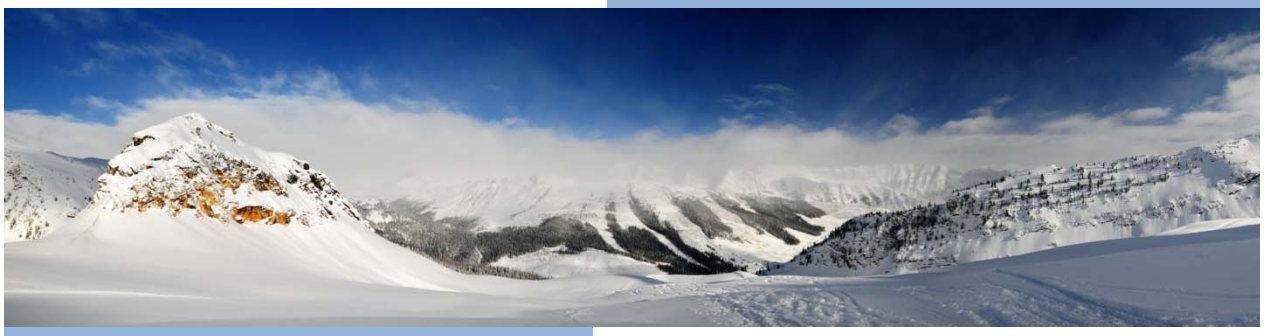
Whitewater
Hydrogeology Ltd.



COMBINED LEVEL 1 AND 2 HYDROGEOLOGICAL ASSESSMENT

PROPOSED BONNEFIELD AND PRINCE PITS

Prepared for:
Strada Aggregates

Whitewater Hydrogeology Ltd
Phone: 705.888.7064
Email: tecia@white-water.ca

Date: May 2017

EXECUTIVE SUMMARY

Strada Aggregates Inc. (Strada) are filing an application with the Ministry of Natural Resources and Forestry (MNRF) for an Aggregate Resources Act (ARA) Category 3, Class A Pit Above Water license for development of the proposed Bonnefield Pit and Prince Pit. The proposed Bonnefield Pit is located on Part Lot 12, Concession 3 Township of Melancthon. This parcel of land is 20.25 ha and is situated between two of Strada's existing pit operations, referred to as Melancthon Pit #1 and Melancthon Pit #2. The proposed Prince Pit is located on Part Lot 14, Concession 3 Township of Melancthon. This parcel of land is 40.41 ha and is situated immediately north of Melancthon Pit #1.

Strada is intending to operate the proposed Bonnefield Pit and Prince Pit under the terms of a provincial license that covers both properties and would operate under the terms of an Operational Plan. Each property would be integrated with existing Strada operations at Melancthon Pits #1 and #2, such as through the use of an existing scale house to service both properties and haulage routes that would span each property.

The proposed Bonnefield and Prince Pits are located within a Primary Resource Aggregate Area, as identified by the Province of Ontario's Geological Survey. The results of the site-specific geological work program found that the material beneath the site is high quality Granular "A" aggregate, which is comparable to the material extracted from Strada's existing Melancthon Pit #1 and #2.

Whitewater has completed a Level 2 Hydrogeological Assessment, which has been prepared to accompany the ARA application to enable development of the proposed Bonnefield Pit and Prince Pit. The evaluation presented in this report is based on a comprehensive geological and hydrogeological work program, which provides the foundation to the conceptual understanding of the regional and local environmental conditions.

The results of the hydrogeological investigation indicate that the potential impacts associated with the extraction of the aggregate on the groundwater, surface water, and wetlands will be negligible. The above water extraction limits the potential for influence on the water table as well as the lower aquifer systems (bedrock aquifer). As a result, there will be no influence of the operations on the domestic water wells in the vicinity of the proposed operations.

This conclusion is supported by the long-term operation of the adjacent Melancthon Pit #1 and #2. Locally, the presence and influence of Strada's existing pits provides an invaluable physical model on the long-term effect(s) of such an operation on the surrounding environment and is considered the best source of information for the proposed Bonnefield Pit and Prince Pit assessment. This combined Level 1 and 2 Hydrogeological Assessment provides both regional and site-specific data to support that, similar to the existing Melancthon Pit #1 and #2, the proposed operation of the Bonnefield Pit and Prince Pit will result in no adverse impacts to the ground or surface water regimes.

It is Whitewater's professional opinion that the subject lands are geologically, hydrogeologically and hydrologically suited for the proposed aggregate operations.

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1.0 INTRODUCTION

Strada Aggregates Inc. (Strada) is filing applications with the Ministry of Natural Resources and Forestry (MNRF) for an Aggregate Resources Act (ARA) Category 3, Class A Pit Above Water license for development of the proposed Bonnefield Pit and Prince Pit. The proposed Bonnefield Pit is located on Part Lot 12, Concession 3 Township of Melancthon. This parcel of land is 20.25 ha and is situated between two of Strada's existing pit operations, referred to as Melancthon Pit #1 and Melancthon Pit #2. The proposed Prince Pit is located on Part Lot 14, Concession 3 Township of Melancthon. This parcel of land is 40.41 ha and is situated immediately north of Melancthon Pit #1 (Figure 1 and Figure 2).

Strada is intending to operate the proposed Bonnefield and Prince Pit under the terms of a provincial license that covers both properties and would operate under the terms of an Operational Plan. Aggregate facilities on each property would be integrated with existing Strada operations at Melancthon Pits #1 and #2, such as through the use of an existing scale house to service both properties and haulage routes that would span each property.

Strada has retained Whitewater Hydrogeology Ltd. (Whitewater) to complete a combined Level 1 and Level 2 Hydrogeological Assessment in support of the proposed aggregate operation.

1.1 Study Approach

Melancthon Pit #1 and Melancthon Pit #2 are licensed to extract sand and gravel from above the established water table. Locally, the presence and influence of these pits provides an invaluable physical model on the long-term effect(s) of such operations on the surrounding environment and is considered the best source of information for the assessment of the proposed operations. To develop this understanding, a comprehensive geological and hydrogeological work program, which provides the foundation to the conceptual understanding of the geology and hydrogeology beneath the proposed pits, has been completed. In addition to the local understanding obtained from the historical and on-going monitoring of the existing pits, a regional-scale understanding of the geology and hydrogeology was obtained through the use of published literature sources as summarized in the reference list at the end of this report.

The study approach for the geological and hydrogeological assessment for the proposed pits was developed to comply with the relevant legislation. The Provincial Standards, which support the ARA, outline the technical requirements for the various aggregate applications. For a Category 3, Class A Pit Above Water the only hydrogeological requirement is to "*Determine the elevation of the established groundwater table within the site or demonstrate that the final depth of extraction is at least 1.5 m above the water table.*" The Provincial Policy Statement states that *"The quality and quantity of groundwater and surface water and the function of sensitive ground water recharge/discharge areas, aquifers and headwaters will be protected or enhanced."*

To comply with the abovementioned requirements, the hydrogeological work program was designed to characterize the regional and local geological, hydrogeological, and hydrological conditions. An impact assessment was completed to determine the potential impacts (if any) of above water aggregate extraction on this natural environment. The work program has also incorporated a cumulative effects assessment as there are four above water pits operating in close proximity. The proposed pits are located in proximity to the Duivenvoorden Pit, the Kasaks Pit, in addition to Melancthon Pit #1 and Melancthon Pit #2 (Figure 1 and Figure 2).

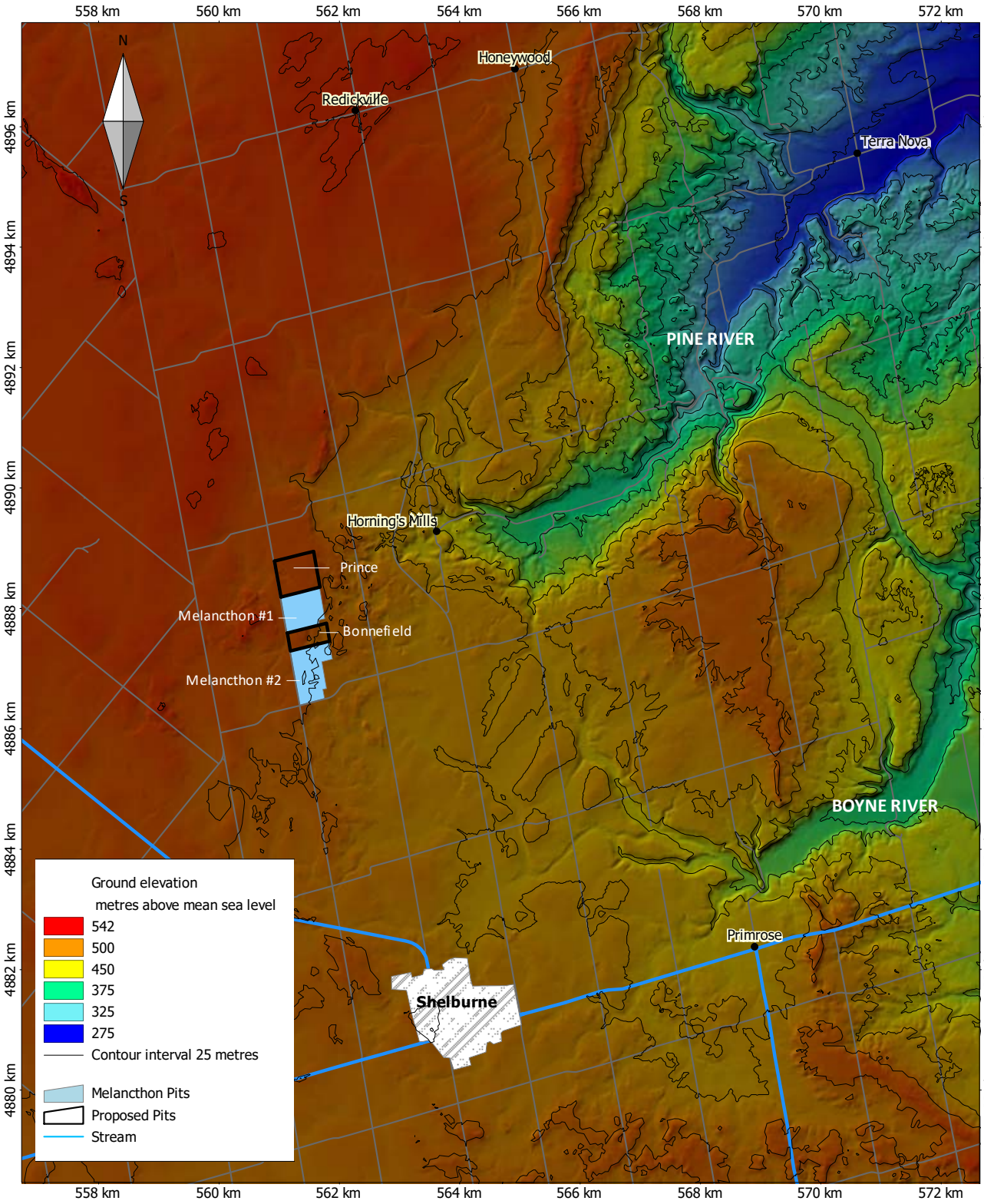

FIGURE 1: REGIONAL LOCATION MAP AND DIGITAL ELEVATION MODEL

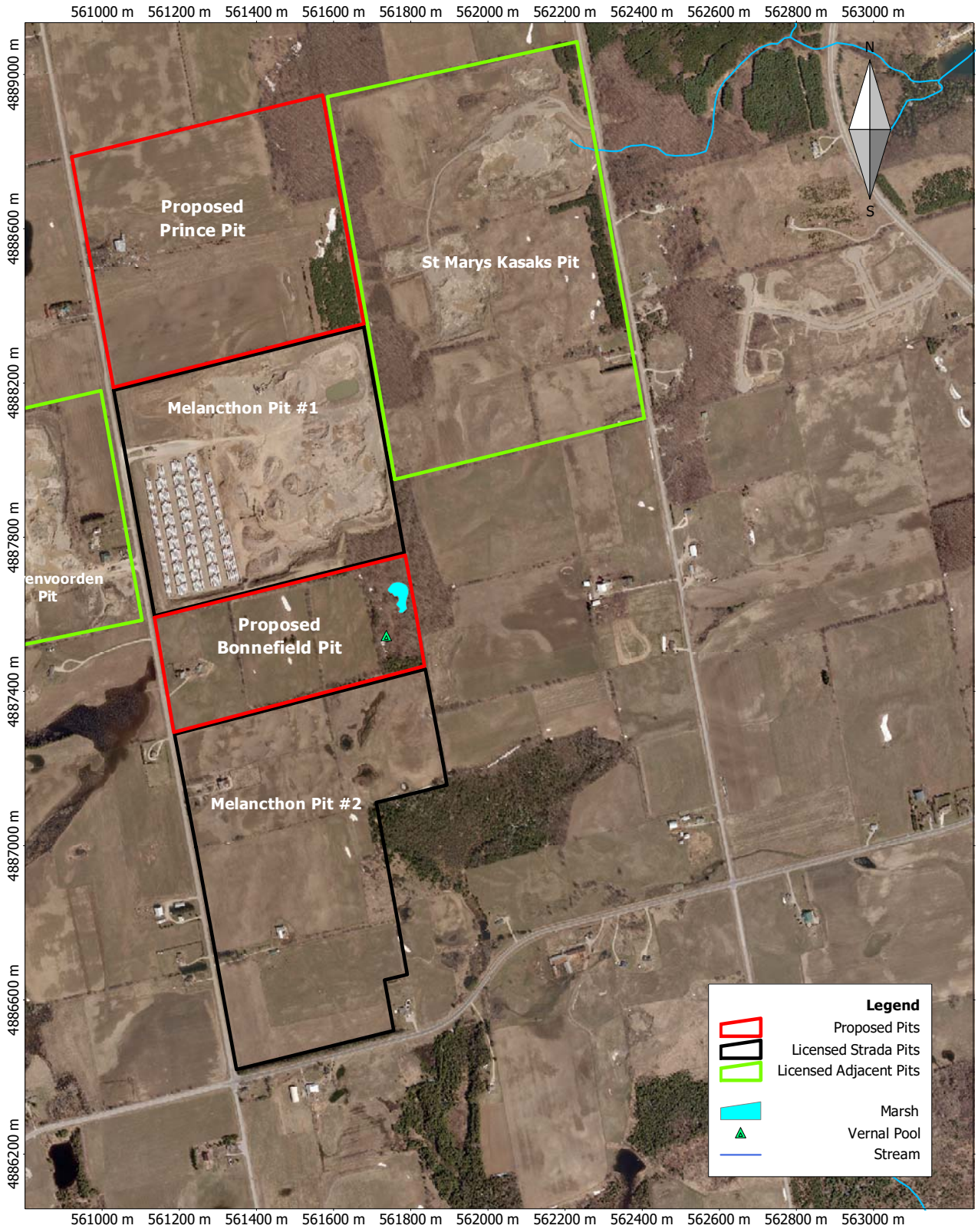

FIGURE 2: SITE LOCATION MAP

2.0 REGIONAL SETTING

2.1 Physiography

The subject property resides within the physiographic region referred to as the Horseshoe Moraines (Chapman and Putnam, 1984). From Singhampton south to Caledon Village, the moraines lie along the brow and slopes of the Niagara Escarpment. Associated with these moraines is a system of spillways with board gravel and sand terraces. The proposed pits will extract the sand and gravels from this spillway system referred to as the Orangeville Moraine.

A Digital Elevation Model (DEM) of the region is presented in Figure 1. DEM data files are digital representations of cartographic information in raster format. DEMs consist of a sampled array of elevations for a number of ground positions at regularly spaced intervals. The DEM model has been conditioned to be hydrologically correct which simply means, spurious sinks (depressions) within a DEM have been removed and the data has been topologically flow corrected.

The most dominant feature on the DEM in this region is the glacial re-entrant valley of the Pine River. This valley extends east of Horning Mills, terminating at Terra Nova. The Boyne River is also obvious on the DEM just north of Primrose. Both re-entrant valley systems cut deeply into the bedrock escarpment from the east.

Figure 3 shows the local topography (pre-extraction from existing aggregate operations) based on the 1 m DEM. The proposed pits are located on the plateau formed by the dolostone cap rock, west of the Niagara Escarpment face.

2.2 Hydrology

The subject lands are within the Nottawasaga watershed, which covers an area of 3,361 km^2. Smaller rivers and streams within the study area are outside of this system, draining to Nottawasaga Bay west of Wasaga Beach. The proposed pits located in proximity to the drainage divide between two headwaters systems of the Nottawasaga River (the Pine River and the Boyne River). These rivers rise west of the Niagara Escarpment and flow in an easterly direction (Figure 1).

The proposed Bonnefield and Prince Pits are located within the Boyne River sub-watershed, which arises from a series of wetlands southwest of Redickville. The Boyne River, a major tributary of the Nottawasaga River, has cut a broad, meandering valley system into the overburden creating a series of meander basins with remnants of the ancient river courses.

There are no streams or permanent watercourses on the proposed Bonnefield and Prince Pit properties (Figure 2). The MNRF has identified the presence of unevaluated wetland on the Bonnefield property within the woodlot, as shown in Figure 2. Field studies confirmed the absence of any wetland habitat within the Prince Property woodland (NRSI, 2017). A shallow perched wetland feature was identified within the Bonnefield Property woodland during site investigations, as was the presence of a small vernal pool. These ponds are “closed” systems (i.e., there are no surface water drainage courses into or out of these features).

Figure 3 shows the local topography based on the 2 m contours. Elevations at the proposed Prince Pit range

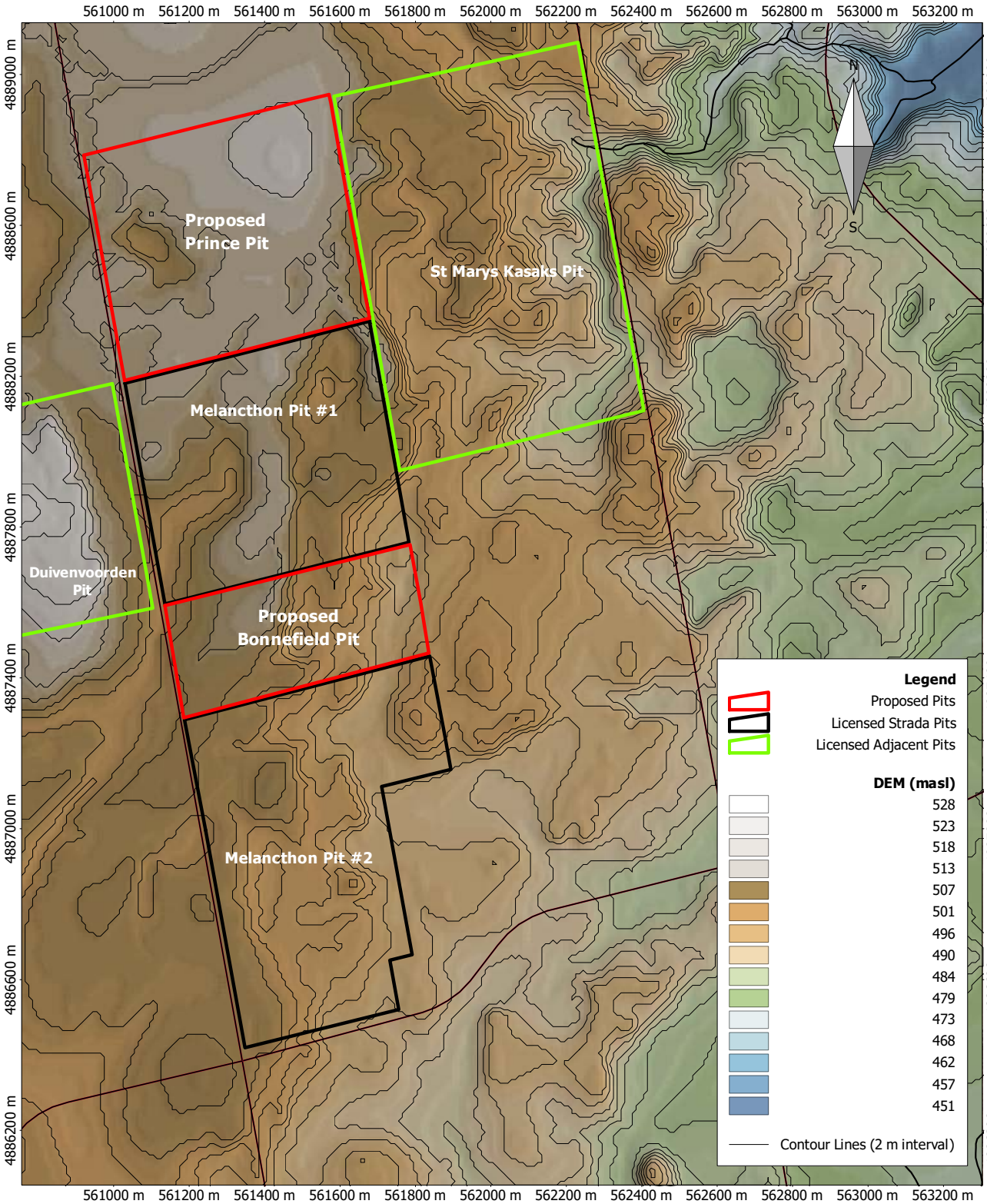

FIGURE 3: DIGITAL ELEVATION MODEL (LOCAL)

between a high of approximately 513 masl in the northeast corner of the property to a low of 504 masl along the western property boundary. Elevations at the proposed Bonnefield Pit range between a high of approximately 509 masl along the northern property boundary to a low of approximately 498 masl in the southeastern corner of the property. The hummocky topography that is characteristic of the Orangeville Moraine is evident.

There are no streams or permanent watercourses on the properties, which suggests that the soil conditions promote groundwater infiltration and limits surface water runoff. Groundwater recharge during rain events is likely to occur as dispersed infiltration, in comparison to spring melt where conditions are likely to result in runoff collecting and infiltrating in closed basins. Outside of these closed basins, surface water drainage is primarily towards the adjacent pits which capture runoff and allow for further infiltration.

2.3 Soils

The local soil types for Dufferin County are described in the Soil Survey Report No.: 38 (1963). Based on this work, the properties contain soils of the Caledon and Honeywood Series. These soils are well drained and have developed on gravelly materials. Across the properties, there may be variation in the soils characteristics.

2.4 Geology

The Quaternary deposits in the study area consist of ice-contact stratified deposits that are incised into the underlying fine-grained till (Figure 4). The ice-contact drift materials are described as mainly medium-grained sand with some gravel, pebbly sand and bouldery sand (Gwyn, 1972). The unconsolidated sand and gravel resource is underlain by a clay till deposit. This till unit may represent the regionally extensive Tavistock Till sheet, which is found at the surface in the vicinity of the subject property. Tavistock Till is a calcareous silty clay to silt till largely derived from glaciolacustrine sediments. This till sheet overlies the Paleozoic bedrock.

The Paleozoic geology of the study area is presented in Figure 5. The Paleozoic bedrock beneath the subject property is made up of a sedimentary rock sequence consisting primarily of layered dolostone, shale and sandstones units that were deposited in an ocean environment 400 to 500 million years ago. Conventionally, upper bedrock unit beneath the study area is referred to as the un-subdivided Amabel Formation, which is a thick reef mound and inter-reef crinoidal shoal lithofacies (Pratt and Miall, 1993, Bolton, 1957, and Liberty, *et al*., 1971). The Lions Head Member is found at the base of the Amabel Formation and unconformably overlies the Fossil Hill Formation (Stott and von Bitter, 1999).

Brunton and Brintnell (2011) recognized that the un-subdivided Amabel Formation actually represents the Goat Island, Gasport, and Irondequoit Formation; and the Lions Head Member of the basal Amabel Formation is a carbonate equivalent of part of the Rochester Formation. These recent changes in the geological units and nomenclature have been adopted for this hydrogeological assessment to ensure consistency with provincial documentation.

The local geology logged from the on-site boreholes is provided in Figure 6. Section A-A' provides a cross-sectional view from north to south through the Prince and Bonnefield lands as well as the existing Strada Melancthon #1 and #2 Pits. Section B-B' provides a cross-sectional view from west to east through the Prince property. The top of the bedrock surface strongly influences the water level elevations in the area. The bedrock topography is presented in Figure 9. Based on the results of the on-site drilling program, there appears to a buried escarpment beneath the property. Along the western property boundary, the bedrock is reported at an elevation of approximately 490 masl. The bedrock surface drops significantly towards the east and southeast into what appears to be a bedrock valley system.

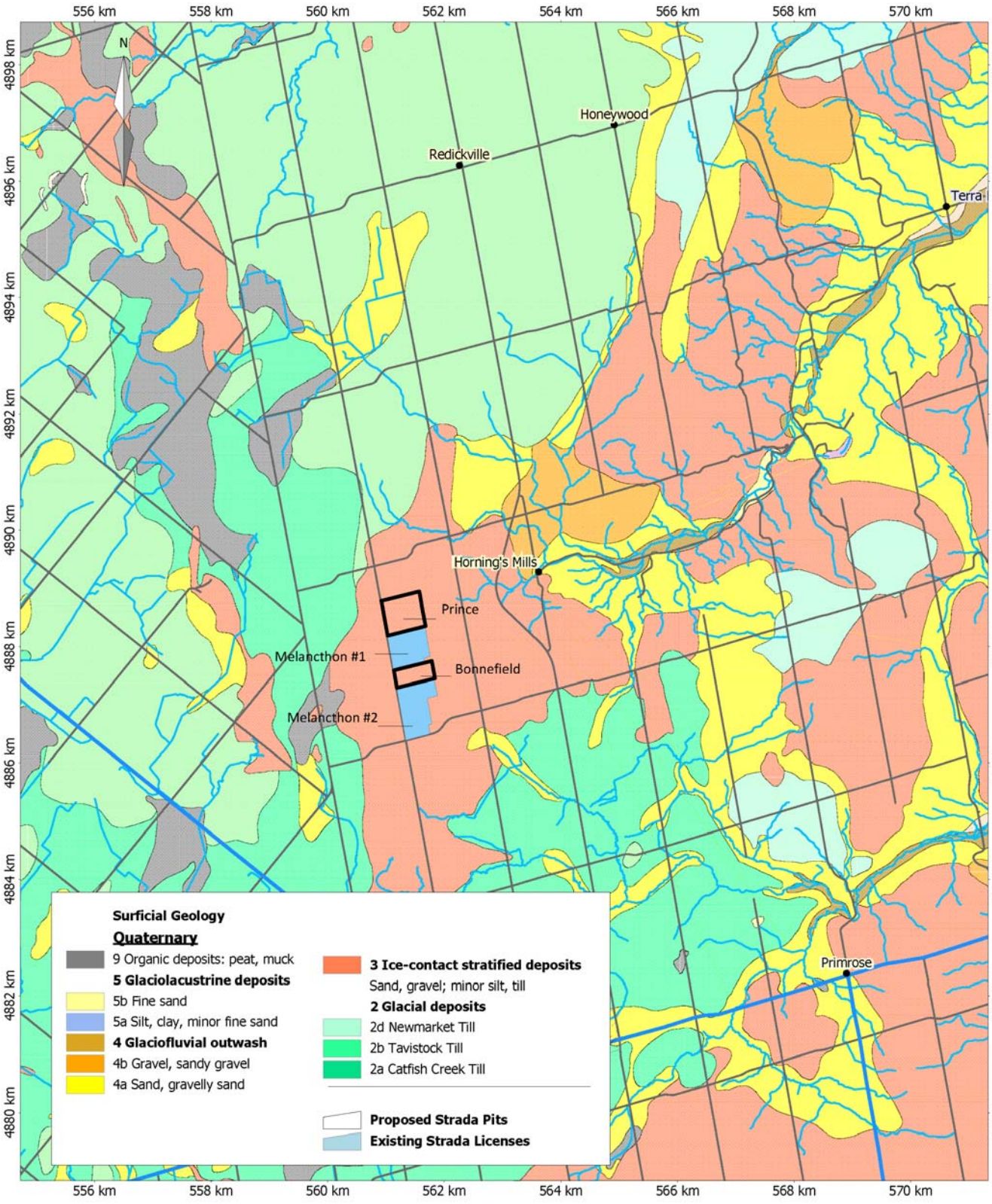

FIGURE 4: QUATERNARY GEOLOGY

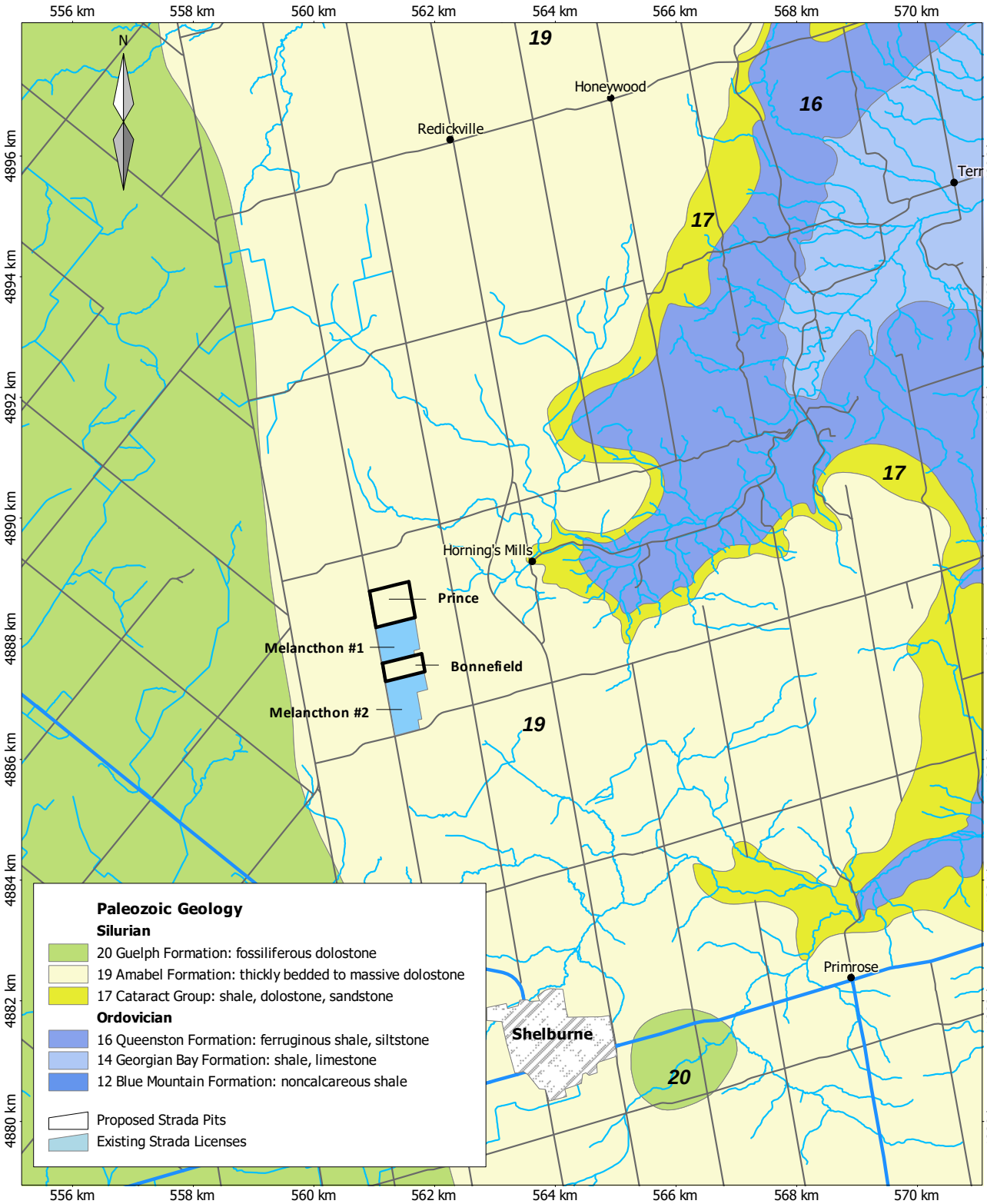

FIGURE 5: PALEOZOIC GEOLOGY

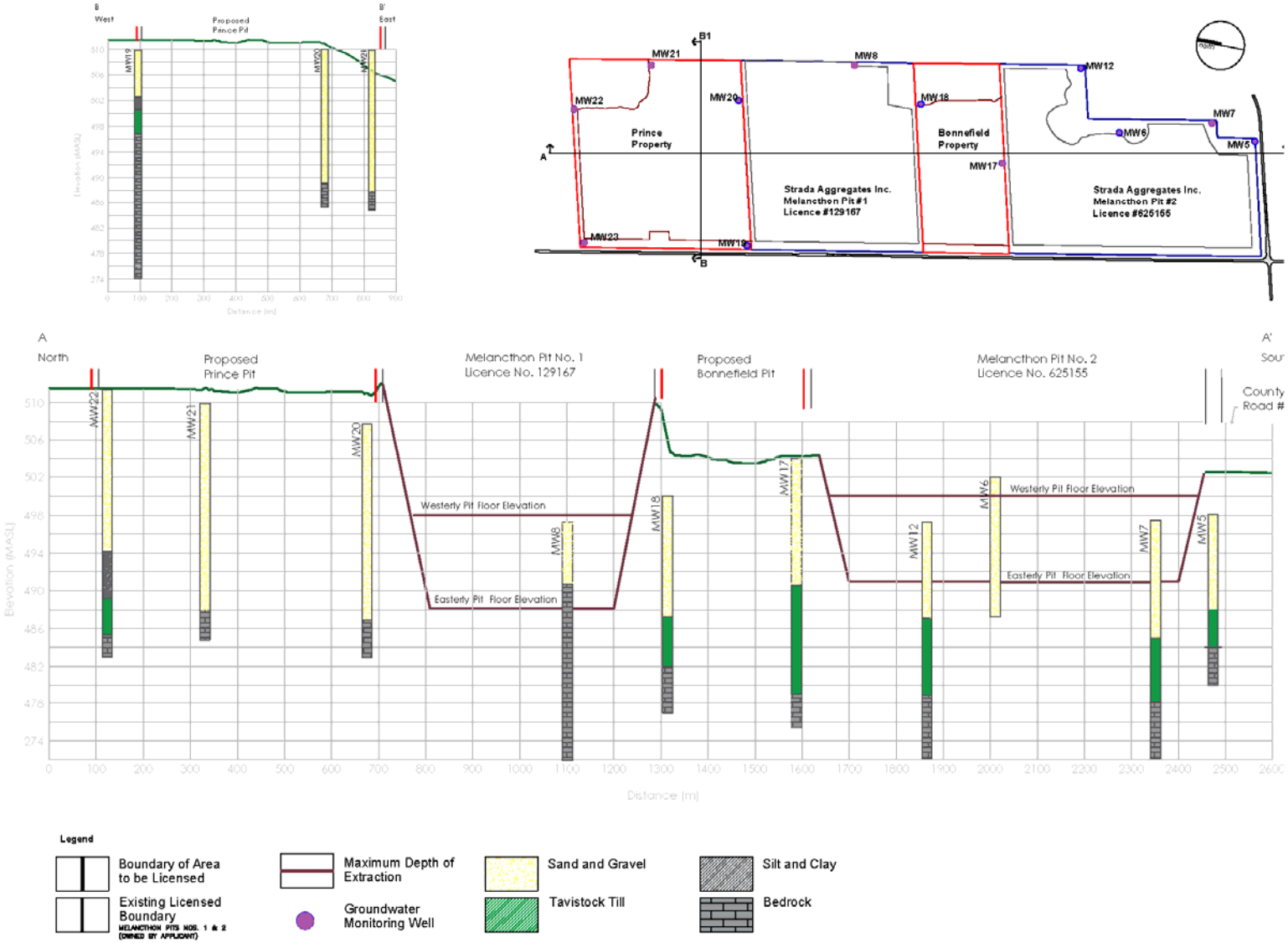

FIGURE 6: GEOLOGICAL CROSS-SECTION

2.5 Hydrogeology

Two principal aquifers were identified in the Town of Shelburne Ground Water Management Study (Burnside, 2001) being:

1. the overburden aquifer; and
2. the contact zone (upper fractured bedrock).

Production wells in the Town of Shelburne utilize the contact zone aquifer (i.e., bedrock aquifer). The following sections provide a description of the groundwater use (both municipal and private). The locations of the Town of Shelburne's municipal wells and wellhead protection areas (WHPA), as well as domestic water wells which are on record with the Ministry of the Environment and Climate Change (MOECC), are provided in Figure 7.

2.5.1 Town of Shelburne – Municipal Groundwater Wells

The Town of Shelburne is currently serviced by five production wells, all of which are constructed in the Goat Island/Gasport Formation. Four of the wells (PW1, PW3, PW5, and PW6) are located within the Nottawasaga Valley Source Protection Area of the South Georgian Bay Lake Simcoe Source Protection Region. The fifth well (referred to as PW7) was installed in 2010 and is found within the Grand River Source Protection Area, which is part of the Lake Erie Source Protection Region (Nottawasaga Valley Source Protection Area Un-Approved Assessment Report).

Burnside (2010) reported that the regional groundwater flow (bedrock) in the vicinity of the Town of Shelburne generally flows from southwest to northeast following the general patterns of the surface watercourses. Groundwater flow in the bedrock mimics the surface pattern with the well-defined northeasterly flow of the Boyne River system and a southeasterly component flowing towards the Nottawasaga River.

The groundwater flow direction greatly influences the wellhead capture zones. In 2015, Earthfx Inc. updated the wellhead protection areas for the Town of Shelburne which were originally completed by Burnside (2010). The resulting capture zones provide an indication of the area of influence of the municipal wells. The steady state extent of these capture areas is located in excess of 5.5km from the proposed Bonnefield and Prince Pits.

2.5.2 Township of Melancthon – Domestic Water Wells

Groundwater is the potable water supply in the vicinity of the proposed Bonnefield and Prince Pits. As a result, it can be assumed that each home is serviced by a private well. There are 25 known residences/wells within a 750 m radius of the proposed Bonnefield/Prince Pit. Of these, 14 water wells are on record with the MOECC. Domestic water well surveys completed on behalf of Strada have identified additional wells within the study area and are identified on Figure 7 (Whitewater, 2010).

All of the domestic wells identified obtain water from the bedrock aquifer, with the exception of MOECC Well No. 1701316, which services the current home on the Bonnefield property. This well will be decommissioned in compliance with O.Reg. 903, as amended upon licensing. Based on the water well records for the remaining wells, the first water-bearing zone that was able to sustain a yield that would meet the demands for most domestic needs was in the upper bedrock system (within the first few metres of dolostone). Copies of the water well records on file with the MOECC are provided in Appendix A.

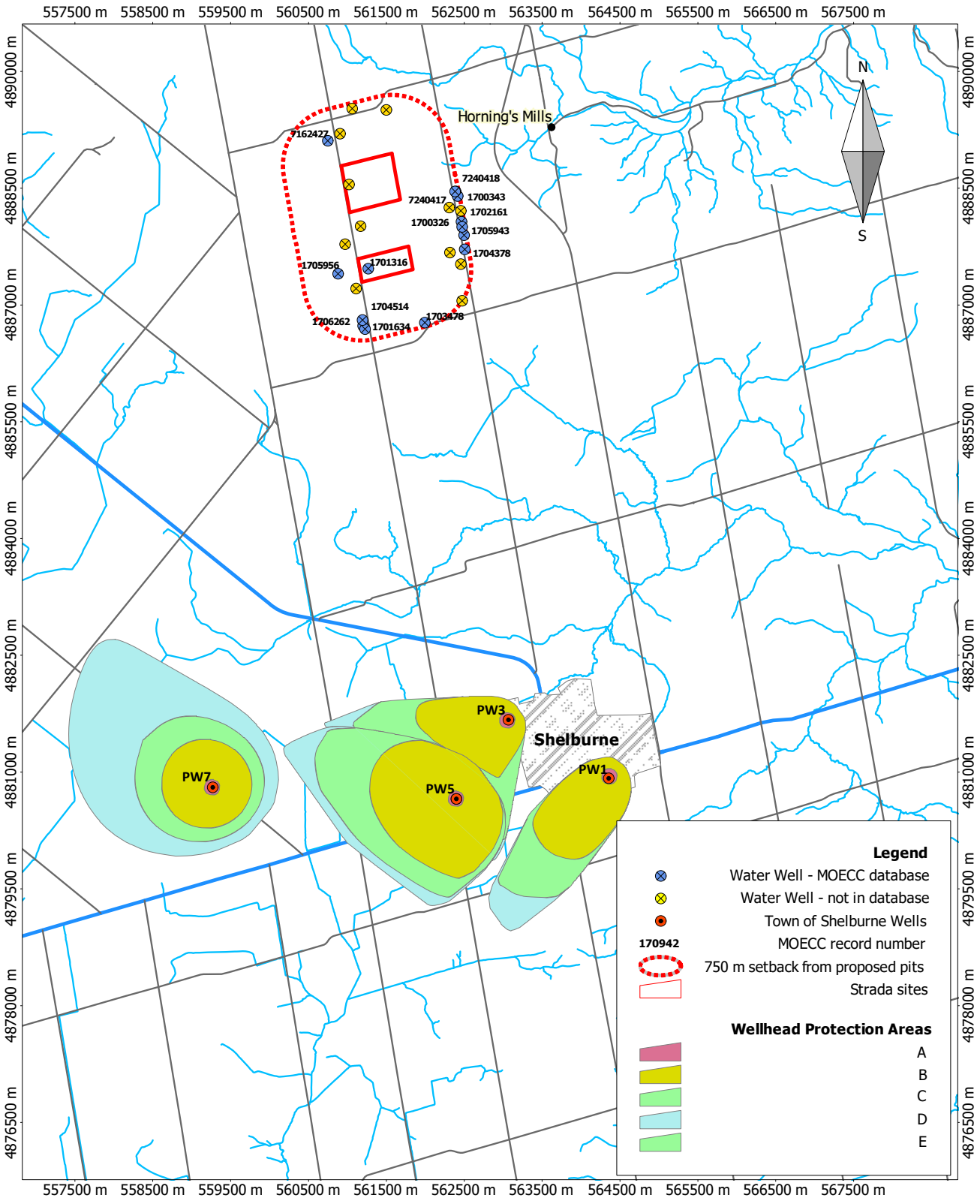

FIGURE 7: DOMESTIC AND MUNICIPAL WATER WELL LOCATIONS

3.0 SOURCE WATER PROTECTION

The Clean Water Act (CWA S.O. 2006, Chapter 22) is a law enacted by the Legislative Assembly of Ontario. The CWA is not designed to protect all of the province's water resources. The Act focuses on sources of water that have been designated by a municipality as being a current or future source of residential municipal drinking water for the community. The Ontario Water Resources Act and the Environmental Protection Act and other provincial and federal laws remain the main legislation for protecting the quality and quantity of Ontario's water resources.

The role of the proposed Bonnefield and Prince Pits in the context of Source Water Protection (SWP) has been undertaken. Specifically, the potential impacts associated with the extraction of aggregate on municipal and private water supplies in the study area. The closest municipal water supply is located in the Town of Shelburne, which obtains its groundwater supply from the bedrock aquifer. The proposed Bonnefield and Prince Pits are located 5.5 km from the delineated Town of Shelburne's WHPAs.

Although the proposed Bonnefield and Prince Pits are located outside of a municipal WHPA, the assessment has included a review of the groundwater/aquifer vulnerability in the area. This review has been applied to the domestic groundwater wells, which are the primary source of potable water for the local residents. Specifically, an assessment of the Significant Groundwater Recharge Areas (SGRAs) and Highly Vulnerable Aquifers (HVAs) has been completed.

3.1 Significant Groundwater Recharge Areas and Highly Vulnerable Aquifers

SGRAs are a type of vulnerable area identified in the Technical Rules (MOE, 2009b) under the CWA (2006). In the Nottawasaga Valley watershed, SGRAs are defined as an area that has an average annual recharge rate that is 15% greater than the average annual recharge rate for the Nottawasaga Valley watershed; and an area that has a hydrological connection to a surface water body or aquifer that is a source of drinking water for a drinking water system. The vulnerability of SGRAs is categorized as high, medium, or low based on their mapped intrinsic susceptibility. This susceptibility of the overburden soil layers are classified based on how readily each transmits water, and the thickness of each is considered. The estimated protective value of each layer is then added to calculate the total susceptibility at any point.

In general, all areas where infiltration occurs are defined as potential recharge areas. However, hydrogeologically, the recharge areas are identified by significant downward vertical gradients. Topographically elevated areas with permeable formations form the principal recharge areas. Based on the local surficial geology and physiography, a portion of the Township of Melancthon is covered by permeable sand and gravel formations. It is therefore not unexpected that areas classified as primary resource areas, such as the Strada properties, are delineated as a SGRA in the Approved Nottawasaga Valley Source Water Protection Assessment Report (2015).

Groundwater vulnerability is reported to be "low" at the Bonnefield and Prince Pits, with the exception of the limited area along the southern property boundary of the Bonnefield Pit, which is delineated as an area underlain by a Highly Vulnerable Aquifer (HVA) due to the thin unsaturated overburden thickness. The proposed change in land-use from agriculture to aggregate extraction may increase the vulnerability; therefore it is important to assess the threats (if any) associated with an aggregate operation (refer to Section 3.2).

3.2 Source Water Protection and the Aggregate Industry

In response to the CWA, regarding Source Water Protection, the Ontario Stone, Sand and Gravel Association (OSSGA) supported a literature review study by the MNRF to assess the role of the aggregate industry and associated lands in the context of source water programs. The MNRF study (Applied Research on Source Water Protection Issues in the Aggregate Industry; Blackport and Golder, 2006) did not find any documented scientific evidence linking the extraction and processing of stone, sand and gravel as a threat to drinking water sources.

The Province of Ontario has identified 21 prescribed drinking water threats under the CWA (2006). Nineteen of these relate to water quality and two to water quantity. The current land use at the proposed Bonnefield/Prince Pit is primarily agriculture, which results in at least 5 potential prescribed drinking water threats. These include:

- Agricultural source material – application to land
- Agricultural source material – storage
- Agricultural source material – management
- Commercial fertilizer – application
- Pesticide – application

The proposed change in land use will temporarily reduce the number of prescribed drinking water threats. There is no proposed storage of fuel at the Bonnefield and Prince Pits. Aggregate extraction is an interim land-use. Although the proposed final rehabilitation plan for the site is to be returned to agricultural lands, improved best management practices for the use of pesticides and fertilizer may be available at that time and overall threats reduced.

4.0 HYDROLOGICAL / HYDROGEOLOGICAL EVALUATION

4.1 Groundwater Elevations

Compliance groundwater monitoring has been occurring at both Melancthon Pit #1 and #2 since 2001 and 2007, respectively. In addition, baseline groundwater monitoring commenced in 2017 at the Bonnefield and Prince properties. In total, there are currently 28 groundwater well nests that monitor 52 discrete aquifer intervals in the overburden and bedrock aquifers. The Melancthon Pit #1 and #2 groundwater monitoring programs were developed to characterize the local groundwater conditions at each individual property and were based on two operating pits (two scale houses, two fuel storage areas, and multiple crushing and processing operations). The proposed licensing of the Bonnefield and Prince properties provides an opportunity to not only streamline operations by eliminating the need to operate as individual pits but to develop a revised groundwater monitoring program. The revision would remove redundancies in the monitoring network and reporting allowing for an opportunity to complete an accumulative impact assessment from the Strada properties.

The revised groundwater monitoring program that was developed for this Level 1 and 2 Hydrogeological Assessment is provided in Table 1 and Figure 8. Groundwater wells that are identified as monitors “A” are constructed in the overburden aquifer. Revised groundwater monitoring well IDs are provided in Table 1. Monitors “A” are constructed above the geological contact between the sand and gravel unit and the Tavistock Till, if saturated. Otherwise, the screens are set above the geological contact between the Tavistock Till and the bedrock. Monitoring wells constructed in the upper bedrock aquifer system are identified as monitors “B”. The revised program consists of 23 groundwater well nests that monitor 36 discrete aquifer intervals in the overburden and bedrock aquifers. Borehole records are provided in Appendix B.

Table 1: Groundwater Monitoring Well Details

Well Nest and Old Monitor ID (for reference only)		New Well ID	Top of Casing	Ground Surface	Top of Screen	Bottom of Screen	Location	
			Metres Above Sea Level (masl)				Easting	Northing
Melancthon Pit #1								
MW1	MW1-A	**OW13-A**	507.13	506.44	495.1	492.1	561,147	4,887,604
	MW1-B	**OW13-B**	507.13	506.44	490.5	487.5	561,147	4,887,604
MW2	MW2-B	**OW14-B**	497.36	496.46	479.8	476.8	561,761	4,887,840
MW5	MW5-A	**OW15-A**	511.48	510.85	491.9	488.9	561,432	4,887,667
	MW5-B	**OW15-B**	511.48	510.85	482.8	479.8	561,432	4,887,667
MW8	MW8-B	**OW16-B**	497.28	246.50	488.5	469.9	561,727	4,888,004
Melancthon Pit #2								
MW2	MW2-B	**OW2-A**	507.64	507.09	500.04	496.99	561,213	4,887,227
	MW2-C	**OW2-B**	507.64	507.09	484.54	481.49	561,213	4,887,227
MW3	MW3-B/C	**OW3-B**	504.61	504.11	494.36	491.31	561,272	4,886,849
MW4	MW4-B	**OW4-A**	506.54	505.84	500.97	497.92	561,355	4,886,426
	MW4-C	**OW4-B**	506.54	505.84	495.17	492.12	561,355	4,886,426
MW5	MW5-A	**OW5-A**	494.68	493.95	483.89	480.84	561,742	4,886,523
	MW5-C	**OW5-B**	494.54	493.94	486.32	483.27	561,743	4,886,525
MW6	MW6A	**OW6-A**	502.84	502.31	481.59	478.54	561,628	4,887,055
MW7	MW7-A	**OW7-A**	497.26	496.76	485.18	482.13	561,704	4,886,785
	MW7-C	**OW7-B**	497.26	496.76	478.56	466.26	561,704	4,886,785
MW13	MW13-A	**OW8-A**	505.99	504.89	500.39	492.89	561,282	4,887,057
MW9	MW9-A	**OW9-A**	496.77	496.20	492.85	489.80	561,806	4,887,468
MW10	MW10-B	**OW10-A**	495.79	495.19	479.04	475.99	561,628	4,887,239
MW11	MW11-A	**OW11-A**	495.90	495.20	493.7	487.70	561,571	4,886,477
	MW11-C	**OW11-B**	495.90	495.20	483.00	480.00	561,571	4,886,477
MW12	MW11-A	**OW12-A**	495.80	485.12	480.62	473.02	560,813	4,887,450
Bonnefield Pit								
-	-	**OW17-A**	503.60	502.10	481.67	478.63	561,472	4,887,382
-	-	**OW17-B**	503.60	502.10	477.69	474.67	561472	4,887,382
-	-	**OW18-A**	501.45	500.35	483.58	480.53	561,653	4,887,686
-	-	**OW18-B**	501.45	500.35	479.93	476.88	561,653	4,887,686
Prince Pit								
-	-	**OW19-A**	510.59	509.49	486.69	485.09	561,035	4,888,193
-	-	**OW19-B**	510.59	509.49	483.59	482.09	561,035	4,888,193
-	-	**OW20-A**	509.51	508.41	489.51	488.01	561,544	4,888,334
-	-	**OW20-B**	509.51	508.41	480.71	479.21	561,544	4,888,334
-	-	**OW21-A**	511.68	510.58	497.78	496.28	561,593	4,888,681
-	-	**OW21-B**	511.68	510.58	476.78	475.28	561,593	4,888,681
-	-	**OW22-A**	513.91	512.81	492.71	491.21	561,384	4,888,891
-	-	**OW22-B**	513.91	512.81	487.81	486.31	561,384	4,888,891
-	-	**OW23-A**	510.51	509.41	488.71	487.21	560,937	4,888,788
-	-	**OW23-B**	510.51	509.41	485.61	484.11	560,937	4,888,788

Notes:

1. New Well ID's have been assigned to avoid confusion with duplication in well names between the two existing aggregate licenses and differences in naming nomenclature for the aquifer monitored.

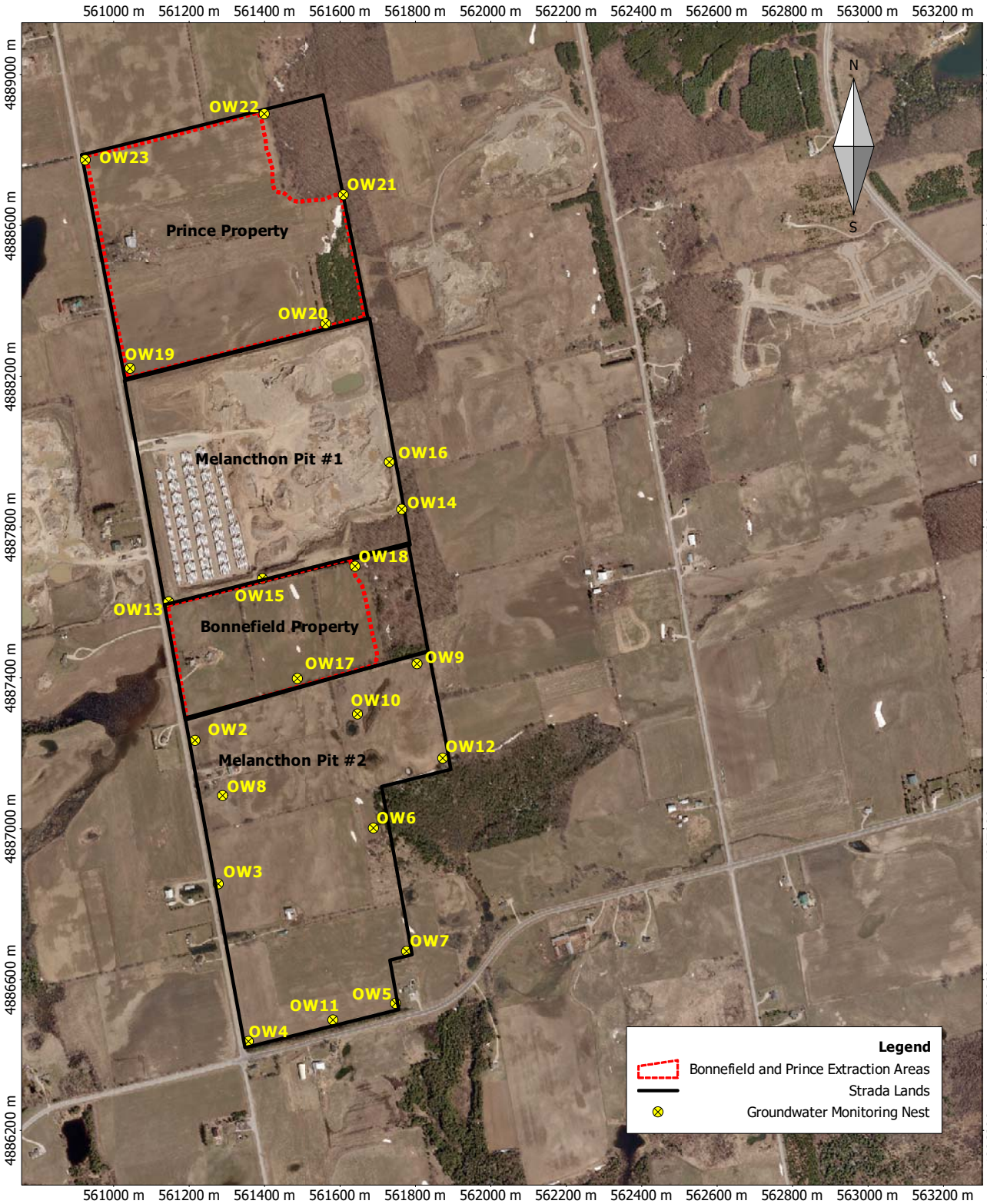

FIGURE 8: GROUNDWATER MONITORING LOCATIONS

Table 2: 2016 and 2017 Water Level Elevations (Manual)

Well ID	2016												2017	
	27-Jan	17-Feb	26-Mar	2-Apr (WL High)	25-May	8-Jun	2-Jul	17-Aug	27-Sep	16-Oct	13-Nov	3-Dec	12-Feb	24-Feb
OW2-A	496.23	496.77	498.61	500.22	497.44	496.45	495.67	495.07	494.66	494.49	494.32	494.47	496.24	496.08
OW2-B	494.22	494.74	496.14	496.89	495.58	494.59	494.15	493.48	493.27	492.90	492.80	492.70	494.17	494.61
OW3-B	490.19	490.99	492.48	493.31	492.19	491.91	491.00	489.84	489.84	489.84	489.84	489.84	DRY	490.46
OW4-A	498.28	498.46	498.61	498.93	498.14	498.12	497.95	498.00	497.93	497.94	497.93	497.93	498.16	498.83
OW4-B	491.49	492.16	493.38	494.40	493.00	492.55	491.89	491.00	490.41	490.26	490.23	490.21	490.88	492.29
OW5-A	489.95	490.38	491.02	491.13	490.79	490.52	490.31	490.00	489.49	489.42	489.36	489.32	490.49	491.48
OW5-B	491.09	491.82	492.90	493.71	492.49	492.11	491.48	490.71	489.97	489.84	489.57	489.42	490.54	491.56
OW6-A	491.64	492.00	492.70	493.36	493.29	492.80	492.27	491.64	491.26	491.10	490.99	490.93	NA	492.02
OW7-A	490.05	490.44	491.14	491.30	491.30	490.98	490.61	490.00	489.73	489.62	489.36	489.25	NA	490.38
OW7-B	489.77	490.45	491.54	492.36	491.29	490.72	490.23	489.38	488.83	488.58	488.33	488.17	NA	490.27
OW8-A	497.31	497.21	497.39	497.57	497.35	497.37	497.33	497.29	497.24	497.22	497.15	497.14	497.25	497.30
OW9-A	491.74	492.05	492.90	493.59	493.58	493.27	492.91	492.37	491.76	491.76	491.55	491.44	491.35	491.62
OW10-A	488.39	488.95	490.09	490.97	490.19	489.56	489.00	488.23	487.60	487.28	487.05	486.98	487.93	488.60
OW11-A	491.10	491.82	493.10	493.90	492.56	492.2	491.70	490.68	490.04	489.82	489.59	489.37	490.65	491.71
OW11-B	491.11	491.83	493.01	493.35	492.64	492.21	491.70	490.71	490.07	489.84	489.62	489.36	490.67	491.77
OW12-A	492.06	492.32	492.70	492.73	492.81	492.70	492.62	492.26	491.92	491.76	491.61	491.66	491.88	492.17
OW13-A	494.37	497.08	499.73	500.31	497.6	494.01	493.37	492.84	492.49	DRY	DRY	DRY	494.64	495.95
OW13-B	493.53	495.39	496.86	497.52	495.48	493.31	492.64	492.14	491.81	491.75	491.8	491.78	493.61	493.97
OW14-B	481.5	482.32	483.13	483.75	483.40	482.73	482.48	482.35	482.16	481.81	481.74	481.48	480.54	481.90
OW15-A	488.69	489.37	489.87	490.73	491.37	489.87	489.49	489.00	488.75	488.59	488.48	488.42	488.55	488.65
OW15-B	488.59	489.29	489.8	489.88	489.9	489.78	489.26	488.92	488.69	488.49	488.42	488.13	488.40	488.55
OW16-B	477.61	480.06	481.46	482.82	481.27	480.08	479.37	479.17	478.58	478.39	478.27	477.73	477.38	479.86
OW17-A	-	-	-	-	-	-	-	-	-	-	-	-	486.12	486.64
OW17-B	-	-	-	-	-	-	-	-	-	-	-	-	486.12	486.64
OW18-A	-	-	-	-	-	-	-	-	-	-	-	-	487.56	487.60
OW18-B	-	-	-	-	-	-	-	-	-	-	-	-	485.34	485.56
OW19-A	-	-	-	-	-	-	-	-	-	-	-		DRY	DRY
OW19-B	-	-	-	-	-	-	-	-	-	-	-	-	488.11	483.64
OW20-A	-	-	-	-	-	-	-	-	-	-	-	-	DRY	DRY
OW20-B	-	-	-	-	-	-	-	-	-	-	-	-	484.48	484.96
OW21-A	-	-	-	-	-	-	-	-	-	-	-	-	DRY	DRY
OW21-B	-	-	-	-	-	-	-	-	-	-	-	-	487.6	487.56
OW22-A	-	-	-	-	-	-	-	-	-	-	-	-	NA	496.57
OW22-B	-	-	-	-	-	-	-	-	-	-	-	-	NA	496.57
OW23-A	-	-	-	-	-	-	-	-	-	-	-	-	NA	496.26
OW23-B	-	-	-	-	-	-	-	-	-	-	-	-	NA	496.26

4.1.1 Groundwater Flow

In an aquifer, groundwater flows from points of higher pressure to points of lower pressure, and the direction of groundwater flow typically has both a horizontal and a vertical component. The slope of the water table is known as the hydraulic gradient (horizontal component), which depends on the rate at which water is added to and removed from the aquifer and the permeability of the material. The slope of the water table reflects the surface relief due to the capillary effect in soils, sediments and other porous media.

The local groundwater flow pattern in the overburden is presented in Figure 9. The groundwater elevation contours are compared to the top of bedrock contours to show how the geological set influences the groundwater flow conditions. Recall from Section 2.0 and Figure 1 that the most dominant topographic feature in the region is the glacial re-entrant valley of the Pine River. Since the shallow groundwater pattern mimics the topographic surface, a north-easterly flow direction is likely dominant. However, the presence of a bedrock valley is evident in Figure 9 and has locally influenced the groundwater flow pattern.

Beneath portions of the Melancthon Pit #1 and the Prince property, the overburden is dry and the water table/ potentiometric surface is found in the bedrock aquifer. In this area, the bedrock surface is relatively high in comparison to the lands to the south and is not confined by the Tavistock Till. Therefore, groundwater infiltration is not impeded by the materials of lower permeability.

In areas where the bedrock is confined by the Tavistock Till (north and south of the area discussed above), the water table is found in the unconfined overburden aquifer or at the confined geological contact between the Tavistock Till and bedrock units.

The true water table in the unconfined overburden aquifer can be measured at:

- OW2-A
- OW3-A
- OW4-A
- OW5-A
- OW6-A
- OW7-A
- OW8-A
- OW9-A
- OW10-A
- OW11-A
- OW12-A
- OW13-A
- OW15-A
- OW18-A

The potentiometric surface in the confined overburden/bedrock aquifer can be measured at:

- OW17-A
- OW22-A
- OW23-A
- OW3-B

The groundwater contours and water levels plotted on Figure 9 represent the groundwater flow conditions in the unconfined overburden aquifer on April 2, 2016. Water levels for the confined overburden/bedrock aquifer are included in the figure, but have not been relied upon for the development of the groundwater flow map as they are more representative of the bedrock groundwater flow conditions. These water levels were taken on February 24, 2017.

The water table aquifer flows from a high of approximately 500 masl in the west towards the buried bedrock valley. A groundwater flow component from the east also flows towards the bedrock valley system. Here, groundwater flow divides into a north and south flow direction. This divide is likely the influence of the local bedrock valley on the more regional glacial re-entrant valley of the Pine River.

In summary, the local and regional bedrock topography has resulted in a complex groundwater flow system in the unconfined overburden aquifer. This complexity is increased when consideration for the confined overburden/bedrock contact aquifer, and bedrock aquifer is taken into account.

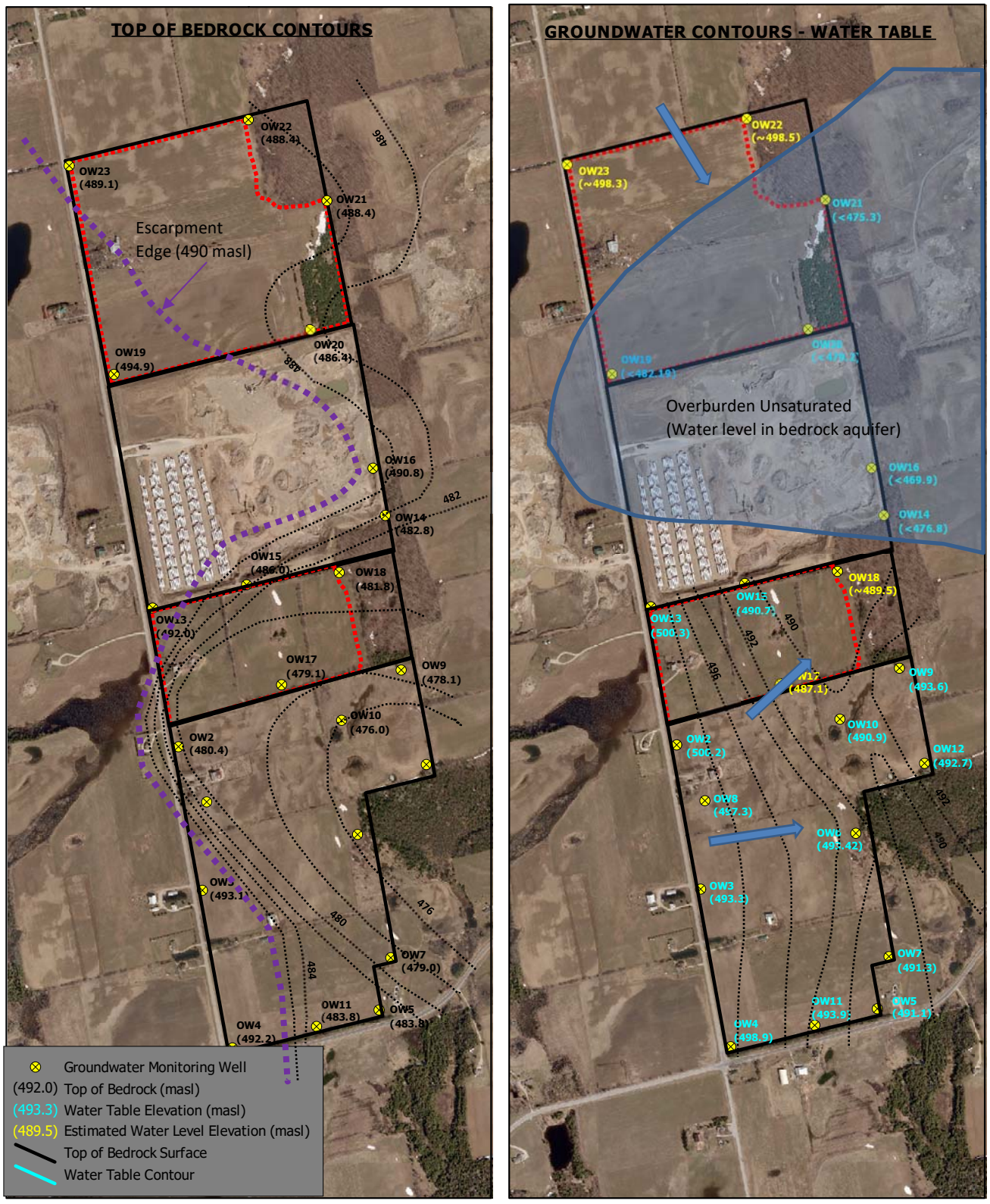

FIGURE 9: BEDROCK TOPOGRAPHY AND OVERBURDEN GROUNDWATER FLOW MAP

4.1.1 Overburden Groundwater Elevations

The groundwater elevations in the vicinity of the Strada properties are strongly influenced by the bedrock topography and the buried bedrock valley system reported in the southeast portion of the study area. This feature has created a primarily downward gradient drawing water levels from the shallow overburden aquifer to the bedrock flow system. As a result, the overburden is dry in the north and north-western portion of Melancthon Pit #1 as well as beneath the Prince property. Permanent unsaturated conditions in the overburden are reported at OW3, OW14, OW16, OW19, OW20, and OW21, where the first water-bearing zone is found beneath the bedrock contact (bedrock aquifer).

At OW22 and OW23, the first saturated zone is at the overburden / bedrock contact which is confined by a layer of silt and clay (potentially the Tavistock Till). The shallow well screens monitor the water level in the Tavistock Till immediately above the bedrock surface and may represent the water level in the bedrock aquifer (potentiometric surface).

Where saturated, the water levels in the overburden represent the water table. Generally, the water level trends are seasonal, with water levels peaking in the spring and decreasing over the warmer and drier summer months (Table 2 and Figure 10). Based on the continuous and manual water level measurements at the 11 overburden monitoring wells, the water table ranges between a high of 501 masl to a low of 491 masl during the spring season. Over the following months, the water levels drop approximately 2m, with the exception of OW2-A and OW10-A where water levels drop approximately 4 m.

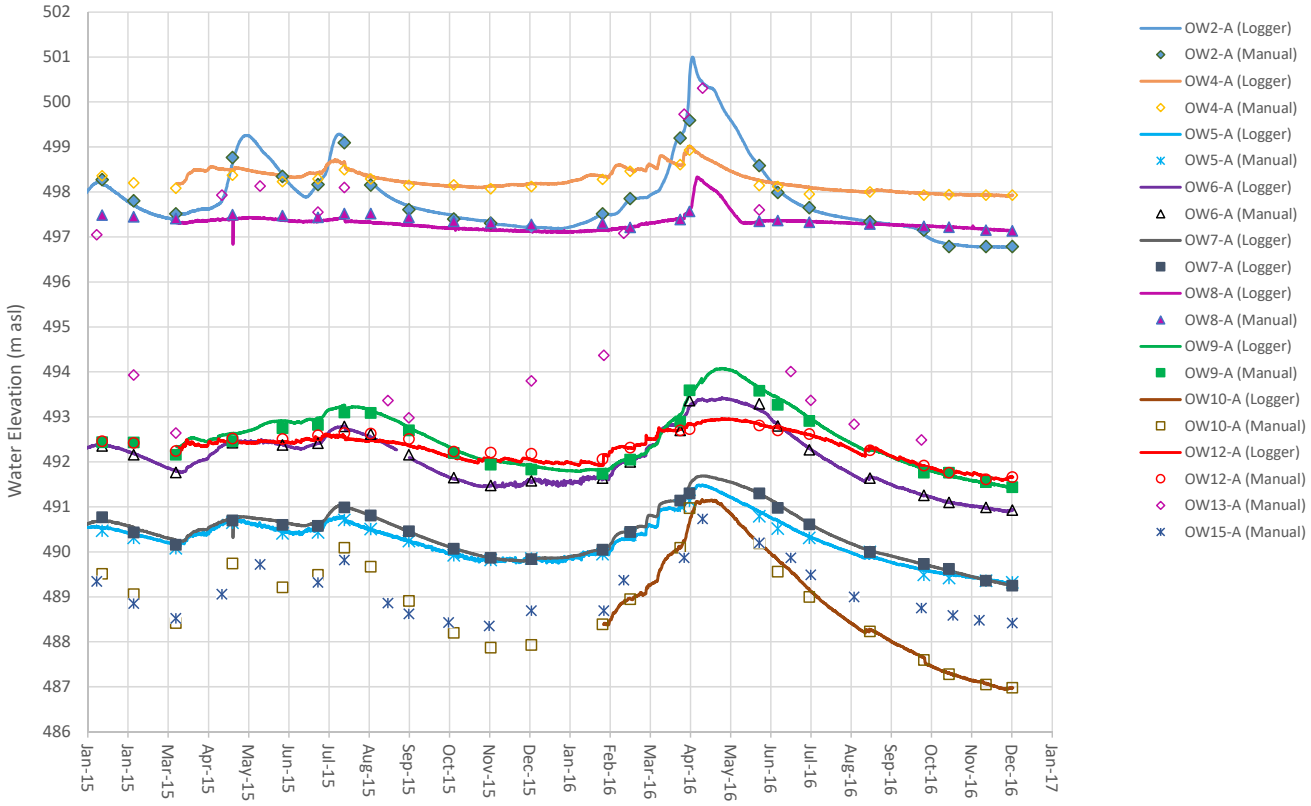

FIGURE 10: OVERBURDEN HYDROGRAPH

4.1.2 Bedrock Groundwater Elevations

Similar to the overburden water levels, the water levels in the bedrock aquifer show seasonal trends where water level highs are reached during the spring followed by a slow decrease during the summer, fall, and winter months. The groundwater elevation in the upper bedrock system ranges between 492 masl and 477 masl during the dry periods. This increases to between 497 masl and 483 masl during the wet periods of the year.

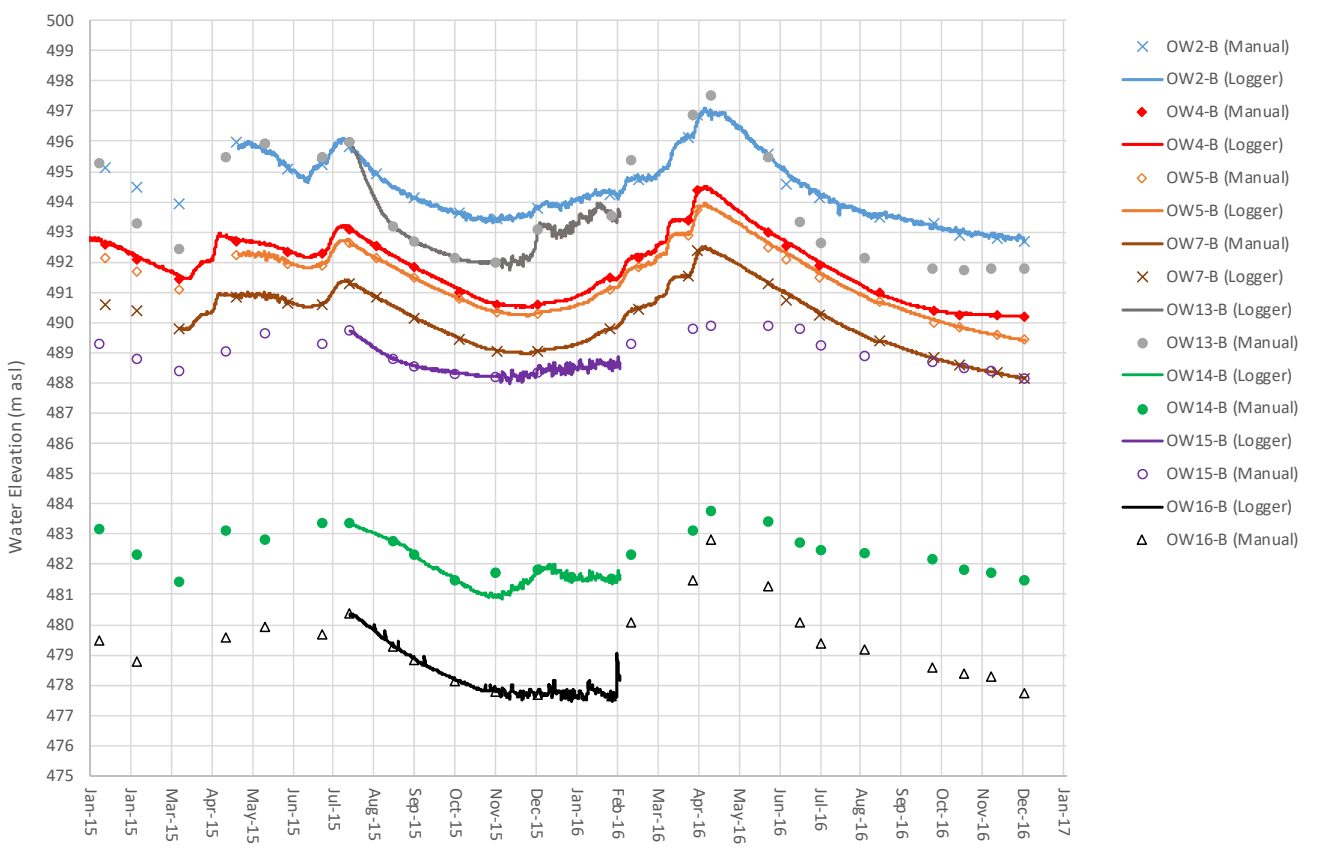

FIGURE 11: BEDROCK HYDROGRAPH

5.0 SITE OPERATIONS

5.1 Pit Floor Elevation

The proposed Bonnefield and Prince Pits will be a Class A Pit Above Water, which will restrict the extracting of aggregate material to no closer than 1.5 m above the established groundwater table. In order to provide the required hydrogeological information for the Site Plan, the floor elevation of the proposed pit must be defined and shows that the final depth of extraction complies with the above water requirements. The Provincial Standards defines the establishment of the groundwater table in unconsolidated surficial deposits as "*The surface of an unconfined water-bearing zone at which the fluid pressure in the unconsolidated medium is atmospheric. Generally, the groundwater table is the top of the saturated zone.*" For confined aquifers, potentiometric surface is "*The level that represents the fluid pressure in the water-bearing zone and is generally defined by the level to which water will rise in a well.*"

Based on the water table elevations from April 2016 the proposed pit floor elevations are presented in Figure 12. It should be noted that the new groundwater monitoring wells which monitoring the water levels in the overburden aquifer have not captured the seasonal high water levels to date. As a result, the historic water level trends from the overburden aquifer have been assessed and used to estimate the high water levels at these locations. A 2 m head has been added to the February 2017 measurements. On-going monitoring will provide an improved understanding of the seasonal high elevations at these locations. It is recommended that the spring 2017 data be assessed and compared to the estimated water level values to ensure the final pit floor elevation complies with Provincial Regulations. Final floor elevations may be modified to reflect extraction setbacks and bank sloping.

FIGURE 12: PROPOSED PIT FLOOR ELEVATIONS

6.0 IMPACT ASSESSMENT

6.1 Water Balance

An impact assessment for the proposed Bonnefield and Prince Pits has been completed to ensure that the site operations will not have an adverse impact on the groundwater and surface water regimes. To determine the differences in the pre and post-extraction conditions, the changes in the water balance components have been assessed, with the specific focus on impacts to local groundwater recharge and surface water runoff conditions. Although water balance assessments are typically applied to land development proposals that involve increasing the impermeable surface area (i.e., parking lots, shopping centers, residential developments), or in aggregate applications that require dewatering and a resulting water management program, it is felt that the assessment is required to show the limited influence of an above water pit on the groundwater and surface water regimes.

A water balance is a quantitative expression that describes the relationship between inflows (into) and outflows (out of) a hydrogeology system over a specified time period. The basic concept is simply a conservation of mass. The parameters involved depend on the nature and scale of the system of interest. The Nottawasaga Valley Conservation Area (NVCA) has policies related to maintaining groundwater infiltration for properties that are proposing a change in land use. Furthermore, the maintenance of pre-extraction recharge is a general requirement of the Provincial Policy Statement that is often captured in municipal Official Plans. If there is a decrease infiltration, mitigation measures would be required to maintain or enhance groundwater recharge.

An annual water budget summary has been computed for the study area using the Thornthwaite monthly water-balance program, which was developed by the U.S. Geological Survey (McCabe, G.J., and Markstrom, S.L., 2007). Inputs to the model were monthly temperature and precipitation collected by Environment Canada at the Orangeville Climate Station (No.: 6155790) for the period of record from 1963 to 2005. Outputs include monthly potential and actual evapotranspiration (ET), soil moisture storage, snow storage, surplus, and runoff (Appendix C). The results indicate that the mean annual precipitation for the area is 890 mm, with a mean water surplus of 390 mm.

Infiltration factors (IF) are used to determine the fraction of water surplus that infiltrates into the ground and the fraction that runs off to nearby streams. Infiltration rates were estimated using the method from the MTO Stormwater Management Planning and Design Manual (March 2003). Due to the highly permeable nature of the sand and gravel surficial deposits, vegetation type, and the topographic relief, recharge is a dominant component of the water budget at this site. The estimated IF based on the existing site characteristics is 0.7, which relates to an average infiltration rate of 273 mm/year.

The average infiltration rate is applied to areas of the property that are not internally drained, where surface water will runoff site into roadside ditches and adjacent lands, before recharging off-site. Recharge within the internally drained basins will be equal to the mean water surplus (390 mm/year). The sub-catchment basins for the properties are presented in Figure 13, which show the areas with run-off and areas that are internally drained.

The infiltration rate of 273 mm/year has been applied to the areas that do not drain internally into Basins A or B. The infiltration rate of 390 mm/year (entire water surplus) has been applied to Basin A (represents 91% of the proposed extraction area for the Prince Pit) and Basin B (represents 80% of the proposed extraction area

for the Bonnefield Pit). The resulting total annual groundwater recharge across the sites is approximately 126,223 m^3. A summary of the pre-extraction infiltration rates and the total volume of water recharging the groundwater regime is provided in Table 3.

TABLE 3: Pre-Extraction Infiltration Rates

Development Scenario	Drainage Area (m^2)	Infiltration Rate (m/year)	Volume of Groundwater Recharge (m^3)
Pre-Development Infiltration			
Internally Drained Area (Basin A and B)	428,340	0.390	167,053
Remaining Area	57,660	0.273	15,741
Total	**486,000**		**182,794**

As aggregate is extracted, the flattening of the pit floor promotes infiltration as the average land slope lessens and the highly permeable materials are exposed (vegetation and topsoil removed). Furthermore, the pit itself creates an internally drained system. During post-extraction, groundwater infiltration within the extraction area will be equivalent to the water surplus value of 390 mm/year. Therefore, the total annual groundwater recharge across the site is approximately 182,794 m^3. A summary of the post-extraction infiltration rates and the total volume of water recharging the groundwater regime is provided in Table 4.

TABLE 4: Post-Extraction Infiltration Rates

Development Scenario	Drainage Area (m^2)	Infiltration Rate (m/year)	Volume of Groundwater Recharge (m^3)
Post-Development Infiltration			
Internally Drained Area	486,000	0.390	189,540
Remaining Area	0	0	0
Total	**486,000**		**189,540**

Based on this assessment, the proposed Bonnefield and Prince Pits will maintain or slightly enhance groundwater recharge across the pit floor by 4% (or 6,746 m^3). The increase in groundwater recharge is a positive outcome of the water balance assessment. As noted above, the primary concern with certain development applications is the potential for a reduction in groundwater recharge and ensuring that there are mitigation measures in place to maintain or enhance groundwater infiltration.

The catchment area that provides surface water runoff to the wetland is approximately 17 ha. The proposed extraction on the Bonnefield property would reduce this area by approximately 1.3 ha. The change in dominant vegetation cover (increased forested area) increases the IF to 0.8 which results in a runoff value of approximately 0.078 m/year. The net change in the volume of water that enters the wetland area as run-off is 1,014 m^3/year.

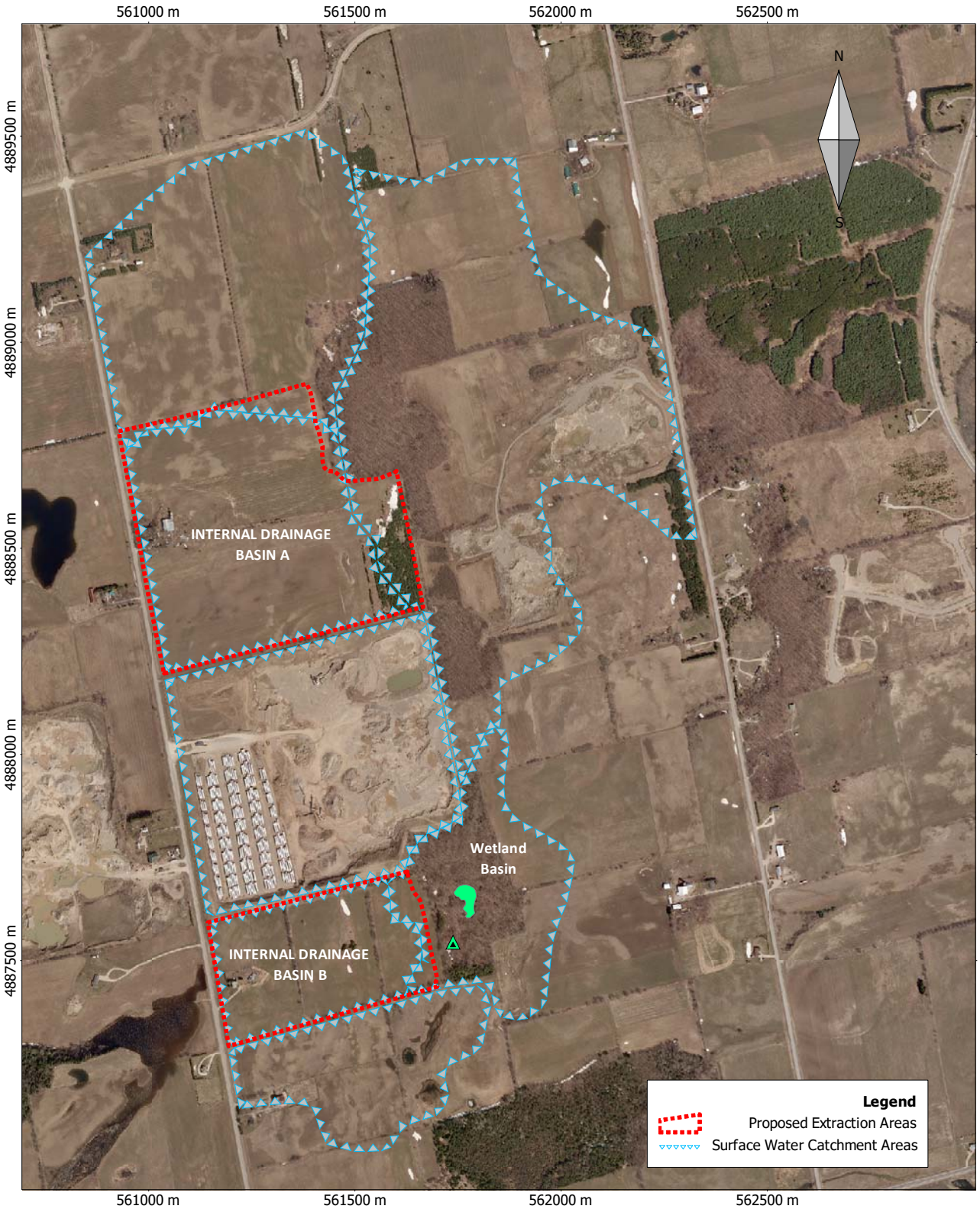

FIGURE 13: SURFACE WATER CATCHMENT AREAS

The low-lying area that contains the marsh is found at an elevation of approximately 494 masl and covers an area of approximately 0.9 ha. Assuming this elevation represents the extents of the wetland area, the equivalent water depth that collects in the low-lying area would decrease from approximately 1.47 m to 1.36 m (a difference of 11 cm).

Table 5: Wetland Water Balance

Development Scenario	Drainage Area (m^2)	Run-off (m/year)	Volume of Run-off Entering Wetland (m^3)
Pre-Extraction	170,000	0.078	13,260
Post Extraction	157,000	0.078	12,246
Difference	**13,000**		**1,014**

6.2 Potential Interference with Local Groundwater Regime

The proposed extraction of aggregate will occur at an elevation of at least 1.5 m above the established high water table elevation. As discussed in Section 6.1, the permeable materials on the pit floor will allow for groundwater to recharge at an enhanced rate of an average of 390 mm/year. Therefore, pit operations will not require a water management program to divert or control incidental waters entering the pit area. Furthermore, no pit dewatering will be required.

The change in land use will maintain or slightly enhance groundwater recharge across the pit floor by 4%. This small increase will likely result in no measurable change in water table elevations across the site and therefore will have no impact on off-site domestic water wells.

The comprehensive groundwater monitoring database for the existing Melancthon Pit #1 and #2 have shown that the extraction of aggregate from above the water table at these sites has had no measurable influence on the groundwater conditions on-site (Whitewater 2017a and 2017b).

6.3 Potential Interference with Surface Water Features

Local surface water features include a small wetland and vernal pool which are located within the forested area approximately 100 m from the proposed extraction boundary for the Bonnefield Pit. These features are perched approximately 4 m above the water table (Figure 9) and therefore isolated from the groundwater regime. The only potential impacts that could affect surface water levels are changes to the water balance.

The water balance analysis concluded that the majority of the water surplus from within the proposed extraction area will enter the groundwater system either as direct recharge (internally drained basins) or it will be infiltrated along the surface water runoff flow path. This is supported by the observation that there are no large surface water features on-site (streams, creeks, or springs). Furthermore, due to the highly permeable nature of the soils and the hummocky topography of the Bonnefield woodland feature, it is likely that the surface catchments surrounding the wetland and vernal pool are actually smaller than the outer catchment limit shown on Figure 12. Surface water infiltrated within the Bonnefield agricultural field will move vertically as shallow groundwater recharge, rather than horizontally as shallow soil interflow that re-expresses within the wetland

The wetland and vernal pool that are located within the forested area on the Bonnefield property will be preserved with a buffer, which maintains the majority of the natural and localized catchment area for these features. By maintaining 92% of this catchment area, potential impacts are limited.

7.0 MITIGATION MEASURES

Although there are no anticipated impacts associated with the proposed extraction of aggregate, which will occur at least 1.5 m above the established water table, there are preventative operational practices that are recommended to further protect groundwater quality:

- Refueling of machinery should not be conducted in areas of the excavation that are within 1.5 m of the water table (i.e., on the pit floor).
- Operator training should include understanding and ability to implement the preventative measures provided above, in addition to Strada's corporate Spill Contingency Plan (as per prescribed conditions on the Site Plans)

8.0 RECOMMENDED COMPLIANCE MONITORING PROGRAM

As discussed in Section 4.1, the existing compliance groundwater monitoring networks were developed to characterize the local groundwater conditions at each individual property in addition to allowing for the on-going monitoring of potential adverse impacts from the two operating pits. These monitoring programs were modified slightly and incorporated 7 new monitoring nest for the purpose of the Level 1 and 2 Hydrogeological Assessment. A detailed review of the monitoring networks has been completed and a proposed streamlined program has been developed.

The proposed program focuses on the on-going monitoring of background conditions (up-gradient locations) in both the overburden and bedrock aquifers and the monitoring of potential influences from the aggregate operation on down-gradient locations. The proposed groundwater monitoring program is provided in Table 6. Selected up-gradient and down-gradient wells will be sampled for water quality. The water quality parameters for the semi-annual and annual sampling programs are provided in
Table 7.

Table 6: Proposed Groundwater Monitoring Network

Well ID	Water Levels	Water Quality	
	Monthly Manual Water	Semi-Annual	Annual
OW2-A	X	X	
OW2-B	X	X	
OW3-B	X	X	
OW4-A	X	X	
OW4-B	X	X	
OW5-A	X	X	X
OW5-B	X	X	
OW6-A	X	X	X
OW7-A	X	X	X
OW7-B	X	X	
OW8-A	X	X	X
OW9-A	X	X	X
OW10-A	X	X	X
OW11-A	X	X	X
OW11-B	X	X	
OW12-A	X	X	X

Well ID	Water Levels	Water Quality	
	Monthly Manual Water	Semi-Annual	Annual
OW13-A	X	X	
OW13-B	X	X	
OW14-B	X	X	X
OW15-B	X		
OW16-B	X	X	X
OW17-A	X		
OW17-B	X		
OW18-A	X	X	X
OW18-B	X	X	
OW19-A	X		
OW19-B	X	X	
OW20-B	X	X	X
OW21-B	X	X	x
OW22-B	X	X	
OW23-B	X	X	

Note: the collection of continuous water levels at selected groundwater monitoring locations is recommended.

Table 7: Proposed Water Quality Parameters

Semi-Annual Groundwater Quality Parameters	Annual Groundwater Quality Parameters
General Water Quality Parameters: pH, Conductivity, Alkalinity, Bicarbonate, Chloride, Calcium, Magnesium, Potassium, Sodium, Sulphate, Nitrate, Nitrite, Phosphorous, and Metals (dissolved).	Total Petroleum Hydrocarbons (F1-F4) BTEX, Total Oil and Grease

It is recommended that a single annual groundwater monitoring report for the Melancthon Pits #1 and 2, as well as the proposed Bonnefield and Prince Pits be prepared and submitted to the MNRF prior to March 31st of each year and include the monitoring data for the 12-month period ending December 31st of the previous year. The report shall include, but not be limited to, the following:

1. Monitoring data collected as per Table 6 and
2. Table 7;
3. Data in tabulated and graphical formats;
4. Interpretation of the collected data including discussions of any observed trends in groundwater levels and groundwater quality (analytical) results;
5. Recommendations on and justification for the need for make changes to monitoring locations, monitoring frequency, type of monitoring, pumping patterns and/or the need for mitigation, and
6. Summary and documentation of any water well complaint(s) and their resolution(s).

9.0 CONCLUSIONS

1. The proposed Bonnefield and Prince properties were investigated to determine the feasibility of the extraction of aggregate from above the water table.
    a. The maximum depth of extraction on the Prince property will be to within 1.5 m of the seasonal high water table, or to the top of the bedrock surface where no groundwater is encountered in the overburden.
    b. The maximum depth of extraction on the Bonnefield property will be to within 1.5 m of the seasonal high water table.
2. There will be no water diversion or dewatering to maintain dry pit operating conditions on the subject lands.
3. Since the proposed aggregate operation will not be extracting from below the water table, it is anticipated that there will be no influence on the water table aquifer elevations. As a result, there will be no influence on the domestic water wells as a result of the proposed operation of the Bonnefield and Prince Pits.

It is Whitewater's professional opinion that the subject lands are geologically, hydrogeologically and hydrologically suited for the proposed aggregate operations.

Tecia White, M.Sc., P.Geo.
Senior Hydrogeologist / President
Whitewater Hydrogeology Ltd.

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Lithofacies and age variation in the Fossil Hill Formation (Lower Silurian), southern Georgian Bay region, Ontario. Canadian Journal of Earth Science, Vol. 36. pp 1743-1762.

Whitewater Hydrogeology Ltd., 2017a
Groundwater Monitoring Compliance Report: Melancthon Pit #1 (Shelburne North Pit)

Whitewater Hydrogeology Ltd., 2017b
Groundwater Monitoring Compliance Report: Melancthon Pit #2 (Shelburne South Pit)

APPENDIX A

MOECC WATER WELL RECORDS

Ministry of Environment and Energy
Ontario

The Ontario Water Resources Act
WATER WELL RECORD

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

11 (1–2) **1705240**

Municipality (10–14) 17004 Con. (15) CON 04 Easthope

County or District: Duff | Township/Borough/City/Town/Village: Melancthon | Con block tract survey, etc.: 14 | Lot (25–27): 14

Owner's surname (28–47): [redacted] First name: | Address: RR#2 SHELBURNE | Date completed: 14 (day) 11 (month) 98 (year) 98

21 (1–2) | UTM: Zone (10) | Easting (12–17) | Northing (18–24) | RC (25) | Elevation (26–30) | RC | Basin Code (31–47) ii iii iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth – feet From	Depth – feet To
Black	topsoil			0	1
Brown	gravel, stones, clay			1	40
Brown	clay, gravel			40	45
Brown	sand			45	50
Brown	limestone			50	100

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

41 WATER RECORD

Water found at – feet	Kind of water
10–13: 90	1 ☑ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (14)
15–18	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (19)
20–23	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (24)
25–28	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (29)
30–33	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (34) (60)

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth – feet From	Depth – feet To
10–11: 6	1 ☑ Steel (12) 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	188	+2	13–16: 53
17–18	1 ☐ Steel (19) 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			20–23
24–25	1 ☐ Steel (26) 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			27–30

SCREEN

Sizes of opening (Slot No.) (31–33)	Diameter (34–38) inches	Length (39–40) feet
Material and type	Depth at top of screen (41–44) feet	(30)

61 PLUGGING & SEALING RECORD

☐ Annular space ☐ Abandonment

Depth set at – feet From	Depth set at – feet To	Material and type (Cement grout, bentonite, etc.)
10–13	14–17	
18–21	22–25	
26–29	30–33 (80)	

71 PUMPING TEST

Pumping test method (10): 1 ☐ Pump 2 ☑ Bailer
Pumping rate (11–14): 5 GPM
Duration of pumping (15–16): 2 Hours ..... (17–18) Mins
Water levels during (25): 1 ☑ Pumping 2 ☐ Recovery

Static level	Water level end of pumping	15 minutes (26–28)	30 minutes (29–31)	45 minutes (32–34)	60 minutes (35–37)
(19–21) 65 feet	(22–24) 90 feet	90 feet	90 feet	90 feet	90 feet

If flowing give rate (38–41): GPM
Pump intake set at: feet
Water at end of test (42): ☐ Clear ☑ Cloudy
Recommended pump type: ☐ Shallow ☑ Deep
Recommended pump setting (43–45): 98 feet
Recommended pump rate (46–49): 3 GPM
(50–53)

FINAL STATUS OF WELL (54)

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

WATER USE (55–56)

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

METHOD OF CONSTRUCTION (57)

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

LOCATION OF WELL

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

10th side Rd.

700 ft ½ mile 1½ mile

5th Side Rd ½ mile

N

Lot Line

199520

Name of Well Contractor: [illegible] | Well Contractor's Licence No.: 3561
Address: 156 Harry Hall
Name of Well Technician: [illegible] | Well Technician's Licence No.: T-0298
Signature of Technician/Contractor: [illegible] | Submission date: day mo yr

MINISTRY USE ONLY
Data source (58) | Contracctor (59–62): 3561 | Date received (63–68): DEC 14 1998 | (80)
Date of inspection | Inspector
Remarks

CSS. ES9

0506 (07/94) Front Form 9

2 - MINISTER OF ENVIRONMENT & ENERGY COPY

Ministry of Environment and Energy
Ontario

The Ontario Water Resources Act
WATER WELL RECORD

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

11 (1–2) **1705463**

Municipality (10–14) 17004 Con. (15–22) CON (23–24) 04

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot (25–27)
DUFFERIN	MELANCTHON	4 OS	E1/2-13

Owner's surname (28–47) [redacted] First name

Address: 802 MAIN ST. E. UNIT 9 SHELBURNE

Date completed (48–53): 23 day 09 month 99 year

21 (1–2) UTM (9) Northing (10–17) Northing (18–24) RC (25) Elevation (26–30) RC (30) Basin Code (31) ii iii iv (47)

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth – feet From	Depth – feet To
BLACK	TOPSOIL			0	2
BROWN	SAND			2	10
BROWN	GRAVEL	BROWN SAND		10	27
BROWN	LIMESTONE	BROWN CLAY	BROKEN BR. LIMESTONE	27	36½
BROWN	LIMESTONE			36½	41
BIEGE	SANDSTONE	STRKS of GREY LIMESTONE	SOFT	41	98½

31 32

41 WATER RECORD

Water found at – feet	Kind of water
68 (10–13)	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (14)
82 (15–18) 1 gpm	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☑ Gas (19)
88 (20–23) 1 gpm	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☑ Minerals 6 ☐ Gas (24)
94 (25–28) 1 gpm	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (29)
(50–53)	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas (34) (60)

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth – feet From	Depth – feet To
(10–11) 6	1 ☑ Steel (12) 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	.188	12½	(13–16) 36½
(17–18) 6	1 ☐ Steel (19) 2 ☐ Galvanized 3 ☐ Concrete 4 ☑ Open hole 5 ☐ Plastic		36½	(20–23) 98½
(24–25)	1 ☐ Steel (26) 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			(27–30)

SCREEN

Sizes of opening (Slot No.) (31–33)	Diameter (34–38) inches	Length (39–40) feet
Material and type	Depth at top of screen (41–44) feet	(30)

61 PLUGGING & SEALING RECORD

☐ Annular space ☐ Abandonment

Depth set at – feet From	Depth set at – feet To	Material and type (Cement grout, bentonite, etc.)
0 (10–13)	14 (14–17)	BENSEAL
(18–21)	(22–25)	
(26–29)	(30–33) (80)	

71 PUMPING TEST

Pumping test method (10): 1 ☐ Pump 2 ☐ Bailer AIR
Pumping rate (11–14): 10 GPM
Duration of pumping (15–16): 2 Hours (17–18): 0 Mins

Static level (19–21)	Water level end of pumping (22–24)	Water levels during (25): 1 ☐ Pumping 2 ☐ Recovery			
58 feet	feet	15 minutes (26–28) feet	30 minutes (29–31) feet	45 minutes (32–34) feet	60 minutes (35–37) feet
If flowing give rate (38–41) GPM		Pump intake set at 98 feet		Water at end of test (42): ☐ Clear ☐ Cloudy	
Recommended pump type: ☐ Shallow ☑ Deep		Recommended pump setting (43–45) feet		Recommended pump rate (46–49) 8 GPM	

(50–53)

FINAL STATUS OF WELL (54)

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

WATER USE (55–56)

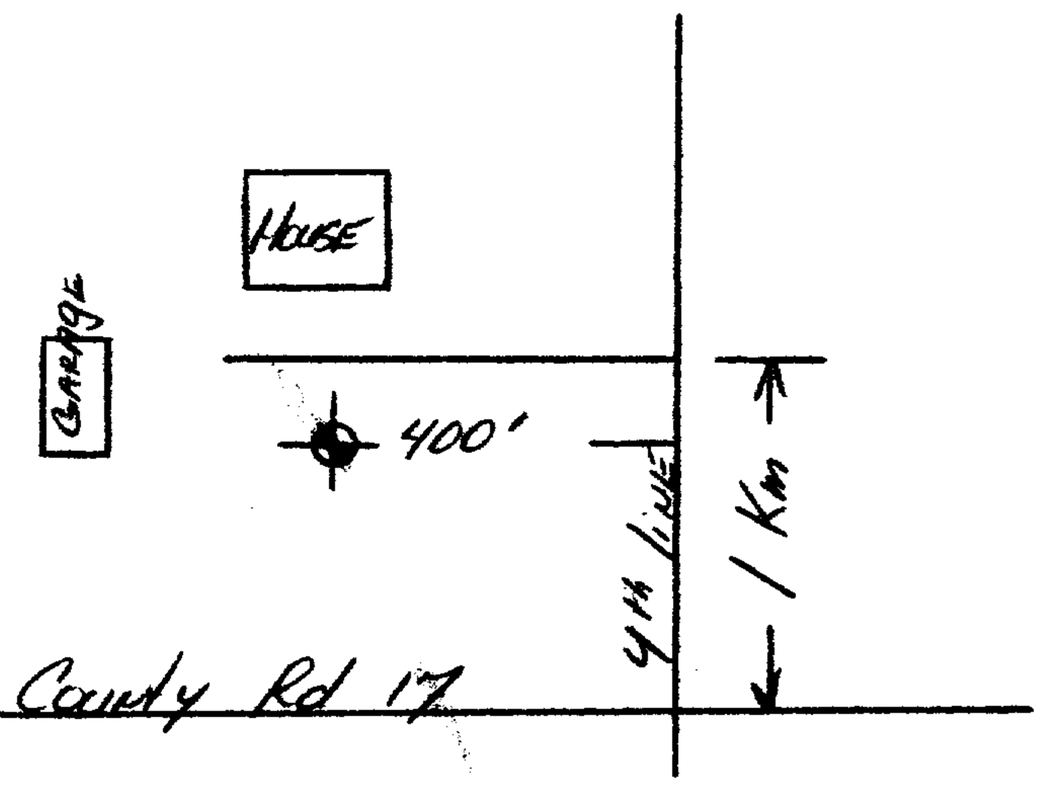
1 ☑ Domestic
2 ☐ Stock
3 ☐ Irrigation
4 ☐ Industrial
5 ☐ Commercial
6 ☐ Municipal
7 ☐ Public supply
8 ☐ Cooling & air conditioning
9 ☐ Not used
10 ☐ Other

METHOD OF CONSTRUCTION (57)

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

LOCATION OF WELL

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



201775

Name of Well Contractor: LUNDEY WELL DRILLING DIV. of GERRITSWELLDRILLING INC
Well Contractor's Licence No.: 3406
Address: RR#1 GRANDVALLEY ONT.
Name of Well Technician: TERRY THOMPSON
Well Technician's Licence No.: T2836
Signature of Technician/Contractor: [signature]
Submission date: day 25 mo 09 yr 99

MINISTRY USE ONLY

Data source (58)
Contracctor (59–62): 3406
Date received (63–68): MAR 16 2000 (80)
Date of inspection
Inspector
Remarks: CSS.ES0

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Ontario **Ministry of the Environment**

The Ontario Water Resources Act
WATER WELL RECORD

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

11 (1 2) **1705956**

Municipality (10) MELANCTHON TWP (14) Con. (15) CON (22 23 24) 05

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot (25-27)
DUFFERIN COUNTY	MELANCTHON TWP	CON 5	12
[redacted]	Address #097204, 6146 CTY RD #13, EVERETT LOM 1S0	Date completed (48-53) 11 day 12 month 02 year	

21 (1 2) UTM (10 12 17 18 24) Northing RC (25) Elevation RC (26 30) Basin Code (31 47) ii iii iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
	TOP SOIL			0	1
BROWN	SAND	GRAVEL		1	5
BROWN	CLAY			5	14
BROWN	SILT	GRAVEL		14	50
GREY	LIMESTONE			50	77

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

41 WATER RECORD

Water found at - feet	Kind of water
56 (10-13)	1 ☑ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas (14)
70 (15-18)	1 ☑ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas (19)
(20-23)	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas (24)
(25-28)	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas (29)
(30-33)	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas (34) (60)

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
6" (10-11)	1 ☑ Steel (12) 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	.219	+1½	53 (13-16)
6" (17-18)	1 ☐ Steel (19) 2 ☐ Galvanized 3 ☐ Concrete 4 ☑ Open hole 5 ☐ Plastic		53	77 (20-23)
(24-25)	1 ☐ Steel (26) 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			(27-30)

SCREEN

Sizes of opening (Slot No.) (31-33)	Diameter (34-38)	Length (39-40)
WIA	inches	feet
Material and type	Depth at top of screen (41-44) feet	(30)

61 PLUGGING & SEALING RECORD

☑ Annular space ☐ Abandonment

Depth set at - feet From (10-13)	To (14-17)	Material and type (Cement grout, bentonite, etc.)
0	50	BENSEAL
(18-21)	(22-25)	
(26-29)	(30-33)	(80)

PUMPING TEST

71 Pumping test method (10): 1 ☐ Pump 2 ☐ Bailer — Pumping rate (11-14): 30 GPM — Duration of pumping (15-16) 1 Hours (17-18) 30 Mins

Static level (19-21)	Water level end of pumping (22-24)	Water levels during (25): 1 ☐ Pumping 2 ☑ Recovery			
12 feet	1 feet	15 minutes (26-28) 12 feet	30 minutes (29-31) 12 feet	45 minutes (32-34) 12 feet	60 minutes (35-37) 12 feet

If flowing give rate (38-41) GPM	Pump intake set at 50 feet	Water at end of test (42): ☑ Clear ☐ Cloudy
Recommended pump type: ☐ Shallow ☑ Deep (50-53)	Recommended pump setting (43-45) 50 feet	Recommended pump rate (46-49) 30 GPM

FINAL STATUS OF WELL (54)

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

WATER USE (55-56)

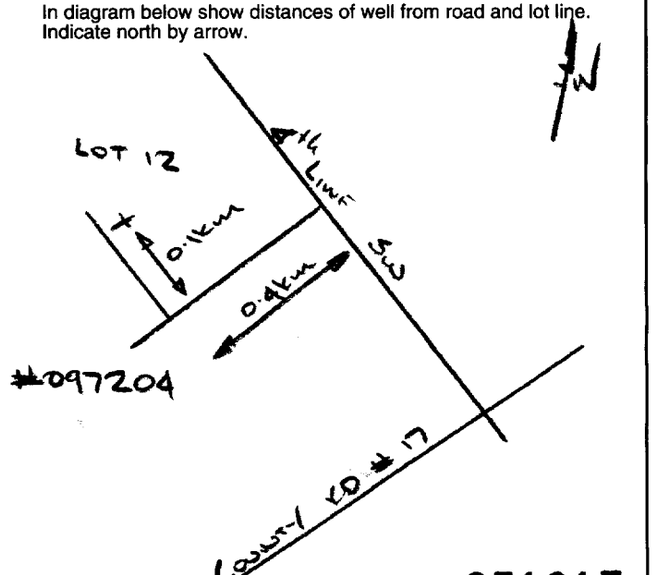
1 ☑ Domestic 2 ☐ Stock 3 ☐ Irrigation 4 ☐ Industrial 5 ☐ Commercial 6 ☐ Municipal 7 ☐ Public supply 8 ☐ Cooling & air conditioning 9 ☐ Not use 10 ☐ Other

METHOD OF CONSTRUCTION (57)

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

LOCATION OF WELL

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



251817

Name of Well Contractor	Well Contractor's Licence No.
HIGHLAND WATER WELLS	2576
Address: BOX 141, ORANGEVILLE, ONT L9W 2Z7	
Name of Well Technician: NIGEL POLLETTON	Well Technician's Licence No. T2130
Signature of Technician/Contractor	Submission date: day 19 mo 12 yr 02

MINISTRY USE ONLY

Data source (58)	Contractor (59-62) 2576	Date received (63-66) JAN 06 2003 (80)
Date of inspection	Inspector	
Remarks	CSS.ES3	

0506 (07/00) Front Form 9

2 - MINISTRY OF THE ENVIRONMENT COPY

Ontario Ministry of the Environment

Well Tag No. (Instruction No.) A006827 #A006827

Well Record

Regulation 903 Ontario Water Resources Act

page ___ of ___

Instructions for Completing Form

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

Ministry Use Only

MUN 17004 CON CON 03 LOT 12

Well Owner's Information and Location of Well Information

[redacted]

DUFFERIN | MELANCTON | 12 | 3

RR#/Street Number/Name | City/Town/Village | Site/Compartment/Block/Tract etc.

GPS Reading | NAD 83 | Zone 17 | Easting 561250 | Northing 4888243 | Unit Make/Model MEGELEN | Mode of Operation: UTM | ☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Depth To
BROWN	GRAVEL & SAND			0	15.84
BROWN	SILTY GRAVEL			15.84	17.98
BROWN	LIMESTONE SOFT			17.98	24.07
		MONITOR WELL			

Hole Diameter

Depth From	Depth To	Diameter Centimetres
0	17.98	21.59
17.98	24.07	15

Water Record

Water found at ___ Metres / Kind of Water

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

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

Chlorinated ☐ Yes ☐ No

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Depth To
Casing				
2"	☐ Steel ☐ Fibreglass ☒ Plastic ☐ Concrete ☐ Galvanized	shc40	0	18.89
1¼"	☐ Steel ☐ Fibreglass ☒ Plastic ☐ Concrete ☐ Galvanized	shc40	0	13.71
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
Screen				
Outside diam 2"	☐ Steel ☐ Fibreglass ☒ Plastic ☐ Concrete ☐ Galvanized	Slot No. .10	18.89	21.94
1¼"			13.71	16.76

No Casing or Screen

☐ Open hole

Test of Well Yield

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

Plugging and Sealing Record

☒ Annular space ☐ Abandonment

Depth set at - From	Metres To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
0	12.49	BENTONITE SLURRY	
[redacted]			
16.76	17.98	HOLEPLUG	

Method of Construction

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

Water Use

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

Final Status of Well

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

Well Contractor/Technician Information

Name of Well Contractor: KEITH LANG WELL DRILLING INC | Well Contractor's Licence No.: 7154

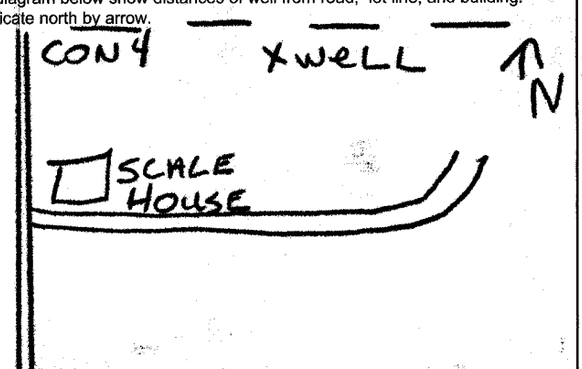
Business Address (street name, number, city etc.): 251 ELDON ST GODERICH ONT

Name of Well Technician (last name, first name): KEITH LANG | Well Technician's Licence No.: T 446

Signature of Technician/Contractor: X Keith Lang. | Date Submitted YYYY MM DD

Location of Well

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



Audit No. Z 17011 | Date Well Completed YYYY 2004 MM 8 DD 1

Was the well owner's information package delivered? ☒ Yes ☐ No | Date Delivered YYYY MM DD

Ministry Use Only

Data Source | Contractor 7154

Date Received YYYY MM DD SEP 14 2004 | Date of Inspection YYYY MM DD

Remarks | Well Record Number 1706272

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

Ontario Ministry of the Environment

Well Tag Number (Place sticker and print below) A049603 #A049603

Well Record

Regulation 903 Ontario Water Resources Act

page ___ of ___

Instructions for Completing Form

- For use in the **Province of Ontario** only. This document is a permanent **legal** document. Please retain for future reference.
- All Sections **must** be completed in full to avoid delays in processing. Further instructions and explanations are available on the back of this form.
- Questions regarding completing this application can be directed to the Water Well Help Desk (Toll Free) at 1-888-396-9355.
- **All metre measurements shall be reported to 1/10th of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only

[redacted]

Address of Well Location (County/District/Municipality)	Township	Lot	Concession
DUFFERIN	MELANCTHON	11	3
RR#/Street Number/Name	**City/Town/Village**	**Site/Compartment/Block/Tract etc.**	

GPS Reading	NAD	Zone	Easting	Northing	Unit Make/Model	Mode of Operation:
	83	17	561742	4886523	MAGELEN	UTM

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

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Depth To
BROWN	SAND & GRAVEL			0	24ft
BROWN	SILTY CLAY & STONES			24ft	33ft
BROWN	BROKEN LIMESTONE			33ft	43ft

Hole Diameter

Depth From	Depth To	Diameter Centimetres
0	43ft	6 1/4

Water Record

Water found at ___ Metres / Kind of Water

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

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

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

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

Chlorinated ☐ Yes ☐ No

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Depth To
Casing				
1 1/4	☐ Steel ☐ Fibreglass ☒ Plastic ☐ Concrete ☐ Galvanized	shc 40	0	29ft
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
Screen				
Outside diam 1 1/4	☐ Steel ☐ Fibreglass ☒ Plastic ☐ Concrete ☐ Galvanized	Slot No. .10	29ft	39ft
No Casing or Screen				
	☐ Open hole			

Test of Well Yield

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

Plugging and Sealing Record

☒ Annular space ☐ Abandonment

Depth set at - Metres From	Depth set at - Metres To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
0	25ft	BENTONITE	

Method of Construction

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

Water Use

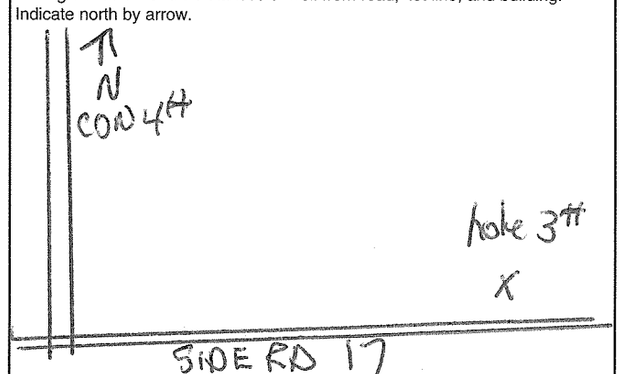
☐ Domestic ☐ Industrial ☐ Public Supply ☐ Other
☐ Stock ☐ Commercial ☐ Not used
☐ Irrigation ☐ Municipal ☐ Cooling & air conditioning

Final Status of Well

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

Location of Well

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



Audit No.	Date Well Completed YYYY MM DD
Z 58794	2007 5 23
Was the well owner's information package delivered? ☐ Yes ☒ No	Date Delivered YYYY MM DD

Well Contractor/Technician Information

Name of Well Contractor	Well Contractor's Licence No.
KEITH LANG WELL DRILLING INC	7154
Business Address (street name, number, city etc.)	
251 ELDON ST GODERICH ONT	
Name of Well Technician (last name, first name)	**Well Technician's Licence No.**
KEITH LANG	T446
Signature of Technician/Contractor	**Date Submitted YYYY MM DD**
X Keith Lang	

Ministry Use Only

Data Source	Contractor
	7154
Date Received YYYY MM DD	**Date of Inspection YYYY MM DD**
Remarks JUN 14 2007	**Well Record Number**

Ontario Ministry of the Environment

Well Tag Number (Place sticker and print number below) A 049604 / #A049604

Well Record

Regulation 903 Ontario Water Resources Act

page ___ of ___

Instructions for Completing Form

- For use in the **Province of Ontario** only. This document is a permanent **legal** document. Please retain for future reference.
- All Sections **must** be completed in full to avoid delays in processing. Further instructions and explanations are available on the back of this form.
- Questions regarding completing this application can be directed to the Water Well Help Desk (Toll Free) at 1-888-396-9355.
- **All metre measurements shall be reported to 1/10th of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only

[redacted]

Address of Well Location (County/District/Municipality)	Township	Lot	Concession
DUFFERIN	MELANCTHON	11	3
RR#/Street Number/Name	City/Town/Village	Site/Compartment/Block/Tract etc.	

GPS Reading: NAD 83 | Zone 17 | Easting 561313 | Northing 4886400 | Unit Make/Model MAGELEN | Mode of Operation: UTN | ☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Depth To
BROWN	GRAVEL STONES			0	30ft
BROWN	SILT DAMP			30ft	35ft
BROWN	SAND & GRAVEL			35ft	43ft
BROWN	LIMESTONE			43ft	56ft

Hole Diameter

Depth From	Depth To	Diameter Centimetres
0	54ft	6 1/4

Water Record

Water found at ___ Metres / Kind of Water

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

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

Chlorinated ☐ Yes ☐ No

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Depth To
Casing				
1 1/4	☐ Steel ☐ Fibreglass ☒ Plastic ☐ Concrete ☐ Galvanized	SHC 40	0	44ft
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
Screen				
Outside diam 1 1/4	☐ Steel ☐ Fibreglass ☒ Plastic ☐ Concrete ☐ Galvanized	Slot No. 10	44ft	54ft
No Casing or Screen				
	☐ Open hole			

Test of Well Yield

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

Plugging and Sealing Record

☒ Annular space ☐ Abandonment

Depth set at - Metres From	Depth set at - Metres To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
0	30ft	BENTONITE	

Method of Construction

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

Water Use

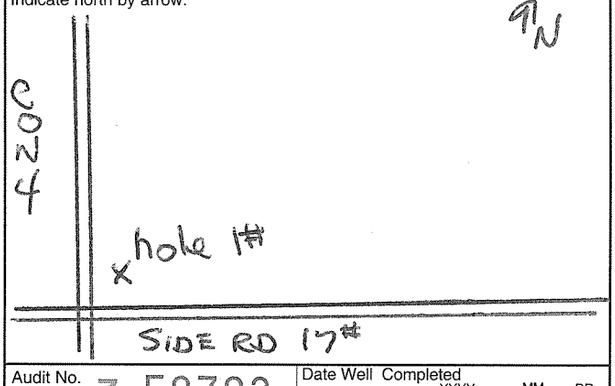
☐ Domestic ☐ Industrial ☐ Public Supply ☐ Other
☐ Stock ☐ Commercial ☐ Not used
☐ Irrigation ☐ Municipal ☐ Cooling & air conditioning

Final Status of Well

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

Location of Well

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



Audit No. Z 58793

Date Well Completed YYYY MM DD: 2007 5 23

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

Date Delivered YYYY MM DD

Well Contractor/Technician Information

Name of Well Contractor	Well Contractor's Licence No.
KEITH LANG WELL DRILLING INC	7154
Business Address (street name, number, city etc.)	
251 ELDON ST GODERICH ONT	
Name of Well Technician (last name, first name)	Well Technician's Licence No.
KEITH LANG	T446
Signature of Technician/Contractor X Keith Lang	Date Submitted YYYY MM DD

Ministry Use Only

Data Source	Contractor 7154
Date Received JUN 14 2007 MM DD	Date of Inspection YYYY MM DD
Remarks	Well Record Number

0506E (08/2006) Ministry's Copy *Cette formule est disponible en français*

Ontario Ministry of the Environment

Well Tag No. *(Place Sticker and/or Print Below)* #047164 A 047164

Well Record

Regulation 903 Ontario Water Resources Act

Page _____ of _____

Well Owner's Information

First Name	Last Name	E-mail Address	☐ Well Constructed by Well Owner
STRADA AGGREGATES			

Mailing Address (Street Number/Name, RR)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
30 FLORAL PARKWAY	CONCORD	ONT	L4K 4R1	

Part A Construction and/or Major Alteration of a Well

Address of Well Location (Street Number/Name, RR)	Township	Lot	Concession
	MELANCTON	11	3

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

UTM Coordinates	Zone	Easting	Northing	GPS Unit Make	Model	Mode of Operation
NAD 83	17	561743	4886525	GARMIN		☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify

Overburden and Bedrock Materials *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (Metres) From	Depth (Metres) To
BROWN	GRAVEL SAND			0	20ft
BROWN	CLAY & STONES	GRAVEL LAYERS		20ft	35ft
BROWN	LIMESTONE			35ft	36ft
		2in PVC			
		10ft screen bottom 35ft			
		10ft screen bottom 18ft			

Annular Space/Abandonment Sealing Record

Depth Set at (Metres) From	To	Type of Sealant Used (Material and Type)	Volume Placed (Cubic Metres)
0	7ft	BENTONITE	

Method of Construction

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

Water Use

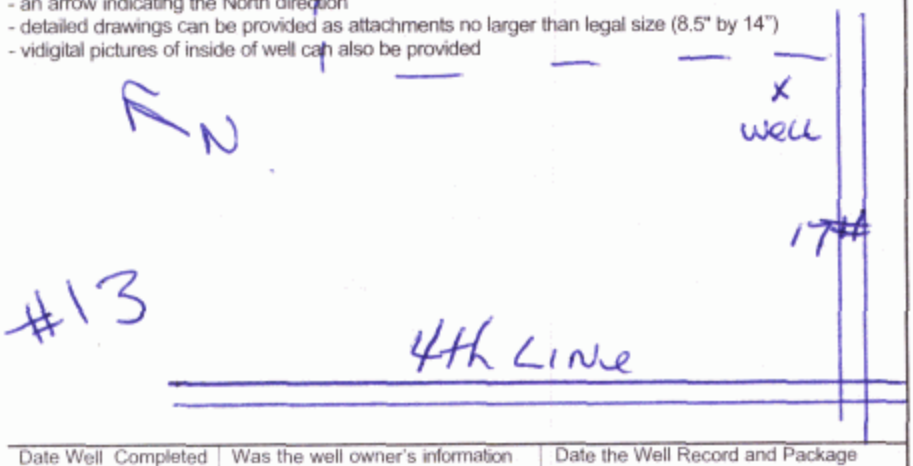
☐ Public ☐ Commercial ☐ Not used
☐ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☒ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, *specify* _____

Status of Well

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

Location of Well

Please provide a map below showing:
- all property boundaries, and measurements sufficient to locate the well in relation to fixed points,
- an arrow indicating the North direction
- detailed drawings can be provided as attachments no larger than legal size (8.5" by 14")
- vidigital pictures of inside of well can also be provided



Date Well Completed *(yyyy/mm/dd)*	Was the well owner's information package delivered?	Date the Well Record and Package Delivered to Well Owner *(yyyy/mm/dd)*
2008/4/24	☐ Yes ☒ No	

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
KEITH LANG WELL DRILLING INC	7154

Business Address (Street No./Name, number, RR)	Municipality
251 ELDON ST GODERICH ONT	

Province	Postal Code	Business E-mail Address
ONT	N7A3R9	

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
519-524-8159	KEITH LANG

Well Technician's Licence No.	Signature of Technician	Date Submitted *(yyyy/mm/dd)*
T446	K. Lang	

Results of Well Yield Testing

Check box if after test of well yield, water was:
☐ Clear and sand free
☐ Cannot develop to sand-free state

If pumping discontinued, give reason:

Pumping test method

Pump intake set at *(Metres)*

Pumping rate *(Litres/min)*

Duration of pumping _____ hrs + _____ min

Final water level end of pumping *(Metres)*

Recommended pump type ☐ Shallow ☐ Deep

Recommended pump depth _____ Metres

Recommended pump rate *(Litres/min)*

If flowing give rate *(Litres/min)*

Draw Down Time (Min)	Draw Down Water Level (Metres)	Recovery Time (Min)	Recovery Water Level (Metres)
Static Level		Static Level	
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	
20		20	
25		25	
30		30	
40		40	
50		50	
60		60	

Water Details

Water found at Depth	Kind of Water
Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals
Water found at Depth	Kind of Water
Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals
Water found at Depth	Kind of Water
Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals

Casing Used

☐ Galvanized ☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete

Screen Used

☐ Galvanized ☐ Steel ☐ Fibreglass ☒ Plastic ☐ Concrete

No Casing and Screen Used

☐ Open Hole

Disinfected? ☐ Yes ☐ No

Casing and Well Details

Diameter of the Hole *(Centimetres)* 6in

Depth of the Hole *(Metres)* 36ft

Wall Thickness *(Metres)*

Inside Diameter of the Casing *(Metres)*

Depth of the Casing *(Metres)*

Ministry Use Only

Audit No.	Well Contractor No.
z 69734	
Date Received *(yyyy/mm/dd)*	**Date of Inspection** *(yyyy/mm/dd)*
JUN 05 2008	
Remarks	

0506E (11/2006) Ministry's Copy

Ontario Ministry of the Environment

Well Tag No. *(Place Sticker and/or Print Below)* #047160 A 047160

Well Record

Regulation 903 Ontario Water Resources Act

Page _____ of _____

Well Owner's Information

First Name	Last Name	E-mail Address	☐ Well Constructed by Well Owner
STADA AGGREGATES			

Mailing Address (Street Number/Name, RR)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
30 FLORAL PARKWAY	CONCORD	ONT	L4K 4R1	

Part A Construction and/or Major Alteration of a Well

Address of Well Location (Street Number/Name, RR)	Township	Lot	Concession
	MELANCTON	## 11	3

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

UTM Coordinates	Zone	Easting	Northing	GPS Unit Make	Model	Mode of Operation:
NAD 83	17	561806	4887468	GARMIN		☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify

Overburden and Bedrock Materials *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (Metres) From	To
BROWN	SAND & GRAVEL			0	21ft
BROWN	SILTY CLAY & GRAVEL LAYERS			21ft	37ft
GRAY	CLAY & STONES			37ft	60ft
GRAY	LIMESTONE			60ft	61ft
		2in PVC			
		10ft screen botton 60ft			
		10ft screen bottom 21ft			

Annular Space/Abandonment Sealing Record

Depth Set at (Metres) From	To	Type of Sealant Used (Material and Type)	Volume Placed (Cubic Metres)
0	10ft	BENTONITE	

Method of Construction

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

Water Use

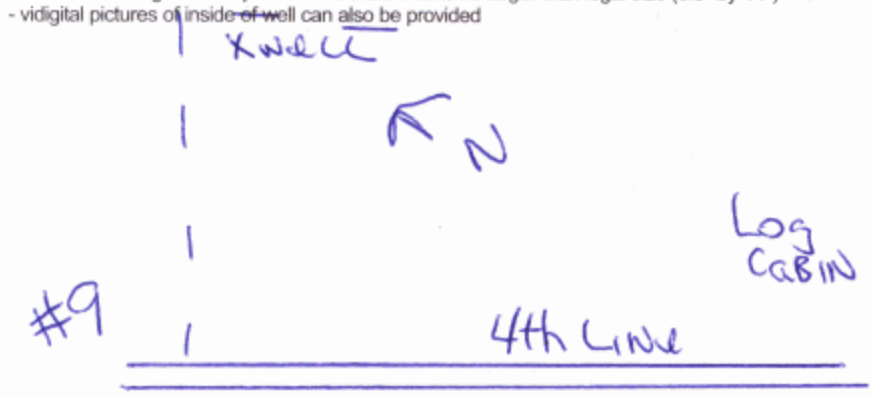
☐ Public ☐ Commercial ☐ Not used ☐ Domestic ☐ Municipal ☐ Dewatering ☐ Livestock ☐ Test Hole ☒ Monitoring ☐ Irrigation ☐ Cooling & Air Conditioning ☐ Industrial ☐ Other, *specify* _____

Status of Well

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

Location of Well

Please provide a map below showing:
- all property boundaries, and measurements sufficient to locate the well in relation to fixed points,
- an arrow indicating the North direction
- detailed drawings can be provided as attachments no larger than legal size (8.5" by 14")
- vidigital pictures of inside of well can also be provided



Date Well Completed *(yyyy/mm/dd)*	Was the well owner's information package delivered?	Date the Well Record and Package Delivered to Well Owner *(yyyy/mm/dd)*
2008/4/22	☐ Yes ☒ No	

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
KEITH LANG WELL DRILLING INC	7154

Business Address (Street No./Name, number, RR)	Municipality
251 ELDON ST GODERICH ONT	

Province	Postal Code	Business E-mail Address
ONT	N7A3R9	

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
519-524-8159	KEITH LANG

Well Technician's Licence No.	Signature of Technician	Date Submitted *(yyyy/mm/dd)*
T446	K. Lang.	

Results of Well Yield Testing

Check box if after test of well yield, water was:
☐ Clear and sand free
☐ Cannot develop to sand-free state

If pumping discontinued, give reason:

Pumping test method

Pump intake set at *(Metres)*

Pumping rate *(Litres/min)*

Duration of pumping ____ hrs + ____ min

Final water level end of pumping *(Metres)*

Recommended pump type ☐ Shallow ☐ Deep

Recommended pump depth _____ Metres

Recommended pump rate *(Litres/min)*

If flowing give rate *(Litres/min)*

	Draw Down		Recovery	
	Time *(Min)*	Water Level *(Metres)*	Time *(Min)*	Water Level *(Metres)*
Static Level				
1				
2				
3				
4				
5				
10				
15				
20				
25				
30				
40				
50				
60				

Water Details

Water found at Depth	Kind of Water
____ Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals
____ Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals
____ Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals

Casing Used	Screen Used
☐ Galvanized	☐ Galvanized
☐ Steel	☐ Steel
☐ Fibreglass	☐ Fibreglass
☐ Plastic	☒ Plastic
☐ Concrete	☐ Concrete

No Casing and Screen Used

☐ Open Hole

Disinfected? ☐ Yes ☐ No

Casing and Well Details

Diameter of the Hole *(Centimetres)* 6in

Depth of the Hole *(Metres)* 61ft

Wall Thickness *(Metres)*

Inside Diameter of the Casing *(Metres)*

Depth of the Casing *(Metres)*

Ministry Use Only

Audit No.	Well Contractor No.
z 69730	
Date Received *(yyyy/mm/dd)* JUN 05 2008	**Date of Inspection** *(yyyy/mm/dd)*
Remarks	

0506E (11/2006)

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Ontario Ministry of the Environment

Well Tag No. *(Place Sticker and/or Print Below)* #047161 A 047161

Well Record

Regulation 903 Ontario Water Resources Act

Page _____ of _____

Well Owner's Information

First Name	Last Name	E-mail Address	☐ Well Constructed by Well Owner
STRADA AGGREGATES			

Mailing Address (Street Number/Name, RR)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
30 floral parkway	concord	ont	L4K 4R1	

Part A Construction and/or Major Alteration of a Well

Address of Well Location (Street Number/Name, RR)	Township	Lot	Concession
	MELANCTON	11	3

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

UTM Coordinates	Zone	Easting	Northing	GPS Unit Make	Model	Mode of Operation
NAD 83	#17	561213	4887227	GARMIN		☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify

Overburden and Bedrock Materials *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (Metres) From	Depth (Metres) To
BROWN	SAND & GRAVEL			0	33ft
BROWN	SILTY CLAY & GRAVEL LAYERS			33ft	45ft
GRAY	CLAY & STONES			45ft	84ft
GRAY	LIMESTONE			84ft	85ft
	2in PVC				
	10ft screen bottom 84ft				
	10ft screen bottom 33ft				

Annular Space/Abandonment Sealing Record

Depth Set at (Metres) From	To	Type of Sealant Used (Material and Type)	Volume Placed (Cubic Metres)
0	22ft	BENTONITE	

Method of Construction

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

Water Use

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

Status of Well

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

Location of Well

Please provide a map below showing:
- all property boundaries, and measurements sufficient to locate the well in relation to fixed points,
- an arrow indicating the North direction
- detailed drawings can be provided as attachments no larger than legal size (8.5" by 14")
- vidigital pictures of inside of well can also be provided

RN

#10 XWELL

Log CABIN.

4th Line

Date Well Completed *(yyyy/mm/dd)*	Was the well owner's information package delivered?	Date the Well Record and Package Delivered to Well Owner *(yyyy/mm/dd)*
2008/423	☐ Yes ☒ No	

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
KEITH LANG WELL DRILLING INC	7154

Business Address (Street No./Name, number, RR)	Municipality
251 ELDON ST GODERICH ONT	

Province	Postal Code	Business E-mail Address
ONT	N7A 3R9	

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
519-525-8159	KEITH LANG

Well Technician's Licence No.	Signature of Technician	Date Submitted *(yyyy/mm/dd)*
T446	K. Lang.	

Results of Well Yield Testing

Check box if after test of well yield, water was:
☐ Clear and sand free
☐ Cannot develop to sand-free state

If pumping discontinued, give reason:

Pumping test method

Pump intake set at *(Metres)*

Pumping rate *(Litres/min)*

Duration of pumping _____ hrs + _____ min

Final water level end of pumping *(Metres)*

Recommended pump type ☐ Shallow ☐ Deep

Recommended pump depth _____ Metres

Recommended pump rate *(Litres/min)*

If flowing give rate *(Litres/min)*

	Draw Down Time (Min)	Draw Down Water Level (Metres)	Recovery Time (Min)	Recovery Water Level (Metres)
Static Level			Static Level	
1			1	
2			2	
3			3	
4			4	
5			5	
10			10	
15			15	
20			20	
25			25	
30			30	
40			40	
50			50	
60			60	

Water Details

Water found at Depth	Kind of Water
Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals
Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals
Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals

Casing Used

☐ Galvanized ☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete

Screen Used

☐ Galvanized ☐ Steel ☐ Fibreglass ☒ Plastic ☐ Concrete

No Casing and Screen Used

☐ Open Hole

Disinfected? ☐ Yes ☐ No

Casing and Well Details

Diameter of the Hole *(Centimetres)* 6in

Depth of the Hole *(Metres)* 85ft

Wall Thickness *(Metres)*

Inside Diameter of the Casing *(Metres)*

Depth of the Casing *(Metres)*

Ministry Use Only

Audit No.	Well Contractor No.
z 69732	
Date Received *(yyyy/mm/dd)* JUN 05 2008	**Date of Inspection** *(yyyy/mm/dd)*
Remarks	

0506E (11/2006)

Ministry's Copy

Ontario Ministry of the Environment

Well Tag No. *(Place Sticker and/or Print Below)*
#A04714 A 047144

Well Record
Regulation 903 Ontario Water Resources Act

Page _____ of _____

Well Owner's Information

First Name	Last Name	E-mail Address	☐ Well Constructed by Well Owner
JAGGER HIMS LIMITED			

Mailing Address (Street Number/Name, RR)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
1091 GORHAM STREET SUITE 301	NEWMARKET	ONT	L3Y8X7	

Part A Construction and/or Major Alteration of a Well

Address of Well Location (Street Number/Name, RR)	Township	Lot	Concession
	MELANCTON	13	4

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

UTM Coordinates	Zone	Easting	Northing	GPS Unit Make	Model	Mode of Operation
NAD 83	17	560523	4887517	GARMIN		☐ Undifferentiated x ☐ Averaged ☐ Differentiated, specify

Overburden and Bedrock Materials *(see Instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (Metres) From	Depth (Metres) To
BROWN	SILTY SAND & STONES			0	16ft
BROWN	SAND & GRAVEL	LAYERS		16ft	37ft
GRAY	CLAY & STONES			37ft	63ft
BROWN	LIMESTONE			63ft	90ft
GRAY	LIMESTONE			90ft	274ft
GRAY	SHALE			274ft	288ft

Annular Space/Abandonment Sealing Record

Depth Set at (Metres) From	To	Type of Sealant Used (Material and Type)	Volume Placed (Cubic Metres)
0	66ft	BENTONITE SLURRY	

Method of Construction

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

Water Use

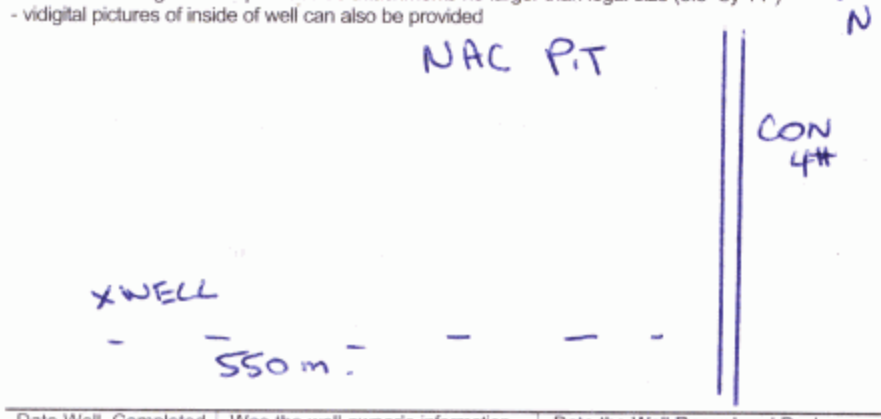
☐ Public ☐ Commercial ☐ Not used
☐ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☒ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, *specify* _____

Status of Well

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

Location of Well

Please provide a map below showing:
- all property boundaries, and measurements sufficient to locate the well in relation to fixed points,
- an arrow indicating the North direction
- detailed drawings can be provided as attachments no larger than legal size (8.5" by 14")
- vidigital pictures of inside of well can also be provided



Date Well Completed (yyyy/mm/dd)	Was the well owner's information package delivered?	Date the Well Record and Package Delivered to Well Owner (yyyy/mm/dd)
2008/5/20	☒ Yes ☐ No	

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
keith lang well drilling inc	7154

Business Address (Street No./Name, number, RR)	Municipality
251 eldon st goderich ont	

Province	Postal Code	Business E-mail Address
ont	N7A3R9	

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
519-524-8159	KEITH LANG

Well Technician's Licence No.	Signature of Technician	Date Submitted (yyyy/mm/dd)
T446	K. Lang.	

Results of Well Yield Testing

Check box if after test of well yield, water was:
☐ Clear and sand free
☐ Cannot develop to sand-free state

If pumping discontinued, give reason:

Pumping test method

Pump intake set at *(Metres)*

Pumping rate *(Litres/min)*

Duration of pumping ____ hrs + ____ min

Final water level end of pumping *(Metres)*

Recommended pump type ☐ Shallow ☐ Deep

Recommended pump depth ____ Metres

Recommended pump rate *(Litres/min)*

If flowing give rate *(Litres/min)*

Draw Down Time (Min)	Draw Down Water Level (Metres)	Recovery Time (Min)	Recovery Water Level (Metres)
Static Level	17meters	Static Level	
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	
20		20	
25		25	
30		30	
40		40	
50		50	
60		60	

Water Details

Water found at Depth	Kind of Water
____ Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals
____ Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals
____ Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals

Casing Used

☐ Galvanized
x ☐ Steel
☐ Fibreglass
☐ Plastic
☐ Concrete

Screen Used

☐ Galvanized
☐ Steel
☐ Fibreglass
☐ Plastic
☐ Concrete

No Casing and Screen Used

x ☐ Open Hole

Disinfected? ☐ Yes x ☐ No

Casing and Well Details

Diameter of the Hole *(Centimetres)* 8.75in

Depth of the Hole *(Metres)* 66ft

Wall Thickness *(Metres)* .188

Inside Diameter of the Casing *(Metres)* 6¼

Depth of the Casing *(Metres)* 66ft

Ministry Use Only

Audit No.	Well Contractor No.
z 69750	
Date Received (yyyy/mm/dd) JUN 05 2008	**Date of Inspection (yyyy/mm/dd)**
Remarks	

0506E (11/2006)

Ministry's Copy

Ontario — Ministry of the Environment

Measurements recorded in: [X] Metric [ ] Imperial

Well Tag No. (Place Sticker and/or Print Below)
A 051672
A051672

Well Record

Regulation 903 Ontario Water Resources Act

Page _____ of _____

Well Owner's Information

[redacted]

Address of Well Location (Street Number/Name)	Township	Lot	Concession
625293 15 Sideroad	~~Melanchthon~~ Mulmur	16	2

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

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 8 3	17	562198	4890009		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
Brown	Sand	Gravel		0	7.32
Brown	Limestone			7.32	24.38

Annular Space

Depth Set at (m/ft) From	Depth Set at (m/ft) To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0	6.1	Bentonite	0.25

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
15.56		0.477	+ 0.50	8.53
	open hole		8.53	24.38

Construction Record - Screen

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

Status of Well

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

Water Details

Water found at Depth (m/ft)	Kind of Water	Gas
16	[ ] Fresh [X] Untested [ ] Other, *specify*	[ ] Gas
	[ ] Fresh [ ] Untested [ ] Other, *specify*	[ ] Gas
	[ ] Fresh [ ] Untested [ ] Other, *specify*	[ ] Gas

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)
0	6.1	30
6.1	8.53	16.0
8.53	24.38	15.55

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at (m/ft): 15.24

Pumping rate (l/min / GPM): 45.5

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 6.51

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

Recommended pump depth (m/ft):

Recommended pump rate (l/min / GPM):

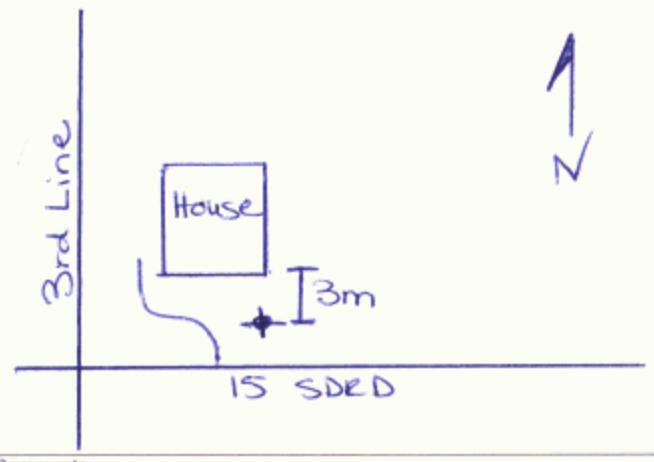
Well production (l/min / GPM):

Disinfected? [X] Yes [ ] No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level		5.44		6.51
1		5.57	1	6.25
2		5.67	2	6.11
3		5.77	3	6.0
4		5.85	4	5.93
5		5.93	5	5.86
10		6.16	10	5.57
15		6.32	15	5.41
20		6.39	20	
25		6.44	25	
30		6.46	30	
40		6.49	40	
50		6.48	50	
60		6.51	60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments: Information Package Mailed

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Gerrits Drilling & Eng. Ltd.	3406

Business Address (Street Number/Name)	Municipality
R.R.#1 Grand Valley	

Province	Postal Code	Business E-mail Address
ON	L0N 1G0	

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

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
2964	Gerrits Drilling & Eng Ltd	2008 08 28

Well owner's information package delivered	Date Package Delivered	Date Work Completed
[X] Yes [ ] No	2008 08 28	2008 08 20

Ministry Use Only

Audit No. Z 84506

Received APR 17 2009

0506E (12/2007)

Ministry's Copy

Ontario — Ministry of the Environment

Measurements recorded in: ☐ Metric ☐ Imperial

Well Tag No. (Pla 73355 **A 073355**

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of ____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
	THE HIGHLAND COMPANIES		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
477476 THIRD LINE RR#2	SHELBURNE	ONT	LON 1S6	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
	MELANCTHON	13	4

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

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	560944	4887656		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
brown	silty sand and gravel			0	15ft

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
0	2ft	BENTONITE	

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	To
2in	plastic	shc40	0	4 ft

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To
2in	plastic	.10	4	14ft

Status of Well

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

Water Details

Water found at Depth (m/ft)	Kind of Water	
4ft	☐ Fresh ☐ Untested ☐ Gas ☐ Other, *specify*	
14ft	☐ Fresh ☐ Untested ☐ Gas ☐ Other, *specify*	
	☐ Fresh ☐ Untested ☐ Gas ☐ Other, *specify*	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	15ft	6in

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at (m/ft)

Pumping rate (l/min / GPM)

Duration of pumping ____ hrs + ____ min

Final water level end of pumping (m/ft)

If flowing give rate (l/min / GPM)

Recommended pump depth (m/ft)

Recommended pump rate (l/min / GPM)

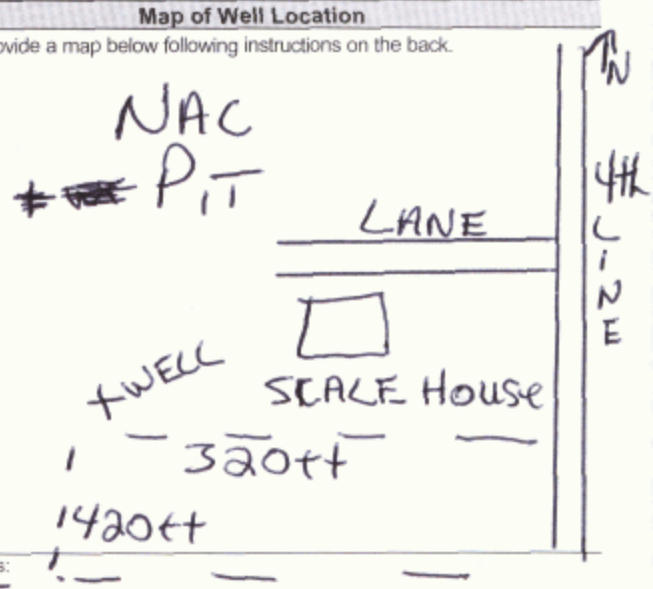
Well production (l/min / GPM)

Disinfected? ☐ Yes ☐ No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level		6ft		
1			1	
2			2	
3			3	
4			4	
5			5	
10			10	
15			15	
20			20	
25			25	
30			30	
40			40	
50			50	
60			60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
KEITH LANG WELL DRILLING INC	7154

Business Address (Street Number/Name)	Municipality
251 ELDON ST GODERICH ONT	

Province	Postal Code	Business E-mail Address
	N7A3R9	

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

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
T446	K. Lang	

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☐ Yes ☒ No		2008 5 20

Ministry Use Only

Audit No. Z097130

Received JUN 22 2009

0506E (12/2007)

Ministry's Copy

Ontario — Ministry of the Environment

Measurements recorded in: ☐ Metric ☐ Imperial

Well Tag No. (Place Sticker and/or Print Below): 73353 A 073353

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of ____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
	THE HIGHLAND COMPANIES		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
477476 THIRD LINE RR#2	SHELBURNE	ONT	L0N1S6	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
	MELANCTHON	13	4

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

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	560871	4888025		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
BROWN	SILTY CLAY & GRAVEL			0	20ft

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
0	7.ft	BENTONITE	

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	To
2in	plastic	shc40	0	9ft

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To
2in	plastic	.10	9ft	19ft

Status of Well

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

Water Details

Water found at Depth (m/ft)	Kind of Water	Gas	Other, specify
9ft	☐ Fresh ☐ Untested	☐ Gas	
	☐ Fresh ☐ Untested	☐ Gas	
	☐ Fresh ☐ Untested	☐ Gas	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	20ft	6in

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at *(m/ft)*

Pumping rate *(l/min / GPM)*

Duration of pumping ____ hrs + ____ min

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

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

Recommended pump depth *(m/ft)*

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

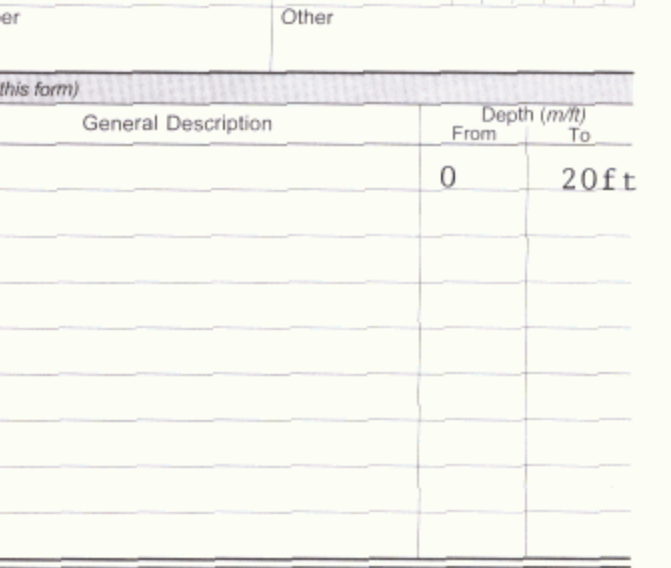
Well production *(l/min / GPM)*

Disinfected? ☐ Yes ☐ No

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

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
KEITH LANG WELL DRILLING INC	7154

Business Address (Street Number/Name)	Municipality	Province	Postal Code	Business E-mail Address
251 ELDON ST GODERICH ONT			N7A3R9	

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)	Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
	KEITH LANG	T446	K. Lang.	

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

Date Package Delivered: Y Y Y Y M M D D

Date Work Completed: 2008 5 21

Ministry Use Only

Audit No. Z 097132

Received JUN 2 2 2009

0506E (12/2007)

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Ontario — Ministry of the Environment

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

Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: ☐ Metric ☐ Imperial

Page _____ of _____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
HIGHLAND	COMPANIES		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
447476 THIRD LINE RR2	SHELBURNE	ONT	L0N1S6	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
	MELANCTHON	16	4

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

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	560483	4889404		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
		PLUG OLD WELL			
		0-6ft 3ft tile			
		6ft-33ft 4in well			

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0	6ft	sand gravel bentonite	
6ft	33ft	bentonite	

Method of Construction

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

Well Use

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

Construction Record - Casing

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

Construction Record - Screen

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

Status of Well

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

Water Details

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

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at *(m/ft)*

Pumping rate *(l/min / GPM)*

Duration of pumping _____ hrs + _____ min

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

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

Recommended pump depth *(m/ft)*

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

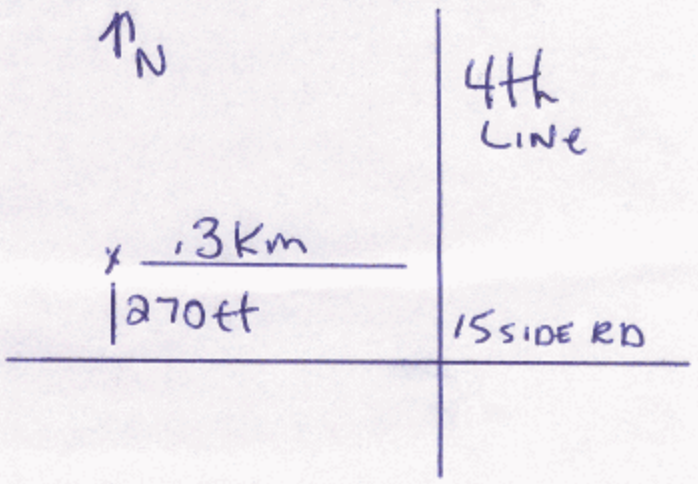
Well production *(l/min / GPM)*

Disinfected? ☒ Yes ☐ No

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

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
KEITH LANG WELL DRILLING INC	7154

Business Address (Street Number/Name)	Municipality	Province	Postal Code	Business E-mail Address
251 ELDON ST GODERICH ONT			N7A3R9	

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)	Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
	KEITH LANG	T446	K. Lang.	

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☐ Yes ☒ No		2010 6 14

Ministry Use Only

Audit No. Z 107353

Received AUG 24 2010

0506E (12/2007)

Ministry's Copy

Ontario — Ministry of the Environment

Measurements recorded in: ☐ Metric ☐ Imperial

Well Tag No. (Place Sticker Here): 84702 A 084702

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of ____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
HIGHLAND COMPANIES			

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
477476 THIRD LINE	SHELBURNE	ONT	L0N1S6	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
	MELANTHON	15	4

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

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	560745	4889111		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
brown	clay & stones			0	19ft
grown	gravel			19ft	41ft
gray	clay & stones			41ft	51ft
brown	rock			51ft	89ft
gray	rock			89ft	122ft

Annular Space

Depth Set at (m/ft) From	Depth Set at (m/ft) To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0	58ft	BENTONITE SLURRY	

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
6¼	steel	.188	0	58ft
6in	open hole		58ft	122ft

Construction Record - Screen

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

Status of Well

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

Water Details

Water found at Depth (m/ft)	Kind of Water	Gas	Other, specify
116ft	☒ Fresh ☐ Untested	☐	
(m/ft)	☐ Fresh ☐ Untested	☐	
(m/ft)	☐ Fresh ☐ Untested	☐	

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)
0	58ft	8.75in
58ft	122ft	6in

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at (m/ft): 60ft

Pumping rate (l/min / GPM): 10gpm

Duration of pumping: 1 hrs + -0 min

Final water level end of pumping (m/ft): 37ft

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

Recommended pump depth (m/ft): 60ft

Recommended pump rate (l/min / GPM): 10gpm

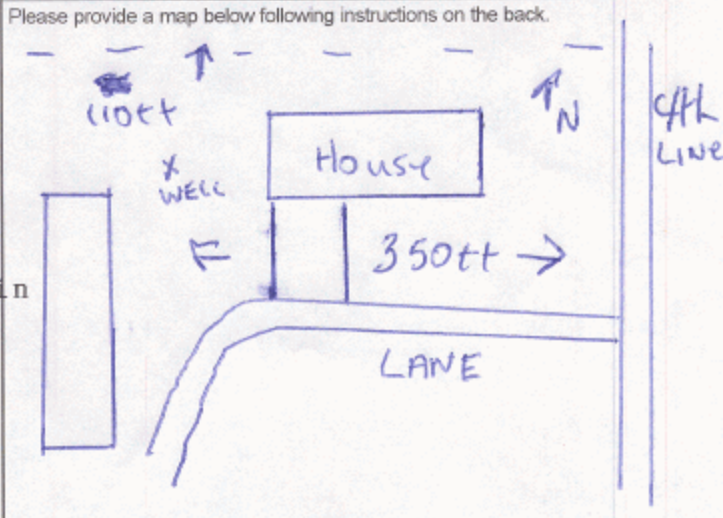
Well production (l/min / GPM):

Disinfected? ☒ Yes ☐ No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level		33ft		
1			1	
2			2	
3			3	
4			4	
5	35ft		5	33ft
10	37ft		10	
15			15	
20			20	
25			25	
30			30	
40			40	
50			50	
60	37ft		60	33ft

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
KEITH LANG WELL DRILLING INC	7154

Business Address (Street Number/Name)	Municipality	Province	Postal Code	Business E-mail Address
251 ELDON ST GODERICH ONT			N7A3R9	

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)	Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
	KEITH LANG	T446	K Lang	

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☒ Yes ☐ No		2010 12 3

Ministry Use Only

Audit No. z119189

Received APR 29 2011

Ministry's Copy

Ontario — Ministry of the Environment

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

Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: ☐ Metric ☐ Imperial

Page _____ of _____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
	HIGHLAND COMPANIES		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
477476 THIRD LINE RR#3	SHELBURNE	ONT	L0N1S6	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
437274 4th Line	MELANTHON	15	4

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

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	560738	4889031		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
		PLUG OLD WELL 4in			

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
0	50ft	BENTONITE	

Method of Construction

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

Well Use

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

Construction Record - Casing

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

Construction Record - Screen

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

Status of Well

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

Water Details

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

Hole Diameter

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

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at *(m/ft)*

Pumping rate *(l/min / GPM)*

Duration of pumping _____ hrs + _____ min

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

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

Recommended pump depth *(m/ft)*

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

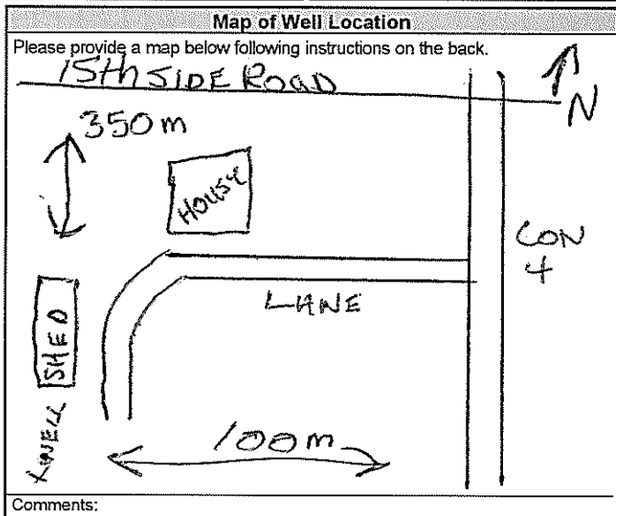
Well production *(l/min / GPM)*

Disinfected? ☒ Yes ☐ No

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

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
KEITH LANE WELL DRILLING INC	7154

Business Address (Street Number/Name)	Municipality	Province	Postal Code	Business E-mail Address
251 ELDON ST GODERICH ONT			N7A3R9	

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)	Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
	KEITH LANG	T446	K. Lang	

Well owner's information package delivered ☐ Yes ☒ No

Date Package Delivered: _____

Date Work Completed: 2011 9 7

Ministry Use Only

Audit No. Z 130429

Received JAN 13 2012

APPENDIX B

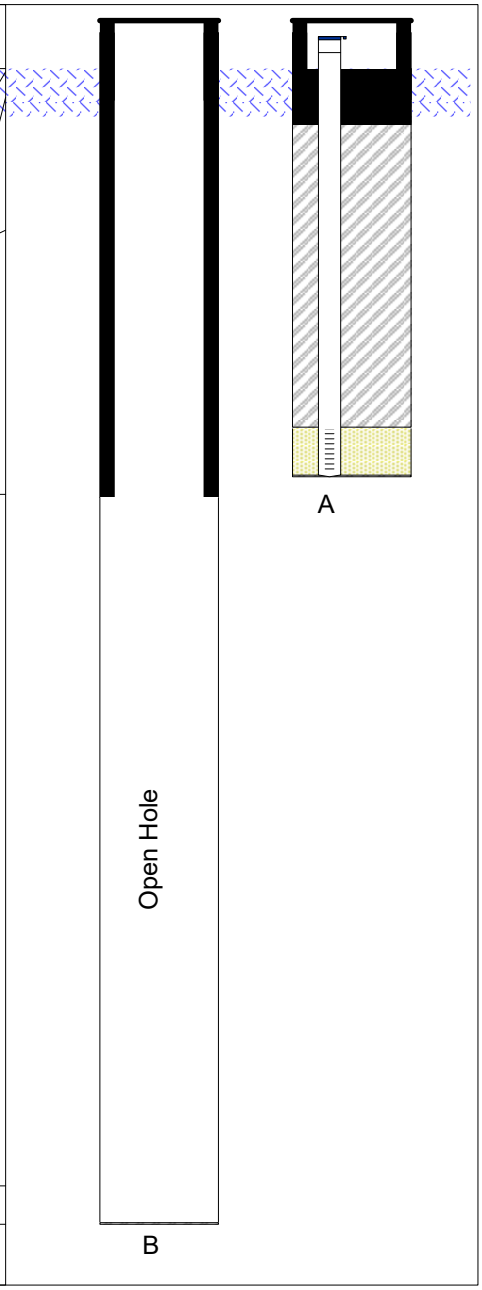
BOREHOLE LOGS

Whitewater Hydrogeology Ltd.

Project Name: Melancthon Pit #2

Well ID: OW2

Depth (m)	Elevation (masl)	Lithology	Lithology Description
0	508		TOP SOIL
4	504		SILTY SAND: Brown, occassional stone, loose, dry
8	500		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet
12	496		
16	492		TAVISTOCK TILL: Grey, clay with stones, dense to soft, damp
20	488		
24	484		
28	480		
32	476		
36	472		
40	468		
44	464		
48	460		AMABEL FORMATION: Dolostone, buff to white, fossiliferous
52	456		
56	452		
60	448		
64	444		
68	440		
72	436		CABOT HEAD SHALE: Green, soft, damp
76	432		



Drilling Date: March 2007 / April 2008

Drilling Company: Keith Lang Drilling

Geologist: Ken Goff / Tecia White

Location: Township of Melancthon

Easting: 561,689

Northing: 4,887,097

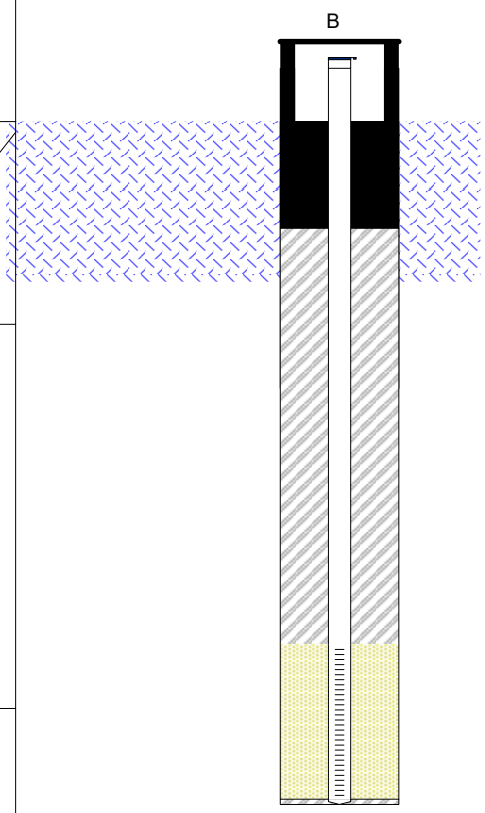
STRADA AGGREGATES

Whitewater Hydrogeology Ltd.

Project Name: Melancthon Pit #2

Well ID: OW3

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
-2	506			
0	504		TOP SOIL	
2	502		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet	
4	500			
6	498		TAVISTOCK TILL: Grey, clay with stones, dense to soft, damp	
8	496			
10	494			
12	492		AMABEL FORMATION: Dolostone, buff to white, fossiliferous, weathered upper surface of bedrock	
14	490			
16	488			
18	486			
20				



Drilling Date: March 2007 / April 2008

Drilling Company: Keith Lang Drilling

Geologist: Ken Goff / Tecia White

Location: Township of Melancthon

Easting: 561,272

Northing: 4,886,849

STRADA AGGREGATES

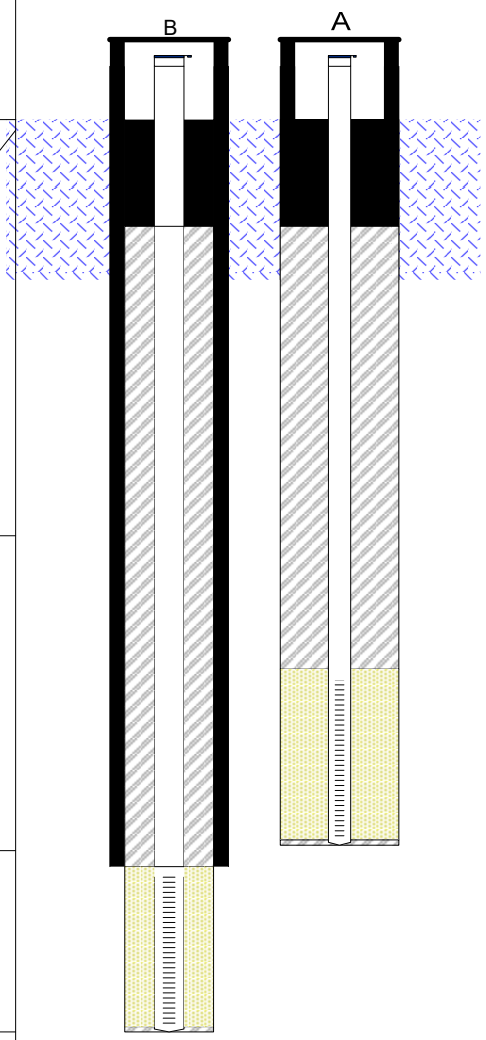
Whitewater Hydrogeology Ltd.

Project Name: Melancthon Pit #2

Well ID: OW4

Depth (m)	Elevation (masl)	Lithology	Lithology Description
-2	508		
0	506		TOP SOIL
2	504		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet
4	502		
6	500		
8	498		SILTY SAND: Brown, occassional stone, loose, dry
10	496		
12	494		
14	492		AMABEL FORMATION: Dolostone, buff to white, fossiliferous, weathered upper surface of bedrock
16	490		
18	488		
20	486		

Well Construction Diagram



Drilling Date: March 2007 / April 2008

Drilling Company: Keith Lang Drilling

Geologist: Ken Goff / Tecia White

Location: Township of Melancthon

Easting: 561,313

Northing: 4,886,400

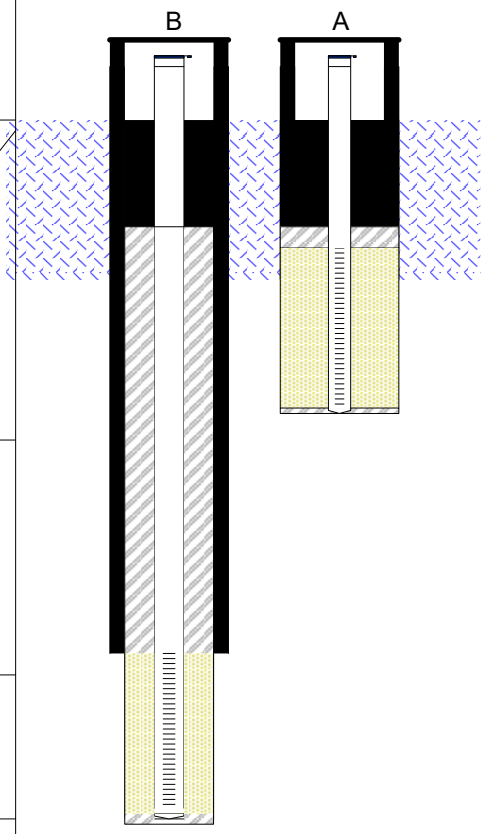
STRADA AGGREGATES

Whitewater Hydrogeology Ltd.

Project Name: Melancthon Pit #2

Well ID: OW5

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
0	494		TOP SOIL	
2	492		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet	
6	488		TAVISTOCK TILL: Grey, clay with stones, dense to soft, damp	
10	484		AMABEL FORMATION: Dolostone, buff to white, fossiliferous, weathered upper surface of bedrock	



Drilling Date: March 2007 / April 2008

Drilling Company: Keith Lang Drilling

Geologist: Ken Goff / Tecia White

Location: Township of Melancthon
Easting: 561,742
Northing: 4,886,523

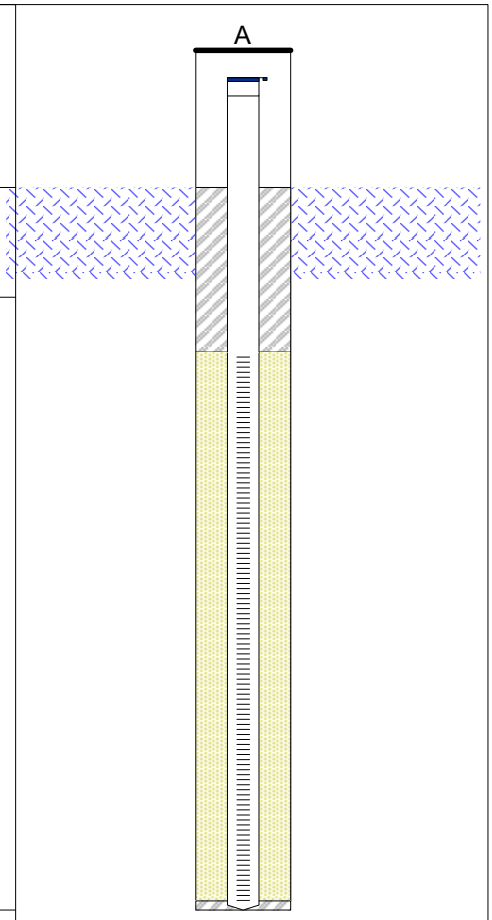
STRADA AGGREGATES

Whitewater Hydrogeology Ltd.

Project Name: Melancthon Pit #2

Well ID: OW6

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
-2	497			
-1	496			
0	495		SILTY SAND: Brown, occassional stone, loose, dry	
1	494			
2	493		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet	
3	492			
4	491			
5	490			
6	489			
7	488			
8	487			
9	486			
10	485			
11	484			
12	483			



Drilling Date: Jun-15

Drilling Company: Keith Lang Drilling

Geologist: Tecia White

Location: Township of Melancthon
Easting: 561,660
Northing: 4,886,939

STRADA AGGREGATES

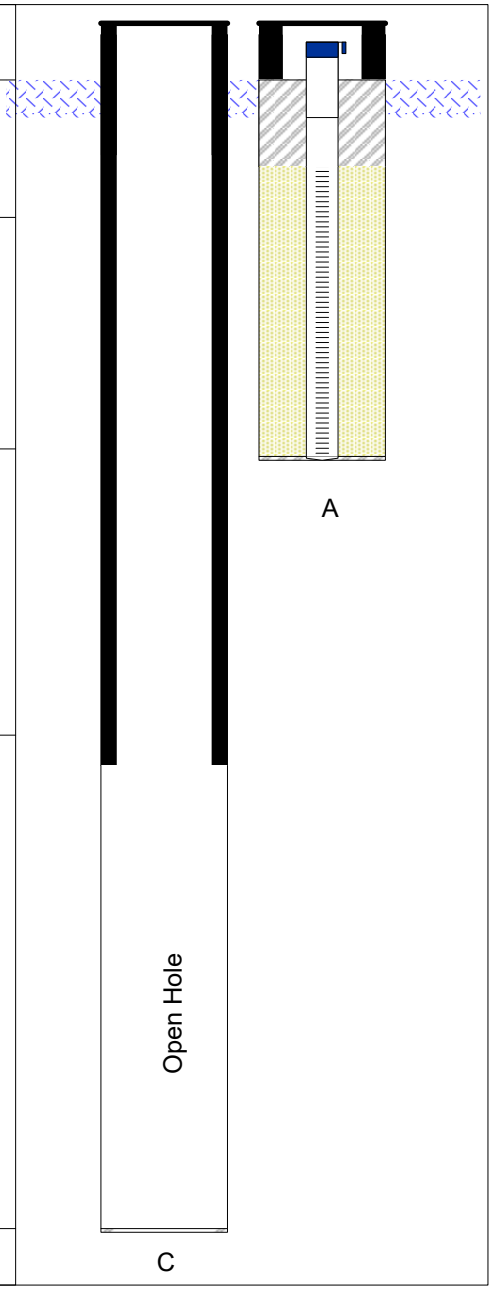
Whitewater Hydrogeology Ltd.

Project Name: Melancthon Pit #2

Well ID: OW7

Depth (m)	Elevation (masl)	Lithology	Lithology Description
-2 to 0	498 to 496		
0 to 2	496 to 494		SILTY SAND: Brown, occassional stone, loose, dry
2 to 4	494 to 492		
4 to 6	492 to 490		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet
6 to 8	490 to 488		
8 to 10	488 to 486		
10 to 12	486 to 484		TAVISTOCK TILL: Grey, clay with stones, dense to soft, damp
12 to 14	484 to 482		
14 to 16	482 to 480		
16 to 18	480 to 478		
18 to 20	478 to 476		AMABEL FORMATION: Dolostone, buff to white, fossiliferous, weathered upper surface of bedrock
20 to 22	476 to 474		
22 to 24	474 to 472		
24 to 26	472 to 470		
26 to 28	470 to 468		
28 to 30	468 to 466		
30 to 32	466		

Well Construction Diagram



Drilling Date: Jun-15

Drilling Company: Keith Lang Drilling

Geologist: Tecia White

Location: Township of Melancthon

Easting:

Northing:

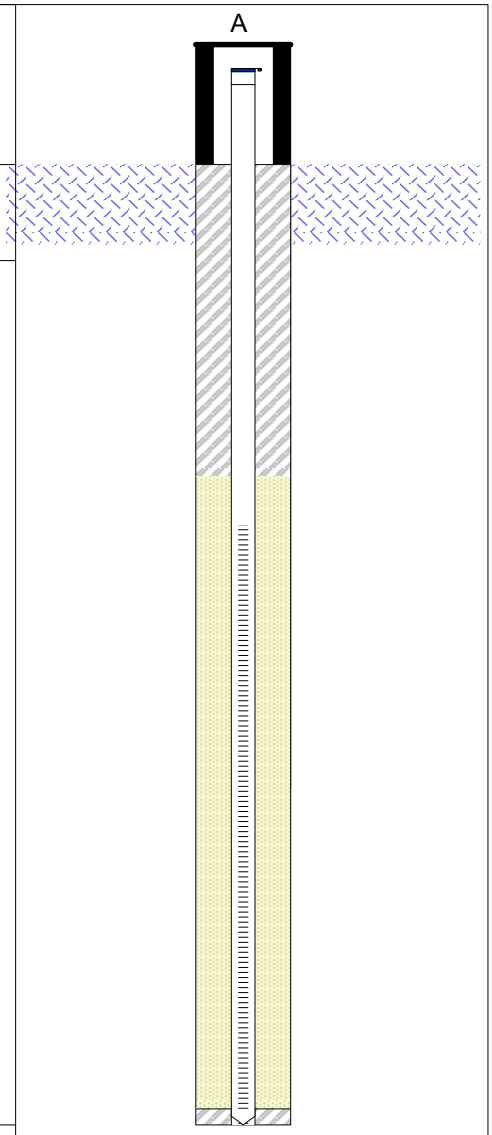
STRADA AGGREGATES

Whitewater Hydrogeology Ltd.

Project Name: Melancthon Pit #2

Well ID: OW8

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
-2 to 14	497 to 482		SILTY SAND: Brown, occassional stone, loose, dry	
			SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet	



Drilling Date: Jun-15

Drilling Company: Lantech Drilling Services

Geologist: Tecia White

Location: Township of Melancthon

Easting: 561,881

Northing: 4,887,192

STRADA AGGREGATES

Whitewater Hydrogeology Ltd.

Project Name: Melancthon Pit #2

Well ID: OW9

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
-2	498			A
0	496			
2	494		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet	
4	492			
6	490			
8	488			
10	486		TAVISTOCK TILL: Grey, clay with stones, dense to soft, damp	
12	484			
14	482			
16	480			
18	478		AMABEL FORMATION: Dolostone, buff to white, fossiliferous, weathered upper surface of bedrock	
20	476			
22				

Drilling Date: March 2007 / April 2008

Drilling Company: Keith Lang Drilling

Geologist: Ken Goff / Tecia White

Location: Township of Melancthon

Easting: 561,806

Northing: 4,887,468

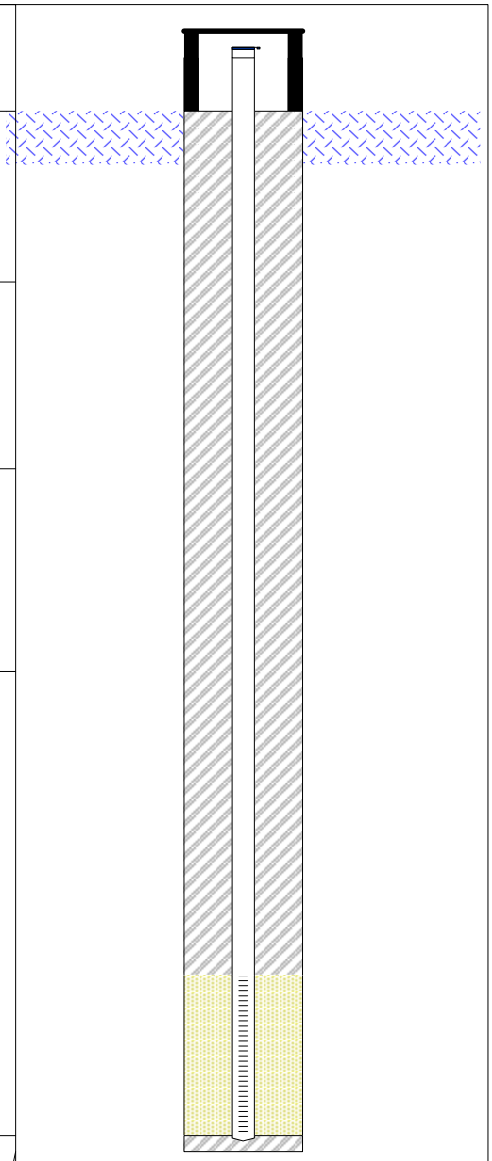
STRADA AGGREGATES

Whitewater Hydrogeology Ltd.

Project Name: Melancthon Pit #2

Well ID: OW10

Depth (m)	Elevation (masl)	Lithology	Lithology Description
0	496		
2	494		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet
4	492		SILTY CLAY: Brown, compact, moist
6	490		
8	488		SILTY SAND: Brown, occassional stone, loose, dry
10	486		
12	484		TAVISTOCK TILL: Grey, clay with stones, dense to soft, damp
14	482		
16	480		
18	478		
20	476		AMABEL FORMATION: Dolostone, buff to white, fossiliferous, weathered upper surface of bedrock
22	474		



Drilling Date: March 2007 / April 2008

Drilling Company: Keith Lang Drilling

Geologist: Ken Goff / Tecia White

Location: Township of Melancthon

Easting: 561,628

Northing: 4,887,239

STRADA AGGREGATES

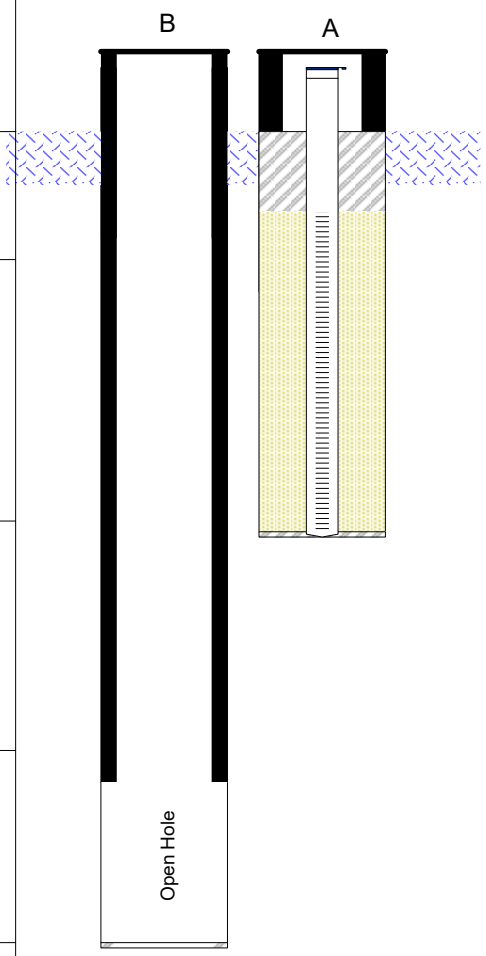
Whitewater Hydrogeology Ltd.

Project Name: Melancthon Pit #2

Well ID: OW11

Depth (m)	Elevation (masl)	Lithology	Lithology Description
498	498		
496	496		
494	494		SILTY SAND: Brown, occassional stone, loose, dry
492	492		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet
490	490		
488	488		
486	486		TAVISTOCK TILL: Grey, clay with stones, dense to soft, damp
484	484		
482	482		AMABEL FORMATION: Dolostone, buff to white, fossiliferous, weathered upper surface of bedrock
480	480		
478	478		
476	476		

Well Construction Diagram



Drilling Date: Jun-15

Drilling Company: Keith Lang Drilling

Geologist: Tecia White

Location: Township of Melancthon

Easting: 561,571

Northing: 488,477

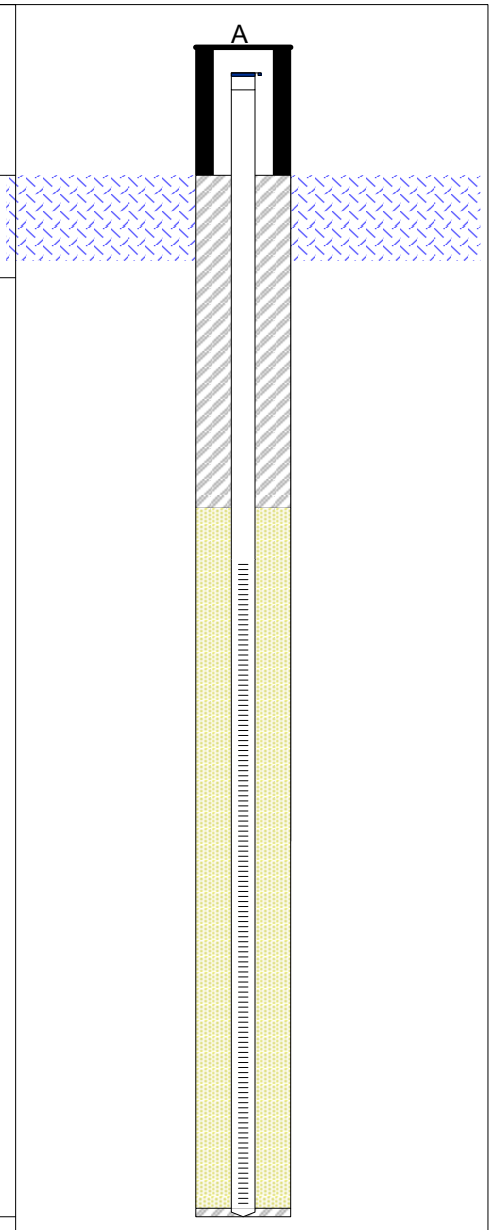
STRADA AGGREGATES

Whitewater Hydrogeology Ltd.

Project Name: Melancthon Pit #2

Well ID: OW12

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
-2 to -1	507			
0 to 1	506 to 505		SILTY SAND: Brown, occassional stone, loose, dry	
1 to 12	505 to 494		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet	
12 to 13	494 to 493			



Drilling Date: Jun-15

Drilling Company: Lantech Drilling Services

Geologist: Tecia White

Location: Township of Melancthon

Easting: 561,282

Northing: 4,887,057

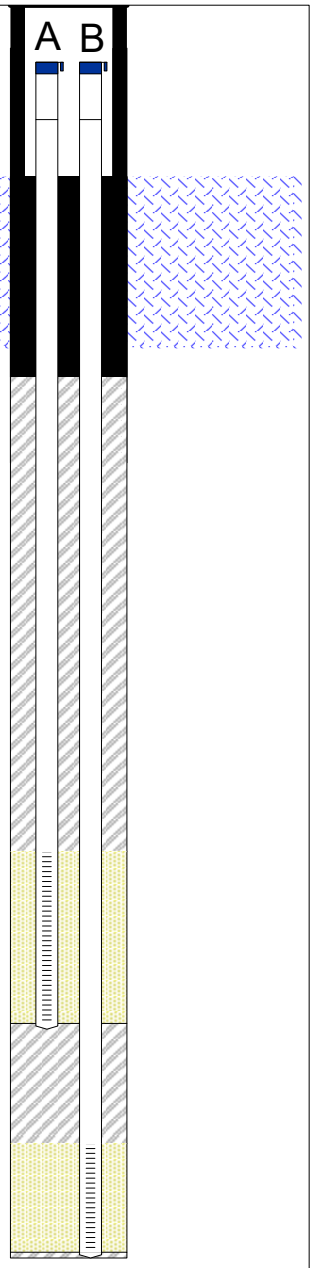
STRADA AGGREGATES

Whitewater Hydrogeology Ltd.

Project Name: Melancthon Pit #1

Well ID: OW13

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
0	506		TOP SOIL	
2	504		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet	
6	500		TAVISTOCK TILL: Grey, clay with stones, dense to soft, damp	
14	492		AMABEL FORMATION: Dolostone, buff to white, fossiliferous	
20	488			



Drilling Date: Dec-01

Drilling Company: Keith Lang Drilling

Geologist: Keith Lang

Location: Township of Melancthon

Easting: 561,145

Northing: 4,887,604

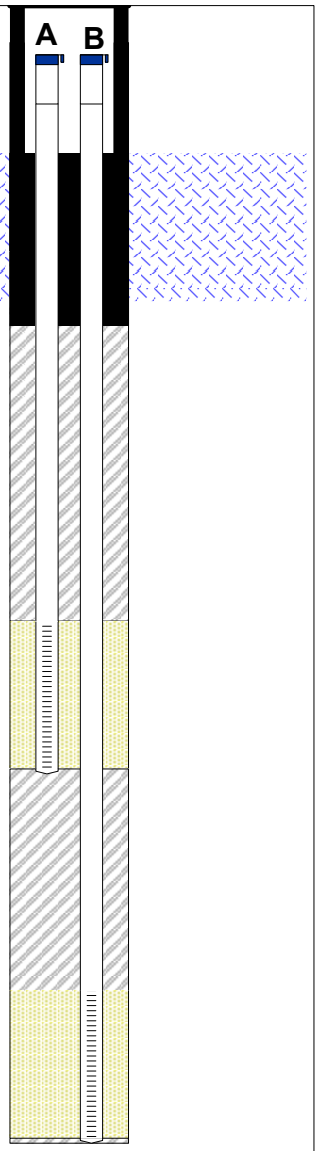
STRADA AGGREGATES

Whitewater Hydrogeology Ltd.

Project Name: Melancthon Pit #1

Well ID: OW14

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
-2	498			
0	496		TOP SOIL	
2	494			
4	492			
6	490		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet	
8	488			
10	486			
12	484			
14	482			
16	480		AMABEL FORMATION: Dolostone, buff to white, fossiliferous, weathered upper surface of bedrock	
18	478			
20	476			
22				



Drilling Date: Aug-04

Drilling Company: Keith Lang Drilling

Geologist: Keith Lang

Location: Township of Melancthon

Easting: 561,769

Northing: 4,887,847

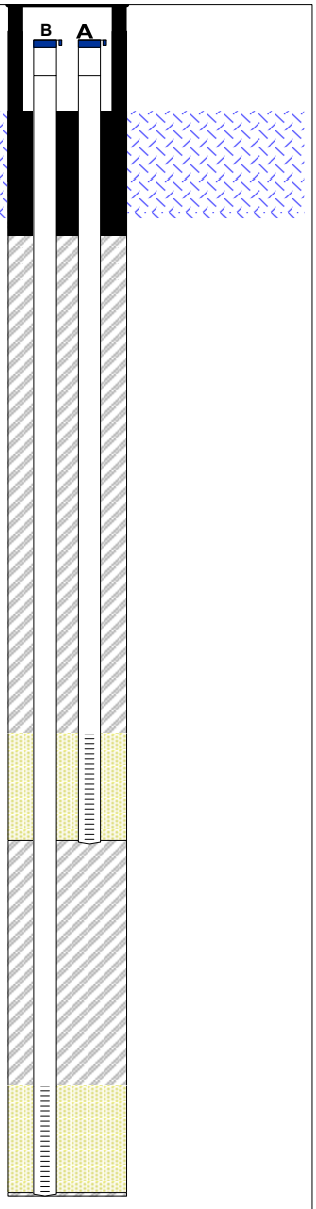
STRADA AGGREGATES

Whitewater Hydrogeology Ltd.

Project Name: Melancthon Pit #1

Well ID: OW15

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
-2	512			
0	510		TOP SOIL	
2	508			
4	506			
6	504			
8	502			
10	500			
12	498		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet	
14	496			
16	494			
18	492			
20	490			
22	488			
24	486			
26	484		AMABEL FORMATION: Dolostone, buff to white, fossiliferous, weathered upper surface of bedrock	
28	482			
30	480			



Drilling Date: Aug-04

Drilling Company: Keith Lang Drilling

Geologist: Keith Lang

Location: Township of Melancthon
Easting: 561,431
Northing: 4,887,669

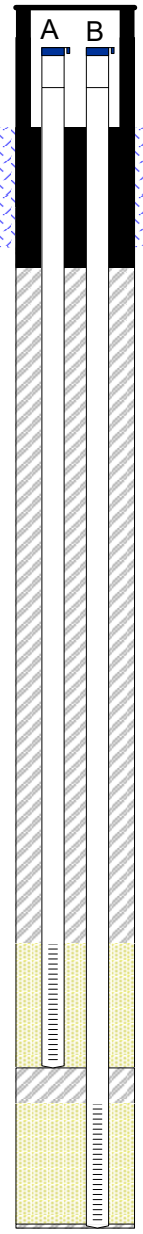
STRADA AGGREGATES

Whitewater Hydrogeology Ltd.

Project Name: Bonnefiel Pit #3

Well ID: OW17

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
0	502		TOP SOIL	
2 to 12	500 to 490		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet	
12 to 24	490 to 478		TAVISTOCK TILL: Grey, clay with stones, dense to soft, damp	
24 to 28	478 to 476		AMABEL FORMATION: Dolostone, buff to white, fossiliferous	



Drilling Date: 28-Sep

Drilling Company: Keith Lang Drilling

Geologist: Keith Lang

Location: Township of Melancthon

Easting: 561,472

Northing: 4,887,382

STRADA AGGREGATES

Whitewater Hydrogeology Ltd.

Project Name: Melancthon Pit #1

Well ID: OW16

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
-4 to 0	500 to 496			B
0 to 6	496 to 490		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet	
6 to 28	490 to 468		AMABEL FORMATION: Dolostone, buff to white, fossiliferous, weathered upper surface of bedrock	

Drilling Date: Jun-12

Drilling Company: Keith Lang Drilling

Geologist: Tecia White

Location: Township of Melancthon

Easting:

Northing:

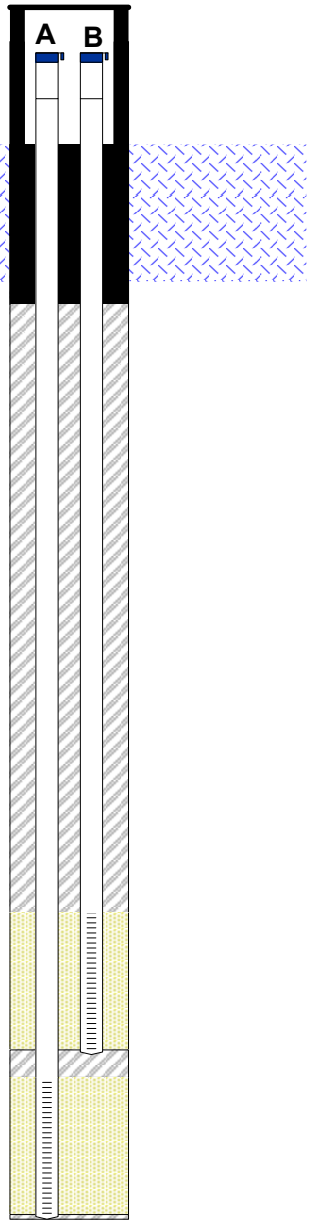
STRADA AGGREGATES

Whitewater Hydrogeology Ltd.

Project Name: Bonnefiel Pit #3

Well ID: OW18

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
0	504			
2	502			
0	500		TOP SOIL	
2	498			
4	496			
6	494		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet	
8	492			
10	490			
12	488			
14	486		TAVISTOCK TILL: Grey, clay with stones, dense to soft, damp	
16	484			
18	482			
20	480		AMABEL FORMATION: Dolostone, buff to white, fossiliferous	
22	478			
24				



Drilling Date: 28-Sep

Drilling Company: Keith Lang Drilling

Geologist: Keith Lang

Location: Township of Melancthon

Easting: 561,653

Northing: 4,887,686

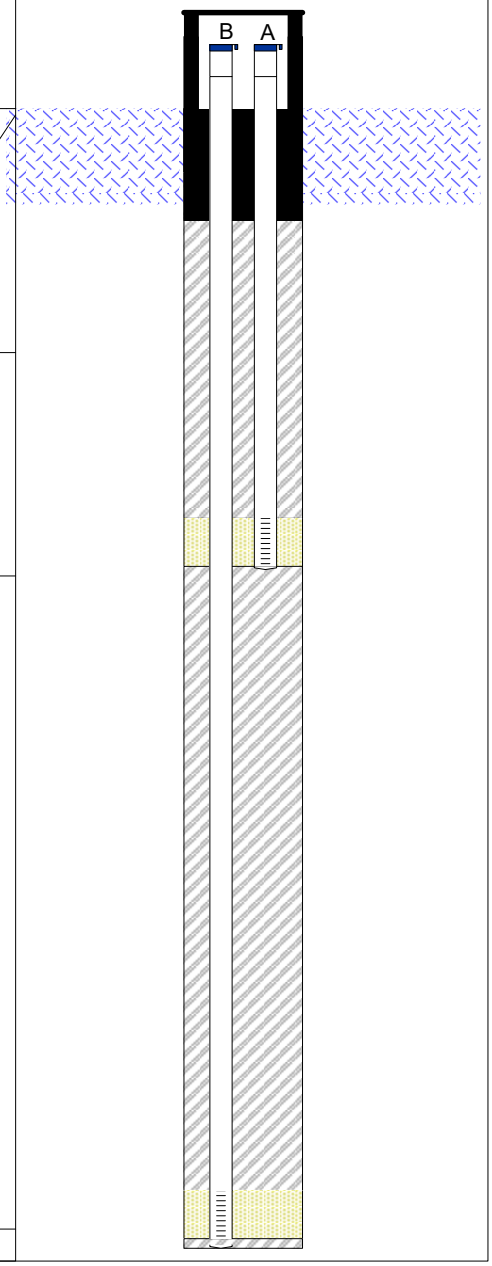
STRADA AGGREGATES

Whitewater Hydrogeology Ltd.

Project Name: Prince Pit #4

Well ID: OW19

Depth (m)	Elevation (masl)	Lithology	Lithology Description
-4 to 0	512 to 510		
0 to 8	510 to 502		TOP SOIL SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet
8 to 14	502 to 496		TAVISTOCK TILL: Grey, clay and silt with stones, dense to soft, damp
14 to 36	496 to 474		AMABEL FORMATION: Dolostone, buff to white, fossiliferous



Well Construction Diagram

Drilling Date: Feb-17

Drilling Company: Highland Water Well Drilling

Geologist: Highland Water Well Drilling

Location: Township of Melancthon

Easting: 561,035

Northing: 4,888,193

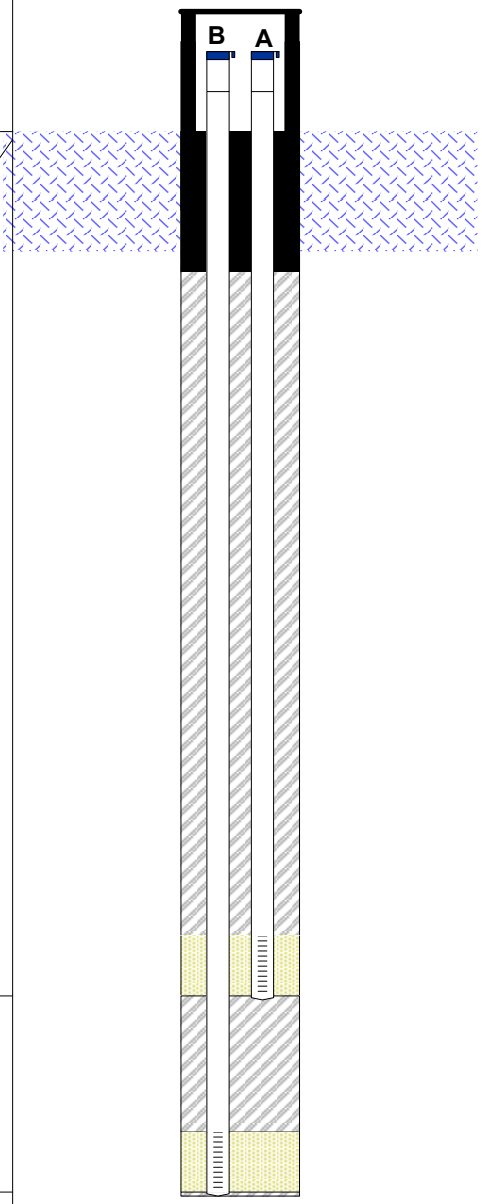
STRADA AGGREGATES

Whitewater Hydrogeology Ltd.

Project Name: Prince Pit #4

Well ID: OW20

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
-4	512			
-2	510			
0	508		TOP SOIL	
2	506			
4	504			
6	502			
8	500			
10	498		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet	
12	496			
14	494			
16	492			
18	490			
20	488			
22	486		AMABEL FORMATION: Dolostone, buff to white, fossiliferous	
24	484			
26	482			
28				



Drilling Date: Feb-17

Drilling Company: Highland Water Well Drilling

Geologist: Highland Water Well Drilling

Location: Township of Melancthon

Easting: 561,544

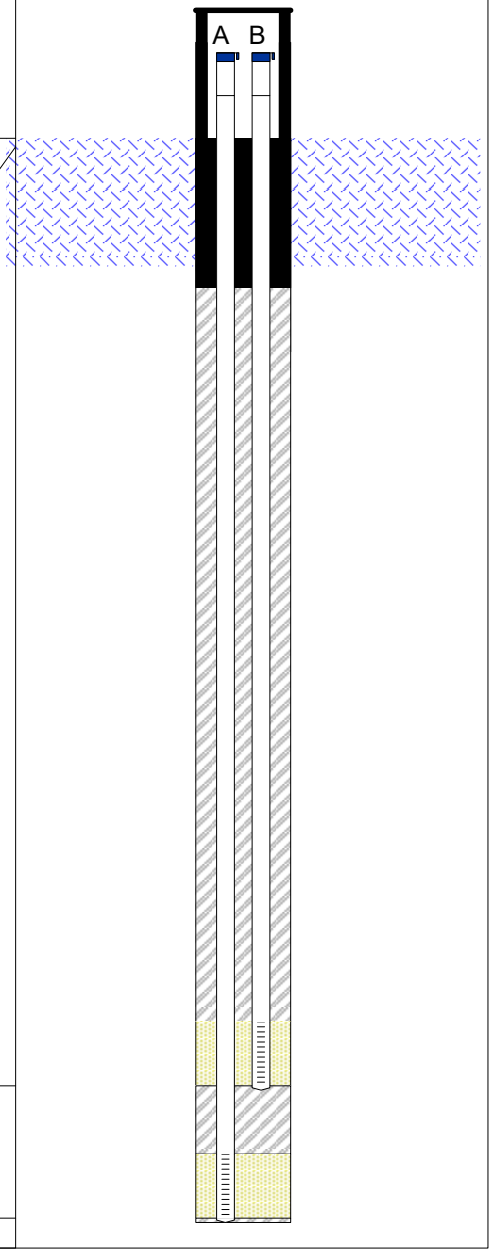
Northing: 4,888,334

STRADA AGGREGATES

Whitewater Hydrogeology Ltd.

Project Name: Prince Pit #4

Well ID: OW21

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
-4 to 26	514 to 486		TOP SOIL SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet, some silt AMABEL FORMATION: Dolostone, buff to white, fossiliferous	

Drilling Date: Feb-17
Drilling Company: Highland Water Well Drilling
Geologist: Highland Water Well Drilling

Location: Township of Melancthon
Easting: 561,593
Northing: 4,888,681

STRADA AGGREGATES

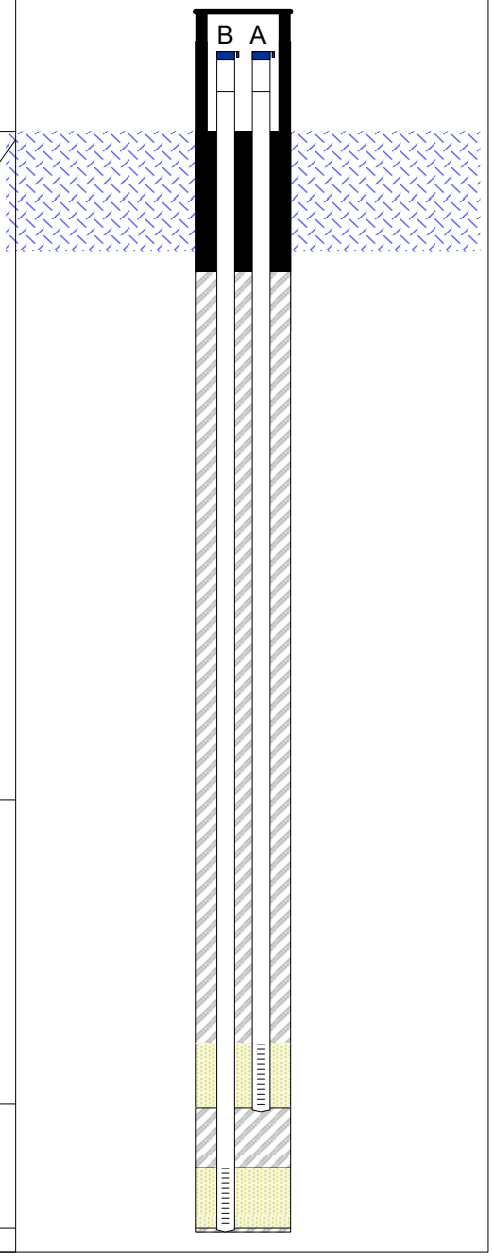
Whitewater Hydrogeology Ltd.

Project Name: Prince Pit #4

Well ID: OW22

Depth (m)	Elevation (masl)	Lithology	Lithology Description
0	516		
			TOP SOIL
2	514		
4	512		
6	510		
8	508		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet, some silt
10	506		
12	504		
14	502		
16	500		
18	498		
20	496		TAVISTOCK TILL: Grey, clay and silt with stones, dense to soft, damp, silt and gravel layer at base
22	494		
24	492		
26	490		
28	488		AMABEL FORMATION: Dolostone, buff to white, fossiliferous
	486		

Well Construction Diagram



Drilling Date: Feb-17

Drilling Company: Highland Water Well Drilling

Geologist: Highland Water Well Drilling

Location: Township of Melancthon

Easting: 561,384

Northing: 4,888,891

STRADA AGGREGATES

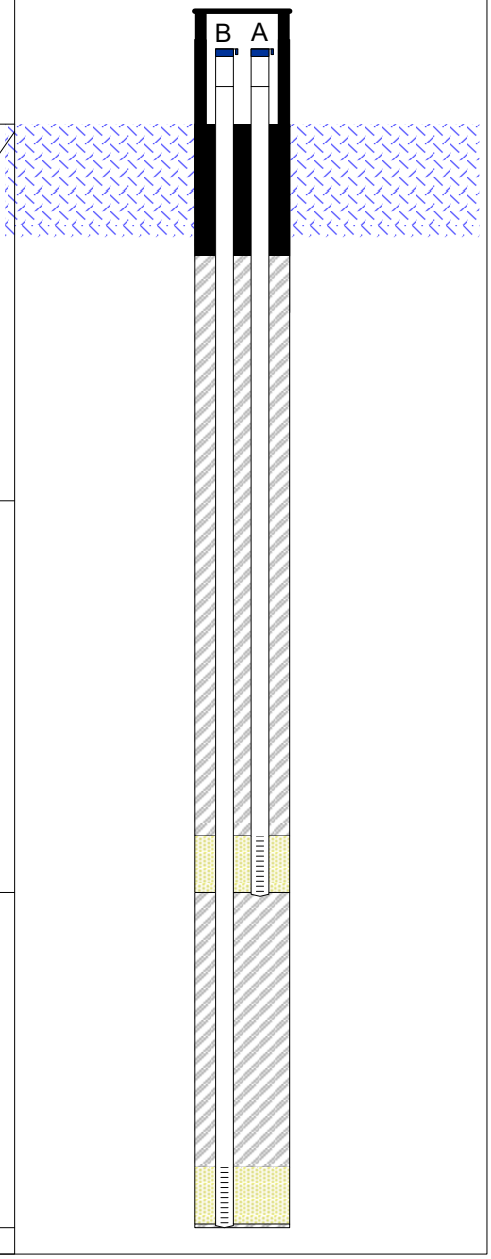
Whitewater Hydrogeology Ltd.

Project Name: Prince Pit #4

Well ID: OW23

Depth (m)	Elevation (masl)	Lithology	Lithology Description
0	512		
2	510		TOP SOIL
4	508		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet, some silt
6	506		
8	504		
10	502		
12	500		TAVISTOCK TILL: Grey, clay and silt with stones, dense to soft, damp,
14	498		
16	496		
18	494		
20	492		
22	490		AMABEL FORMATION: Dolostone, buff to white, fossiliferous
24	488		
26	486		
28	484		
30	482		
	480		

Well Construction Diagram



Drilling Date: Feb-17

Drilling Company: Highland Water Well Drilling

Geologist: Highland Water Well Drilling

Location: Township of Melancthon

Easting: 560,938

Northing: 4,888,788

STRADA AGGREGATES

APPENDIX C

WATER BALANCE

Date	PET	P	P-PET	Soil Moisture	AET	PET-AET	Snow Storage	Surplus	ROtotal
Mar-62	16.5	39.7	-16.5	117.1	32.9	-16.5	39.7	0	5.1
Aug-62	78.1	120.6	62.4	75	78.1	0	19.8	104.5	25
Apr-62	33.9	141.7	117.7	75	33.9	0	9.9	117.7	43.5
Jan-62	8	155.2	-8	67	8	0	165.1	0	34.8
Jun-62	79.6	166.3	169.2	75	79.6	0	82.5	161.3	60.1
May-62	67.7	188.4	162	75	67.7	0	41.3	162	80.5
Dec-62	9.5	230	-9.5	65.5	9.5	0	271.3	0	64.4
Feb-62	8.4	257.1	-8.4	58.2	7.3	1.1	528.4	0	51.5
Sep-62	5.5	288.3	-5.5	53.9	4.3	1.2	816.7	0	41.2
Jul-62	83.4	293.2	618.2	75	83.4	0	408.4	597.2	152.4
Nov-62	15.3	378.3	379.6	75	15.3	0	391.8	379.6	197.8
Oct-62	31.4	433.6	598.1	75	31.4	0	195.9	598.1	277.9
Jun-63	81.8	48.7	64.8	75	81.8	0	97.9	64.8	235.3
Feb-63	7.5	53.9	-7.5	67.5	7.5	0	151.9	0	188.2
Oct-63	4.9	59.4	-4.9	63	4.4	0.5	211.2	0	150.6
Jan-63	7.5	82.6	-7.5	56.7	6.3	1.2	293.8	0	120.5
Mar-63	18.1	185.2	43.5	75	18.1	0	417.4	25.2	101.4
Dec-63	8	190	-8	67	8	0	607.4	0	81.1
Apr-63	4.2	198.3	-4.2	63.3	3.7	0.4	805.7	0	64.9
Sep-63	43.7	219.3	578.4	75	43.7	0	402.8	566.7	165.3
Jul-63	93.7	228.7	336.4	75	93.7	0	201.4	336.4	199.5
Nov-63	19.4	237	318.3	75	19.4	0	100.7	318.3	223.2
Aug-63	70.1	258.1	238.4	75	70.1	0	50.4	238.4	226.3
May-63	51.6	306.8	280.3	75	51.6	0	25.2	280.3	237.1
Sep-64	48.3	72	36.3	75	48.3	0	12.6	36.3	196.9
Nov-64	17.8	107.7	96.2	75	17.8	0	6.3	96.2	176.8
Feb-64	9.5	109.7	-9.5	65.5	9.5	0	116	0	141.4
Jun-64	78.7	112.7	92	75	78.7	0	58	82.5	129.6
Oct-64	27.7	117.1	118.4	75	27.7	0	29	118.4	127.4
May-64	63	192.3	143.7	75	63	0	14.5	143.7	130.7
Dec-64	10.6	211	-10.6	64.4	10.6	0	225.5	0	104.5
Jan-64	10.1	233.9	-10.1	55.7	8.7	1.4	459.3	0	83.6
Mar-64	17.5	237.4	17.2	72.9	17.5	0	662	0	66.9
Apr-64	31.4	239.7	539.3	75	31.4	0	331	537.2	161
Aug-64	67.3	439	537.3	75	67.3	0	165.5	537.3	236.2
Jul-64	99.3	492.3	475.7	75	99.3	0	82.8	475.7	284.1
Jun-65	74.3	117.7	84.7	75	74.3	0	41.4	84.7	244.2
Apr-65	26.4	160.7	125.4	75	26.4	0	50.3	125.4	220.5
Mar-65	14.8	161.9	-14.8	60.2	14.8	0	212.2	0	176.4
Jul-65	77.9	189	217.2	75	77.9	0	106.1	202.4	181.6
Dec-65	12.2	239.7	47	75	12.2	0	286.6	47	154.6
May-65	62.2	242.3	323.3	75	62.2	0	143.3	323.3	188.4
Sep-65	51.6	269.7	289.7	75	51.6	0	71.6	289.7	208.6
Jan-65	8.4	286.4	-8.4	66.6	8.4	0	358.1	0	166.9
Aug-65	73.5	311.3	416.8	75	73.5	0	179	408.4	215.2
Nov-65	16.1	311.7	308.1	75	16.1	0	166.6	308.1	233.8
Feb-65	9.8	345	-9.8	65.2	9.8	0	511.6	0	187
Oct-65	3.7	390.6	-3.7	62	3.2	0.5	902.2	0	149.6
Jul-66	97.7	130.3	483.7	75	97.7	0	451.1	470.7	213.8
Feb-66	10.4	132.9	-10.4	64.6	10.4	0	584	0	171.1
Apr-66	28.9	160.3	421.6	75	28.9	0	293.9	411.1	219.1
Oct-66	28.7	169	287.3	75	28.7	0	146.9	287.3	232.7

Date	PET	P	P-PET	Soil Moisture	AET	PET-AET	Snow Storage	Surplus	ROtotal
Mar-66	19.5	194.2	96.7	75	19.5	0	224.9	96.7	205.5
Jan-66	8.3	217.7	-8.3	66.7	8.3	0	442.6	0	164.4
May-66	47.6	222.6	396.3	75	47.6	0	221.3	388	209.1
Dec-66	1.4	232.9	-1.4	73.6	1.4	0	454.2	0	167.3
Aug-66	78.8	241	389.2	75	78.8	0	227.1	387.9	211.4
Sep-66	45.4	293.3	361.5	75	45.4	0	113.5	361.5	241.4
Jun-66	82.1	337.3	312	75	82.1	0	56.8	312	255.5
Nov-66	17.4	376	373.4	75	17.4	0	42	373.4	279.1
Mar-67	16.4	71.3	-16.4	58.6	16.4	0	113.3	0	223.3
May-67	44.3	145.8	158.1	75	44.3	0	56.7	141.7	207
Feb-67	8	167.1	-8	67	8	0	223.8	0	165.6
Jan-67	1.5	214.2	-1.5	65.7	1.3	0.2	438	0	132.5
Nov-67	14.3	222.3	198.1	75	14.3	0	447.9	188.8	143.7
Apr-67	32.1	249.3	441.2	75	32.1	0	223.9	441.2	203.2
Sep-67	45.4	253.3	319.9	75	45.4	0	112	319.9	226.6
Jul-67	86.8	254.2	223.3	75	86.8	0	56	223.3	225.9
Dec-67	11.1	284.8	-11.1	63.9	11.1	0	340.8	0	180.7
Oct-67	29.4	322.9	463.9	75	29.4	0	170.4	452.7	235.1
Aug-67	71.1	360.6	374.8	75	71.1	0	85.2	374.8	263.1
Jun-67	90	639.7	592.2	75	90	0	42.6	592.2	328.9
Apr-68	36.6	135	119.7	75	36.6	0	21.3	119.7	287.1
Mar-68	19.9	177.7	76.5	75	19.9	0	102.7	76.5	244.9
Jun-68	79.3	206.3	178.4	75	79.3	0	51.4	178.4	231.6
Jan-68	7.8	211.6	-7.8	67.2	7.8	0	263	0	185.3
Oct-68	33.6	217.1	315	75	33.6	0	131.5	307.2	209.7
Jul-68	92.4	221.3	194.6	75	92.4	0	65.7	194.6	206.7
Dec-68	9.3	237.4	-9.3	65.7	9.3	0	303.2	0	165.3
May-68	50	298.7	400.3	75	50	0	151.6	391	210.5
Nov-68	16	359	330.3	75	16	0	164.3	330.3	234.4
Sep-68	56	418.3	444.5	75	56	0	82.2	444.5	276.5
Aug-68	78.4	485.2	447.8	75	78.4	0	41.1	447.8	310.7
Sep-69	51.3	53	22.2	75	51.3	0	20.5	22.2	253
Feb-69	10	140.4	-10	65	10	0	160.9	0	202.4
Dec-69	9	168.4	-9	57.2	7.8	1.2	329.3	0	161.9
Jul-69	89.9	181	255.8	75	89.9	0	164.6	238	177.1
Mar-69	15.9	181.3	-15.9	59.1	15.9	0	345.9	0	141.7
Aug-69	86.7	181.9	268.2	75	86.7	0	173	252.3	163.8
Jan-69	9.3	205.5	-9.3	65.7	9.3	0	378.4	0	131.1
Oct-69	29	264.5	424.7	75	29	0	189.2	415.4	187.9
May-69	54.9	271	310.7	75	54.9	0	94.6	310.7	212.5
Jun-69	73.2	285.7	259.7	75	73.2	0	47.3	259.7	221.9
Nov-69	17	342.7	323.5	75	17	0	49.5	323.5	242.2
Apr-69	34.4	391.7	382	75	34.4	0	24.8	382	270.2
Feb-70	9.1	82.5	-9.1	65.9	9.1	0	107.3	0	216.2
Jan-70	7.1	146.1	-7.1	59.7	6.2	0.9	253.4	0	172.9
Mar-70	15.1	157.1	-15.1	47.7	12.1	3.1	410.5	0	138.3
Jun-70	80.3	179	304	75	80.3	0	205.2	276.6	166
Nov-70	17.5	191	269.4	75	17.5	0	109.3	269.4	186.7
May-70	60	228.7	223.4	75	60	0	54.7	223.4	194
Apr-70	33	241.7	236	75	33	0	27.3	236	202.4
Dec-70	9.2	259.4	-9.2	65.8	9.2	0	286.7	0	161.9
Aug-70	80.4	278.7	341.6	75	80.4	0	143.3	332.5	196

Date	PET	P	P-PET	Soil Moisture	AET	PET-AET	Snow Storage	Surplus	ROtotal
Jul-70	96.7	293.2	268.2	75	96.7	0	71.7	268.2	210.5
Oct-70	32.3	327.1	330.7	75	32.3	0	35.8	330.7	234.5
Sep-70	52.2	369.3	335.1	75	52.2	0	17.9	335.1	254.6
Sep-71	57.6	73	24.3	75	57.6	0	9	24.3	208.6
Apr-71	28.7	86.7	61.5	75	28.7	0	5.4	61.5	179.2
May-71	54.8	99.7	50.2	75	54.8	0	0	50.2	153.4
Mar-71	14.9	118.7	-14.9	60.1	14.9	0	118.7	0	122.7
Oct-71	38.7	121.9	142.6	75	38.7	0	59.4	127.8	123.7
Jan-71	7.6	142.3	-7.6	67.4	7.6	0	201.6	0	99
Nov-71	16.2	149.7	187.4	75	16.2	0	147.6	179.9	115.1
Feb-71	10.3	240.7	-10.3	64.7	10.3	0	388.3	0	92.1
Jun-71	86.9	272	379.3	75	86.9	0	194.2	369	147.5
Jul-71	87.5	281	290.5	75	87.5	0	97.1	290.5	176.1
Aug-71	76	314.5	287	75	76	0	48.5	287	198.3
Dec-71	11.8	343.2	16.5	75	11.8	0	363.5	16.5	161.9
Jul-72	93.8	119	207	75	93.8	0	181.8	207	170.9
Aug-72	77.1	137.4	151.2	75	77.1	0	90.9	151.2	167
Sep-72	53.1	168.7	161	75	53.1	0	45.4	161	165.8
May-72	61.9	181.3	142.1	75	61.9	0	22.7	142.1	161.1
Jan-72	9.2	181.9	-9.2	65.8	9.2	0	204.7	0	128.8
Feb-72	8.7	193.8	-8.7	58.2	7.7	1.1	398.4	0	103.1
Apr-72	26	200.7	280.9	75	26	0	292.2	264.1	135.3
Nov-72	14.7	207	183	75	14.7	0	301.5	183	144.8
Mar-72	14	283.6	-14	61	14	0	585	0	115.9
Jun-72	72.4	365.3	585.4	75	72.4	0	292.5	571.4	207
Oct-72	25.7	375.2	495.8	75	25.7	0	146.3	495.8	264.7
Dec-72	10.7	400.3	-10.7	64.3	10.7	0	546.6	0	211.8
Jan-73	10.2	142.6	-10.2	55.6	8.7	1.5	689.2	0	169.4
Jul-73	98.3	148.1	394.3	75	98.3	0	344.6	374.9	210.5
Feb-73	8.6	153.2	-8.6	66.4	8.6	0	497.8	0	168.4
Sep-73	52	166.7	363.6	75	52	0	248.9	355	205.7
Dec-73	10.2	243.9	-10.2	64.8	10.2	0	492.8	0	164.6
Apr-73	34.3	256	468.1	75	34.3	0	246.4	457.9	223.2
Jun-73	88.8	259.3	293.8	75	88.8	0	123.2	293.8	237.3
Nov-73	16.9	297.7	310.4	75	16.9	0	93.6	310.4	252
Oct-73	33.9	307.4	320.3	75	33.9	0	46.8	320.3	265.6
Mar-73	23.7	316.4	289.1	75	23.7	0	50.4	289.1	270.3
May-73	52.4	316.4	289.3	75	52.4	0	25.2	289.3	274.1
Aug-73	92.8	373.2	293.1	75	92.8	0	12.6	293.1	277.9
Jul-74	97	107.7	17	75	97	0	6.3	17	225.7
Oct-74	28.1	117.7	95.9	75	28.1	0	0	95.9	199.8
Dec-74	12	134.5	8.1	75	12	0	114.4	8.1	161.4
Sep-74	47.9	169.7	179	75	47.9	0	57.2	179	164.9
Mar-74	17.3	194.8	-7.3	67.7	17.3	0	242	0	132
Jun-74	80	216.7	257.7	75	80	0	121	250.4	155.6
Feb-74	8.4	248.6	-8.4	66.6	8.4	0	369.6	0	124.5
Aug-74	84.1	311.6	412.3	75	84.1	0	184.8	403.9	180.4
Jan-74	9.7	330.3	-9.7	65.3	9.7	0	515.1	0	144.3
Nov-74	17.1	334	528	75	17.1	0	304	518.3	219.1
May-74	50.3	342.6	444.2	75	50.3	0	152	444.2	264.1
Apr-74	35.3	347.3	388	75	35.3	0	76	388	288.9

Date	PET	P	P-PET	Soil Moisture		AET	PET-AET	Snow Storage	Surplus	ROtotal
Oct-75	32.2	91.9	97.7	75		32.2	0	38	97.7	250.7
Jan-75	10.8	169.4	-10.8	64.2		10.8	0	207.3	0	200.5
Nov-75	21	175	257.7	75		21	0	103.7	246.8	209.8
May-75	72.2	191.6	171.2	75		72.2	0	51.8	171.2	202.1
Apr-75	25.3	192.7	136.8	75		25.3	0	82.4	136.8	189
Mar-75	15.5	214.2	-15.5	59.5		15.5	0	296.6	0	151.2
Sep-75	45.1	217.3	320.6	75		45.1	0	148.3	305.1	182
Jun-75	88.2	221.7	207.7	75		88.2	0	74.2	207.7	187.1
Dec-75	1.3	268.4	-1.3	73.7		1.3	0	342.5	0	149.7
Jul-75	100.3	274.5	345.5	75.0	1	0.3	0	171.3	344.2	188.6
Feb-75	10.8	323.6	-10.8	64.2		10.8	0	494.8	0	150.9
Aug-75	81.8	380.6	546.3	75		81.8	0	247.4	535.5	227.8
Nov-76	13.4	119.3	57.2	75		13.4	0	296.2	57.2	193.7
Dec-76	8	134.5	-8	67		8	0	430.7	0	154.9
Oct-76	25	240.6	431	75		25	0	215.3	423	208.6
Apr-76	36	242	313.6	75		36	0	107.7	313.6	229.6
Jun-76	90.3	254.3	217.9	75		90.3	0	53.8	217.9	227.2
May-76	52.7	275.5	249.7	75		52.7	0	26.9	249.7	231.7
Jan-76	7.5	286.1	-7.5	67.5		7.5	0	313	0	185.4
Feb-76	1.4	314.1	-1.4	66.2		1.3	0.1	627.2	0	148.3
Mar-76	19.2	342.6	222	75		19.2	0	728.5	213.2	161.3
Jul-76	90.8	364.2	637.6	75		90.8	0	364.3	637.6	256.6
Sep-76	49.1	389	522	75		49.1	0	182.1	522	309.6
May-77	66.3	76.4	101.3	75		66.3	0	91.1	101.3	268
Feb-77	9.6	118.9	-9.6	65.4		9.6	0	210	0	214.4
Apr-77	36.5	135.7	204.2	75		36.5	0	105	194.6	210.4
Jan-77	6.6	234.5	-6.6	68.4		6.6	0	339.5	0	168.3
Jun-77	75.3	243.3	337.8	75		75.3	0	169.8	331.2	200.9
Mar-77	21.3	274.8	222.5	75		21.3	0	200.8	222.5	205.2
Oct-77	28.2	280	352.2	75		28.2	0	100.4	352.2	234.6
Nov-77	17.4	286.3	306.7	75		17.4	0	62.7	306.7	249
Jul-77	100.8	291.3	221.8	75.0	1	0.8	0	31.3	221.8	243.6
Dec-77	9.6	369.7	-9.6	65.4		9.6	0	401	0	194.9
Sep-77	51.1	476.3	625.8	75		51.1	0	200.5	616.2	279.1
Aug-77	76.7	529	552.6	75		76.7	0	100.3	552.6	333.8
Feb-78	7.4	61.4	-7.4	67.6		7.4	0	161.7	0	267.1
Jul-78	95.5	76.8	62.1	75		95.5	0	80.8	54.7	224.6
Oct-78	28.9	145.8	157.4	75		28.9	0	40.4	157.4	211.1
Mar-78	14.7	161.3	-14.7	60.3		14.7	0	201.7	0	168.9
Apr-78	28.1	205.3	260.5	75		28.1	0	118.5	245.7	184.3
Nov-78	16.2	210.3	207.8	75		16.2	0	104.8	207.8	189
Jun-78	80.4	216	188	75		80.4	0	52.4	188	188.8
Dec-78	10.6	234.8	-10.6	64.4		10.6	0	287.2	0	151
Jan-78	7.9	266.1	-7.9	57.7		6.7	1.1	553.4	0	120.8
May-78	60.7	323.2	539.2	75		60.7	0	276.7	521.9	201
Aug-78	82.8	496.1	551.6	75		82.8	0	138.3	551.6	271.2
Sep-78	49.2	507.3	527.3	75		49.2	0	69.2	527.3	322.4
Jul-79	94.8	80.6	20.4	75		94.8	0	34.6	20.4	262
Feb-79	6.9	104.3	-6.9	68.1		6.9	0	138.9	0	209.6
Sep-79	50.9	124.7	143.2	75		50.9	0	69.4	136.3	194.9
Jan-79	8.2	216.8	-8.2	66.8		8.2	0	286.2	0	155.9
Jun-79	81.5	261.3	322.9	75		81.5	0	143.1	314.7	187.7

Date	PET	P	P-PET	Soil Moisture	AET	PET-AET	Snow Storage	Surplus	ROtotal
Mar-79	20.5	269	177.7	75	20.5	0	213.9	177.7	185.7
May-79	55.7	281.9	333.2	75	55.7	0	107	333.2	215.2
Aug-79	75.4	287.7	265.8	75	75.4	0	53.5	265.8	225.3
Dec-79	11.6	294.2	-7.7	67.3	11.6	0	343.8	0	180.3
Oct-79	28.7	361.9	505.1	75	28.7	0	171.9	497.4	243.7
Nov-79	17	368	402.4	75	17	0	120.5	402.4	275.4
Apr-79	29.9	380.7	411	75	29.9	0	60.2	411	302.5
Feb-80	8.5	66.6	-8.5	66.5	8.5	0	126.8	0	242
May-80	63	110.3	110.7	75	63	0	63.4	102.2	214.1
Aug-80	87.7	148.4	92.4	75	87.7	0	31.7	92.4	189.7
Jan-80	9.5	152.9	-9.5	65.5	9.5	0	184.6	0	151.8
Nov-80	15	169.3	149	75	15	0	189.9	139.5	149.3
Dec-80	8.3	191.6	-8.3	66.7	8.3	0	381.5	0	119.5
Mar-80	16.4	206.4	-16.4	52.2	14.6	1.8	588	0	95.6
Oct-80	25.2	212.9	481.7	75	25.2	0	294	458.8	168.2
Sep-80	48.9	286.7	384.7	75	48.9	0	147	384.7	211.5
Jun-80	69.7	340	343.8	75	69.7	0	73.5	343.8	238
Apr-80	32.5	372.3	376.6	75	32.5	0	36.7	376.6	265.7
Jul-80	95.8	503.9	426.4	75	95.8	0	18.4	426.4	297.8
Jan-81	7.1	41.9	-7.1	67.9	7.1	0	60.3	0	238.3
Mar-81	18.5	100.6	16.5	75	18.5	0	125.9	9.4	192.5
Dec-81	10.6	143.9	-10.6	64.4	10.6	0	269.8	0	154
Apr-81	34.8	145.3	245.4	75	34.8	0	134.9	234.8	170.2
Feb-81	12.5	191.8	-12.5	62.5	12.5	0	326.7	0	136.1
May-81	54.2	193.6	302.7	75	54.2	0	163.3	290.3	167
Nov-81	16.7	206	238.4	75	16.7	0	114.2	238.4	181.2
Oct-81	25.8	295.5	326.8	75	25.8	0	57.1	326.8	210.4
Sep-81	49.1	296	275.5	75	49.1	0	28.6	275.5	223.4
Jun-81	83.1	339.3	270.5	75	83.1	0	14.3	270.5	232.8
Jul-81	96.4	372.3	283	75	96.4	0	7.1	283	242.9
Aug-81	78.4	438.7	367.4	75	78.4	0	0	367.4	267.8
Feb-82	9	75	-9	66	9	0	75	0	214.2
Oct-82	31	132.9	139.4	75	31	0	37.5	130.4	197.5
Apr-82	29.2	186.7	176.2	75	29.2	0	18.8	176.2	193.2
May-82	69.8	195.5	135.1	75	69.8	0	9.4	135.1	181.6
Jan-82	7	203.9	-7	68	7	0	213.2	0	145.3
Mar-82	16.4	226.4	-16.4	53.1	14.9	1.5	439.7	0	116.2
Jul-82	97.3	270.3	392.9	75	97.3	0	219.8	371	167.2
Dec-82	13.1	329.7	174.1	75	13.1	0	362.3	174.1	168.6
Sep-82	49.7	369.3	500.8	75	49.7	0	181.1	500.8	235
Aug-82	70.5	427.7	447.8	75	70.5	0	90.6	447.8	277.6
Jun-82	71.1	442	416.1	75	71.1	0	45.3	416.1	305.3
Nov-82	17.4	448	440.3	75	17.4	0	35.5	440.3	332.3
Feb-83	11.8	115	-11.8	63.2	11.8	0	150.5	0	265.8
Jun-83	83.1	116.7	108.9	75	83.1	0	75.3	97.1	232.1
Jan-83	10.1	121.3	-10.1	64.9	10.1	0	196.6	0	185.7
Sep-83	56.3	144.7	186.6	75	56.3	0	98.3	176.6	183.8
Mar-83	19.4	212.9	91.1	75	19.4	0	200.7	91.1	165.3
Jul-83	105.6	243.2	238	75.0 1	5.6	0	100.3	238	179.8
Nov-83	16.7	256.7	256.5	75	16.7	0	83.9	256.5	195.2
Aug-83	88.8	261.9	215.1	75	88.8	0	41.9	215.1	199.1
Oct-83	30.1	264.5	255.4	75	30.1	0	21	255.4	210.4

Date	PET	P	P-PET	Soil Moisture	AET	PET-AET	Snow Storage	Surplus	ROtotal
Dec-83	8.8	310	-8.8	66.2	8.8	0	331	0	168.3
Apr-83	30.6	320.7	455.5	75	30.6	0	165.5	446.8	224
May-83	49.4	407.7	441.1	75	49.4	0	82.7	441.1	267.4
Jan-84	7.7	133.9	-7.7	67.3	7.7	0	216.6	0	213.9
Jul-84	92.9	159.4	174.8	75	92.9	0	108.3	167.1	204.6
Oct-84	32.7	160	181.4	75	32.7	0	54.2	181.4	199.9
Apr-84	4.3	167.3	-4.3	70.7	4.3	0	221.5	0	159.9
Jun-84	84.9	182	207.8	75	84.9	0	110.7	203.5	168.7
Aug-84	89.6	238.1	203.9	75	89.6	0	55.4	203.9	175.7
Mar-84	14	244.5	-14	61	14	0	299.9	0	140.6
Feb-84	13.2	255.2	25.1	75	13.2	0	516.7	11.1	114.7
Nov-84	16.2	261.3	401.8	75	16.2	0	360	401.8	172.1
May-84	31.6	265.2	337.7	75	31.6	0	255.8	337.7	205.2
Sep-84	46.4	289	370.5	75	46.4	0	127.9	370.5	238.3
Dec-84	12.5	315.2	90.9	75	12.5	0	339.7	90.9	208.8
Jun-85	73.2	88.7	185.3	75	73.2	0	169.8	185.3	204.1
Apr-85	37.5	144.3	191.7	75	37.5	0	84.9	191.7	201.6
Dec-85	9.2	189.7	-9.2	65.8	9.2	0	274.6	0	161.3
Jul-85	93.6	192.3	235.9	75	93.6	0	137.3	226.7	174.4
Oct-85	30.4	201.3	239.5	75	30.4	0	68.6	239.5	187.4
Jan-85	8.1	204.2	-8.1	66.9	8.1	0	272.8	0	149.9
Mar-85	18.4	308.7	90.8	75	18.4	0	472.3	82.8	136.5
Nov-85	16.2	382	483.2	75	16.2	0	354.9	483.2	205.8
Feb-85	9.8	388.9	-9.8	65.2	9.8	0	743.8	0	164.7
Sep-85	56.8	396.3	711.4	75	56.8	0	371.9	701.6	272.1
Aug-85	79.1	479.7	586.5	75	79.1	0	186	586.5	335
Jan-86	9.4	99.4	-9.4	65.6	9.4	0	285.3	0	268
Nov-86	14.9	111.3	131.9	75	14.9	0	249.8	122.6	238.9
Dec-86	11.4	173.6	-11.4	63.6	11.4	0	423.4	0	191.1
Mar-86	19.9	191.3	162.2	75	19.9	0	432.6	150.7	183
Apr-86	37.3	210.3	389.4	75	37.3	0	216.3	389.4	224.3
Feb-86	9.3	229.6	-9.3	65.7	9.3	0	446	0	179.4
May-86	67.1	232.6	388.5	75	67.1	0	223	379.2	219.4
Jun-86	76.1	356.3	391.7	75	76.1	0	111.5	391.7	253.9
Jul-86	102	393.6	347.3	75.0 1	2	0	55.7	347.3	272.5
Aug-86	75.4	469.7	422.1	75	75.4	0	27.9	422.1	302.5
Sep-86	50.8	729.7	692.8	75	50.8	0	13.9	692.8	380.5
Feb-87	9.9	71.4	-9.9	65.1	9.9	0	85.4	0	304.4
May-87	66.7	108.4	84.4	75	66.7	0	42.7	74.4	258.4
Dec-87	12	144.8	13	75	12	0	162.5	13	209.3
Jun-87	89.2	206.7	198.7	75	89.2	0	81.3	198.7	207.2
Mar-87	20.6	221.6	135.2	75	20.6	0	147.1	135.2	192.8
Jan-87	9.8	227.1	-9.8	65.2	9.8	0	374.2	0	154.2
Sep-87	53.3	228.3	362.1	75	53.3	0	187.1	352.4	193.9
Oct-87	26.5	256.4	323.5	75	26.5	0	93.6	323.5	219.8
Apr-87	39.3	283.3	290.8	75	39.3	0	46.8	290.8	234
Aug-87	81.9	295.5	237	75	81.9	0	23.4	237	234.6
Jul-87	110.8	306.8	207.7	75.0 1	10.8	0	11.7	207.7	229.2
Nov-87	16.6	310.7	265.2	75	16.6	0	40.6	265.2	236.4
Mar-88	17.7	103.9	-3.6	71.4	17.7	0	130.5	0	189.1
Dec-88	10.3	119.4	-10.3	61.6	9.8	0.5	249.8	0	151.3

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Jun-88	81.5	160.7	204	75		81.5	0	124.9	190.6	159.2
May-88	65.3	169	166.2	75		65.3	0	62.5	166.2	160.6
Jan-88	9.4	170.3	-9.4	65.6		9.4	0	232.8	0	128.4
Apr-88	32.5	196.3	280.2	75		32.5	0	116.4	270.8	156.9
Jul-88	110.1	197.4	145.6	75.0	1	10.1	0	58.2	145.6	154.6
Aug-88	90.8	235.5	173.8	75		90.8	0	29.1	173.8	158.5
Oct-88	25.5	301.6	290.7	75		25.5	0	14.5	290.7	184.9
Feb-88	9.2	315.2	-9.2	65.8		9.2	0	329.7	0	147.9
Nov-88	17.9	339.7	486.6	75		17.9	0	164.9	477.4	213.8
Sep-88	50.6	353.7	385.5	75		50.6	0	82.4	385.5	248.2
Jul-89	100.3	84.5	25.4	75.0	1	0.3	0	41.2	25.4	203.6
Dec-89	6.7	132.3	-6.7	68.3		6.7	0	173.5	0	162.9
Sep-89	51.3	132.3	167.8	75		51.3	0	86.7	161.1	162.5
Feb-89	9	141.4	-9	66		9	0	228.2	0	130
Jan-89	11.4	158.1	-11.4	56		10	1.4	386.2	0	104
Apr-89	29.7	158.3	321.7	75		29.7	0	193.1	302.7	143.8
Mar-89	15.8	187.1	-15.8	59.2		15.8	0	380.2	0	115
Oct-89	30.4	242.6	402.3	75		30.4	0	190.1	386.5	169.3
Aug-89	80.3	324.5	339.3	75		80.3	0	95.1	339.3	203.3
May-89	58.4	342.6	331.7	75		58.4	0	47.5	331.7	229
Jun-89	85.6	440	378.1	75		85.6	0	23.8	378.1	258.8
Nov-89	14.8	515.3	320.2	75		14.8	0	204.1	320.2	271.1
Apr-90	37.7	165.3	229.7	75		37.7	0	102	229.7	262.8
Jan-90	12.2	194.2	-9.4	65.6		12.2	0	293.4	0	210.2
Mar-90	20	207.7	153.5	75		20	0	327.6	144.1	197
Feb-90	11	215	-11	64		11	0	542.6	0	157.6
Jul-90	95.2	259.4	435.4	75		95.2	0	271.3	424.4	211
Nov-90	18.3	277	394.3	75		18.3	0	135.6	394.3	247.6
Aug-90	82.2	284.2	269.8	75		82.2	0	67.8	269.8	252.1
Sep-90	50.6	303	286.3	75		50.6	0	33.9	286.3	258.9
Dec-90	11.8	316.1	17.1	75		11.8	0	321.1	17.1	210.6
Jun-90	84.9	366	441.7	75		84.9	0	160.6	441.7	256.8
May-90	54.4	400	425.8	75		54.4	0	80.3	425.8	290.6
Oct-90	29.3	433.6	444.4	75		29.3	0	40.1	444.4	321.3
Jun-91	92.6	147	74.4	75		92.6	0	20.1	74.4	272
Jan-91	9	154.8	-9	66		9	0	174.9	0	217.6
Sep-91	48.4	170.3	209.4	75		48.4	0	87.5	200.4	214.1
Nov-91	15.4	198.7	158.6	75		15.4	0	112.1	158.6	203
Dec-91	10.7	206.4	-10.7	64.3		10.7	0	318.5	0	162.4
May-91	73.6	211.6	297.3	75		73.6	0	159.3	286.6	187.3
Feb-91	11.9	226.1	-11.9	63.1		11.9	0	385.3	0	149.8
Aug-91	88.7	247.1	351.1	75		88.7	0	192.7	339.2	187.7
Jul-91	99.5	300	296.8	75		99.5	0	96.3	296.8	209.5
Oct-91	32.6	323.2	338.8	75		32.6	0	48.2	338.8	235.3
Mar-91	20.2	342.3	181.3	75		20.2	0	189	181.3	224.5
Apr-91	37.8	445.3	502	75		37.8	0	94.5	502	280
Jan-92	10.2	137.1	-10.2	64.8		10.2	0	231.6	0	224
Oct-92	26.3	156.8	246.3	75		26.3	0	115.8	236.1	226.4
Feb-92	10.9	159.3	-10.9	64.1		10.9	0	275.1	0	181.1
Mar-92	2.3	169.7	-2.3	62.1		1.9	0.3	444.8	0	144.9
Jun-92	72.1	184.7	335	75		72.1	0	222.4	322.1	180.4
Dec-92	11.5	227.7	-11.5	63.5		11.5	0	450.1	0	144.3

Date	PET	P	P-PET	Soil Moisture	AET	PET-AET	Snow Storage	Surplus	ROtotal
May-92	57	276.1	444.2	75	57	0	225.1	432.7	202
Sep-92	49.7	304.7	367.5	75	49.7	0	112.5	367.5	235.1
Apr-92	30.9	357.3	382.7	75	30.9	0	56.3	382.7	264.6
Jul-92	80.6	408.4	355.9	75	80.6	0	28.1	355.9	282.9
Nov-92	15.7	557.3	427.9	75	15.7	0	141.8	427.9	311.9
Aug-92	71.3	560.6	560.2	75	71.3	0	70.9	560.2	361.6
Dec-93	10.6	64.5	-10.6	64.4	10.6	0	135.4	0	289.2
Mar-93	15.7	107.1	-15.7	50.9	13.5	2.2	242.5	0	231.4
Feb-93	7.9	121.4	-7.9	45.6	5.3	2.5	364	0	185.1
Aug-93	86.9	175.5	270.6	75	86.9	0	182	241.2	196.3
May-93	55.6	198.7	234.1	75	55.6	0	91	234.1	203.9
Nov-93	15.7	211.3	177.6	75	15.7	0	109.1	177.6	198.6
Sep-93	44	229.3	239.9	75	44	0	54.6	239.9	206.9
Oct-93	27.5	233.2	233	75	27.5	0	27.3	233	212.1
Apr-93	33.3	252	232.4	75	33.3	0	13.6	232.4	216.1
Jul-93	100	259.4	166.2	75.0 1	0	0	6.8	166.2	206.2
Jan-93	10.1	277.1	-10.1	64.9	10.1	0	283.9	0	164.9
Jun-93	77.2	371.3	436.1	75	77.2	0	142	425.9	217.1
Feb-94	8.1	64.3	-8.1	66.9	8.1	0	206.2	0	173.7
Mar-94	17.2	114.2	-14.9	53.6	15.6	1.6	318.2	0	139
Dec-94	12.3	123.9	39.7	75	12.3	0	390.1	18.3	114.8
Aug-94	74.6	161.3	281.7	75	74.6	0	195	281.7	148.2
Jun-94	86.5	164.7	175.6	75	86.5	0	97.5	175.6	153.7
Jul-94	98.9	176.4	126.3	75	98.9	0	48.8	126.3	148.2
Oct-94	30.8	191.9	185.5	75	30.8	0	24.4	185.5	155.7
Sep-94	50.4	210	171.8	75	50.4	0	12.2	171.8	158.9
Jan-94	6.1	222.6	-6.1	68.9	6.1	0	234.8	0	127.1
Nov-94	18.6	236.7	335.4	75	18.6	0	117.4	329.3	167.6
Apr-94	34.7	291.3	315.3	75	34.7	0	58.7	315.3	197.1
May-94	53	347.1	323.4	75	53	0	29.3	323.4	222.4
Feb-95	8.6	86.4	-8.6	66.4	8.6	0	115.8	0	177.9
Sep-95	46.5	151.3	162.7	75	46.5	0	57.9	154.1	173.1
Aug-95	92	200.6	137.6	75	92	0	28.9	137.6	166
Jul-95	102	212.6	125.1	75.0 1	2	0	14.5	125.1	157.8
May-95	57.4	245.8	195.6	75	57.4	0	7.2	195.6	165.4
Apr-95	27.5	310.7	262.2	75	27.5	0	28.2	262.2	184.7
Jan-95	11	377.1	-11	64	11	0	405.3	0	147.8
Oct-95	33	471.9	641.6	75	33	0	202.7	630.5	244.3
Nov-95	13.6	474	193	75	13.6	0	470.1	193	234.1
Nov-96	14.1	135.3	138.8	75	14.1	0	452.6	138.8	215
Feb-96	9.7	151	-9.7	65.3	9.7	0	603.6	0	172
Aug-96	84.1	167.7	385.4	75	84.1	0	301.8	375.7	212.8
Mar-96	15.5	202.6	-15.5	59.5	15.5	0	504.4	0	170.2
Oct-96	29.7	210.3	432.8	75	29.7	0	252.2	417.3	219.6
Jan-96	8.5	215.5	-8.5	66.5	8.5	0	467.7	0	175.7
May-96	53.6	300	480.3	75	53.6	0	233.8	471.8	234.9
Apr-96	28.3	326	396.7	75	28.3	0	134.8	396.7	267.3
Dec-96	12.3	347.4	81	75	12.3	0	389	81	230
Jul-96	89.6	362.6	467.4	75	89.6	0	194.5	467.4	277.5
Jun-96	86.7	497.3	507.9	75	86.7	0	97.2	507.9	323.6
Sep-96	51.6	517	514	75	51.6	0	48.6	514	361.7

Date	PET	P	P-PET	Soil Moisture	AET	PET-AET	Snow Storage	Surplus	ROtotal
Apr-97	31	98.7	92	75	31	0	24.3	92	307.7
Dec-97	11.7	98.7	-7.2	67.8	11.7	0	118.5	0	246.2
Jul-97	93.9	188.1	153.4	75	93.9	0	59.3	146.2	226.2
Aug-97	73.8	233.9	189.7	75	73.8	0	29.6	189.7	218.9
Nov-97	15.2	235.3	157.4	75	15.2	0	92.4	157.4	206.6
Jun-97	93.1	265.7	218.7	75	93.1	0	46.2	218.7	209
Mar-97	16.8	271	-16.8	58.2	16.8	0	317.2	0	167.2
Feb-97	11.4	277.1	-11.4	49.4	8.8	2.5	594.3	0	133.8
Jan-97	8.7	282.3	-8.7	43.6	5.8	3	876.6	0	107
May-97	46	292.9	685.2	75	46	0	438.3	653.9	216.4
Oct-98	30.9	43.9	232.1	75	30.9	0	219.1	232.1	219.5
Apr-98	36.1	130.7	204.1	75	36.1	0	109.6	204.1	216.5
Feb-98	13.4	145.7	15.3	75	13.4	0	226.5	15.3	176.2
Sep-98	55.2	146.7	204.7	75	55.2	0	113.3	204.7	181.9
Jul-98	96	154.2	114.9	75	96	0	56.6	114.9	168.5
May-98	75.3	182.9	135.9	75	75.3	0	28.3	135.9	162
Jun-98	84.6	190	119.6	75	84.6	0	14.2	119.6	153.5
Aug-98	86	311	232.1	75	86	0	7.1	232.1	169.2
Mar-98	20.1	380	189.4	75	20.1	0	177.6	189.4	173.2
Jan-98	11.1	416.8	-11.1	63.9	11.1	0	594.4	0	138.6
Mar-99	22.6	50	239.7	75	22.6	0	382.1	228.6	156.6
Feb-99	20	145	316.1	75	20	0	191.1	316.1	188.5
Apr-99	24.8	160.7	144.2	75	24.8	0	182.8	144.2	179.6
Dec-99	11.7	177.4	2.4	75	11.7	0	346	2.4	144.2
Oct-99	29.7	206.8	350.1	75	29.7	0	173	350.1	185.4
Aug-99	77.8	228.1	236.8	75	77.8	0	86.5	236.8	195.7
Jun-99	35	229	230.2	75	35	0	50.3	230.2	202.6
Sep-99	55.5	238.7	208.4	75	55.5	0	25.2	208.4	203.7
May-99	31.5	274.2	213.2	75	31.5	0	54.6	213.2	205.6
Nov-99	18.9	341.3	349.7	75	18.9	0	27.3	349.7	234.4
Oct-00	33.5	95.5	75.6	75	33.5	0	13.7	75.6	202.7
Mar-00	23.6	131	102.9	75	23.6	0	18.1	102.9	182.7
Jan-00	9.5	148.7	-9.5	65.5	9.5	0	166.8	0	146.2
Feb-00	12	192.1	-12	55	10.5	1.5	358.9	0	116.9
Nov-00	16.1	218	299.5	75	16.1	0	261.2	279.5	149.5
Aug-00	78.9	220.6	272.3	75	78.9	0	130.6	272.3	174
Apr-00	32.2	223.3	256.4	75	32.2	0	65.3	256.4	190.5
Jul-00	88.1	294.2	238.8	75	88.1	0	32.7	238.8	200.2
Sep-00	6.4	368.7	-6.4	68.6	6.4	0	401.3	0	160.1
May-00	63.1	531.9	669.5	75	63.1	0	200.7	663.1	260.7
Jun-00	85	730	745.3	75	85	0	100.3	745.3	357.6
Mar-01	17.3	98.4	-11.1	63.9	17.3	0	192.5	0	286.1
Dec-01	13.5	119.4	89.7	75	13.5	0	208.6	78.6	244.6
Apr-01	35.7	136.7	205.3	75	35.7	0	104.3	205.3	236.7
Aug-01	92.6	156.8	116.4	75	92.6	0	52.2	116.4	212.7
Feb-01	10.8	251.8	-10.8	64.2	10.8	0	304	0	170.1
May-01	63.9	255.5	343.5	75	63.9	0	152	332.7	202.7
Sep-01	51.8	281.3	305.5	75	51.8	0	76	305.5	223.2
Nov-01	20.9	285.3	302.4	75	20.9	0	38	302.4	239.1
Jun-01	85.5	314.7	248.2	75	85.5	0	19	248.2	240.9
Oct-01	30.8	484.8	463.5	75	30.8	0	9.5	463.5	285.4

Date	PET	P	P-PET	Soil Moisture	AET	PET-AET	Snow Storage	Surplus	ROtotal
Jan-02	12.4	101.6	-6.7	68.3	12.4	0	105.4	0	228.3
Dec-02	11	108.1	-11	58.3	10	1	213.5	0	182.7
Aug-02	87.9	112.9	131.8	75	87.9	0	106.7	115.1	169.2
Feb-02	12.4	163.6	-12.4	62.6	12.4	0	270.3	0	135.3
Mar-02	18.8	174.5	74.4	75	18.8	0	351.6	62	120.7
Sep-02	62.9	175	287.9	75	62.9	0	175.8	287.9	154.1
Nov-02	15.5	186.7	178	75	15.5	0	169	178	158.9
Jul-02	111.4	214.8	187.9	75.0 1	11.4	0	84.5	187.9	164.7
Jun-02	86.3	249.3	205.3	75	86.3	0	42.3	205.3	172.8
Oct-02	27.6	251.6	245.2	75	27.6	0	21.1	245.2	187.3
May-02	50	359.4	319.9	75	50	0	10.6	319.9	213.8
Apr-02	34.8	375	345.5	75	34.8	0	5.3	345.5	240.1
Jan-03	7.8	93.6	-7.8	67.2	7.8	0	98.8	0	192.1
Apr-03	30.5	112	130.9	75	30.5	0	49.4	123	178.3
Mar-03	17.9	124.5	5.9	75	17.9	0	150.1	5.9	143.8
Jul-03	97.2	125.2	103	75	97.2	0	75.1	103	135.7
Feb-03	8.4	180.4	-8.4	66.6	8.4	0	255.4	0	108.5
Jun-03	83.5	257.7	301.9	75	83.5	0	127.7	293.5	145.5
Dec-03	12	260	26.4	75	12	0	349.4	26.4	121.7
Oct-03	28.1	308.4	454.9	75	28.1	0	174.7	454.9	188.3
May-03	55.5	308.4	340.2	75	55.5	0	87.3	340.2	218.7
Aug-03	88.6	322.3	277.3	75	88.6	0	43.7	277.3	230.4
Sep-03	52.6	359.3	328.5	75	52.6	0	21.8	328.5	250
Nov-03	18	388	380.9	75	18	0	10.9	380.9	276.2
Feb-04	10.7	69	-10.7	64.3	10.7	0	79.9	0	221
Sep-04	57.2	132.3	115.1	75	57.2	0	39.9	104.4	197.7
Oct-04	30.7	188.4	177.7	75	30.7	0	20	177.7	193.7
Jun-04	78.7	191.7	123	75	78.7	0	10	123	179.5
Aug-04	73.6	196.1	132.5	75	73.6	0	0	132.5	170.1
Jan-04	7.4	234.5	-7.4	67.6	7.4	0	234.5	0	136.1
Apr-04	33	239.3	323.6	75	33	0	117.3	316.3	172.1
Nov-04	17.7	246.3	285.1	75	17.7	0	60.8	285.1	194.7
Dec-04	9.8	334.5	-9.8	65.2	9.8	0	395.3	0	155.8
Mar-04	20.3	354.8	272.3	75	20.3	0	457.6	262.5	177.1
Jul-04	93.1	376.4	512.1	75	93.1	0	228.8	512.1	244.1
May-04	58.3	377.4	433.5	75	58.3	0	114.4	433.5	282
Jun-05	104.7	107.7	60.2	75.0 1	4.7	0	57.2	60.2	237.6
May-05	50.8	152.3	130	75	50.8	0	28.6	130	216.1
Oct-05	32.5	164.5	146.3	75	32.5	0	14.3	146.3	202.2
Mar-05	16.4	182.3	-16.4	58.6	16.4	0	196.6	0	161.7
Jan-05	8.4	206.4	-8.4	52.1	6.6	1.8	403	0	129.4
Sep-05	58.6	255.3	398.2	75	58.6	0	201.5	375.3	178.6
Feb-05	10.6	280.4	-10.6	64.4	10.6	0	481.9	0	142.9
Dec-05	10	313.9	-10	55.8	8.6	1.4	795.7	0	114.3
Apr-05	33.6	323.7	687.9	75	33.6	0	397.9	668.7	225.2
Nov-05	17.9	409.7	590.7	75	17.9	0	198.9	590.7	298.3
Jul-05	107.9	457.1	448.7	75.0 1	7.9	0	99.5	448.7	328.4
Aug-05	11.6	478.4	-11.6	63.4	11.6	0	577.9	0	262.7
Mar-06	19.1	202.9	142.7	75	19.1	0	619	131.1	236.4
Jan-06	12.8	354.5	94.9	75	12.8	0	865.8	94.9	208.1
Feb-06	10.4	503.6	-10.4	64.6	10.4	0	1369.4	0	166.5