foun (m) Water foun (m) (m) Water foun (m) (m) Water foun (m) (m) (m) (m) (m) (m) (m) (m) (m) (m)	Open Hole OR Materia (Galvanized, Fibreglass Concrete, Plastic, Steel STEEL Construction Material (Plastic, Galvanized, Steel (Plastic, Galvan	Inickness (cm/m) ISS IRecord - Screen el) Slot No. Details tter: XFresh pecify tter: Fresh pecify tter: Fresh pecify for Fresh pecify for Fresh pecify for Fresh pecify for Fresh pecif	From To F2 163 Depth (m/ft) From To Untested Untest		Recommended pump rate         (I/min / GPM)         IO - 12 G-P.M.         Well production (I/min / GPM)         IZ G-P.M.         Disinfected?         IX Yes         No         Please provide a map below followin         Please provide a map below followin         WHISTLE B         B ARM         Comments:         Well owner's information         Package         IN         Date Work Complete	23     78       30     78       40     79       50     79       60     79       60     79       Vell Location       g instructions on the       ARE     Re       1     House       1     House       0     4       0     4       0     4       0     4	25 30 40 50 60 10 10 115 115	2 2 2, 2, 2, 2, 52

leasurement	s recorded in:	Metric	Imperial	/	1102	27	0	1.1.1		Page_		of
Idress of We	ROSEVILLE	mber/Name	:)	Т	ownship N, Dur	FRIE	Lot	28	(	Concession	2	
ounty/Distric	t/Municipality			ć	ity/Town/Villag	DRI	) A-E		Provine	e Irio	Postal	Code RISISI3
TM Coordinat	z zone Easting	3641	Iorthing	3415 N	Iunicipal Plan	and Suble	bt Number		Other			
verburden	and Bedrock Mater	als/Aband	onment Sea	ling Reco	rd (see instructi	ions on the	back of this form)	-				11-1-001
Room Room	ur Most Comi	non Materia	1	Oth	er Materials		General Des	scription			From	
GREY	Ch	AI		5.	IONES						10	18
BROWN	SANI	S	19 19				and the second se				35	40
FREY	GRAVE	EL		SA	ND						40	44
							A ALAN IN					
							TIT	21	12-	NTI 1	ut.	-7-
							1011	AL	(JP)	MA S	14	
Depth Set a	( <i>m/ft</i> )	Annula Type of Se	r Space	unn	\/olume D	laced	Result	s of Wel	Il Yield	d Testing	P	ecovery
From	То	(Material a	nd Type)		(m³/ff	)	Clear and sand free	1010.	Time (min)	Water Level	Time	Water Level
0	20 BEN	TONI	TE				If pumping discontinued, give	reason:	Static	9FT	-	(invi)
					1				1	15	1	32
							Pump intake set at (m/ft)		2	21	2	28
Method	of Construction		THE REAL PROPERTY AND IN THE REAL PROPERTY AND INTERPORTY AND INTE	Well Us	e		Pumping rate (I/min / GPM)		3	27	3	25
Cable Tool	Diamon		ublic	Commer	rcial No	ot used	5G-PM		4	31	4	22
Rotary (Con Rotary (Rev	erse) Driving		omestic vestock	Municipa     Test Hol	al ∐De e ⊡Mi	ewatering onitoring	1 hrs + 0 min		5	33	5	20
] Boring ] Air percussio			igation dustrial	Cooling	& Air Conditionir	ng	Final water level end of pumpi	ing (m/ft)	10	38	10	11
COther, speci	Construction R	ecord Ca	ther, specify _		Statuc of		If flowing give rate (I/min / GP	PM)	15	368	15	9
Inside (	Open Hole OR Material	Wall	Depth	(m/ft)	Water Sup	oply	Recommended pump depth	(m/ft)	20	36	20	9
(cm/in)	Concrete, Plastic, Steel)	(cm/in)	From	То	Replacem	ent Well	40 FT Recommended pump rate		25	36	25	9
618	STEEL	.138	42	40	Recharge	Well g Well	(1/min/GPM) 5GPM		30	36	30	9
5"	STEEL		36	44	Observatio Monitoring	n and/or Hole	Well production (Vmin / GPM)	9	40	36	40	9
					Alteration (Construct	ion)	Disinfected?		50	26	50	9
	Construction R	ecord Scr			Abandone Insufficient	d, t Supply	Yes No	n of We	00	56	60	
Outside Diameter (P	Material astic. Galvanized. Steel)	Slot No.	Depth	(m/ft)	Water Qua	d, Poor ality d. other.	Please provide a map below f	following in	nstructio	ons on the b	ack.	
(cm/in)	STEEL	18	21	44	specify		A States				ñ	- MARINA
5%	21000	10	20	17	Other, spe	cify						Ro
512,			and the second se			C. S. C. C. C. C. C.	and the second	14 S 12 14				hu
5 %	Water De	tails	111111111	Н	ole Diameter		0					KIE

(m/ft) Gas Other, specify		
Well Contractor and Well Technician In	formation	il I
Business Name of Well Contractor	Well Contractor's Licence No.	
JIM WILSON WELL WRILLING L	27385	
SSI EBYCREST RD.	Municipality WATERLOO	Comments
Province Postal Code Business E-mail Address	5	Well owne
Bus.Telephone No. (inc. area code) Name of Well Technician (Last 5/196482412 [wildsow ]	Name, First Name)	information package delivered
Well Technician's Licence No. Signature of Technician and/or Contra	ctor Date Submitted	<b>R</b> Yes
TI 924 Jimelilion	-20110729	No

Comments:		
Well owner's information package delivered Ves No	Date Package Delivered 20110709 Date Work Completed 20110719	Ministry Use Only Audit No. z 129847 AUG 18 2011 Received

ro	ntario Minis	ry or		in a	g no. n noc oboner ar	alor i nin Bolony	-		V	vell F	ecore
Measurem	ents recorded in:		Imperial		A104417		Regulation	1 903 (	Dontario V Pao	Vater Res	ources Ac
Well Owr	ner's Information		mportai			2011121212121212					
First Name		_ast Name /	Organizatio	n n		E-mail Address				Well	Constructed
Mailing Add	iress (Street Number/Na	603 me)	489	Unte	Ario INC Iunicipality	Province	Postal Code		Telephon	e No. (inc.	area code)
1316	Dickie Se	Hemen	+ R	2	Waterloo	ow	N 3 H 4	R 8	519	650	2327
Address of	<b>ation</b> Well Location (Street Nu	mber/Name	)	Т	ownship		Lot		Concess	ion	
850	whistle bare	Rd		1	Vonth Dumfrie	s	74 27		1	2	
County/Dist	trict/Municipality			C	ity/Town/Village			Ont	ario	N 3	LIPS
JTM Coordi	inates Zone Easting		orthing	N	Iunicipal Plan and Suble	ot Number		Other		1.0	M FINC
NAD Overburde	8 3 ( 7 5 4 8 -	324	801 onment Se	2 2 o ealing Reco	rd (see instructions on the	back of this form)					
General Co	olour Most Com	mon Materia	1	Oth	er Materials	Gener	ral Description			Dep From	th ( <i>m/ît</i> )   To
rown	sand	Clay	Grave	.1						0	14.93
ray	Clay & :	and		N. Start						14.93	24.0-
Sray	chay son	l & G	mul							24.07	46.0
-	Grand \$	stones	;							46.02	46.33
Gray	Clay &	Bolder	s							46.32	58.8
rank Go	my limesto	e								58.82	60.9
						0					
		Annula	Space		AT THE REPORT OF	HEPTH 20	DO Results of We	all Viel	ld Testin		
Depth Se	et at (m/ft)	Type of Se	alant Used		Volume Placed	After test of well yield, v	water was:	Dr	raw Down	R	ecovery
0	7.30		·/·/	. +	(117712)	Clear and sand fr	ee	(min)	(m/ft)	wel Time (min)	Water Level (m/ft)
<u> </u>	1. 20 1	renton	it on	rout	. 33	If pumping discontinue	d, give reason:	Static Level	14.18		29.06
						and the second					
								1	16.60	2 1	26.60
						Pump intake set at (m	vít) 7	1	16.60	<b>2</b> 1 <b>2</b> 2	26.60
Meth	and of Construction			Well He		Pump intake set at (m 36.5 Pumping rate ( <i>I/min /</i> 0	vít) 7 GPM)	1 2 3	16.60	<b>p</b> 1 <b>z</b> 2 <b>p</b> 3	26.60 24.58 22.80
Meth Cable To	nod of Construction	d DPu	Iblic	Well Us	e	Pump intake set at (m 36.5 Pumping rate ( <i>l/min / C</i> 54.55	v/tt) 7 GPM)	1 2 3 4	16.60	1       2       2       3       4	26.60 24.58 22.80 21.30
Meth Cable To Rotary (C Rotary (R	rod of Construction rol Diamon Conventional) Jetting Reverse) Driving		Iblic prestic vestock	Well Us Commer Municipa Test Hol	e trcial Not used al Dewatering be Monitoring	Pump intake set at (m 36.5 Pumping rate (l/min / 0 54.55 Duration of pumping hrs + m	v/ft) 7 GPM) nin	1 2 3 4 5	16.60 17.72 19.08 20.10 21.01	1       2       2       3       4       1       5	26.60 24.58 22.80 21.30 19.94
Meth Cable To Rotary (C Rotary (R Boring Air percu	nod of Construction pol Diamon Conventional) Jetting Reverse) Driving Digging pission		iblic prestic vestock igation dustrial	Well Us Commer Municipa Test Hol Cooling	e rcial Not used al Dewatering le Monitoring & Air Conditioning	Pump intake set at (m 36.5 Pumping rate (l/min / o 54.55 Duration of pumping hrs + m Final water level end of	n/ft) 7 nin f pumping (m/ft)	1 2 3 4 5 10	16.60 17.72 19.08 20.10 21.01 23.93	2     2       7     3       7     4       1     5       3     10	26.60 24.58 27.80 21.30 19.94 15.58
Meth Cable To Rotary (C Rotary (R Boring Air percu Other, sp	nod of Construction pol Diamon Conventional) Jetting Reverse) Diriving Digging ission pecify		iblic omestic vestock igation dustrial her, specify	Well Us Commer Municipi Test Hol Cooling	e rcial Not used al Dewatering le Monitoring & Air Conditioning	Pump intake set at (m 36.5 Pumping rate (l/min / 0 54.55 Duration of pumping 1 hrs + m Final water level end of 29.00 If flowing give rate (l/m	v/tt) GPM) in f pumping (m/tt) nin / GPM)	1 2 3 4 5 10 15	16.60 17.72 19.08 20.10 21.00 23.92 25.70	p     1       2     2       7     3       9     4       N     5       3     10       9     15	26.60 24.58 22.80 21.30 19.94 15.58 14.34
Meth Cable To Rotary (C Boring Air percu Other, sp Inside	nod of Construction iol Diamon Conventional) Jetting Reverse) Driving Digging ission becify Construction F Open Hole OR Material	d PL Do Lin Im Im Co Co Co Co Co Co Co Co Co Co Co Co Co	iblic prestic restock igation dustrial her, specify sing Dept	Well Us Commer Municipa Test Hol Cooling th (m/ft)	e  rcial   Not used al   Dewatering be   Monitoring & Air Conditioning  Status of Well	Pump intake set at (m 36.5 Pumping rate (l/min / c 54.55 Duration of pumping hrs + m Final water level end of 29.00 If flowing give rate (l/m	v/R) -7 GP(M) nin f pumping (m/R) nin / GP(M) utanth (m/R)	1 2 3 4 5 10 15 20	16.60 17.72 19.08 20.10 21.00 23.92 25.70 26.50	p     1       z     2       y     3       y     4       y     5       3     10       p     15       6     20	26.60 24.58 22.80 21.30 19.94 15.58 14.34 14.18
Meth Cable To Rotary (C Boring Boring Air percu Other, sp Inside Diameter (cm/in)		d Pu Po In In Ot eccord - Ca Wall Thickness (cm/in)	iblic mestic vestock gation dustrial her, specify sing Dept From	Well Us Commen Municipi Test Hol Cooling th (m/ft) To	e rcial Not used al Dewatering le Monitoring & Air Conditioning  Status of Well  Water Supply Replacement Well  Text Union	Pump intake set at (m 3 6 - 5 Pumping rate (l/min / 0 54 - 55 Duration of pumping 1 hrs + m Final water level end of 29.00 If flowing give rate (l/m Recommended pump 3 6 - 5 7	v/ft) 7 GP/M) f pumping (mv/ft) ain / GP/M) o depth (mv/ft) 7	1 2 3 4 5 10 15 20 25	16.60 17.72 19.08 20.10 21.00 23.92 25.70 26.50 24.50 27.20	2     2       2     3       3     4       4     5       3     10       2     15       6     20       2     25	26.60 24.58 22.80 21.30 19.94 15.58 14.34 14.18 14.18
Meth Cable To Rotary (C Boring Air percu Other, sp Inside Diameter (cm/m)		d Provension of the second of	iblic omestic vestock igation dustrial her, specify <b>Sing</b> Dept From <b>From</b>	Well Us Commer Municipa Cooling Cooling th (m/ft) To Ge, 14	e crial Not used al Dewatering be Monitoring & Air Conditioning  Status of Well  Water Supply Replacement Well Test Hole Recharge Well	Pump intake set at (m 36.5 Pumping rate (l/min / 0 54.55 Duration of pumping hrs +m Final water level end of 29.00 If flowing give rate (l/m Recommended pump 36.55 Recommended pump (//min / 6PM)	v/ft) 7 GP/M) f pumping (m/ft) inin / GP/M) o depth (m/ft) 7 o rate	1 2 3 4 5 10 15 20 25 30	16.60 17.72 19.08 20.10 21.00 23.92 25.70 25.70 25.70 27.20	<ul> <li>2</li> <li>2</li> <li>2</li> <li>3</li> <li>4</li> <li>5</li> <li>3</li> <li>10</li> <li>2</li> <li>15</li> <li>20</li> <li>20</li> <li>25</li> <li>8</li> <li>30</li> </ul>	26.60 24.58 22.80 21.30 19.94 15.58 14.34 14.18 14.18 14.18
Meth Cable To Rotary (R Boring Air percu Other, sp Inside Diameter (cm/in) 15, 9 15, 6		d Pu Do Lh Im In Ot eccord - Ca Wall Thickness (cm/in)	iblic mestic restock igation dustrial her, specify sing Dept From t, qj	Well Us           Comment           Municipa           Test Hol           Cooling           th (mv/ft)           To           G0, 94           Lmpan	e crial   Not used al   Dewatering be   Monitoring & Air Conditioning  Status of Well Water Supply Replacement Well Dewatering Well Dewatering Well Observation and/or	Pump intake set at (m 36.5 Pumping rate (l/min / c 54.55 Duration of pumping hrs + m Final water level end of 29.00 If flowing give rate (l/m Recommended pump (l/min / GPM) 28 Well production (l/min	v/ft) -7 GP(M) in f pumping (m/ft) ain / GP(M) o depth (m/ft) 7 rate / GP(M)	1 2 3 4 5 10 15 20 25 30 40	16.60 17.72 19.08 20.10 21.01 23.92 25.70 25.70 24.55 27.25 27.02 28.32	2     2       2     2       3     3       4     5       3     10       2     15       6     20       9     25       8     30       4     40	26.60 24.58 22.80 21.30 19.94 15.58 14.34 14.18 14.18 14.18 14.18
Meth Cable To Rotary (C Boring Air percu Other, sp Inside Diameter (cm/in) 15.9 15.6	Tod of Construction  Dol Diamon  Conventional) Jetting  Reverse) Diriving  Digging  Ission  Decify  Construction F  Open Hole OR Material  Galvanized, Fibreglass, Concrete, Plastic, Steel)  Steel  open Hole	d Pu Poo In In In Cot Cot In In Cot Cot Vall Thickness (cm/in) .48	iblic mestic restock gation dustrial her, specify <b>sing</b> Dept From <b>t</b> , <b>q</b> 1 <b>G.o.04</b>	Well Us Commer Municipa Test Hol Cooling th (m/ft) To G0.14 G0.96	e cial Not used al Dewatering be Monitoring & Air Conditioning  Status of Well  Muter Supply Replacement Well Recharge Well Dewatering Well Observation and/or Monitoring Hole Alteration	Pump intake set at (m 3 (6 - 5 Pumping rate (l/min / 0 5 4 - 55 Duration of pumping 1 hrs + m Final water level end of 29.00 If flowing give rate (l/m Recommended pump (3 6 - 5 5 Recommended pump (l/min / GPM) 28 Well production (l/min	v/ft) GPM() f pumping (m/ft) nin / GPM() o depth (m/ft) p rate / GPM()	1 2 3 4 5 10 15 20 25 30 40 50	16.60 17.72 19.08 20.10 21.00 23.92 25.70 24.55 27.20 27.02 28.32 28.32	2     2       2     2       3     3       4     5       3     10       2     15       6     20       9     25       8     30       4     40       5     50	26.60 24.58 22.80 21.30 19.94 15.58 14.34 14.18 14.18 14.18 14.18 14.18 14.18
Meth Cable To Rotary (C Boring Air percu Other, sp Inside Diameter (cm/in) 15, 9 15, 6	rod of Construction rod Diamon Conventional) Jetting Reverse) Driving Digging ssion becify Construction F Open Hole OR Material (Galvanized, Fibroglass, Concrete, Plastic, Steel) Steel open Hole	d Provension of the second sec	iblic omestic gation dustrial her, specify From t, q1 G.o.o4	Well Us Commet Municipa Cooling Cooling th (m/ft) To G0.14 G0.96	e cial Not used al Dewatering be Monitoring & Air Conditioning  Status of Well  Water Supply Replacement Well Dewatering Well Dewatering Well Observation and/or Monitoring Hole Alteration (Construction) Abandoned,	Pump intake set at (m 36.5 Pumping rate (l/min / 0 54.55 Duration of pumping hrs +m Final water level end of 29.00 If flowing give rate (l/m Recommended pump (l/min / GPM) 28 Well production (l/min Disinfected? Yes No	v(tt) GPM) inin f pumping (m/tt) inin / GPM) o rate / GPM)	1 2 3 4 5 10 15 20 25 30 40 50 60	16.60 17.72 19.88 20.10 21.0 23.92 25.70 24.55 27.2 28.32 28.32 28.32 28.38 29.00	2     2       2     2       3     3       4     5       3     10       2     15       3     20       3     25       3     30       4     40       5     50       5     60	26.60 24.58 22.80 21.30 19.94 15.58 14.34 14.18 14.18 14.18 14.18 14.18 14.18 14.18 14.18
Meth Cable To Rotary (G Boring Air percu Other, spo Inside Diameter (cm/m) 15.9 15.6		d Pu Do Lin In Otto Corol - Ca Wall Thickness (crrvin) .48	iblic mestic vestock gation dustrial her, specify sing Dept From t, q1 G.o.o4	Well Us           Comment           Municipit           Test Hol           Cooling           th (mv/tt)           To           G0.14           G0.96	e cial Not used al Dewatering be Monitoring & Air Conditioning  Status of Well  Status of Well  Ateration (Construction) Abandoned, Insufficient Supply Abandoned, Poor	Pump intake set at (m 3 (6 · 5 Pumping rate (l/min / ( 54 · 55 Duration of pumping hrs + m Final water level end of 29. oc If flowing give rate (l/m Recommended pump 3 (6 · 5 - 5) Recommended pump (l/min / GPM) 28 Well production (l/min Disinfected? Yes No	V(t) GPM) inin f pumping (m/t) nin / GPM) o depth (m/ti) 2 rate / GPM) Map of We	1 2 3 4 5 10 15 20 25 30 40 50 60	16.64 17.72 19.08 20.10 21.04 23.92 25.76 24.55 27.25 27.25 28.32 28.32 28.78 29.06 cation	<ul> <li>1</li> <li>2</li> <li>2</li> <li>3</li> <li>4</li> <li>5</li> <li>10</li> <li>15</li> <li>20</li> <li>15</li> <li>20</li> <li>25</li> <li>30</li> <li>25</li> <li>30</li> <li>40</li> <li>50</li> <li>50</li> <li>60</li> </ul>	26.60 24.58 22.80 21.30 19.94 15.58 14.34 14.18 14.18 14.18 14.18 14.18 14.18 14.18 14.18 14.18
Meth Cable To Rotary (C Boring Air percu Other, sp Inside Diameter (cm/m) IS, 9 IS, 6	nod       of Construction         pol       Diamon         Conventional)       Jetting         Digging       Digging         ession       Digging         open Hole OR Material       Galvanized, Fibreglass, Concrete, Plastic, Steel)         Sfeel       open hole         open hole       Construction F         Material       (Plastic, Galvanized, Steel)	d Pu Pro Lin In Ot Cord - Car Wall Thickness (cm/in) .48 Carona - Scru Slot No.	Iblic mestic vestock gation dustrial her, specify From t, qj Ga.ov Dept From Dept From	Well Us           Commer           Municipa           Test Hol           Cooling           th (m/ft)           To           G0.94           G0.94           Lange	e cial Not used al Dewatering be Monitoring & Air Conditioning  Status of Well  Status of Well  Main Supply Replacement Well Dewatering Well Abandoned, ansufficient Supply Abandoned, Poor Water Quality Abandoned, cher,	Pump intake set at (m 3 (6 · 5 Pumping rate (l/min / ( 54 · 55 Duration of pumping hrs +m Final water level end of 29. oc If flowing give rate (l/m Recommended pump (l/min / GPM) 28 Well production (l/min Disinfected? M Yes No	v/tt) 7 GPM) f pumping (m/tt) f pumping (m/tt) o depth (m/tt) 7 p rate 7 GPM) Map of W/t below following	1 2 3 4 5 10 15 20 25 30 40 50 60 60	16.60 17.72 19.85 20.10 21.04 23.95 25.70 24.55 27.02 28.32 28.32 28.32 28.32 28.36 29.00 cation	2     1       2     2       3     4       4     5       3     10       2     15       6     20       2     25       8     30       2     40       5     60	26.60 24.58 22.80 21.30 19.94 15.58 14.34 14.18 14.18 14.18 14.18 14.18 14.18 14.18 14.18
Meth Cable To Rotary (C Boring Air percu Other, sp Inside Diameter (cm/in) 15.9 15.6	nod of Construction nol Diamon Conventional) Jetting Reverse) Driving Digging pecify Construction F Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) Steel apm hole Construction F Material (Plastic, Galvanized, Steel)	d Province of the second - Score Slot No.	iblic omestic gation dustrial her, specify From t, q1 G.o.o4 Dept From	Well Us           Commet           Municipal           Test Hol           Cooling           th (m/ft)           To           G0.14           G0.94           G0.94           Long           th (m/ft)           To	e cial Not used al Dewatering be Monitoring & Air Conditioning  Status of Well  Status of Well  Water Supply Replacement Well Dewatering Well Dewatering Well Dewatering Well Dobservation and/or Monitoring Hole Atteration (Construction) Abandoned, Poor Water Quality Abandoned, other, specify	Pump intake set at (m 36.5 Pumping rate (l/min / c 54.55 Duration of pumping hrs + m Final water level end of 29. oc If flowing give rate (l/m Recommended pump (l/min / GPM) 28 Well production (l/min Disinfected? Yes No	V(t) GPM) inin f pumping (m/t) nin / GPM) o rate / GPM) Map of W/ below following	1 2 3 4 5 10 15 20 25 30 40 50 60 ell Loc	16.60 17.72 19.08 20.10 21.02 23.92 25.70 25.70 27.20 27.20 28.32 28.32 28.32 29.00 cation	2       2         2       2         3       2         4       5         3       10         2       15         6       20         9       25         9       30         2       40         5       50         6       60	26.60 24.58 22.80 21.30 19.94 15.58 14.34 14.18 14.18 14.18 14.18 14.18 14.18 14.18 14.18
Meth Cable To Rotary (G Boring Air percu Other, spo Inside Diameter (cm/in) 15.9 15.6		d Pu Po Do In In In Ot Cecord - Ca Wall Thickness (cm/in) .43 .43 .43 .43 .43 .43 .43 .43 .43	iblic mestic restock gation dustrial her, specify <b>Sing</b> Dept From <b>t</b> , <b>q</b> ] <b>Go. 64</b> From Dept From	Well Us           Commer           Municipa           Test Hol           Cooling           th (m/ft)           To           G0.14           G0.96           th (m/ft)           To	e crial   Not used al Dewatering be Monitoring & Air Conditioning  Status of Well  Water Supply Replacement Well Dewatering Well Dewatering Well Doservation and/or Monitoring Hole Atteration (Construction) Abandoned, Poor Water Quality Abandoned, other, specify Cother, specify	Pump intake set at (m 36.5 Pumping rate (l/min / c 54.55 Duration of pumping hrs + m Final water level end of 29.00 If flowing give rate (l/m Recommended pump (36.55) Recommended pump (l/min / GPM) 28 Well production (l/min Disinfected? Yes No	V(t) GPM) inin f pumping (m/t) nin / GPM) o depth (m/ti) 2 rate / GPM) Map of W/ below following	1 2 3 4 5 10 15 20 25 30 40 50 60 60 ell Loc	16.64 17.72 19.08 20.10 21.04 23.92 25.76 27.25 27.25 27.25 28.32 28.32 28.78 29.06 cation	2       2         2       2         3       3         4       5         3       10         2       15         3       20         9       25         8       30         4       40         5       50         6       60	26.60 24.58 22.80 21.30 19.94 15.58 14.34 14.18 14.18 14.18 14.18 14.18 14.18 14.18
Meth Cable To Rotary (C Boring Air percu Other, sp Inside Diameter (cm/in) 15.9 15.6 Outside Diameter (cm/in)	rod of Construction rod Diamon Conventional) Jetting Reverse) Driving Digging assion becify Construction F Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) Sfeel open hole Construction F Material (Plastic, Galvanized, Steel) Water De	d Pu Pro Dr Inn Ot eccord - Car Wall Thickness ( <i>cmún</i> ) .48 Slot No.	Iblic mestic vestock gation dustrial her, specify From T, 91 Ca. 64 Dept From Dept From	Well Us           Commer           Municipal           Test Hol           Cooling           th (m/ft)           To           G0, 94           G0.94           th (m/ft)           To	e cial Not used al Dewatering be Monitoring & Air Conditioning  Status of Well Monitoring Be Conditioning  Status of Well Monitoring Hole Recharge Well Dewatering Well Abandoned, ther, specify Other, specify	Pump intake set at (m 3 G . 5 Pumping rate (l/min / G 54,55 Duration of pumping hrs +m Final water level end of 29.00 If flowing give rate (l/m Recommended pump (l/min / GPM) 28 Well production (l/min Disinfected? YesNo Please provide a map I	V(t) 7 GPM) in f pumping (m/tt) in / GPM) o depth (m/tt) 7 o rate / GPM) Map of We below following	1 2 3 4 5 10 15 20 25 30 40 50 60 ell Loc	16.60 17.72 19.88 20.10 21.02 23.92 25.70 24.55 27.22 28.32 28.32 28.32 28.38 29.00 cation	2       2         2       2         3       4         4       5         3       10         2       20         3       20         4       20         2       20         2       25         3       30         4       50         6       60         Back.	26.60 24.58 22.80 21.30 19.94 15.58 14.34 14.18 14.18 14.18 14.18 14.18 14.18 14.18 14.18
Meth Cable To Rotary (R Boring Air percu Other, sp Inside Diameter (cm/in) IS, 9 IS, 6 Outside Diameter (cm/in)		ecord - Ca Vall Thickness (cm/in) • 4 8 • 6 • 6 • 7 • 7 • 7 • 7 • 7 • 7 • 7 • 7 • 7 • 7	iblic omestic vestock igation dustrial her, specify From t, q1 Go, 64 From Dept From	Well Us           Comment           Hunicipation           Test Hol           Cooling           th (m/lt)           To           G0.19           G0.94           G0.94           Cooling	e crial Not used al Dewatering b Monitoring & Air Conditioning  Status of Well  Status of Well  Monitoring Well Dewatering Well Dewatering Well Dewatering Well Dewatering Well Dewatering Well Dewatering Well Atternation (Construction) Abandoned, Poor Water Quality Abandoned, other, specify  ole Diameter h (m/R) Diameter (comint)	Pump intake set at (m 36.5 Pumping rate (l/min / c 54.55 Duration of pumping hrs + m Final water level end of 29. oc If flowing give rate (l/m Recommended pump (l/min / GPM) 28 Well production (l/min Disinfected? Yes No	V(t) GPM) nin f pumping (m/t) nin / GPM) o depth (m/t) o rate / GPM) Map of W/ below following	1 2 3 4 5 10 15 20 25 30 40 50 60 60 ell Loc	16.64 17.72 19.08 20.10 21.04 23.92 25.76 27.25 27.25 27.25 27.02 28.32 28.32 28.78 29.06 cation	2       1         2       2         3       2         4       5         3       10         2       15         3       20         4       25         8       30         4       40         5       50         6       60	26.60 24.58 22.80 21.30 19.94 15.58 14.34 14.18 14.18 14.18 14.18 14.18 14.18 14.18
Meth Cable To Rotary (C Boring Air percu Other, sp Inside Diameter (cm/in) IS, 9 IS, 6 Outside Diameter (cm/in)		d Pro	iblic mestic restock gation dustrial her, specify <b>sing</b> Dept From <b>t</b> , <b>q</b> 1 <b>60.04</b> From Dept From	Well Us           Commer           Municipa           Test Hol           Cooling           th (m/ft)           To           60.94           60.94           th (m/ft)           To           60.94           b           To           60.94           b           To           60.94           b           from           a           Pett           a           Pett           a           b	e criai Not used al Dewatering b Monitoring & Air Conditioning   Status of Well  Status of Well  Air Conditioning  Status of Well  Water Supply Replacement Well Dewatering Well Dewatering Well Doservation and/or Monitoring Hole Atteration (Construction) Abandoned, Poor Water Quality Abandoned, other, specify Cother, specify  Ole Diameter To (crivin)	Pump intake set at (m 36.5 Pumping rate (l/min / c 54.55 Duration of pumping hrs + m Final water level end of 29.00 If flowing give rate (l/m Recommended pump (36.55) Recommended pump (l/min / GPM) 28 Well production (l/min Disinfected? Yes No	V(t) GPM) inin f pumping (m/t) nin / GPM) o depth (m/ti) 2 rate / GPM) Map of We below following	1 2 3 4 5 10 15 20 25 30 40 50 60 60 ell Loc	16.64 17.72 19.08 20.10 21.04 23.92 25.76 27.25 27.25 28.32 28.32 28.78 29.06 cation	2       2         2       2         3       3         4       5         3       10         2       15         3       10         2       20         3       20         3       25         3       30         4       40         5       50         6       60         e back.	26.60 24.58 22.80 21.30 19.94 15.58 14.34 14.18 14.18 14.18 14.18 14.18 14.18 14.18
Meth Cable To Rotary (C Boring Air percu Other, sp Inside Diameter (cm/in) 15.9 15.6 Outside Diameter (cm/in) Vater found Vater found (m)	nod       of Construction         nol       Diamon         Conventional)       Jetting         Reverse)       Driving         Digging       Dission         becify       Display         Construction F         Open Hole OR Material (Galvanized, Fibroglass, Concrete, Plastic, Steel)         Sfact         Open Hole OR Material (Galvanized, Fibroglass, Concrete, Plastic, Steel)         Sfact         Open Hole         Open Hole OR Material (Plastic, Galvanized, Steel)         Water De         Water De         d at Depth       Kind of Water         v(t)       Gas       Other, sp         d at Depth       Kind of Water       Vinto f Water         v(t)       Gas       Other, sp	d Pu Pu Do Lin In Ot eccord - Ca Wall Thickness (cm/in) .48 statis cecord - Scru Slot No.	iblic prestic gation dustrial her, specify From t, q1 Co. or Dept From Dept From Dept From	Well Us           Comment           Municipal           Test Hold           Cooling           th (m/ft)           To           GO. 14           GO. 14           GO. 14           To           GO. 14           GO. 14           To           GO. 14           GO. 14           To           GO. 24	e crial Not used al Devatering be Monitoring & Air Conditioning  Status of Well Monitoring Air Conditioning  Status of Well Monitoring Hole Recharge Well Dewatering Well Dewatering Well Dewatering Well Dewatering Well Dewatering Well Deservation (Construction) Abandoned, Insufficient Supply Abandoned, Other, specify Cother, specify	Pump intake set at (m 3 (6 ⋅ 5) Pumping rate (l/min / 0 54 ⋅ 55) Duration of pumping hrs +m Final water level end of 29. oc If flowing give rate (l/m Recommended pump (l/min / GPM) 28 Well production (l/min Disinfected? W Yes No Please provide a map I	MR) GPM) inin (m/ft) pomping (m/ft) o depth (m/ft) o rate / GPM) Map of We below following	1 2 3 4 5 10 15 20 25 30 40 50 60 60 ell Loce	16.60 17.72 19.88 20.10 21.0 23.92 25.70 24.55 27.20 28.32 28.32 28.32 28.32 28.32 28.32 28.32 28.32 28.32 28.32	2       2         2       2         3       4         1       5         3       10         2       20         3       10         2       20         3       20         2       25         3       30         4       40         5       50         6       60         Back.	26.60 24.58 22.80 21.30 19.94 15.58 14.34 14.18 14.18 14.18 14.18 14.18 14.18 14.18
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Hydrogeological Investigation Proposed Expansion of Whistle Bare Pit 1476545 Ontario Inc. Sept 25, 2020 FILE NO.: H19109 Page C

APPENDIX C Test Pit Logs & Grain Size Analyses

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FIL	<b>JE No: H19109</b>		_				TES	<b>T P</b> ]	IT N	<b>o.</b> 1				_			Sheet 1 of 1
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	$\odot$		Pro <u></u> Loc	ject: atior	1:	Hyd Eva 128 Dur	lrolog luatio 1 & 18 nfries	ical A n 835 W Town	ssessm histle ship, (	ent / A Bare I Ontari	Aggreg Road, 1 io	gate Nort	h	Ma Me Siz Da	achine: ethod: xe: te: <b>Ap</b>	<b>avator</b> 19 то Арг 17 19	
	SOIL LITHOLOGY			SA	MF	PLE	S	HEAR S	STRENC	GTH (kP	a)		VATE	R NT			
ELEV./ DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIE L 5 PEN STA	LD VAN AB TES 0 10 VETRAT NDARI	NE: Pea T: Unc. 00   1 TION RI 0   DY	$k \otimes Rei$ $\blacksquare P.P.$ 50 20 ESISTAI $N. CON$	$n. \times$ 00 NCE $NE \odot$		(%) W O	$W_L$	WELL DATA	DEPTH (m)	REMARKS
	510 mm TOPSOIL	_	<u>\ 1</u> /	•1			2	.0 4					20	30		_	
310.41 0.51	brown SAND	0.5														0.5	
	trace gravel, trace silt damp to moist	- 1.5														1.5	
308 27	finer sand, some silt	-2.0														-2.0	
2.65	brown SAND AND GRAVEL trace silt damp	- 3.0														-3.0	
307.42 3.50 306.97 3.95	brown SAND trace gravel, trace silt 	3.5 - -4.0	0													3.5	
	SAND AND GRAVEL cobbly, trace silt occ. boulders	4.5														4.5	
ENG.GDT 19-1	moist	- 5.0 - - 5.5														- 5.0	
5.80 5.80	End of Test Pit	- 6.0	1													-6.0	
oy whistle ba		- 7.0														-7.0	
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PROJE	CT MANAGER: <b>WA</b>			(	CH	IUN E ph. (	NG & 311 V Kitcher 519) 742	VAN NEEF Victoria ner, Ont 2-8979,	IDER ING Street N ario N2I fx. (519	DOE LTD orth H 5E1 ) 742-77	ELEN 739						

GPJ CVD ENG.GDT 19-RF TPS TIFF V WHITE NMIT TFL

Encl Nc

FIL	ILE No: H19109 TEST PIT No. 2 Sheet 1 of 3											Sheet 1 of 1										
			Cli	ent:		Gat	eman	Millo	Y					EQUIPMENT DATA								
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	SOIL LITHOLOGY			SA	MF	PLE	S	HEAR S	STRENG	σTΗ (kł	Pa)	C	WATI ONTI	ER ENT								
ELEV./ DEPTH (m)	DESCRIPTION Ground Elevation: 311.27 m	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIE L 5 PEN STA	LD VAN AB TES 0 10 VETRAT NDARI	NE: Pea T: Unc. 00   1 TION RI 0   DY	k ⊗ Re ■ P.P. 50 2 ESISTA N. CO	m.× .□ .00 NCE NE ○	W >	$(\%)$ $V_{\rm P} W \rightarrow 0$ $0 20$	$\overset{W_L}{\prec}$	WELL DATA	DEPTH (m)	REMARKS					
	380 mm TOPSOIL		<u>x 1/</u>					.0 4		0 0				30		_						
310.89 0.38	brown SAND AND GRAVEL	0.5	2 <u>2</u> 0 (													0.5						
309.92	trace cobbles, trace silt damp to moist	- 1.0	Ø ) ~ (												_	- 1.0						
1.35	brown SAND trace cobbles, trace gravel, trace	1.5														1.5						
	occ. gravelly layers	-2.0													_	-2.0						
	damp to moist	2.5														2.5						
		-3.0														- 3.0						
		3.5														3.5						
		-4.0													_	-4.0						
306.39		4.5														4.5						
4.00	brown SAND AND GRAVEL cobbly, trace silt	- 5.0	0 ( ) 0													- 5.0						
I	occ. boulders moist	5.5	> (													5.5						
		-6.0 ) -	) 0 0												-	- 6.0 - -						
304.57 6.70	End of Test Pit	6.5	• ( \												-	6.5						
		- 7.0														-7.0						
		- 7.5														- 7.5						
PROIE	T MANAGER: WA	<u> </u>		(	CH	IUN	IG &	VAN	DER	DOI	ELEN	·	I			<u> </u>						
INUJE	T MANAGER, YY A					E	NGI 311 V	NEEF Victoria	<b>IING</b> Street N	LTD orth	•											
						ph. (	Kitche (519) 74	ner, Ont 2-8979,	ario N2I fx. (519	H 5E1 ) 742-7	739											

GPJ CVD ENG.GDT 19-RF TPS TIFF V WILLIA NMIT TFL TIC ļ

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![](_page_35_Figure_0.jpeg)

Enclosure No.: 3


CVD TEST PIT H19109 GATEMANMILLOY WHISTLE BARE TPS.GPJ CVD ENG.GDT 19-11-11

ŀ	FIL	E No: H19109						TES	<b>T P</b> ]	[T ]	<b>Io.</b> 5							Sheet 1 of 1
				Cli	ent:		Gat	eman	Millo	y						EQ	UIPN	IENT DATA
		Ø		Project:Hydrological Assessment / Aggregate EvaluationMach MethLocation:1281 & 1835 Whistle Bare Road, North Dumfries Township, OntarioDate:											achine: ethod: e: te: <b>Ap</b>	ine: Excavator od: Apr 17 19 TO Apr 17 19		
$\left[ \right]$		SOIL LITHOLOGY		_	SA	MF	PLE	S	HEAR S	STREN	GTH (k	Pa)	WA CON	TER				
ELEV./	DEPTH (m)	DESCRIPTION	DEPTH (m)	YMBOL	AMPLE ID	TYPE	I-VALUE	FIE L 5 PEN STA	LD VAN AB TES 0 19 VETRAT	NE: Pe T: Uno 00 TION R	ak $\otimes$ Re $2. \blacksquare$ P.P 150 $2ESISTAYN CC$	em. × 2. □ 200 NCE		%) W V	V <sub>L</sub> ≺	WELL DATA	DEPTH (m)	REMARKS
-		Ground Elevation: 311.45 m		<u>717</u>	S/		Z	2	20 4	0	60	80	10	20 3	30			
3	11.02 0.43	430 mm TOPSOIL	0.5	<u>1</u> 1													0.5	
		SAND trace to some gravel, trace silt damp to moist	-1.0														- 1.0	
			- 1.5 - - 2.0														- 1.5 2.0	
			2.5														2.5	
			-3.0														- 3.0	
3	07.80 3.65	brown SAND AND GRAVEL cobbly. trace silt	- 4.0	0 0													-4.0	
		damp to moist	4.5 	0 0 0													4.5	
3NG.GDT 19-11	05.95 5.50	brown	- 5.0	0 0 )													- 5.0 - 5.5	
LPS.GPJ CVD	05.50 5.95	SAND trace gravel, trace silt moist End of Test Pit	- -6.0														- - 6.0 -	
HISTLE BARE			6.5														6.5	
IANMILLOY W			7.5														7.5	
GATEN																		
VD TEST PIT H19109 (	ROJE	CT MANAGER: WA			(	CĦ	IUN E ph. (	NG & 2NGI 311 V Kitche (519) 74	VAN NEEF Victoria ner, Ont 2-8979,	IDEF ING Street 1 ario N2 fx. (51	<b>R DO</b> LTE Vorth H 5E1 9) 742-7	ELEN ). 7739						

GPJ CVD ENG.GDT 19-RF TPS TIFF V WILLIA NMIT TFL TIC

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CVD TEST PIT H19109 GATEMANMILLOY WHISTLE BARE TPS.GPJ CVD ENG.GDT 19-11-11



H19109 GATEMANMILLOY WHISTLE BARE TPS.GPJ CVD ENG.GDT 19-11-11



FIL	E No: H19109						TES	T P	T N	o. 9							Enclosure No.: 9 Sheet 1 of 1
			Clie	ent:		Gat	eman	Milloy	/					$\left  \right $	EQ	UIPM	ENT DATA
	$\odot$		Project:Hydrological Assessment / Aggregate EvaluationMaLocation:1281 & 1835 Whistle Bare Road, North Dumfries Township, OntarioSiz Da											achine: Excavator ethod: ze: ate: Apr 17 19 TO Apr 17 19			
	SOIL LITHOLOGY			<u>۲</u>	М		SI	IEAR S	TREN(	GTH (kl	Pa)	V	/ATE	R			
LEV./ EPTH (m)	DESCRIPTION	EPTH (m)	MBOL	APLE ID S	YPE		FIEI LA 50 PEN	D VAN B TES ) 10 ETRAT	NE: Pea T: Unc 00 1	k⊗ Re ■ P.P 50 2 ESISTA	em. × . □ 200 NCE		0NTE (%) W	NT W <sub>L</sub> ≺	WELL DATA	DEPTH (m)	REMARKS
DE	Ground Elevation: 312.20 m	Ω	SY	SAN		Z-Z	STA1	NDARI ) 4	0  0	/N. CO	NE O 80	10	20	30			
211.95	350 mm TOPSOIL	- 1	<u>, , ,</u>													-	
0.35	orangey brown to brown SAND AND GRAVEL trace cobbles, trace silt damp	0.5														0.5	
311.00			, C														
	brown SAND trace gravel, trace silt	1.5														1.5	
	damp to moist	-2.0														-2.0	
		2.5														2.5	
		3.5														3.5	
		-4.0														-4.0	
307.65 4.55	brown	4.5	2													4.5	
	SAND AND GRAVEL trace cobbles, trace silt moist	-5.0	0 0 C													- 5.0	
306.40		5.5	o ) [													5.5	
5.80	End of Test Fit	- 6.0														- 6.0	
		6.5														6.5	
		- 7.0														- 7.0	
		7.5														7.5	
	CT MANACED. W/A	<u> </u>		(	CH	IUN	G &	VAN	DER	DOI	ELEN	-				<u> </u>	
FKUJE	UT IVIAINAUEK: WA					E	NGIN 311 V Kitcher	VEER ictoria er, Onta	LING Street N ario N2	LTD orth H 5E1	).						
						ph. (	(519) 742	2-8979,	fx. (519	) 742-7	739						

GPJ CVD ENG.GDT 1 RF TPS TIFF V WILL L LD VI V TFL

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CVD TEST PIT H19109 GATEMANMILLOY WHISTLE BARE TPS.GPJ CVD ENG.GDT 19-11-11



	FIL	E No: H19109					r	ΓES	T PI	T No	). 13							Enclosure No.: 13 Sheet 1 of 1
ſ				Cli	ent:		Gat	eman	Millo	y					$) \bigcirc$	EQ	UIPI	MENT DATA
				Pro	ject:		Hyo	irolog	ical A	ssessn	ent / A	Aggreg	gate		Ma	chine:	Exc	cavator
				La	ontion		Eva 128	luatio	n 835 W	histla	Rara I	beo2	Nort	h	Me	Method: Size:		
l					Jatio	1.	Dui	nfries	Town	ship,	Ontari	10 10			Da	te: Ap	r 17	<b>19</b> TO Apr 17 19
ſ		SOIL LITHOLOGY			SA	MF	PLE	S	HEARS	STRENG	GTH (kP	a)	W CO	'ATE NTE	R NT			
	EPTH (m)	DESCRIPTION	EPTH (m)	MBOL	IPLE ID	YPE	'ALUE	FIE L	LD VAI AB TES 50 1	NE: Pea T: Unc 00 1	k⊗ Rer ■ P.P. 50 20	n.× □ 00		(%) W	W <sub>L</sub> ≺	WELL DATA	DEPTH (m)	REMARKS
	Ð	Ground Elevation: <b>306.24 m</b>	Ā	SΥ	SAN	F	<b>^</b> −N	STA	NDARI	$D \oplus D$	/N. CON	VE O 0	10	20	30			
		610 mm TOPSOIL	_	<u>×1/</u>													-	
	205 (2		0.5	<u></u>													0.5	
	305.63 0.61	brown		¢. ``													Ľ	
		SAND AND GRAVEL	-1.0	) o )											_		- 1.0	water level in test pit measured to 0.9 m depth
		trace to some cobbles, trace silt	-	. <i>Q</i> .													F	
	304 54	moist to saturated	1.5	0													1.5	
	1.70	End of Test Pit	-														-	
			-2.0														-2.0	
			2.5														2.5	
			- 3.0														- 3.0	
			-														F	
			3.5														3.5	
			-														F	
			-4.0														-4.0	
			15														4.5	
-11-11			- 5.0														- 5.0	
DT 19			-														F	
BNG.G			5.5														5.5	
CVD			-														-	
GPJ			- 6.0														- 6.0	
RE TPS			6.5														6.5	
E BAI			0.5														- 0.5	
HISTI			7.0														7.0	
OY W			-														F	
NMILL			7.5														7.5	
TEMA			F														-	
09 GA		<u> </u>	L	1		CF	IUN	⊔ VG &	VAN	IDER	DOF	LEN				l	L	
TH191	PROJE	CT MANAGER: <b>WA</b>				-	Ē	NGI	NEEF	RING	LTD.							
IT PI								311 Y Kitche	Victoria ner. Ont	Street N ario N21	orth H 5E1							
VD TE							ph. (	(519) 74	2-8979,	fx. (519	) 742-77	39						
5																		)



	FIL	E No: H19109					-	ГЕЅ	T Pl	T N	o. 15							Enclosure No.: 15 Sheet 1 of 1
ſ				Cli	ent:		Gat	eman	Millo	у						EQ	UIPM	ENT DATA
				Pro	ject:		Hyo	irolog	gical A	ssess	ment / 4	Aggre	gate		Ma	chine:	Exca	vator
				Lo	catio	n:	Eva 128	1 & 1	911 835 W	histle	Bare	Road,	North	l	Me Siz	ethod:		0 1 1 10
					a.				S I OWI	nsnip, stren	Ontar	10 Pa)	W	ATEF	Da 2	te: Ap	r 17 1	9 TO Apr 17 19
+		SOIL LITHOLOGY			SA O	MI	'LE	FII	ELD VA	NE: Pe	ak⊗ Re	m. ×	COl	NTEN (%)	JΤ	<b>→</b> ⊀	Н	
	DEPTH (m)	DESCRIPTION	DEPTH (m)	YMBOL	MPLE II	TYPE	-VALUE	PE ST	LAB TE: 50 1 NETRA	ST: Un .00 TION I	c. $\blacksquare$ P.P. 150 2 RESISTA	00 NCE	W <sub>P</sub>	w v	V <sub>L</sub> ≺	WELI DAT/	DEPT (m)	REMARKS
Ĺ		Ground Elevation: 312.01 m	_	N.	SA		z	517	20	40 1	<u>60 8</u>	$\frac{NE}{30}$	10	20 3	30			
	311.61	400 mm TOPSOIL	-	<u>1/ 1/</u>													-	
	0.40	brown	0.5	0													0.5	
		SAND AND GRAVEL trace silt damp to moist	-	2													-	
	310 71	during to mont	- 1.0	0													- 1.0	
	1.30	brown	1.5														- 1.5	
		SAND trace to some silt	Ļ															
	309.86	moist	-2.0														-2.0	
	2.15	brown	1	0														
		SAND AND GRAVEL trace to some cobbles, trace silt	2.5	).													2.5	
		damp to moist	-30	0													-3.0	
			- 5.0	0													-	
			3.5	0													3.5	
			-	0													-	
			-4.0	0													-4.0	
		 cobbly		0														
		occ. boulders	4.5	20													4.5	
-11-11			- 5.0	<u>ہ</u> (													-5.0	
DT 19			-	•   )													-	
ENG.G			5.5	0													5.5	
CVD			-	0													-	
S.GPJ	305.91 6.10	End of Test Pit	- 6.0 -	): 													- 6.0	
ARE TP			6.5														6.5	
ILE BA			ļ															
<b>WHIST</b>			- 7.0														- 7.0	
LLOY																		
IMNAI			7.5														7.5	
BATEM			<u> </u>															
19109 C	PROIF	$CT MANAGER \cdot \mathbf{WA}$			(	CF	ĪUN	G &			R DOF	ELEN	-					
PIT H							Г	311	INEE Victoria	Street	J L I D North	•						
TEST							nh (	Kitche	ener, On 12_8070	tario N2	2H 5E1 9) 742-7	730						
5							Ъп. (	519) /	12-0719	, 17. (31	2) 172-1	, , , ,						)

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H19109 GATEMANMILLOY WHISTLE BARE TPS.GPJ CVD ENG.GDT 19-11-11

FILE No: H19109 TEST PIT No. 17 Enclosure No.: 17   Sheet 1 of 1 Sheet 1 of 1 Sheet 1 of 1																		
			Clie	ent:		Gat	eman N	Ailloy	/					EQ	UIPN	MENT DATA		
	(		Pro	Project:Hydrological Assessment / Aggregate EvaluationMach MethoLocation:1281 & 1835 Whistle Bare Road, NorthSize:												ne: Excavator d:		
				Juitor		Dur	nfries 7	Fown	ship, (	Ontar	io			Date: Ap	r 17	19 то Арг 17 19		
	SOIL LITHOLOGY			SA	MF	PLE	SH	EARS	TRENC	TH (kF	Pa)	WAT CONT	ER ENT					
ELEV./ DEPTH (m)	DESCRIPTION	DEPTH (m)	YMBOL	MPLE ID	TYPE	-VALUE	FIEL LA 50 PENI	D VAN B TES 10 ETRAT	NE: Peal T: Unc. 00 1: TION RE	$\mathbf{K} \otimes \operatorname{Re}$ $\mathbf{I} \operatorname{P.P.}$ 50  2 $\overline{\mathrm{SISTA}}$ $\overline{\mathrm{CO}}$	m. × . □ .00 NCE	$W_{\rm P} W$	W <sub>L</sub>	WELL DATA	DEPTH (m)	REMARKS		
	Ground Elevation: <b>309.99 m</b>		<u>× 1/</u> . S	S≜		Z	20	4	0 6	0 8	80	10 20	30					
309.53 0.46	460 mm TOPSOIL	0.5													0.5			
	brown SAND AND GRAVEL cobbly, trace silt	- 1.0	0											_	- 1.0			
	damp to moist	1.5	0 0 0												1.5			
		- 2.0	000											_	-2.0			
		2.5													2.5			
307.24 2.75	brown	- 3.0												_	- 3.0			
	SAND trace gravel, trace silt moist	3.5													3.5			
		-4.0												_	-4.0			
		4.5													4.5			
305.09 4.90	End of Test Pit	- 5.0													- 5.0			
		5.5													5.5			
1		- 6.0													- 6.0			
		6.5													6.5			
		- 7.0													- 7.0			
		7.5													7.5			
PROJE	CT MANAGER: WA			(	CH	IUN E	NG & V NGIN	VAN EER	IDER LING	DOI LTD	ELEN					Ň		
						ph. (	Kitchene (519) 742-	er, Onta -8979,	ario N2F fx. (519	J 5E1 ) 742-7	739							

	FIL	E No: H19109					,	TES	г рі	ΤN	o. 18						Enclosure No.: 18 Sheet 1 of 1			
ſ				Cli	ent:		Gat	teman	Millo	$\left  \right $	EQUIPMENT DATA									
				Pro	ject:		Hye	drolog	ical A	ssessi	nent / A	Aggre	gate	N	Machine:	Exc	avator			
				Log	catio	n:	Eva 128	aluatio 1 & 18	n 835 W	histle	Bare l	Road.	North		Method: Size:	iod:				
l							Du	mfries	Towr	ship,	Ontar	io		J	Date: Ap	r 17	<b>19</b> TO Apr 17 19			
		SOIL LITHOLOGY			SA	MI	PLE	S	HEAR	STREN	GTH (kP	'a)	WAT CONT	ER ENT						
	H	DESCRIPTION	H	TO	EID	ш	,UE	FIE L	AB TES	NE: Pe ST: Un 00	ak $\otimes$ Rei $\therefore \blacksquare$ P.P. 150 2	m. ∧ □ 00	(% W <sub>n</sub> W	) Wr	ELL ATA	m)	REMARKS			
	ELEV DEPT (m)		DEPT (m)	YMB	MPL	TYP	-VAI	PEN	VETRA	FION R	ESISTA	NCE	>→→		DM	DE				
		Ground Elevation: <b>311.80 m</b>	_	N 1%.	SA		z	2	1000000000000000000000000000000000000	40 1	<u>60 8</u>	NE U 80	10 20	30						
	311.50 0.30	300 mm TOPSOIL	-	· · · · · · · · · · · · · · · · · · ·												-				
		brown	0.5	0												0.5				
		SAND AND GRAVEL cobbly, trace silt	-	0												$\left  - \right $				
		damp to moist	- 1.0	0												- 1.0				
			1.5													1.5				
			-	0																
			-2.0	0 ( )										-	_	-2.0				
			Ĺ	0																
			2.5	0												2.5				
			-3.0	0												3.0				
		trace cobbles	-	0															-	
			3.5													3.5				
	307.85		-	¢ (												-				
	3.95	brown	-4.0												_	-4.0				
		SAND some gravel to gravelly, trace silt	4.5													4.5				
		moist																		
-11-11			- 5.0												_	- 5.0				
DT 19			È																	
ENG.C	306.15		5.5												_	5.5				
CVD	5.05	End of Test Pit	-													-				
PS.GPJ			- 6.0													- 0.0				
ARE TI			6.5													6.5				
ILE B/			-																	
SIHM			- 7.0													-7.0				
LLOY																				
<b>1</b> ANMI			7.5													7.5				
BATEN			Ē																	
19109	PROJE	CT MANAGER: <b>WA</b>				CF	IUN	NG &	VAN		R DOF	ELEN								
PIT H	_	=					Ľ	311	Victoria	Street 1	North	•								
TEST							ph 4	Kitche (519) 74	ner, Ont 2_8970	ario N2 fx (51	H 5E1 9) 742-7'	739								
5(							Pur (	(31)/4	- 0719,	17. (31	-,	, , , , , , , , , , , , , , , , , , , ,								



CVD TEST PIT H19109 GATEMANMILLOY WHISTLE BARE TPS.GPJ CVD ENG.GDT 19-11-11











AW. IdS ITSIHW YO. OPSS 1010 - GRAN. 'A' H19109 GATEMANMIL



GDT AW. IdS ITSIHW YO. OPSS 1010 - GRAN. 'A' H19109 GATEMANMIL



IdC 20 - OPSS 1010 - GRAN. 'B' TYPE I H19109 GATEMANMIL



WA. IdC 20 - OPSS 1010 - GRAN. 'B' TYPE I H19109 GATEMANMIL



WA. GPJ OV WF - OPSS 1010 - GRAN. 'B' TYPE I H19109 GATEMANMIL



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Sept 25, 2020 FILE NO.: H19109 Page D

APPENDIX D Borehole Logs & Grain Size Analyses





H19109 GATEMANMILLOY WHISTLE BARE BHS.GPJ CVD ENG.GDT 20-4-6





H19109 GATEMANMILLOY WHISTLE BARE BHS.GPJ CVD ENG.GDT 20-4-6







H19109 GATEMANMILLOY WHISTLE BARE BHS.GPJ CVD ENG.GDT 20-4-6 CVD BOREHOLE (2017)







LAW BHS.GPJ BARE OY WHISTLE DM - NO SPECIFICATIONS H19109 GATEMANMILI








Hydrogeological Investigation Proposed Expansion of Whistle Bare Pit 1476545 Ontario Inc. Sept 25, 2020 FILE NO.: H19109 Page E

APPENDIX E Table 1 Water Levels & Elevations and Hydrograph



## Table 1 - Summary of Water Levels, Elevations & Fluctuations

	Ground Elevation	Top Pipe Elevation	Water Level (m Below Ground)								Water Elevation (m Above Sea Level)							Fluctuation Relative to May 16, 2019			
Well	(m ASL)	(m ASL)	30-Apr-19	16-May-19	27-Jun-19	3-Jul-19	14-Aug-19	9-Oct-19	4-May-20	30-Apr-19	16-May-19	27-Jun-19	3-Jul-19	14-Aug-19	9-Oct-19	4-May-20	30-Apr-19	14-Aug-19	9-Oct-19	4-May-20	
BH1	311.37	312.13	8.77	9.43	9.42	-	9.68	9.91	9.51	302.60	301.94	301.95	-	301.69	301.46	301.86	0.66	-0.25	-0.48	-0.08	
BH2	307.75	308.49	3.51	4.15	4.35	-	4.73	4.97	4.43	304.24	303.60	303.40	-	303.02	302.78	303.32	0.64	-0.58	-0.82	-0.28	
BH3	312.00	312.79	8.73	9.46	9.44	-	9.77	10.06	9.56	303.27	302.54	302.56	-	302.23	301.94	302.44	0.73	-0.31	-0.60	-0.10	
BH4	312.15	312.88	9.72	10.35	10.34	-	10.65	10.85	10.45	302.43	301.80	301.81	-	301.50	301.30	301.70	0.63	-0.30	-0.50	-0.10	
BH5	307.65	308.39	0.56	1.34	1.74	1.86	2.37	2.58	1.67	307.09	306.31	305.91	305.79	305.28	305.07	305.98	0.78	-1.03	-1.24	-0.33	
BH6	312.24	313.04	7.36	8.05	8.03	-	8.34	8.68	8.16	304.88	304.19	304.21	-	303.90	303.56	304.08	0.69	-0.29	-0.63	-0.11	
BH7	311.64	312.43	6.73	7.40	7.49	-	7.77	8.09	7.65	304.91	304.24	304.15	-	303.87	303.55	303.99	0.67	-0.37	-0.69	-0.25	
BH8	312.08	312.91	6.03	6.69	6.74	-	7.04	7.39	6.85	306.05	305.39	305.34	-	305.04	304.69	305.23	0.66	-0.35	-0.70	-0.16	
DP1	305.79	306.76	#	-0.02	-	0.52	1.05	D	0.05	#	305.81	-	305.27	304.74	D	305.74	-	-1.07	-	-0.07	
DP1 (s/w)	305.79	306.76	-0.50	-0.51	D	D	D	D	D	306.29	306.30	D	D	D	D	D	-0.01	-	-	-	
DP2	306.01	306.77	#	-0.30	0.11	0.20	0.60	0.92	0.03	#	306.31	305.90	305.81	305.41	305.09	305.98	-	-0.90	-1.22	-0.33	
DP2 (s/w)	306.01	306.77	-0.28	-0.29	D	D	D	D	D	306.29	306.30	D	D	D	D	D	-0.01	-	-	-	
DP3	306.09	306.94	#	-0.48	-0.28	0.15	0.71	D	-0.12	#	306.57	306.37	305.94	305.38	D	306.21	-	-1.19	-	-0.36	
DP3 (s/w)	306.09	306.94	-0.39	-0.50	-0.02	D	D	D	-0.12	306.48	306.59	306.11	D	D	D	306.21	-0.11	-	-	-0.38	
Staff Gauge	-	307.24	-	-	-	-	-	-	-	306.29 *	306.30 *	-	306.01	305.88	305.54	306.37	-	-	-	-	

Notes: 1) All Elevations Referenced to Geodetic Survey

2) Negative Water Level is Height <u>Above</u> Ground or Sediment
3) Negative Water Level Fluctuation is a <u>Drop</u> in Water Level from May 16, 2019

4) # Water Level Not Recovered to Static After Installation April 30

5) D - Dry Well or Dry Surface Location

6) Water Elevation Inferred from Surface Water at DP1 and DP2, Since Pond was Continuous on These Days

## Whistle Bare Pit Expansion CVD Engineering - H19109

## Water Level Hydrograph

