TOWN OF WASAGA BEACH
WATER SUPPLY SYSTEM EXPANSION
CLASS ENVIRONMENTAL ASSESSMENT
PHASE I AND 2 REPORT

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PHASE 1 REPORT

1. Introduction

The Town of Wasaga Beach is undertaking a Municipal Class Environmental Assessment (Class EA) planning process to determine water supply requirements to meet projected growth for the Town. Ainley Group was retained in February 2012 to document the Class EA planning process in a Phase 1 & 2 Report.

2. Class Environmental Assessment Process

Ontario municipalities are subject to the requirements of the Environmental Assessment Act (EAA) for public works projects. The Municipal Engineers Association's (MEA) "Municipal Class Environmental Assessment" document (October 2000, as amended in 2007 & 2011) provides municipalities with a phased procedure, approved under the EAA, to plan most municipal works projects. These are usually limited in scale with a predictable set of environmental impacts and mitigation measures. As noted in the MEA Document, the "key principles of successful environmental assessment planning" are:

- Consultation
- Reasonable range of alternatives
- Consideration of effects on all aspects of environment
- Systematic evaluation
- Clear documentation
- Traceable decision-making.

The MEA procedure for the Wasaga Beach Water Supply System Expansion Class EA will likely be a Schedule B planning process, involving three of five Phases. The three Phases for a Schedule B planning process include; Phase 1 – Problem or Opportunity, Phase 2 – Alternative Solutions and Phase 5 – Implementation. This will be re-assessed upon completion of Phase 2, based on the Preferred Solution.

3. Background Information and Reports

Historically, the Town's water demands have risen over time, reflecting increased development and expansion of the municipal water distribution system. The Town tracks reserve capacity through the Water Supply Works and Water Pollution Control Plant Capacity Allocation Update, completed on an annual basis. The 2008 year-end report concluded that the water supply reserve capacity would be depleted within approximately 5 years. On that basis, the Town had originally planned to complete a Schedule B Class EA for commissioning existing Well No. 4 at the Jenetta Street well site in 2011. Since 2008 however, water demands in the Town have decreased significantly. This is thought to be

primarily a result of water metering, which was implemented in 2009. The 2010 year-end report concluded that additional water supply would not be needed for more than 10 years. As such, the Town decided to defer the Jenetta Street Well No. 4 Class Environmental Assessment and combine it with a planned Town wide water well development study and current Environmental Assessment in 2012.

3.1 Existing Water Supply System

The Town of Wasaga Beach currently obtains its water supply from two well fields. These are the Powerline Road Well Field and the Jenetta Street Well Field.

The Powerline Road well pumphouse and separate high lift building has a capacity of 15,707 m^3/day. The original Powerline Road Wells No. 1 and 2 were drilled in 1980 by Snider Drilling Limited and a well pumphouse building was constructed to house the wells. A separate grade level reservoir was also constructed complete with a high lift pumping station. Wells No. 3 and 4 were drilled by International Water Supply (IWS) in 1992 and 2002, respectively. The well pumphouse has been expanded so that it now houses all four wells. The wells all discharge to the grade level reservoir. Treatment processes at the existing pumphouse include a sodium hypochlorite disinfection system and a sodium silicate iron sequestering system. A diesel generator provides backup power to the pumphouse.

Each of the four wells is rated at 3,636 L/min (60.6 L/s) however Well No. 1 is only approved for operation as a standby well. The maximum allowable water taking from the Powerline Road facility is 10,908 L/min (181.8 L/s).

The Jenetta Street well pumphouse has a capacity of 15,707 m^3/day and is located on Spruce Street. The original Jenetta Street Wells No. 1, 2 and 3 were drilled in 1995 by IWS, under the direction of consulting hydrogeologist Ian D. Wilson Associates. Following the completion of the well drilling, construction began on a new well pumphouse to house the three wells. The Jenetta Street Well Pumphouse was commissioned in 1996. The three well pumps discharge directly into the water distribution system. Treatment processes at the existing pumphouse include a sodium hypochlorite disinfection system and a sodium silicate iron sequestering system. Flow passes through a chlorine contact chamber (under the adjacent parking lot) before water reaches the first customer. A diesel generator provides backup power to the pumphouse. The existing building also houses MNR washrooms and change-rooms. Since the original pumphouse construction, there have been minor upgrades including the addition of flow monitoring capability on each individual well line.

In 2003 the Town obtained a proposal from IWS to construct a fourth well at the Jenetta Street site. The Town wanted to be prepared for an expected significant increase in water demands from additional tourism, retirement growth and an aggressive program of infill servicing. The proposal from IWS was accepted and well drilling began in late 2003, again overseen by Ian D. Wilson Associates. The new well was drilled approximately 19 m southeast of the southeast corner of the existing pumphouse. Well development and testing was completed in the spring of 2004. The four wells (existing Wells No. 1, 2 & 3 and new Well No. 4) were subjected to a 3-day pumping test to confirm yield and water quality from May 17 to May 20, 2004. The results are documented in a Well Field Evaluation Report prepared

by Ian D. Wilson Associates, dated September 13, 2004. The report concludes that each of the four wells can operate safely at 3,636 L/min (60.6 L/s) for a total well field yield of 14,544 L/min (242.4 L/s). Currently, the maximum allowable water taking from the Jenetta Street facility is 10,908 L/min (181.8 L/s). The fourth well has not yet been commissioned.

In addition to the two water supply plants described above the existing Town of Wasaga Beach water supply system comprises of the following:

- Approximately 200 km of watermain, various sizes;
- one 2,837.5 m^3 steel spheroid elevated storage tank located at the intersection of River Road West and Park entrance driveway (formerly Dinosaur Park Road); and
- one 9,550 m^3 concrete pedestal steel elevated storage tank located on Sunnidale Road south of Andrew Court.

3.2 Population Growth

Schedule 7 (Distribution of Population and Employment for the city of Barrie, City of Orillia and County of Simcoe to 2031) of Ontario Ministry of Infrastructure's Places to Grow Report titled, "Growth Plan for the Greater Golden Horseshoe" consolidated in January 2012, shows a projected population of 27,500 and projected employment to be 3,500 for the Town of Wasaga Beach.

The Statistics Canada webpage, 'Focus on Geography Series, 2011 Census – Census Subdivision of Wasaga Beach, Ontario, Population' indicates that the population of Wasaga Beach in 2011 was 17, 537, indicating a 16.7% change from the population in 2006. In comparison, the national average growth was 5.9%.

3.3 Town of Wasaga Beach, Water and Sewage Capacity Allocation Update, 2011 Year-End Report, Ainley Group 2012

The Capacity Allocation update is an annual report which includes a capacity allocation study, water distribution system analysis and sanitary collection system analysis. It examines the Town's opportunities to provide servicing to all areas of Town and confirms that there is enough reserve capacity to ensure that committed developments do not exceed the design capacity of the water and sewage works.

The report indicates that existing connected population is difficult to determine due to the seasonal nature of the Town. Various published populations for Wasaga Beach vary greatly depending on the source. The capacity report calculates the reserve capacities based on the number of connected equivalent units instead of population.

Metered user rates were implemented in mid-2009. The public was made aware of the water meter program several months prior to its implementation. Implementation of a water meter program typically results in significant reduction initially, with a partial rebound effect as consumers become accustomed

to the higher costs. The reduced water usage after 2008 may be partially attributed to the water metering program. Also, two water parks in Wasaga Beach closed down and were not in operation since 2008. Though it would be reasonable to assume that the water parks use a significant amount of water, since no services were metered prior to 2009 it is not possible to quantify the amount of water that was used by the water parks.

While the water meter program and closing of the water parks can be expected to result in a permanent reduction of per unit water usage, the report indicates that it is too early to forecast the extent of the reduction, particularly since uncharacteristically cool summer temperatures contributed significantly to the low water demands in 2009 and 2010.

The Year End Capacity Report includes a Water Supply System Uncommitted Hydraulic Reserve Capacity ledger (*Appendix 'A'*). At present, the design capacity of the water supply system is 31,415 m³/day. The Maximum Day Demand in 2011 was 19,039 m³/day, with a hydraulic reserve capacity of 12,376 m³/day. As of 2011, 12,159 units were connected to the water supply system with another potential 14,107 equivalent residential units to be included in the future. The total build-out would therefore be 26,266 equivalent units. These units are currently in different stages of development as follows; units with an existing connection available, existing units that do not yet have a connection available, developments that are committed and approved or under construction or draft/site plan approved (6,135 units), while others are uncommitted development approvals (7,972 units). Ultimately, the capacity for future potential residential equivalent units is deficient by 8,027 units. Therefore, the remaining future water supply capacity is deficient by 16,340 m³/day.

It is emphasized in the report that, even though the supply is over-committed, it will take a number of years for the 6,135 units with a connection available and committed units to actually connect to the system. Since 2004, the connections have increased by approximately 487 per year (including previously unconnected existing residences). At this rate, the reserve capacity is sufficient for more than 10 years.

The Report concludes that the Town of Wasaga Beach should initiate a comprehensive study and Class Environmental Assessment to determine/establish a new water supply to ensure future adequate water supplies to offset future growth.

3.4 Town of Wasaga Beach, Ultimate Water Supply and Distribution System Model Update, Ainley Group 2009

The purpose of the hydraulic model update was to establish a framework to identify the water infrastructure requirements to service the Town of Wasaga Beach's 25-year build out population and the staging of the required works. The review of the water distribution system was undertaken utilizing the existing Wasaga Beach water distribution system WaterCAD computer model originally prepared in August 2004.
The existing WaterCAD computer model was updated to December 2007 conditions to identify any existing system deficiencies. Field measurement was undertaken to calibrate the model. Future 25-year build-out system conditions were simulated, system deficiencies identified, and recommendations for long-term system improvements were developed.

An analysis of a projected 10-year growth scenario was completed to confirm the requirements for servicing the identified 10-year future developments. This analysis supports system improvements currently identified in the 10-year capital works program.

Planned capital works projects outlined in the report and included in the water supply and distribution modeling are based on the Town of Wasaga Beach Public Works Department 10-Year Capital Works Forecast Update 2008 – 2017 and include increasing the water supply. The report notes that the Jenetta Street Well Pumphouse is rated for a maximum flow rate of 181.8 L/s and the Powerline Road Well Pumphouse is rated for a maximum flow rate of 181.8 L/s. The total flow available from supply is currently 363.6 L/s or 31,415 m^3/day. The report indicates that the existing fourth well at the Jenetta Street Water Supply Works was scheduled to be commissioned in 2009, increasing the available supply by 60.6 L/s to 424.2 L/s or 36,651m^3/day. The projected maximum day demand for the 25-year future conditions in this report is 77,811 m^3/day or 900.6 L/s. Future demands were based on the historical 3-year high maximum day demand (MDD) per unit at the time the report was written plus 30 percent. For 2005 to 2007 the historical three-year high was 2.52 m^3/unit. An MDD per unit of 3.278 m^3/unit was used to calculate future demands.

Per MOE design guidelines average day demand (ADD) and MDD must be provided from supply and peak hour demand (PH) and fire flow may be provided from storage. Thus, long term future projections in the report indicate that there is an approximate 476.4 L/s gap between available supply (including the fourth well at Jenetta) and required supply.

3.5 Official Plan of the Town of Wasaga Beach, October 2010

The purpose of the Official Plan is to guide Town Council in the exercise of its powers of land use control and the construction of public works. The plan provides framework in which the merits of proposals for development and the grant consents for conveyances of land can be completed by Council.

The Plan assumes that the Town will extend the current municipal sanitary sewer and water service, in the long term, to accommodate approximately 35,000 persons.

The goals of the Official Plan with respect to growth and the water supply system include providing municipal sanitary sewer and water services to the urban development area of the Town and also to provide policies to restrict the creation of residential lots not served by a municipal sanitary sewer and water system. The Plan notes that medium and high density residential uses may only be permitted in areas provided with a municipal sanitary sewer and water system.

The Plan acts to provide policies in regard to land use decisions that promote water and energy conservation and support the efficient use of water resources on a watershed basis.

4. Water Demands

The MDD has generally increased over time as new development is connected to the system. Table 1 summarizes the number of equivalent connected units, ADD and MDD for each year from 2004 to present.

Table 1: Town of Wasaga Beach - Historical Water Demands

Year	Equivalent Connected Units	ADD (m^3/d)	ADD per Equivalent Unit (m^3/d)	MDD (m^3/d)	Maximum Day Factor (MDF)	MDD per Equivalent Unit (m^3/d)
2004	8,752	6,799	0.78	18,870	2.78	2.16
2005	9,703	8,571	0.88	24,465	2.85	2.52
2006	10,361	7,649	0.74	21,379	2.79	2.06
2007	11,095	8,569	0.77	23,989	2.80	2.16
2008	11,212	7,425	0.66	20,114	2.71	1.79
2009	11,386	6,837	0.60	15,354	2.25	1.35
2010	11,767	6,380	0.54	16,336	2.56	1.39
2011	12,159	6,353	0.52	19,039	3.00	1.57
2012*	12,546	6,876	0.54	18,528	2.69	1.47

* The number of equivalent connected units for 2012 is estimated based on the historical rate for the period 2009-2011.

Since 2008, there has been a significant reduction in the Town's water demands. The reduction is thought to be primarily due to the implementation of water metering in mid-2009.

The latest Capacity Allocation Update (2011 Year End Report) forecasts that the existing municipal water supply (without Jenetta Street Well No. 4) will be sufficient for more than 10 years. This assessment is based on the maximum day demand for the three-year period 2009-2011 and assumes that the number of new service connections per year will be constant (equal to current rate).

4.1 Future Water Demands

The highest MDD for the three-year period 2009-2011 was 19,039 m^3 and occurred on July 17, 2011. For the purpose of forecasting future demands it is assumed that MDD attributable to existing development will be equal to the 2011 MDD. For future development, it is assumed that the MDD per equivalent unit will range from a low of 1.566 m^3 (2011 MDD per equivalent unit) to 2.036 m^3 (2011 MDD per equivalent unit plus 30%). The 30% buffer accounts for a potential increase in persons per unit over time.

At the end of 2012, it is estimated that a total of 12,546 equivalent units were connected to the water distribution system. Based on full build out to the existing Town limits, it is estimated that 26,266 equivalent units will ultimately be connected to the system. Using the historical rate for the period 2009 to 2011, it is assumed that the number of new connections per year will be approximately 387. At this rate, the ultimate build-out will be reached in the year 2048.

The yearly MDD forecasts (high and low range) for the period 2012 to 2048 are summarized in the following table.

Table 2: Town of Wasaga Beach – Future Maximum Day Demand Forecast

Year	Number of Connected Units	Low End MDD (m^3/day)	High End MDD (m^3/day)
2011	12,159	19,039	19,039
2012	12,546	19,645	19,827
2013	12,933	20,251	20,615
2014	13,320	20,857	21,403
2015	13,707	21,463	22,191
2016	14,094	22,069	22,979
2017	14,481	22,675	23,767
2018	14,868	23,281	24,555
2019	15,255	23,887	25,342
2020	15,642	24,493	26,130
2021	16,029	25,099	26,918
2022	16,416	25,705	27,706
2023	16,803	26,312	28,494
2024	17,190	26,918	29,282
2025	17,577	27,524	30,070
2026	17,964	28,130	30,858
2027	18,351	28,736	31,646
2028	18,738	29,342	32,434
2029	19,125	29,948	33,222
2030	19,512	30,554	34,010
2031	19,899	31,160	34,798
2032	20,286	31,766	35,586
2033	20,673	32,372	36,374
2034	21,060	32,978	37,161
2035	21,447	33,584	37,949
2036	21,834	34,190	38,737
2037	22,221	34,796	39,525
2038	22,608	35,402	40,313
2039	22,995	36,008	41,101
2040	23,382	36,614	41,889
2041	23,769	37,220	42,677
2042	24,156	37,826	43,465
2043	24,543	38,432	44,253
2044	24,930	39,038	45,041
2045	25,317	39,644	45,829
2046	25,704	40,250	46,617
2047	26,091	40,857	47,405
2048	26,266	41,131	47,761

5. Supporting Studies

5.1 Water Well Development Study Report, Ian D. Wilson Associates Limited, 2012

The Town wide water well development study was developed by Ian D. Wilson Associates Limited as a part of this Environmental Assessment to identify the Town's short-term and long-term water demands, to assess possible water supplies and to confirm a source to meet the Town's future water requirements. A desktop study of existing reports and background was completed to evaluate the water supplies and sources. A copy of the Wilson Report is included in Appendix 'B'.

The Wilson Report identifies the following well field expansion options to meet the Town's future demands:

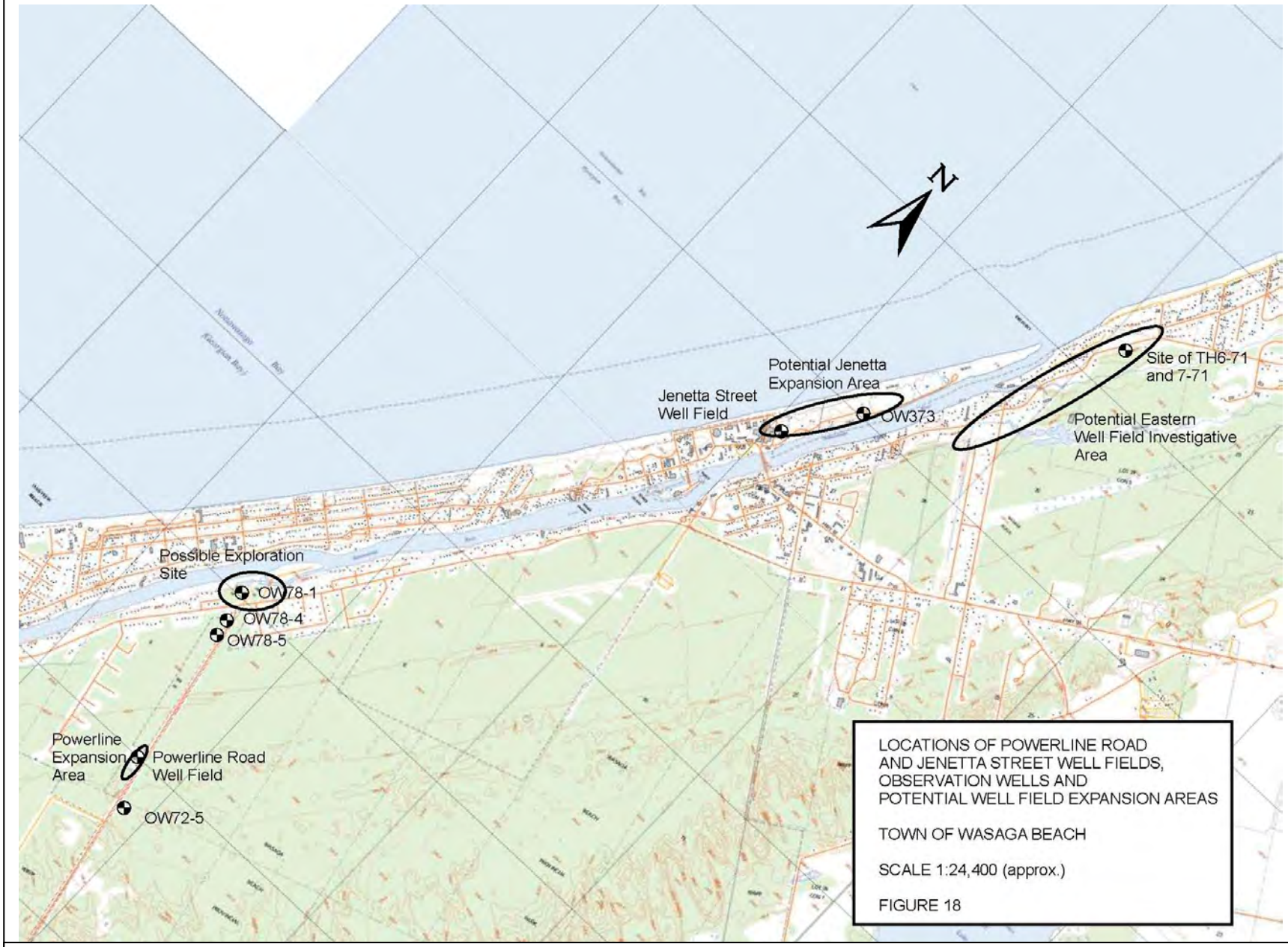
- Expand the Powerline Road well field by one well capable of a yield of 5,236 m^3/day. This may require additional testing to assess westerly aquifer boundary affects and the possibility of replacing existing Well 2. This option could include a fourth well on the Powerline Road Well site, or conceivably a new well site to the north along the Powerline Road corridor near the intersection of River Road West and Powerline Road, if land is available. Should Powerline Road be considered for expansion, it is recommended that an extended pumping test of the existing wells be conducted to confirm that boundary effects will not become an issue at the western periphery of the Lower Aquifer.
- Expand the Jenetta Street field by up to 2 wells each capable of a yield of 5,236 m^3/day. Site limitations and mutual interference concerns may partially restrict this option, and a secondary Jenetta Street well site nearby to the east may be considered if needed, if land is available.
- Existing information suggests that the area in the vicinity of River Road East and Zoo Park Road is the most promising location for developing a third well field, if land is available.

Figure 1 shows the potential well field expansion areas.

A clarification regarding the potential well locations was provided by Wilson Associates (see August 1, 2012 email from Geoff Rether in *Appendix 'B'*). Based on this additional information, only one additional well is considered to be feasible at the existing Jenetta Street well field. If two more wells were to be constructed in the area, they would need to be located at least 400 to 500 m away from the existing well pumphouse. This would require the new wells to be constructed east of the existing site and would encroach further onto Wasaga Beach Provincial Park lands.

The Town does not currently own any land within the Potential Eastern Well Field Investigative Area identified on Figure 4. The Town Planning department has not identified a suitable site in this area.

The existing Powerline Road site has ample land for the construction of an additional well and associated pumphouse expansion. However, as noted in the Wilson report, additional testing would be required to confirm the suitability of this site.



POTENTIAL WELL FIELD EXPANSION AREAS
TOWN OF WASAGA BEACH

Figure 1

Reference: Water Well Development Study Report, Ian D. Wilson Associates Limited, 2012

6. Study/Service Area

The Study/Service Area is considered to be limits of the Town of Wasaga Beach. The Study/Service Area is shown on Drawing 1 (*Appendix 'C'*).

7. Development of Problem Statement

The Problem Statement is as follows:

The Town of Wasaga Beach is undertaking a Class Environmental Assessment (EA) Planning Process to consider options to ensure that the Town's water supply system will have adequate supply to meet future demands. The current capacity of the system is 31,415 m^3/day, which is sufficient to meet the current demands. However, with continued growth and summer tourism, the current capacity may need to be increased to meet future demands. The Class EA Planning Process is being undertaken in accordance with Town Reports and Studies including the Town's Official Plan, dated September 9, 2003 and consolidated in April 2008.

8. Phase 1 Public and Agency Consultation

A Notice of Study Commencement was issued on June 6, 2012 and published in local newspapers. A copy of the Notice and the distribution list are included in *Appendix 'D'*.

Responses to the Notice of Study Commencement were received from the Ministry of the Environment on February 1, 2012. A copy of this correspondence is also included in *Appendix 'D'*.

The letter from the Ministry of the Environment identifies issues of concern and provides information to assist in addressing these issues. The identified issues are as follows:

- Ecosystem Protection and Restoration
- Surface Water and Groundwater
- Dust and Noise
- Servicing and Facilities
- Waste Materials and Spills
- Mitigation and Monitoring
- Planning and Policy
- Class EA Process
- Aboriginal Consultation

These issues are being addressed through the Class EA process.

The Nottawasaga Conservation Authority (NVCA) also responded to the Notice of Study Commencement. The NVCA noted that they are interested in the assessment from a source water perspective and are to be informed of anything that may have an impact on source water, wetlands, rivers, etc.

The NVCA will be kept informed during the EA process and will be kept informed of any tests or actions that may affect source water (such as pumps tests).

Correspondence was also received requesting to be part of the planning process. This correspondence is included in *Appendix 'D'*.

PHASE 2 REPORT

9. Identification and Description of Alternative Solutions

Based on the considerations identified above, a total of thirteen alternative solutions were considered. Descriptions of each alternative are provided hereinafter.

The Alternative Solutions to the problem statement include the following:

- Option **1** - Do Nothing
- Option **2** - Water Conservation
- Option **3** - Water Re-use/Recycling
- Option **4** - Restrict Development
- Option **5** - Water Loss Study/Leak Detection and Repair Program
- Option **6** - Commission Drilled Well at Jenetta Street
- Option **7A & 7B** - Expand Existing Powerline Road and/or Jenetta Well Fields (drill new wells)
- Option **8** - New Well Field at Alternate Location
- Option **9** - Connect to Collingwood Water Supply
- Option **10** - Construct Surface Water Treatment Plant
- Option **11** - Private Individual Wells for New Development
- Option **12**- Private Water Systems for New Development

A combination of the above alternatives may also be considered.

9.1 Option 1 - Do Nothing

Under the MEA Class EA planning process, the 'Do Nothing' alternative is a recognized option. Under this option, the Town may be required to restrict development in the future or withdraw approved development projects. The Town would have to restrict development or discontinue expansion of the water distribution system to unserviced areas of the Town. Limiting growth in this manner is in conflict with the Official Plan and may have legal implications if existing approved development projects are suspended due to insufficient supply. There is also concern that should an existing well fail, the Town will not have emergency back-up. Considering the level of growth in the Town of Wasaga Beach, the 'Do Nothing' alternative is not recommended as a long-term solution.

9.2 Option 2 - Water Conservation

Under the water conservation alternative, the Town would expand its existing Water Conservation Strategy in an attempt to further reduce water consumption. The Town implemented metered water rates in mid-2009 and this has resulted in a significant reduction in water use. Continued monitoring of water use will determine whether this is a temporary or permanent trend. The Town also increased enforcement of its lawn watering by-law which may have also helped to reduce usage. Further water conservation may be considered through increased public education and awareness programs, incentive/rebate programs for residents and businesses and increased water rates. However, water conservation alone will not completely address the water capacity issue and will need to be used in conjunction with another solution(s). Water conservation may be included as part of the overall Recommended Solution.

9.3 Option 3 - Water Re-use/Recycling

Effluent reuse and recycling involves using treated effluent from the water pollution control plant for a number of uses such as irrigation and industry. It is most common to use the treated effluent for non-potable applications. Non-potable uses include agricultural and landscape irrigation (including public parks, sports fields and golf courses), industrial processes, toilet flushing, dust control, construction activities, etc.

In the Town of Wasaga Beach, the most likely uses for effluent reuse/recycling would be for the irrigation of parks, sports fields, and golf courses. Presently, the golf courses and sports fields are not serviced by municipal water. Golf courses are irrigated using wells and ponds. Sports fields and parks are not serviced and/or have no major demands. Therefore, effluent re-use/recycling will not significantly reduce water usage.

Although effluent reuse/recycling is considered to be environmentally responsible, it is not completely accepted as a standard practice by the government and the public. Developing a grey water distribution system would be a costly endeavor. Hauling grey water by truck to use at certain sites would also be costly. This option does not address the problem statement with respect to reducing municipal water consumption. It is not recommended that the Town consider assessing effluent reuse/recycling initiatives any further as a part of this assessment. This alternative may be considered in the future as technology improves. It does not completely address the water capacity issue and would need to be used in conjunction with other options.

9.4 Option 4 - Restrict Development and Servicing Extensions to Existing Residences

Under this alternative, the Town would need to immediately begin restricting development, since the current water supply is not sufficient for all committed development. The capacity would need to be monitored and evaluated before approving any watermain extensions. The Town would need to ensure that there is adequate water supply for the currently serviced population including tourism demands.
This option is restrictive in that it limits the increase in municipal tax base, restricts opportunities for residents and tourists and it does not address the problem of meeting future demands for committed developments. There may also be legal implications associated with limiting development that has already been approved.

9.5 Option 5 - Water Loss Study/Leak Detection and Repair Program

The Town would initiate a water loss study to find and repair leaks within the water distribution system. This option would require a relatively small investment that may result in long term savings if significant leaks are found and repaired.

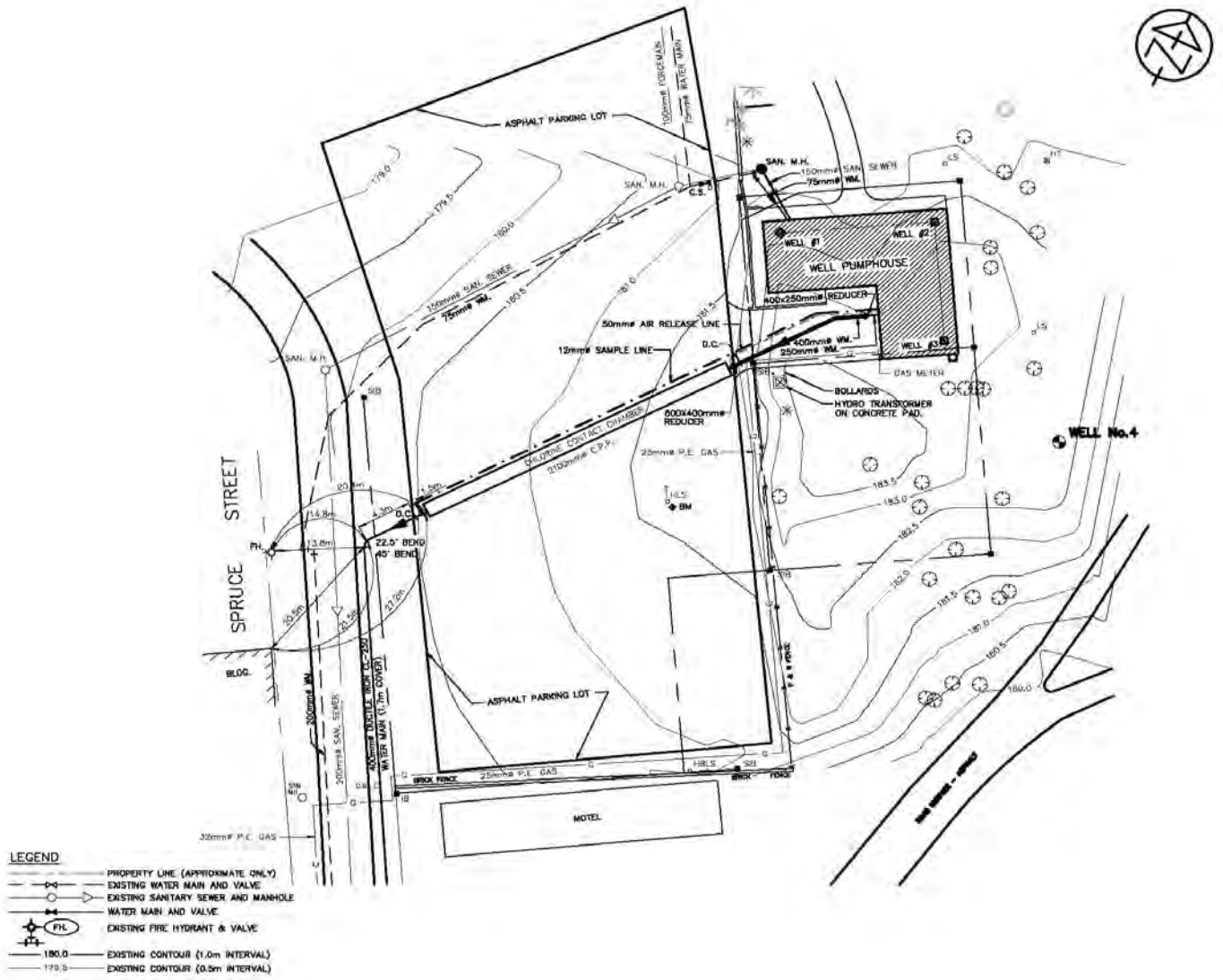
Due to the age of the distribution system, the Town may find that there is not a significant issue with leakage and therefore the program may not be cost effective. A leak detection and repair program alone would not likely reduce demands sufficiently to ensure that the ultimate demands will be met by the existing infrastructure. As such, a leak detection/repair program would only be considered a viable alternative when used in conjunction with another alternative solution.

9.6 Option 6 - Commission Drilled Well at Jenetta Street Well Field

An additional well (Well No. 4) would be commissioned at the Jenetta Street Well Field under this alternative (Figure 2, overleaf). There are currently four existing wells at this location with three being duty wells and one drilled but not commissioned.

The fourth well was drilled at the Jenetta Street site in 2004. The well has been tested and a well field evaluation concluded that all four wells could operate together safely to increase the total well field yield. Connection of the fourth well to the water supply system would require the installation of a pump, associated pipework, controls as well as either construction of a building to house the new well pump and/or an expansion with upgrades to the existing well pumphouse. The cost associated with this work is moderate.

This well site is located at Beach Area One of Wasaga Beach Provincial Park, which is the busiest beach area in the summer months. Construction during the summer would have an impact on beach tourism. The sandy beach close to the pumphouse is also nesting grounds for the Piping Plover, which is an endangered species in Canada. Piping Plovers arrive at their breeding grounds in late April and nest on the open part of the beach by mid to late May. Considerations would need to be taken to protect the birds, their eggs and the nesting grounds.



JENETTA STREET WELL FIELD
TOWN OF WASAGA BEACH

Figure 2

This option is viable to increase the demand on an interim basis (approximately 14 years), but alone will not provide capacity for the ultimate build-out demands. For ultimate build-out, this alternative will need to be used in conjunction with other alternatives.

9.7 Option 7A & 7B - Expand Existing Powerline Road and/or Jenetta Well Fields (drill new wells)

An additional well(s) would be constructed at the Jenetta Street Well Field, Option 7A (Figure 2) or the Powerline Road well field, Option 7B, (Figure 3).

There are currently four existing wells at the Powerline Road location with three being duty wells and one a standby well. The Town has experienced capacity issues with the standby well in the past and as a result constructed the fourth production well.

Wilson Associates 'Water Well Development Study' indicates that options for increasing the maximum yield of the existing groundwater supply to more than 48,000 m³/day include the following:

- Expand the Powerline Road field by one well capable of a yield of 5,236 m³/day. This option could include a fourth well on the Powerline Road Well site, or within a close proximity to Powerline Road. If this recommendation is considered, an extended pumping test should be conducted for the existing wells to ensure that the boundary effect will not be an issue. It is also noted that there is a possibility that Well No. 2 would have to be replaced depending on the well pumping test results. A Memorandum of Agreement is required with the Ministry of Infrastructure, which owns the property at the Powerline Road site.

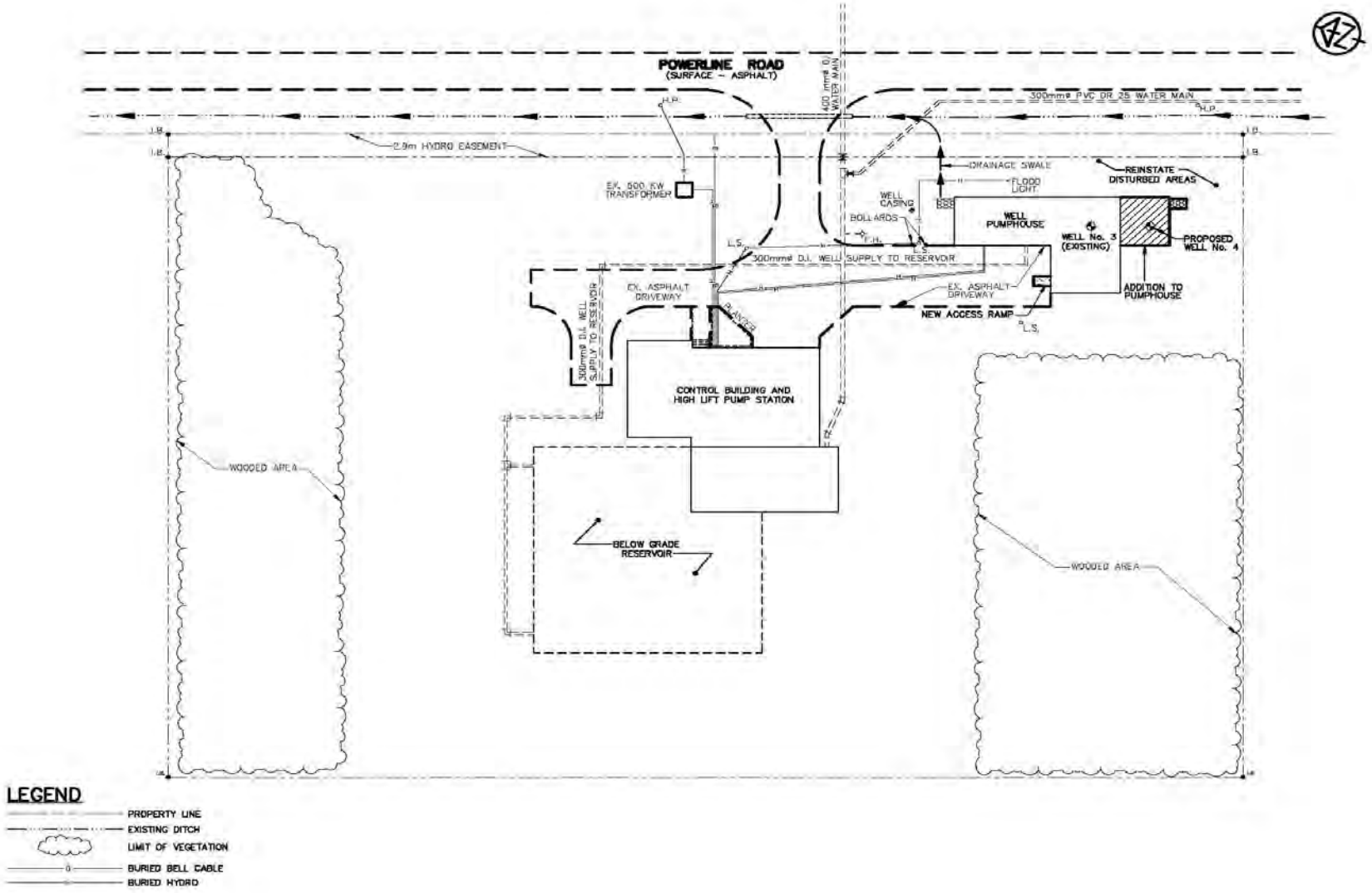
- The Jenetta Street well field could be expanded by up to two additional wells each capable of yielding 5,236 m³/day. The report notes that site access limitations and mutual interference concerns may partially restrict this option. A Memorandum of Agreement is required with the Ministry of Infrastructure, which owns the property at the Jenetta site.

The Powerline Road Well field currently has a lower quality yield than the Jenetta Street Well Supply. It is considered that the Jenetta Street Well Field would produce a more consistent supply and as such constructing an additional well at the Jenetta Street site would be a primary choice.

9.8 Option 8 - Construct New Well Field at New Location

A new well field could be constructed at a new location. This would include a new pump control building as well as the acquisition of land above a suitable aquifer. A new water supply plant would increase redundancy within the water supply system; therefore if either the Powerline Road Pumphouse or Jenetta Street Pumphouse were taken out of service, there would still be two operational pumphouses.

Wilson Associates 'Water Well Development Study' suggests that, based on existing information, the area in the vicinity of River Road East and Zoo Park Road is the most promising location for developing a third well field, if land is available.



POWERLINE ROAD WELL FIELD
TOWN OF WASAGA BEACH

Figure 3

The Town's planning department reviewed the Zoo Park Road development boundaries identified in the Well Development Study and reported that the best potential location for the Town was just outside of the development boundary to the south.

Constructing a new well field at a new location would be expensive and the acquisition of new land would be required. New test wells would have to be drilled at potential locations to confirm the available water quality and quantity. A new well site may be considered as another potential point of contamination to the aquifer. Source water protection policies would need to be reviewed and a Source Water Protection Study considered. Depending on the location of the new well field, there may be issues to consider, such as possible effects on the environment or impacts on adjacent property owners. A new well pumphouse would be required which would need to be interconnected with the existing system and the proximity to a trunk watermain would have to be considered.

9.9 Option 9 - Connect to the Collingwood Water Supply

The Town would connect to the existing Collingwood water supply system under this alternative. The Town of Collingwood obtains its water from Georgian Bay (surface water) and treatment includes membrane filtration. The Town of Collingwood is currently planning to upgrade its water supply plant and will have spare capacity that could potentially be supplied to the Town of Wasaga Beach.

The Town of Collingwood currently supplies water to the Town of New Tecumseth, Town of The Blue Mountains, Clearview Township and Essa Township. A connection between the Collingwood and Wasaga Beach distribution systems could be accomplished fairly easily through the installation of a short interconnecting pipeline at the municipal boundary on Beachwood Road, together with a meter chamber. However the existing 300 mm diameter trunk watermain along Beachwood Road was not designed for this purpose and would only convey a nominal flow from Collingwood to Wasaga Beach. In order to accommodate a long term, significant supply from Collingwood, replacement of the existing trunk watermain with a larger pipe and/or provision of a booster pump station would likely be required. Furthermore, this arrangement would require negotiations between the two municipalities to reach a water purchase agreement. This could be very time consuming and there is no guarantee that a mutually acceptable agreement could be reached. Mixing of surface water and groundwater may present problems related to water chemistry that would have to be dealt with accordingly. This option is considered to be high in building, operations and maintenance costs.

9.10 Option 10 - Utilize Surface Water Supply and Construct Water Filtration Plant

The Town of Wasaga Beach could consider construction of a surface water filtration plant and obtaining water from Georgian Bay. This would involve the acquisition of land near the bay. This option would provide a secure source of water with limitless potential capacity.

The construction of a surface water filtration plant would be extremely expensive and the acquisition of new land near Georgian Bay would be difficult. Surface water requires more extensive treatment than existing groundwater supply due to lower raw water quality. Also, mixing of surface water and groundwater may present problems related to water chemistry that would have to be dealt with accordingly. The technology behind a surface water treatment plant is much different than that of a

groundwater treatment plant and water system operators would be faced with the challenge of learning about and operating a totally different type of treatment facility. Operating costs would be much higher if both the groundwater and surface water plants were operational. Source Water Protection policies and implications would also have to be considered.

Aesthetically, construction of a surface water treatment plant on the Georgian Bay shoreline is undesirable due to the tourist nature of the Town and the focus on waterfront activities. Construction of a water supply plant along the Georgian Bay shoreline would be highly disruptive during the tourist season.

9.11 Option 11 - Private Individual Wells for New Development

Under this alternative, developers of new homes would construct individual wells to service units. This would cause no additional demands on the municipal water supply. However, private water systems are not consistent with the Town's objective to provide safe municipal water to all properties within the Town. Construction of private wells increases the risk of contaminating the upper aquifers, especially if the wells are not properly abandoned when no longer needed. The water supply is also less secure than municipally supplied water, as a private well is more susceptible to quality/quantity issues.

9.12 Option 12 - Private Water Systems for New Development

Under this alternative, developers would be required to construct a water supply system to provide water for an entire development of homes. The Ministry of the Environment no longer issues Drinking Water Permits to private developers; therefore the Town would be responsible for the individual water systems. This option is not consistent with the Town's objective to provide municipal water to all properties within the Town and it also raises concern about maintenance and water safety issues. In the event that the Town would take over the private water systems, operation and maintenance expenses would be significantly higher.

10. Development of Assessment Criteria and Rating/Weighting System

A detailed comparative evaluation of the water supply alternatives was completed in order to identify a preferred solution. Initially, the feasibility of different alternatives in addressing the problem was considered. This ultimately led to a detailed evaluation of potential solutions to identify a preferred solution, as part of the Class EA process.

Specifically, three steps were taken in identifying a preferred solution:

1. A long list of alternative solutions was identified.
2. The long list was screened to remove those alternatives considered not feasible, based on a set of specific screening criteria, and reasonable constraints were used to identify a reasonable number of feasible alternatives representing the full range of solutions.

3. The resulting short-listed solutions were evaluated, using 12 evaluation criteria and were subsequently assessed using a value analysis to determine the preferred solution.

Screening for all of the water supply solutions listed in Section 10 is as follows with 'x' as a representation that the Solution does not meet the compulsory criteria and '√' indicating that the Solution does meet the criteria:

Table 3: Town of Wasaga Beach – Potential Water Supply Solution Preliminary Screening Criteria

COMPULSORY CRITERIA	ALL POSSIBLE WATER SUPPLY SOLUTIONS (OPTIONS 1 through 12)											
	1	2	3	4	5	6	7	8	9	10	11	12
Compliance – The alternative could comply with all existing and proposed regulations and land use policies (i)	x	x	x	x	x	√	√	√	√	√	x	x
Capacity - The alternative would be capable of providing capacity as it is required, or sooner	x	x	x	x	x	√	√	√	√	√	√	√
Technical Feasibility – no logistical, infrastructure, storage or technology performance requirements related to the alternative that cannot be accomplished using logical and established engineering solutions.	√	√	x	√	√	√	√	√	√	√	√	√

(i) Limiting growth contradicts the Official Plan and may have legal implications if existing approved development projects are suspended due to insufficient capacity. Options that do not meet the compulsory criteria do not provide a full solution to the problem statement but may be used in conjunction with a long-term solution as a complementary solution. No further assessment of the alternatives that do not meet full criteria is warranted as part of this Class EA. However, some options may be considered as complementary to the recommended solutions.

10.1 Evaluation Criteria and Rating/Weighting System

The list of evaluation criteria for water and wastewater options is based on the criteria as suggested by the MEA in the Class EA Document. The criteria will be assessed under three general categories, to reflect the entire range of potential impacts of the alternatives, as follows:

Natural Environment

- Fisheries - This criterion compares the potential impacts on the Nottawasaga River and Georgian Bay of the water taking and the associated construction activities.
- Wetlands, Floodplains and Shorelines- This criterion compares the potential impacts on the wetlands, flood plains and shorelines and of the water taking and the associated construction activities.
- Woodlands and Wildlife Habitat - This criterion compares the potential impacts on wildlife habitat, vegetation and woodlands with respect to the water taking and the associated construction activities.

- Groundwater Resources - This criterion considers the potential impacts on the aquifer of groundwater taking for drinking water needs, as well potential impacts during construction.
- Sensitive Species & ANSI/PSW - This criterion compares the potential impacts of each construction and water taking from each potential site on sensitive species and areas of natural and scientific interest.
- Air Quality, Noise and Vibration - This criterion addresses the potential for air quality issues, noise and vibration, from the proposed water supply options and from construction.

Socio-Economic Considerations

- Response to Official Plan Growth – This criterion determines if each water supply option meets guidelines set out by the Official Plan to meet population growth.
- Social Impacts to Residents and Businesses – This criterion addresses potential impacts to property values as well as social impacts such as temporary impacts of construction, traffic disruption, inconvenience, loss of access for businesses and other issues affecting residents and businesses.
- Social Impacts at Social Features – Social features include public areas or building such as parks, schools, etc. The potential impact on social features was assessed in the area of each water supply option.
- Capital Costs – Estimated capital costs were taken into account to determine which options are the most economically feasible.

Technical Considerations

- Construction, Design and Land Ownership – This criterion addresses the complexity of the design and construction of the project and difficulties in implementation. Consideration was given to land ownership and approvals to be obtained before the water supply project can be implemented.
- Impacts on Existing Utilities – This criterion takes into account the impact that each water supply alternative will have on existing utilities.
- Operational Considerations – This criterion considers the amount of time necessary to monitor, operate and maintain each alternative. It also takes into account the amount of time it will take for Water Operators to master the different operational alternatives, as well as costs associated with operations and maintenance.

The suggested weightings are outlined in Table 4.

Table 4: Detailed Weighting Criteria for Water Supply Alternatives

Criteria	Weighting (%)
Natural Environment = 34%	
Fisheries	2%
Wetland, Floodplains and Shoreline	10%
Woodlands and Wildlife Habitat	2%
Groundwater Resources	11%
Sensitive Species & ANSI/PSW	4%
Air Quality, Noise & Vibration	5%
Socio-Economic = 36%	
Response to Official Plan Growth	15%
Social impacts to residents and businesses	8%
Social impacts at social features (parks, public access)	8%
Capital Cost	5%
Technical = 30%	
Construction, Design, Land Ownership	15%
Impacts on Existing Utilities	5%
Operational Considerations	10%
Total	**100%**

The evaluation of water supply options is presented in tabular form in *Appendix 'G'*. A Summary Score Analysis (weighted rankings) is also included in *Appendix 'G'* for the water supply options. The numerical scores ranged from 51 to 88.5 with the higher number being the most favourable score.

11. Recommended Solution

In evaluating the water supply alternatives, it was determined that the Phase 2 Recommended Solution would be achieved through the implementation of a combination of the water supply alternatives to ensure that the Town's water supply will be adequate to meet future demands by phasing in water supply wells, as follows:

- Commission the existing drilled well at the existing Jenetta Street well site (Option 6)
- Drill one new well (and possibly an additional standby well) at the existing Jenetta Street well site (subject to a Memorandum of Agreement from the Ministry of Infrastructure – property owner) including the expansion of the pump house and associated piping (Option 7A)
- Drill a new well at the existing Powerline Road well site if required (subject to a Memorandum of Agreement from the Ministry of Infrastructure – property owner) including expansion of the pump house and associated piping (Ultimate Build-out) (Option 7B)
- Research and implement water conservation methods on an ongoing basis to ensure adequate water supply capacity (Option 2).

The Jenetta Street well site has a greater potential for expansion than the Powerline Road well site. It is therefore recommended that a fifth well be constructed at the Jenetta Street site which, together with

existing Well No. 4, may provide enough additional capacity to meet the ultimate demands. An additional well at the Powerline Road site would only be constructed if needed.

The following table outlines the implementation of future water wells to meet the projected demands based on high end MDD.

Table 5: Implementation of Water Supply Wells to Meet Future Demands

Year	MDD (m^3/day)	Available Supply (m^3/day)	Implement Option
2011	19,039	31,415	
2012	19,827	31,415	
2013	20,615	31,415	
2014	21,403	31,415	
2015	22,191	31,415	
2016	22,979	31,415	
2017	23,767	31,415	
2018	24,555	31,415	
2019	25,342	31,415	
2020	26,130	31,415	
2021	26,918	31,415	
2022	27,706	31,415	
2023	28,494	31,415	
2024	29,282	31,415	
2025	30,070	31,415	
2026	30,858	36,651	***Add Jenetta Well No. 4 (Option 6)***
2027	31,646	36,651	
2028	32,434	36,651	
2029	33,222	36,651	
2030	34,010	36,651	
2031	34,798	36,651	
2032	35,586	36,651	
2033	36,374	41,887	***Add Jenetta Well No. 5 (Option 7A)***
2034	37,161	41,887	
2035	37,949	41,887	
2036	38,737	41,887	
2037	39,525	41,887	
2038	40,313	41,887	
2039	41,101	47,123	***Add Powerline Well No. 5 (Option 7B)***
2040	41,889	47,123	
2041	42,677	47,123	
2042	43,465	47,123	
2043	44,253	47,123	
2044	45,041	47,123	
2045	45,829	47,123	
2046	46,617	47,123	
2047	47,405	47,123	
2048	47,761	47,123	***Ultimate Build-Out***

The dates identified in Table 5 and referenced throughout this document are based on estimated population growth projections. Timing for each recommended system improvement should be confirmed through the Town's annual Sewer / Water Capacity Allocation Updates and regular updates to the Town's Water Distribution Model.

In order to meet short-term water demands, it is recommended that Option '6', 'Commission Drilled Well at Jenetta Street Well Field', be implemented to meet interim demand. There are currently four existing wells at this location with three being duty wells and one drilled but not commissioned. It is recommended that the fourth well at Jenetta Street be commissioned to meet the Maximum Day Demand of 30,858 m³/day by the estimated year of 2026. Connection of the fourth well to the water supply system would require the installation of a pump and associated pipework and controls as well as construction of a building to house the new well pump along with upgrades to the existing well pumphouse.

This option is viable to increase the demand on an interim basis (14 years), but alone will not provide capacity for the ultimate build-out demands. The Town would be capable of providing adequate water supply with the fourth Jenetta Street well in production until the estimated year of 2033 when the maximum day demand reaches 36,374 m³/day, just under the water production limits of 36,651 m³/day.

The Town of Wasaga Beach would again be required to increase its water production capacity approximately 7 years following the commissioning of Jenetta Well No. 4. Based on the 'Town Wide Water Well Survey' conducted by Ian D. Wilson; both Powerline Road and Jenetta Street offer suitable locations within the lower aquifer to install a drilled well to meet water supply demands. A well at either site would have the capability to producing a yield of 5,236 m³/day. However, it was determined that the Jenetta Street well site has a greater potential for expansion than the Powerline Road well site. It is therefore recommended that a fifth well be constructed at the Jenetta Street site (Option 7A) which, together with existing Well No. 4, would provide enough additional capacity to meet the projected water demands of 2033.

The projected water demand of 2039 is 41,101m³/day. Should the water demand reach this level, additional water supply capacity would be required to continue with development in the Town of Wasaga Beach. It is recommended to expand the Powerline Road well field by one well capable of a yield of 5,236 m³/day (Option 7B). This may require additional testing to assess westerly aquifer boundary affects and the possibility of replacing existing Well 2. The implementation of this fifth well at Powerline Road will increase the capacity of the water supply system to 47,123 m³/day. This does not quite meet the ultimate demand projection of 48,192 m³/day in 2048. However, it is recommended that the Town expand its water conservation strategy to further reduce water consumption (Option 2). By continually implementing water conservation strategies, there is anticipation that the Town would be able to conserve the difference of the additional water supply demand of 638 m³/day.

It is noted that Table 5 uses high end MDD projections to determine the timing for implementing options. If low end MDD projections are used then Powerline Well No. 5 would not be needed to meet Ultimate MDD.

12. Public Information Centre (PIC)

As part of the Class Environmental Assessment process, a Phase 2 Public Information Centre (PIC) was held at the RecPlex (Oakview Room) on Thursday, August 30, 2012 from 7:00 p.m. to 9:00 p.m. The PIC was advertised in advance through a notice published in the August 16, 2012 and August 23, 2012 editions of the Wasaga Sun and posted on the Town's web site. Copies of the notice were mailed to agencies and stakeholders as well as to owners of properties located in the immediate vicinity of the Jenetta Street and Powerline Road well sites.

The following Town staff and consultant representatives were available to answer questions at the PIC:

Kevin Lalonde, Director of Public Works
Mike Pincivero, Manager of Engineering Services, RMO/RMI
Wendy Smeh, Ainley & Associates
Dave Ellis, Ainley & Associates

The PIC was an open forum with display boards outlining the EA process and the 12 alternative solutions including identification of the recommended solution. Comment sheets were made available to all attendees. A copy of the PIC presentation material and the sign-in sheet is included in *Appendix 'F'*.

A total of 5 people attended the meeting including Councilor Morley Bercovitch and four members of the public. No completed comment sheets were received at the PIC.

13. Phase 2 Public and Review Agency Comments

Three of the four residents who attended the Public Information Centre (PIC) live on Timberland Crescent abutting the Powerline Road well site. As such, most of the questions were related to a potential expansion of the facilities at that site.

One of the attendees indicated that she is a volunteer who assists the MNR monitoring endangered Piping Plovers near the Jenetta Street well site during nesting season. She was pleased that the nesting site has been identified in the EA process and that the Town will be working closely with the MNR to ensure its protection.

No comments were received at the PIC. However, following the PIC, one resident mailed in a comment sheet, stating that she was in agreement with the water supply expansion and commented that the Piping Plover had been considered in the EA process. No response was required.

Responses to the Notice of PIC were received from the Rama First Nations acknowledging receipt of the Notice and providing further contact information. No response was required. The Nottawasaga Valley Conservation Authority was also emailed a copy of the PIC boards as requested. A copy of this correspondence is also included in *Appendix 'E'*.

14. Preferred Alternative

Further to the receipt of comments as a result of Phase 2 (including the PIC) and supporting studies noted above, the Phase 2 Preferred Alternative is to increase the water supply through phasing in wells to meet demands as follows:

- Stage 1 - Commission the existing drilled well at the existing Jenetta Street well site in the estimated year of 2026 (Option 6)
- Stage 2 - Drill one new well (and possibly an additional standby well) at the existing Jenetta Street well site including the expansion of the pump house and associated piping in the estimated year of 2033(Option 7A)
- Stage 3 - Drill a new well at the existing Powerline Road well site if required, including expansion of the pump house and associated piping in the estimated year of 2039 (Ultimate Build-out) (Option 7B)
- Research and implement water conservation methods on an ongoing basis to ensure adequate water supply capacity. (Option 2)

The preferred alternative was presented as the Recommended Solution at the Public Information Centre. The commissioning of the wells would still be considered as a Schedule 'B' Environmental Assessment.

15. Inventory of the Natural, Social and Economic Environments

In order to assess the effects of the preferred option on the environment, it is necessary to describe the existing environment based on soils, urban and rural development, climate, economic and socio aspects, terrestrial vegetation and wildlife, heritage resources, recreation and existing utilities. The following sections provide brief descriptions of these environmental characteristics within the study area.

15.1 Natural Environment

The post-glacial processes responsible for the present form of the Town of Wasaga Beach landscape left behind a unique legacy of landform features that were eventually colonized and stabilized by a variety of vegetation types adapted to the varied soil and moisture regimes of these landform features. Several of these communities are rare at a provincial and global level. The diversity of rare vegetation communities within the Town of Wasaga Beach is unparalleled within the remainder of the NVCA jurisdiction. A number of natural features within the Town of Wasaga Beach have been designated as significant natural areas by the MNR, Simcoe County and/or the Town. (Source: Town of Wasaga Beach, Natural Heritage System, Background Study and Landscape Model, 2005)

Wasaga Beach Provincial Park near Powerline Road is habitat of the Eastern Hog-nosed Snake, a federally and provincially designated threatened species. This species and its habitat are protected

through federal legislation and provincial legislation as well as provincial policy. The Town of Wasaga Beach Official Plan provides policies directed towards protection of threatened and endangered species such as the Eastern Hog-nosed Snake.

For the past four years, Piping Plovers, which are considered an endangered species under Ontario's Endangered Species Act, have been observed nesting in Beach Area 1 of Wasaga Beach Provincial Park during the spring. Piping Plovers are considered to be shore birds and generally nest on wide open beaches with little vegetative cover so that they can see long distances for protective reasons. A program has been implemented to protect critical nesting habitat by fencing off the nesting areas during the nesting period and while the young are being reared.

The nesting areas are monitored daily, as they are vulnerable to human traffic and predators. The Ministry of Natural Resources must be consulted regarding the construction schedule to ensure that it will not interfere with the Piping Plover nesting, which occurs in the Beach 1 area.

15.2 Socio-Economic Environment

The development of the area is described in detail in the Town's Official Plan. In general, development is designed to meet recreational needs. Cottage, hotel/motel and residential development are prevalent.

The study area consists of a combination of seasonal residential, year round residential and commercial tourism. At the present time, approximately 93% of the existing residences are serviced with municipal water. The Town has a mandate to service the entire residential population of the Town. Furthermore, according to Statistics Canada, the Town's population increased at a rate of 21.0% from 2001-2006. This is high compared to the Canadian population growth rate of 5.4% for the same period. The Town is 58.43 km2 in area and in 2006 was comprised of 9,716 private dwellings

Within the study area, the dominant recreational activities are beach related activities along the shore of Georgian Bay. In addition, recreational activities include golfing, cross-country skiing, hiking, biking and snowmobiling. The Town's economic prosperity depends greatly on these recreational activities. The main industry is Wasaga Beach is the service industry relating to the high level of tourism.

The Jenetta Street site is a high profile area, being located near the entrance to the Park 1 area of Wasaga Beach Provincial Park. Ontario Parks (Ministry of Natural Resources) would need to be consulted regarding the design of an expansion to the existing pumphouse, or the design of a new building, to house Well No. 4 and Well No. 5. The building exterior would need to blend in with the surroundings and would likely be similar in style to the existing Jenetta Street Well Pumphouse.

Due to the proximity of the Park 1 area of Wasaga Beach Provincial Park, the beach and nearby tourist shopping area, any construction at the Jenetta Street facility should be performed during off peak times for tourism. This is generally considered to be after Labour Day (September) and prior to Victoria Day (May). The construction schedule and construction access routes would need to be coordinated with Ontario Parks (Ministry of Natural Resources).

The preliminary Opinion of Cost to commission Jenetta Street Well No. 4 in present day value is $2,055,000. This includes: expanding and modifying the existing building (or construction of a new building), construction of well housing, purchase, installation and hook-up and wiring for the new well

pump, well pump discharge lines, complete with air release valves, sample taps, pressure switches and pump control valves, a sodium hypochlorite system, a sodium silicate iron sequestering system, HVAC and plumbing and electrical, including the replacement of a diesel generator set, MCC and wiring. The design allows for the new well pump to be separate from the existing well pumps, which would allow for two separate supplies for the station. This means that if the existing wells are out of service, the new well can function independently.

The preliminary Opinion of Cost for a fifth well at Jenetta Street in present day value is $2,730,000. This includes: cost for drilling the well, including drilling, testing and permitting, installation and hook-up and wiring for the new well pump, and well pump discharge lines, complete with air release valves, sample taps, pressure switches and pump control valves, a sodium hypochlorite system, a sodium silicate iron sequestering system, HVAC and plumbing and electrical, including MCC and wiring. The fifth well pump could be housed in an expansion of the Jenetta Street well Pumphouse (or new building) and the piping would be connected to Jenetta Well No. 4.

It should be noted that the cost estimate for Well No. 4 and Well No. 5 was prepared for a preliminary conceptual design only and is not a detailed cost breakdown. The costs will be revisited when a comprehensive design is completed.

A cost estimate for a 5th well at Powerline Road was not completed. The need for another well at Powerline Road will be determined by growth in Wasaga Beach and any potential need is a long-term future consideration.

The work to expand Wasaga Beach's water supply would be financed through development charges and would have minimal impact to existing residents. Future repairs or upgrades would be financed through the Public Works budget.

The provision of a secure water supply that has ample capacity to meet the needs of residents is a positive socio-economic impact.

A table outlining a preliminary Opinion of Cost is attached as *Appendix 'H'*.

15.3 Construction Mitigation

The following table outlines the proposed construction mitigation measures:

Table 6: Proposed Construction Mitigation Measures

Effect	Mitigation
Social Impacts	- minimize impacts to tourism by avoiding construction at Beach Area 1 during tourist season
Species Protection	- ensure Contractor is aware of nearby endangered Piping Plover nesting site and mitigation measures are utilized to avoid harm - communication and feedback with the MNR and interested parties
Sedimentation	- erosion control with sediment traps - adhere to buffer and setback requirements

Effect	Mitigation
Drainage Disruption	- maintain and use existing drainage courses
Contamination of Surface Waters	- spill control/containment measures to be in place - install check dams in drainage swales
Dewatering	- employ proper dewatering techniques
Contamination of Groundwater - Spills	- construction refueling precautions
Tree removal	- minimize tree removal - replace trees through landscape design where possible
Traffic flow	- ensure continuous use of Powerline Road for public transportation - traffic flagging when necessary - Minimize disruption to Beach Area 1 and Spruce Street
Soils Geology - mixing of topsoil with subsoil	- Strip and stockpile topsoil separate from subsoil
Public Health - exhaust emissions	- minimize operation of emission producing construction equipment and establish reasonable daily and seasonal construction periods

Contractors should be made aware of all proposed mitigation measures and environmental considerations. Mitigation measures should be monitored throughout construction.

15.4 Long-Term Mitigation

The following table outlines proposed long term mitigation measures:

Table 7: Proposed Long-Term Mitigation Measures

Effect	Mitigation
Surface Water Drainage	- design new site drainage to match into existing drainage system - landscape new site to provide adequate drainage
Residential	- monitor noise and air quality
Recreational	- monitor noise and air quality
Economic - increases in operating cost	- assess annual operating cost and enact a by-law to allow for any needed increase
Economic - capital cost	- adequate development charges
Odour - Air Quality	- air emissions will be from standby diesel generator (if required), air modeling will be done as part of Ministry of Environment application process - measures can be taken to minimize impact based on modeling, e.g. increase stack height
Noise	- proper muffling devices and acoustical louvers on buildings (generators)

16. Aboriginal Consultation

Aboriginal (First Nations) consultation was provided throughout the Class EA planning process. Sixteen area First Nation communities, along with the Department of Indian and Northern Affairs Canada, Ontario Ministry of Aboriginal Affairs, Native Affairs Secretariat, Office of the Federal Interlocutor for Métis and non-status Indians, Georgian Bay Métis Council, Moon River Métis Council, Métis Nation of Ontario, the solicitor for Williams Treaties First Nations and Chiefs of Ontario, were circulated on the Notice of Study Commencement, Notice of Public Information Centre and the Notice of Completion.

Based on a review of the responses received, no issues or concerns were raised by the Aboriginal communities.

17. Approvals/Scheduling Requirements/Future Studies

17.1 Permits and Approvals

The existing Drinking Water Permit will need to be amended to include the proposed well and associated facilities. The Permit amendment application will include air emission modelling for a standby diesel generator set, if required.

A Permit to Take Water may be required. This will be confirmed by undertaking a geotechnical investigation during the design phase.

Prior to any work, including site alteration, in an NVCA regulated area, alteration of a watercourse or interference with a wetland permit approval from the NVCA is required.

Other approvals and permits include a Site Plan Approval and Building Permit. Copies of the existing Permits to Take Water for the existing wells are included in Appendix 'I'.

17.2 Monitoring Requirements

Upon completion of construction of the well(s) and associated facilities and watermains, OCWA will assume full-time operation of the facility. OCWA will monitor the facility and the complete water distribution system as per requirements set out in the amended Drinking Water Permit.

17.3 Implementation Schedule

The following are approximate dates for key milestones:

- Posting of DRAFT Phase 1 & 2 Report for 30 day review: September 2013
- Publish Notice of Completion of Class EA: September 2013
- Public and Agency review of DRAFT Phase 1 & 2 Report (30 days): October 2013

- Finalize Phase 1 & 2 Report based on comments received: December 2013
- Memo to Ministry of Environment – Completion of Class EA: December 2013
- The Town of Wasaga Beach may undertake design upon completion of Class EA.

18. Notice of Completion

The Notice of Completion was published in the September 26, 2013 and October 3, 2013 editions of the Wasaga Sun. It was also mailed to the contact list that has been maintained throughout the project. A copy of the Notice and mailing list is included in *Appendix 'J'*.

A DRAFT Phase 1 & 2 Report was placed for public review for 30 calendar days at the Town of Wasaga Beach Municipal Offices and on the Town of Wasaga Beach's website.

No comments were received during the 30 day review period.

19. Phase 1 & 2 Report

A Final Phase 1 & 2 Report was prepared and was submitted to the Town of Wasaga Beach on December 20, 2013

20. Recommendations and Conclusions

Further to the completion of the 30 day review period of the DRAFT Phase 1 & 2 Report, The Town of Wasaga Beach may undertake the design and construction of the preferred alternative, when deemed necessary for future growth, as follows:

- Stage 1 - Commission the existing drilled well at the existing Jenetta Street well site in the estimated year of 2026
- Stage 2 - Drill one new well (and possibly an additional standby well) at the existing Jenetta Street well site including the expansion of the pump house and associated piping in the estimated year of 2033
- Stage 3 - Drill a new well at the existing Powerline Road well site if required, including expansion of the pump house and associated piping in the estimated year of 2039 (Ultimate Build-out)
- Research and implement water conservation methods on an ongoing basis to ensure adequate water supply capacity.

It is recommended that the Town of Wasaga Beach obtain the required permits and approvals and implement the mitigation measures outlined in this Report.

21. References

"*First Phase Report, Town Wide Water Well Development Study*", Town of Wasaga Beach, Project 2012-10, Ian D. Wilson Associated Limited, July 31, 2012.

"*Growth Plan for the Greater Golden Horseshoe*" Approved by the Lieutenant Governor in Council, Prepared and approved under the *Places to Grow Act, 2005*, to take effect on June 16, 2006. Ministry of Public Infrastructure Renewal, 2006.

"*Official Plan of the Town of Wasaga Beach*", October 2010.

"Town of Wasaga Beach Water and Sewage Capacity Assessment, 2011 Year-End Report", Ainley & Associates Limited, 2012.

"*Town of Wasaga Beach, Water Supply Works and Water Pollution Control Plant, Capacity Allocation Update*", Ainley & Associates Limited, Year-End Reports for the Years 2005 to 2011 Inclusive.

"*Town of Wasaga Beach Ultimate Water Supply and Distribution System Model Update*", Ainley & Associates Limited, 2009.

The Statistics Canada webpage, 'Focus on Geography Series, 2011 Census – Census Subdivision of Wasaga Beach, Ontario, Population' http://www12.statcan.gc.ca/census-recensement/2011/as-sa/fogs-spg/Facts-csd-eng.cfm?Lang=Eng&TAB=1&GK=CSD&GC=3543064

Appendix A
Background Documentation – Hydraulic Reserve Capacity Ledger

TOWN OF WASAGA BEACH WATER SUPPLY SYSTEM UNCOMMITTED HYDRAULIC RESERVE CAPACITY - WATER
DEPLETING CAPACITY LEDGER
2011 YEAR END

Design Capacity[1]	31,415	m³/d
Maximum Day Demand (3 yr. High occurred in 2011[2]	19,039	m³/d
Hydraulic Reserve Capacity (Cu)	12,376	m³/d
Actual Equivalent Units Connected to the Sytem(2011)	12,159	units
Maximum Day Demand (actual per equivalent residential unit)	1.566	m³/unit/day
Maximum Day Demand (future per equivalent residential unit)[3]	2.036	m³/unit/day

ITEM	DEVELOPMENT		NUMBER OF EQUIVALENT RESIDENTIAL UNITS	CUMULATIVE NUMBER OF EQUIVALENT RESIDENTIAL UNITS	DEVELOPMENT TYPE	DEVELOPMENT MDD[2,3] (m³/d)	CUMULATIVE MDD (m³/d)	CAPACITY REMAINING (m³/d)	REMAINING EQUIV. RES. UNITS
	DESIGN CAPACITY							31,415.0	
A Connected to the System (Dec. 2010)	Residences Connected to the existing System (December 2009)		9,429		Residential				
	Commercial/Institutional Connected to the existing system (December 2009)		1,957		Commercial				
	Baywood - Beach House Resort 30th & Shore Lane		8		Residential				
	Beacon Landing		3		Commercial				
	Berkley Bluewater		65		Residential				
	Berkley Homes -Westbury - Wasaga Beach Village - Phase 2		104		Residential				
	Bremont / Copper Creek Homes		53		Residential				
	Donato Ramblewood Estates Phase 2		26		Residential				
	Georgian Glen expansion		13		Residential				
	Hamount - Stonebridge by the Bay - Phase 4B		81		Residential				
	Parkbridge Country Meadows		94		Residential				
	Parkbridge - Park Place Phase 6A		56		Residential				
	Pier 24		9		Residential				
	Sceptre Aquabeach Condo Development		36		Residential				
	Wasaga Country Life - Phase 4C, Stage 3		30		Campground/Seasonal				
	Waterside Retirement Lodge (Jarlett)		89		Residential				
	Infill Residential Lot Connections		106		Residential				
	Subtotal- Connected to the System		*12,159*	*12,159*		19,039	19,039	12,376	*6,080*
B Existing Connection Available	Business Park		37	12,196	Commercial	75	19,114	12,301	6,043
	Residences - Connection Available (December 2010)[7]		2,382	14,578	Residential	4,849	23,963	7,452	3,661
	Subtotal - Existing Connection Available		*2,419*	*14,578*		*4,924*	*23,963*	7,452	3,661
C Existing Residences - Connection Not Yet Available	Baysands Drive		160	14,738	Residential	326	24,289	7,126	3,501
	Beaver Run Estates - Woods of Wasaga Condos		35	14,773	Residential	71	24,360	7,055	3,466
	Bell's Park Road Area / Golf Course Road		35	14,808	Residential	71	24,431	6,984	3,431
	Knox Road East and West		230	15,038	Residential	468	24,899	6,516	3,201
	McIntyre Creek Subd.		292	15,330	Residential	594	25,494	5,921	2,909
	Ramblewood Area / Bay Colony		229	15,559	Residential	466	25,960	5,455	2,680
	Robinson Road Area		122	15,681	Residential	248	26,208	5,207	2,558
	Sunward Estates		151	15,832	Residential	307	26,516	4,899	2,407
	Wasaga Sands Drive Area		189	16,021	Residential	385	26,900	4,515	2,218
	Subtotal - Existing Residences - Connection Not Yet Available		*1,443*	*16,021*		*2,937*	*26,900*	*4,515*	*2,218*
D Committed Developments - Approved and/or Under Construction	Beaver Run Estates - Woods of Wasaga Condos		50	16,071	Residential	102	27,002	4,413	2,168
	Berkley Bluewater		51	16,122	Residential	104	27,106	4,309	2,117
	Berkley Homes - Wasaga Beach Village - Phase 2		27	16,149	Residential	55	27,161	4,254	2,090
	Blueberry Village Phase 1		10	16,159	Residential	20	27,181	4,234	2,080
	Club Villa - Susie Nquyen		22	16,181	Residential	45	27,226	4,189	2,058
	Marocco Commercial/Residential @ 45th St.		16	16,197	Commercial	33	27,259	4,156	2,042
	Parkbridge Country Meadows		58	16,255	Residential	118	27,377	4,038	1,984
	Parkbridge - Park Place Phase 6B & 6C		95	16,350	Residential	193	27,570	3,845	1,889
	Wally Drive (North)	10 Ac	26	16,376	Residential	53	27,623	3,792	1,863
	Subtotal - Committed Developments - Approved and/or Under Construction		*355*	*16,376*		*723*	*27,623*	*3,792*	*1,863*
E Committed Developments - Draft/Site Plan Approved	Baycliffe Homes/Morgan Road		367	16,743	Residential	747	28,370	3,045	1,496
	Baywood New England Village Condos		96	16,839	Residential	195	28,566	2,849	1,400
	Donato Strite - Golf Course Road		39	16,878	Residential	79	28,645	2,770	1,361
	Green Hills Homes Townhouse		16	16,894	Residential	33	28,678	2,737	1,345
	Hamount - Stonebridge by the Bay - Phase 4C		27	16,921	Residential	55	28,732	2,683	1,318
	Hamount - Stonebridge by the Bay - Phase 4D		62	16,983	Residential	126	28,859	2,556	1,256
	Hamount - Stonebridge by the Bay - Phase 4E		25	17,008	Residential	51	28,910	2,505	1,231
	Hamount - Stonebridge by the Bay - Phase 4F		130	17,138	Residential	265	29,174	2,241	1,101
	Iantorno Development		12	17,150	Residential	24	29,199	2,216	1,089
	Marocco - Ramblewood Drive		163	17,313	Residential	332	29,530	1,885	926
	Mollela (Devlin) - Westbury Road		60	17,373	Residential	122	29,653	1,762	866
	Optima Homes Subdivision		39	17,412	Residential	79	29,732	1,683	827
	Pacific Developments - Sunnidale Trails - Phase 1		556	17,968	Residential	1,132	30,864	551	271
	Regina - Douglas Dr		78	18,046	Residential	159	31,022	393	193
	Sceptre - Westbury Rd. Townhouse		16	18,062	Residential	33	31,055	360	177
	York Contracting Phase 2		4	18,066	Commercial	8	31,063	352	173
	Zancor - Trillium Forest North		228	18,294	Residential	464	31,527	-112	-55
	Subtotal - Committed Developments - Draft/Site Plan Approved		*1,918*	*18,294*		*3,904*	*31,527*	*-112*	*-55*
F Development with Official Plan & Zoning Bylaw Status	Blueberry Village Ph 2		17	18,311	Residential	35	31,562	-147	-72
	Baywood New England Village (Gateway)		1,174	19,485	Residential	2,390	33,952	-2,537	-1,246
	DAS Development		30	19,515	Commercial	61	34,013	-2,598	-1,276
	Hamount - Stonebridge by the Bay - Commercial Phase 3B		53	19,568	Commercial	108	34,121	-2,706	-1,329
	Marocco - Sunnidale Knox - High Density		392	19,960	Residential	798	34,919	-3,504	-1,721
	Mollella - Mosley Street Condos		44	20,004	Residential	90	35,008	-3,593	-1,765
	Parkbridge - Wasaga Country Life - Motor Home Park		52	20,056	Residential	106	35,114	-3,699	-1,817
	Parkbridge Wasaga Meadows East - Theme Park Dr		92	20,148	Residential	187	35,301	-3,886	-1,909
	Santini - RRE Townhome Condo		16	20,164	Residential	33	35,334	-3,919	-1,925
	Skydale Condos - Coastline Dr.		22	20,186	Residential	45	35,379	-3,964	-1,947
	Stirling Cook/ Hwy 26 (West Wasaga Development)		419	20,605	Commercial/Residential	853	36,232	-4,817	-2,366
	Sunnidale Trails - Picavet Rivers Edge - Phase 1		940	21,545	Residential	1,913	38,145	-6,730	-3,306
	Ty Corp - 45th Street		6	21,551	Residential	12	38,157	-6,742	-3,312
	Subtotal - Developments with Official Plan & Zoning Bylaw Status		*3,257*	*21,551*		*6,630*	*38,157*	*-6,742*	*-3,312*
G Uncommitted Development Proposals	Beach Area 1 (per website)		786	22,337	Commercial	1,600	39,757	-8,342	-4,098
	Berkley: River Road West - Wasaga Village Ph. 3		32	22,369	Residential	65	39,822	-8,407	-4,130
	DiGiovanni Group - Tourist Resort		177	22,546	Commercial	360	40,183	-8,768	-4,307
	Maram Building Corp - Fairgrounds Road Commercial		20	22,566	Commercial	41	40,223	-8,808	-4,327
	Marocco - Arnill		80	22,646	Residential	163	40,386	-8,971	-4,407
	Pacific Development - Sunnidale Trails - Phase 2		405	23,051	Residential	824	41,211	-9,796	-4,812
	Sabatini (Highway 26)	13 Ac	55	23,106	Residential	112	41,323	-9,908	-4,867
	Sceptre - RRW		600	23,706	Residential	1,221	42,544	-11,129	-5,467
	Sunnidale Trails - Marocco/Freethy		97	23,803	Residential	197	42,741	-11,326	-5,564
	Sunnidale Trails - Picavet Riverside - Phase 2		210	24,013	Residential	427	43,169	-11,754	-5,774
	Subtotal - Uncommitted Development - Proposals		*2,462*	*24,013*		*5,012*	*43,169*	*-11,754*	*-5,774*
H **** Vacant Land Development Potential		Area							
	Ansley Grove Subdivision	7 Ac	22	24,035		45	43,214	-11,799	-5,796
	Barac: Ramblewood Drive	12.6 Ac	53	24,088		108	43,322	-11,907	-5,849
	Bell's Park (John Bell)	100 Ac	420	24,508		855	44,176	-12,761	-6,269
	Chapman: Hwy 26 / Betty Blvd	28 Ac	40	24,548		81	44,258	-12,843	-6,309
	Conc. 8 S. Part Lot 22 (Flos)	40 Ac	80	24,628		163	44,421	-13,006	-6,389
	Deerbrook Drive (Lithuanian Camp)	20 Ac	84	24,712		171	44,592	-13,177	-6,473
	McNabb Farm	74 Ac	235	24,947		478	45,070	-13,655	-6,708
	Misc. Hwy. 26 Properties	55 Ac	232	25,179		472	45,542	-14,127	-6,940
	Mosley St (62nd to 71st St)	36 Ac	151	25,330		307	45,850	-14,435	-7,091
	Pine Valley - Ph 4 (Between 40th and 41st Street)	7 Ac	30	25,360		61	45,911	-14,496	-7,121
	River Road West (North East)	140 Ac	750	26,110		1,527	47,437	-16,022	-7,871
	Wasaga Pines Retail: Airport Road	20 Ac	84	26,194		171	47,608	-16,193	-7,955
	Whitehead: Hwy 26 / Joan Ave	17 Ac	72	26,266		147	47,755	-16,340	-8,027
	Subtotal - Vacant Land Development Potential		*2,253*	*26,266*		*4,586*	*47,755*	*-16,340*	*-8,027*
	Total Future Potential Equivalent Residential Units		*14,107*						

Developments are listed in alphabetical order. No preference of order is given or inferred.

Notes:

1

2 The current rated capacity of the Wasaga Beach Water Supply Works, per the Certificate of Approval and per the Permit to Take Water is 31,415 m^3/day

3 Existing MDD is based on the highest MDD for 2009, 2010 and 2011.

4 Future demand is calculated based on an MDD/unit 30% higher than the historical highest MDD/unit for 2009, 2010 and 2011. This results in an MDD/unit of 2.036m3/unit/day.

Number of units connected to the system at the end of 2011 was calculated based on: the know number of connected units from the 2009 Capacity Study, plus connections within developments and infill units made in 2010 and 2011.

5 Infill units were determined based on records of water connections provided by Wasaga Beach Building Department

6 Draft or Site plan submission under review

Appendix B
Water Well Development Study Report, Ian D. Wilson Associates Limited
Clarification Email re: Study Report

FIRST PHASE REPORT
TOWN WIDE WATER WELL DEVELOPMENT STUDY
TOWN OF WASAGA BEACH

Prepared For:
The Town of Wasaga Beach
c/o Ainley & Associates Limited

Project 2012-10
July 31, 2012

IAN D. WILSON ASSOCIATES LIMITED
CONSULTING HYDROGEOLOGISTS

Clinton, Ontario

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FIRST PHASE REPORT
TOWN WIDE WATER WELL DEVELOPMENT STUDY
TOWN OF WASAGA BEACH

1.0 INTRODUCTION AND STUDY SCOPE

The Town of Wasaga Beach has initiated a Town Wide Water Well Development Study and Class Environmental Assessment to identify the Town's short-term and long-term water demands, to assess potential water supplies and to confirm a source(s) to meet the Town's future water requirements.

As the first phase of the water well development study, this report has been prepared to:

- Conduct a review of all relevant background information pertaining to the Jenetta Street Well Field, the Powerline Road Well Field, historical test drilling programs within the Town, well surveys within the town and regional groundwater studies.
- Conduct a review of the current Ministry of the Environment water well record database, particularly for wells completed within the lower overburden aquifer.
- Conduct a review of all available municipal well withdrawals data, water level monitoring data and municipal well performance data collected by the Town for as long a monitoring period as is available.
- Assess all available data for the Powerline Road Well Field to determine the feasibility of installing higher capacity pump(s) in the existing wells.
- Assess all available data for the Jenetta Street Well Field to confirm the feasibility of bringing Well 4 on-line and/or installing higher capacity pump(s) in the existing wells.
- Assess all available well performance data, municipal and private (where available), to establish the impact of withdrawals to date on groundwater resources within the lower overburden aquifer.
- Assess hydrogeological reports, well records and all other available information to confirm the lateral extent of the lower overburden aquifer. This will include cross-sectional analyses and well performance analyses.
- Assess regional infiltration rates and regional rates of groundwater in-flow to provide a conservative estimate of the safe long-term yield of the identified full extent of the lower overburden aquifer within and near the Town.

- Provide an opinion, based on available information, on the feasibility of expanding the existing well fields, or establishing new well fields.

No subsurface testing or well drilling is proposed for this stage of the assessment.

The Powerline Road Well Field currently consists of four lower overburden aquifer wells (Well 1 being a standby well) with a permitted rate of withdrawal of up to 3,636L/min per well, to a well field daily maxima of 15,707m^3/day. The Jenetta Street well field currently consists of four lower overburden aquifer wells, three of which are currently permitted, also with a permitted rate of withdrawal of up to 3,636L/min per well, to a well field daily maxima of 15,707m^3/day. The two well fields have a permitted combined yield of 31,415m^3/day.

According to the Town's Engineering Consultants, Ainley & Associates Limited, the projected ultimate water demand for the Town is a maximum day demand of 41,000 m^3/day to 48,000 m^3/day and an average day demand in the range of 15,000 m^3/day to 18,000 m^3/day. Based on current projections, the ultimate demand would be reached in the year 2045.

2.0 INFORMATION SOURCES

The first phase of the study utilizes information gathered from the following primary sources:

- "Report on Ontario Water Resources Commission Test Drilling Project No. 5-0111-69, Village of Wasaga Beach", Hydrology Consultants Limited, December 1971.
- "Report on Ministry of the Environment Test Drilling Project 5-0111-69, Village of Wasaga Beach", Hydrology Consultants Limited, July 1972.
- "Report on a Test Drilling Program, Town of Wasaga Beach, Ministry of the Environment Project No. 5-0111, 1978", Wilson Associates, January 30, 1979. (Powerline Road)
- "Well Construction, Town of Wasaga Beach, Ministry of the Environment, Project No. 5-0111, Contract No. W3, 1980", Wilson Associates, April 25, 1980. (Powerline Road)
- "Well Construction, Well 3, Town of Wasaga Beach, Contract No. 1", Wilson Associates, June 22, 1992. (Powerline Road)
- "Well Evaluation, Combined Testing of Wells 1, 2 & 3, Town of Wasaga Beach", Wilson Associates, January 10, 1994.
- "Well Construction, Jenetta Street Well Field, OCWA Project 53-0057-01, Contract 11A, Town of Wasaga Beach", Wilson Associates, August 21, 1995.
- 'Well Field Evaluation, Well 2, Well 3 and New Well 4, Powerline Road Well Field, Town of Wasaga Beach", Wilson Associates, December 24, 2002.
- "Town of Wasaga Beach Groundwater Resource Assessment", Dixon Hydrogeology Limited, October 31, 2001.
- "Well Field Evaluation, Wells 1, 2, 3 and New Well 4, Jenetta Street Well Field,

Town of Wasaga Beach", Wilson Associates, September 13, 2004.

- "2004 Monitoring Summary Report, Wasaga Beach Water Supply, Town of Wasaga Beach", Wilson Associates, December 15, 2004.
- "Source Water Protection Threat Assessment, Town of Wsaga Beach", Golder Associates Ltd., July 2010.
- Ministry of the Environment water well record database, current to May 2012.

3.0 SITE SETTING, GEOLOGY AND HYDROGEOLOGY

3.1 Setting:

The Town of Wasaga Beach is located along the southern shore of Nottawasaga Bay. The Town extends mostly along the shoreline for a distance of about 16km, from Fairgrounds Road in the west to the Eastdale Drive area in the east. The Town extends inland from the shoreline about 1 to 1.5 km in the western and eastern peripheries of the community, but extends as far south as 5.5km inland in the central part of the Town. The vast majority of the urbanized part of Town is located within about 1 to 1.5km of the shoreline. The majority of inland areas of Town are occupied by Wasaga Beach Provincial Park, or are otherwise lightly developed. Figure 1 shows the current layout of the community.

The Nottawasaga River flows generally northward in a meandering path through the central areas of the Town. Jack's Lake and Marl Lake, both located within the southern and southeastern peripheries of the Town, are the only other significant inland surface water bodies.

According to National Topographic Series mapping (sheets 31D/5, 31D/12 and 41A/8) surface relief within the Town is generally flat with a shallow gradient towards Nottawasaga Bay. An east-west trending band of sand dunes within the southern periphery of the Town are indicated to exhibit a relief approaching 20m.

3.2 Geology and Hydrogeology:

According to Ontario Geological Survey Maps P.919, P.975 and P.978 (Quaternary Geology of the Collingwood-Nottawasaga Area, the Orr-Lake Area (Western Half) - Nottawasaga Area (Eastern Half), and the Barrie Area (Western Half)), the upper soils over the majority of the Town consist of sand of eolian origin (dunes in the southern areas of Town), of sand of glaciolacustrine origin (raised beach deposits north of the dunes) and of sand of modern beach origin (near shoreline). Fine-grained surface soils are mapped within the western periphery of Town (sandy silt till) and the southern periphery of Town (glaciolacustrine deposits of silt and clay near Jack Lake and Marl Lake).

Figures 2 and 3 are schematic cross-sections (west-east and north-south) showing the sequence of overburden deposits within the Town. Figure 4 shows the locations of the cross-sections. These cross-sections were prepared to update the cross-section

analyses prepared for the 2001 Town of Wasaga Beach Groundwater Resource Assessment.

As has been well documented, three overburden aquifers are present in the vicinity of Wasaga Beach:

- Upper Aquifer - The surficial sands present throughout much of the Town are sufficiently deep (i.e. upwards of 15m deep in areas, thinning appreciably in the far western end of Town) to support an upper watertable aquifer, which historically has been utilized by shallow domestic sandpoint, dug and drilled wells throughout the Town. The upper aquifer is not suitable for expansion of the municipal water supply due to relatively low yield and poor aquifer security.

- Intermediate Aquifer - Typically present between 30 and 40m below grade is a variably thick sand deposit present throughout much, but not all of the Town. The intermediate aquifer terminates near the extreme western end of Town, but extends eastward and southward beyond the Town limits. Within the eastern end of Town, records for several deeper test wells suggest that the lower and intermediate aquifers combine to form an aquifer complex. As with the upper aquifer, the intermediate aquifer has been historically utilized by many domestic drilled wells throughout the Town. The intermediate aquifer normally exhibits low to moderate yields and is not considered suitable for expansion of the municipal water supply.

- Lower Aquifer - Present at depths of 48 to 56m, and located at the base of the overburden, set mostly within a buried bedrock valley in the north-central and north-eastern sections of the Town, the lower aquifer (the 2001 Town of Wasaga Beach Groundwater Resource Assessment refers to the lower aquifer as the Wasaga Beach Aquifer) is capable of substantial yields. In its most favourable locations, the aquifer is relatively thick and composed of highly transmissive gravels and coarse sands. All Wasaga Beach Municipal Wells are completed in this aquifer. Historical test drilling records, the MOE water well record database and numerous previous reports indicate that the lower aquifer extends along the shore of Nottawasaga Bay from about 1km west of the Powerline Road well field in a northeasterly direction to a meaningful terminus about 4 to 5km northeast of the Jenetta Street well field. Cross-sectional analysis and past monitoring of water levels in intermediate-depth observation wells suggests that the lower and intermediate aquifers form a hydraulically connected complex generally east of the Jenetta Street well field. The lower aquifer meaningfully extends inland from the shoreline only about 3km in the west (in the vicinity of the Powerline Road Well Field), pinching to about only 1km inland in the east.

The upper and intermediate aquifers are separated by a regionally consistent aquitard, commonly described in driller's records as clay. The aquitard separating the intermediate and lower aquifers has been found to be discontinuous, particularly east of the Jenetta Street Well Field, where the lower and intermediate aquifers appear to

form an aquifer complex.

4.0 WATER LEVEL MONITORING DATA

For this study, the Town provided regular water level monitoring data for five monitoring wells in the Powerline Road Well Field area (all lower aquifer), four monitoring wells in the Jenetta Street Well Field area (two lower aquifer, one intermediate aquifer and one shallow aquifer) and one distant monitoring well on Sunnidale Road (intermediate aquifer) from the mid-1990's to 2009. Figures 5 through 14 present the mid-1990's to 2009 monitoring data in graphical format. Figures 15, 16 and 17 show the locations of the monitoring wells. Available well records for the monitoring wells are included in the appendix.

The water levels in the seven lower aquifer monitoring wells in the vicinity of the two well fields varied seasonally, most in the order of about 5m each year. The water level in Powerline Road TH1-92 varied upwards of 10m each year due to close proximity to the Powerline Road production wells. In the lower aquifer monitoring wells, the overall trend of the high spring water levels since the mid-1990's is relatively stable, with a possible long-term decline in the order of 0.5m commencing in about 2002.

Water levels in the two intermediate aquifer monitors (Jenetta Street OW1-96 (intermediate) and Sunnidale Road OW1-93) varied seasonally in the order of 0.5m to 1m. It is noted that the water level in OW1-96 (intermediate) lowered about 1m in response to the commencement of pumping from the Jenetta production wells in 1997, however the water level in this well has remained overall relatively stable since that time. The water level in OW1-93 has remained stable in the long-term.

The water level in Jenetta OW1-96 (shallow) is indicated to vary about 2 to 3m seasonally. As with the lower aquifer monitors, the overall trend of the high spring water levels in the shallow monitor has remained relatively stable, with a possible long-term decline in the order of 0.5m, also commencing in about 2002.

The post-2002 decline of water levels indicated in the lower aquifer monitors and the shallow aquifer monitor is relatively minor, particularly for the lower-aquifer wells (amounting to about 1% of available drawdown in the deep wells). The decline is most likely related to climate influences, but may also be related to the timing of monthly observations relative to seasonal water level peaks, and also minor long-term aquifer impacts from withdrawals. The overall indication is that water levels in the lower aquifer are recovering by the spring months each year.

No recent production well water level data were provided for review. Such data would provide indications of well yield stability, or early signs of well failure.

The 2011 Ontario Regulation 170/03 Annual Report for the Town's water supply indicate no bacteriological or chemical parameters suggesting surface water impacts in the lower aquifer at either well field.

5.0 CURRENT WELL FIELD YIELD POTENTIAL

5.1 Powerline Road Well Field:

The Powerline Road Well Field currently consists of four wells (Well 1 being a standby well) with a permitted rate of withdrawal of up to 3,636L/min per well, to a well field daily maxima of 15,707m^3/day. Figure 16 shows the layout of the well field. The well records for the four production wells are included in the appendix.

Based on a long-term extrapolation of the results of the combined well field test conducted in 2002, and assuming that the three main production wells (i.e. Wells 2, 3 and 4) at Powerline Road remain similarly efficient, there appears to be potential in the vicinity of the well field to increase its daily combined maximum yield to in the range of 19,000 to 20,000m^3/day. This is based on a pro-rating of the 20-year extrapolation of the drawdown in Wells 3 and 4 to 75% of available drawdown. The 2002 combined well field testing indicated that newer Wells 3 and 4 utilized 34% to 37% of available drawdown after 72 hours of pumping at 3637L/min each, and a 20-year extrapolation of the drawdown trend in Wells 3 and 4 indicated that 48% to 52% of available drawdown would be used at the 2002 test rate of 3,636L/min.

As the maximum yield of the three wells is essentially constrained by recommended screen entrance velocity limits, and not by aquifer potential, an additional well on site or in the vicinity would be required to achieve a combined yield of upwards of 20,000m^3/day. Larger-capacity pumps in the existing wells are also not recommended due to industry-recommended screen entrance velocity limits. Excessive screen entrance velocities can contribute to premature well screen failure due to turbulence, encrustation and/or corrosion.

We should caution that the 2002 testing indicated that Well 2, which dates from 1979, has a somewhat lower efficiency than the newer Well 3 (1992) and Well 4 (2002), and an expansion of the Powerline Road well field to four active production wells may require the replacement of Well 2 to achieve maximum well field production efficiency.

Furthermore, the proximity of the Powerline Road well field to the western boundary of the lower aquifer does introduce some concern of potential aquifer boundary effects in maximizing well field potential. We would recommend that if this option is to be considered, an extended pumping test of upwards of 5-10 days be conducted on the existing Powerline Wells prior to the decision to add a fourth well and to replace Well 2, so that any possible boundary effects can be identified, if they exist. Figure 18 shows the recommended area for expansion of the well field, based on historical records.

5.2 Jenetta Street Well Field:

The Jenetta Street well field consists of four wells, three of which are currently permitted, also with a permitted rate of withdrawal of up to 3,636L/min per well, to a well field daily maxima of 15,707m^3/day. Figure 17 shows the layout of the well field. The well records for the four production wells are included in the appendix.

Well 4 at the Jenetta Street Well Field was constructed in 2004 and a combined well field test (four wells) demonstrated that the well field is more than capable of a combined yield of 20,943m^3/day. It is noted that the current Permit to Take Water has not yet been upgraded to include Jenetta Street Well 4.

Based on a long-term extrapolation of the results of a combined well field test (4 wells) conducted in 2004, and assuming that the four production wells at Jenetta Street remain similarly efficient, there appears to be potential in the vicinity of the well field to increase its daily combined maximum yield to in the range of 30,000 to 35,000m^3/day. This is based on a pro-rating of the 20-year extrapolation of the drawdown in Wells 1 to 4 to 75% of available drawdown. The 2004 combined well field testing indicated that all four wells utilized 18% to 21% of available drawdown after 72 hours of pumping at 3,636L/min each, and a 20-year extrapolation of the drawdown trend in all four wells indicated that 35% to 40% of available drawdown would be used.

As the maximum yield of the four existing wells is essentially constrained by recommended well screen entrance velocity limitations, and not by aquifer potential, 2 to 3 additional wells in the vicinity would be required to achieve this yield. However, should this option be considered, we would recommend that if possible the additional wells be located some distance from the existing four wells so that mutual interference potential is reduced somewhat. Figure 18 shows the recommended area for expansion of the well field, based on historical records.

Larger-capacity pumps in the existing wells are also not advisable due to recommended well screen entrance velocity limits, which have already been essentially reached in the wells.

6.0 LOWER AQUIFER RECHARGE POTENTIAL

Based on known geological conditions, the lower aquifer receives recharge from three main processes:

- Diffuse infiltration/leakage.
- Direct leakage through geologic windows.
- Lateral groundwater flow from upgradient (south).

Diffuse infiltration/leakage through the discontinuous lower aquitard which separates the lower and intermediate aquifers will contribute a modest recharge potential to the lower aquifer. Assuming a conservative leakage rate of 50mm/year, direct vertical leakage to the lower aquifer (with a lateral area of about 13 to 14km^2) would amount to about 700,000m^3/year (or about 2,000m^3/day).

Direct recharge from the intermediate aquifer through geologic "windows" in the lower aquitard is likely a significant source of recharge to the lower aquifer. The intermediate aquifer is much more widespread than the lower aquifer, and has a substantial storage potential as well as recharge potential from vertical and lateral groundwater flow. Geologic windows have been identified east of the Jenetta Street Well Field, but may also be present elsewhere. Response in an intermediate aquifer monitoring well (OW1-96) during Jenetta Street Well Field testing and in subsequent monitoring confirms that this window(s) provides a hydraulic connection between the two aquifers.

Assuming that the window(s) consists of granular deposits of sand and gravel, it would have a hydraulic conductivity range of 10^{-1} to 10^{-2} cm/sec (*Groundwater*, Freeze and Cherry, 1979, Table 2.2). Assuming a typical value of the above potential range of hydraulic conductivity values ($5x10^{-2}$ cm/sec), a piezometric head differential of about 1 metre under pumping conditions (based on initial observation well response at the Jenetta Street Well Field), and a window(s) thickness of 20m, potential average vertical groundwater flux through the window(s) is calculated to be about 2 metres/day under pumping conditions (i.e. flux = hydraulic conductivity x head difference ÷ aquitard thickness). Assuming a conservative geologic window(s) area of about 0.5km^2, leakage through the window(s) under pumping conditions could theoretically exceed 1,000,000m^3/day. The above analysis is based on several major assumptions, however it does broadly indicate that recharge potential between the widespread intermediate aquifer and the laterally limited lower aquifer is quite substantial. Such recharge is likely occurring primarily to the east of the Jenetta Street Well Field, based on known hydrogeologic conditions and aquifer response.

Since the lower aquifer is known to be of limited areal extent (i.e. about 13 to 14km^2), and is mainly confined to a buried bedrock valley in the central and eastern portions of the Town, and less than 3km from the shoreline, lateral groundwater in-flow is not likely the primary recharge source for the aquifer. However, the 2001 Town of Wasaga Beach Groundwater Resource Assessment suggested that lateral groundwater flow converging from throughout the lower Nottawasaga Basin could contribute between 11,000 and

54,000m^3/day to the lower aquifer, this based on an upgradient aquifer perimeter of about 18km and an aquifer transmissivity of between 300m^2/day and 1,000m^2/day.

Based on known geologic conditions, the primary recharge source to the lower aquifer is likely direct recharge from the intermediate aquifer through geologic windows, with lateral inflow a secondary, but substantial source. Long-term monitoring has indicated that withdrawals to date have not meaningfully impacted water levels in the intermediate or lower aquifers to-date. The above recharge analysis suggests that the lower aquifer is capable of a much higher safe long-term yield than currently permitted.

The two existing well fields have a demonstrated combined yield of 36,650m^3/day (three wells at Powerline and four wells at Jenetta), and at present are more than capable of supplying the projected long-term average day demand of up to 18,000m3/day. The aquifer recharge analysis suggests that the Lower Aquifer is more than capable of yielding the projected long-term maximum day demand of up to 48,000m^3/day with additional wells.

7.0 WELL FIELD EXPANSION OPTIONS

A review of interference observations for the combined Powerline Road and Jenetta Street well field tests suggest that the cone of influence formed in the Lower Aquifer is relatively broad, likely extending over one kilometre in radius from each well field. Because of this, if land is available to the Town and if engineering considerations support off-set well locations, it may be beneficial to provide some distance between the existing well fields and new wells to help limit mutual interference potential. However, should it not be feasible to develop wells off-set from the existing two well fields, and if accessible on-site lands exist, it appears that either current well field can support one more on-site production well, and possibly two more at Jenetta Street.

Relatively few historic wells that have been completed in the lower aquifer throughout the Town, and the main source of information to establishing a new well field(s) remains the test drilling programs undertaken in the late 1960's through to the late 1970's. Based on the results of the drilling and testing of ten sites over a broad portion of the lower aquifer's lateral extent, three sites were identified in the early 1970's as having the greatest yield potential, these being (in the order of best preliminary performance):

1) River Road East, near Zoo Park Road, approximately 1.9km northeast of the Jenetta Street Wells. The 1971 study's analysis extrapolated a well field potential exceeding 20,000m^3/day in that area. The well log and MOE database print-out records for the test wells used to evaluate this area (TH6-71 and TH7-71) are included in the appendix.

2) Powerline Road.

3) Jenetta Street.

The available documentation does not explain why the River Road East site was not initially further assessed as a production well field location, nor why the Powerline Road Well Site was first selected over the Jenetta Street site, despite superior aquifer performance at the Jenetta Street site.

If a new well field is to be developed due to site limitations at or near the two existing well fields, based on available drilling records and performance data, the River Road East site would be the preferred location for a new testing program. Figure 18 shows the general area recommended for further investigation, should this option be considered. Some concern may exist to further development of the lower aquifer in the eastern end of Town, due to the presence of the closed and active landfills to the south, however all current information indicates the lower aquifer remains fully secure from surface practices.

Historical test drilling of sites between the Jenetta Street and Powerline Road well fields had suggested that aquifer conditions generally between the two current well fields were not as ideal as the three sites detailed above, and other well records indicate that aquifer conditions further south, west and east deteriorate rapidly. As such, it is not recommended that further subsurface testing occur west of Powerline Road, east of the TH6-71/TH7-71 site or more than about 500m south of Powerline Road.

As a fourth alternative, test results from the late 1970's Powerline Road drilling program (particularly the record for OW78-1) suggest that a test well north of the intersection of Powerline Road and River Road West, approximately 1km north of the existing Powerline Road Wells, may also be a potential site for either a smaller new well field, or an expansion of the Powerline Road well field. The record for OW78-1 (included in the appendix) reports upwards of 12.8m (40 feet) of sand and gravel at the base of the overburden, which is very favourable for development of a high-yielding well. However, according to file records, due to decisions made at the time, it was decided to attempt constructing a high-capacity test well in the intermediate aquifer (20m to 40m depth), and yields approaching 4,500L/min were obtained from the intermediate aquifer test well. However due to excessive sand production and adverse interference with then-present flowing drilled wells across the Nottawasaga River from the site, the test site was abandoned in favour of exploration further south on Powerline Road. As the files indicate that the lower aquifer was never fully assessed at this site, and as the well record for OW78-1 does present a favourable indication of the lower aquifer at this location, the Town may wish to consider constructing a lower aquifer test well at the location of OW78-1 to assess lower aquifer potential at this site.

Figure 18 shows the locations of potential well field expansion sites.

8.0 SUMMARY

1. The lower overburden aquifer is the preferred source for an expansion of the Wasaga Beach Municipal Water Supply. The lower aquifer is a secure source of potable groundwater which is capable of substantial yields due to its coarse-grained character and depth.

2. Based on our review of the results of historical test drilling programs, well field development and testing programs, aquifer recharge potential analysis and on-going monitoring, it is our opinion that the lower aquifer in Wasaga Beach appears more than capable of supplying the projected maximum day demand of upwards of 48,000m^3/day, with a corresponding average day demand of about 18,000m^3/day. All indications are that water levels in the aquifer recover annually from peak use in the summer months.

3. Based on our review of the results of historical test drilling programs, well field development and testing programs and on-going monitoring, options to expand the current municipal groundwater supply from the currently established maximum yield of 36,650m^3/day (seven production wells at two well fields) to meet the projected maximum day demand of upwards of 48,000m^3/day include:

   - Expand the Powerline Road field by one well capable of a yield of 5,236m^3/day. This may require additional testing to assess westerly aquifer boundary effects and the possibility of replacing existing Well 2. This option could include a fourth well on the Powerline Road Well site, or conceivably a new well site to the north along the Powerline Road corridor near the intersection of River Road West and Powerline Road, if land is available. Should Powerline Road be considered for expansion, it is recommended that an extended pumping test of the existing wells be conducted to confirm that boundary effects will not become an issue at the western periphery of the Lower Aquifer.

   - Expand the Jenetta Street field by up to 2 wells each capable of a yield of 5,236m^3/day, which can be located on-site. Site access limitations and mutual interference concerns may partially restrict this option, and a secondary Jenetta Street well site nearby to the east may be considered if needed, if land is available.

   - Existing information suggests that the area in the vicinity of River Road East and Zoo Park Road is the most promising location for developing a third well field, if land is available (see Figure 18).

4. Any expansion proposal will require appropriate test wells and aquifer testing to confirm aquifer conditions at test sites. While the lower aquifer as a whole is a very favorable source of potable groundwater, it should be cautioned that historical testing has indicated that the character of the lower aquifer can vary,

and there is potential that test wells at multiple sites may need to be completed to best establish further expansion. Once viable sites have been selected and test wells have confirmed site conditions, properly designed and constructed production wells are to be subjected to combined 72-hour pumping tests.

5. Well 4 at the Jenetta Street Well Field has been fully tested in accordance with current MOE requirements for a Permit to Take Water. Once an Environmental Assessment Notice of Completion and a Design Brief justifying the need for Well4 to be brought on-line are available, a PTTW application can be submitted to the MOE to immediately increase the permitted combined well field yield to 36,650m^3/day.

IAN D. WILSON ASSOCIATES LIMITED

Geoffrey Rether, P.Geo.

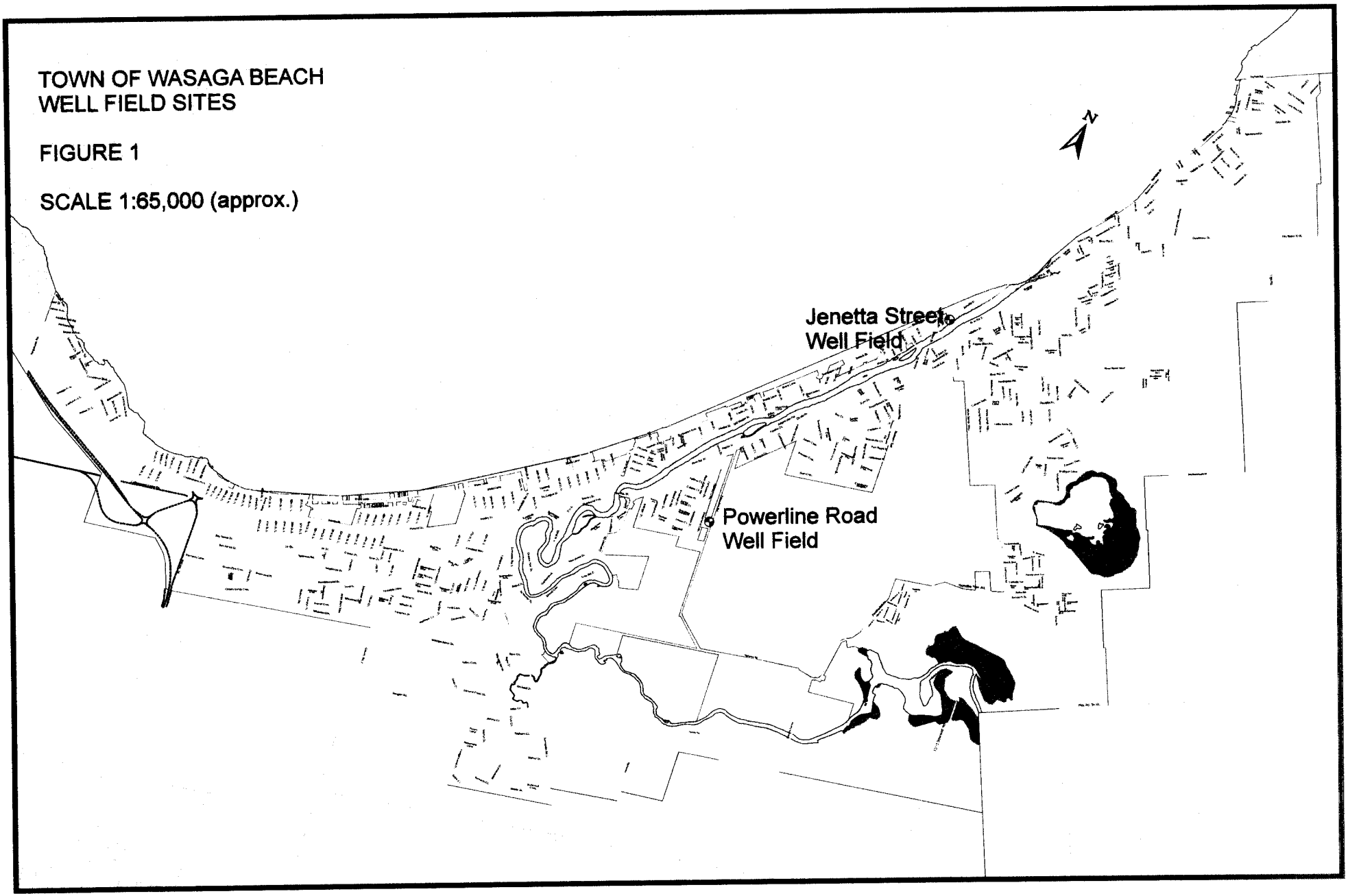
July 31, 2012

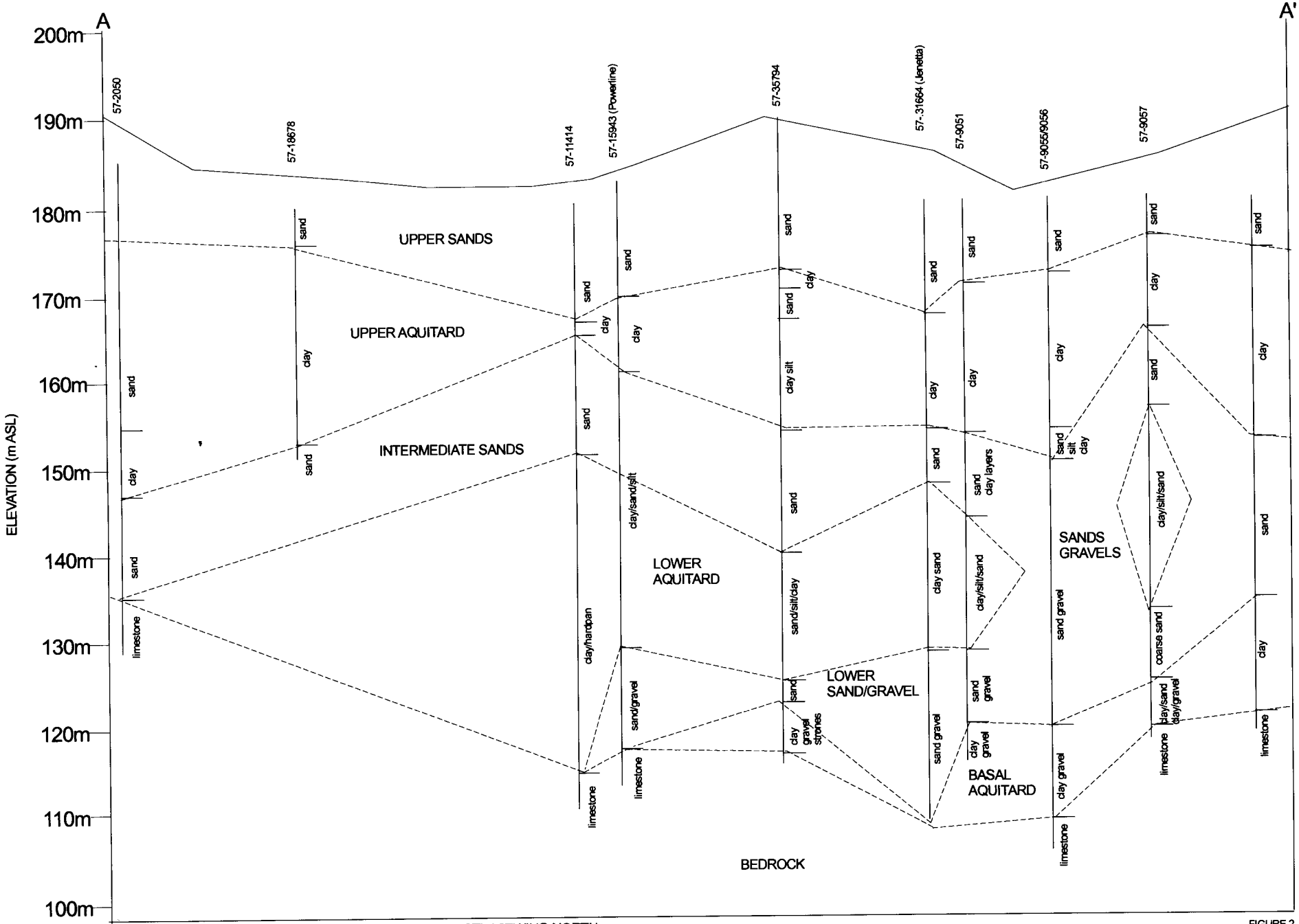
FIGURES AND APPENDIX

TOWN OF WASAGA BEACH
WELL FIELD SITES

FIGURE 1

SCALE 1:65,000 (approx.)



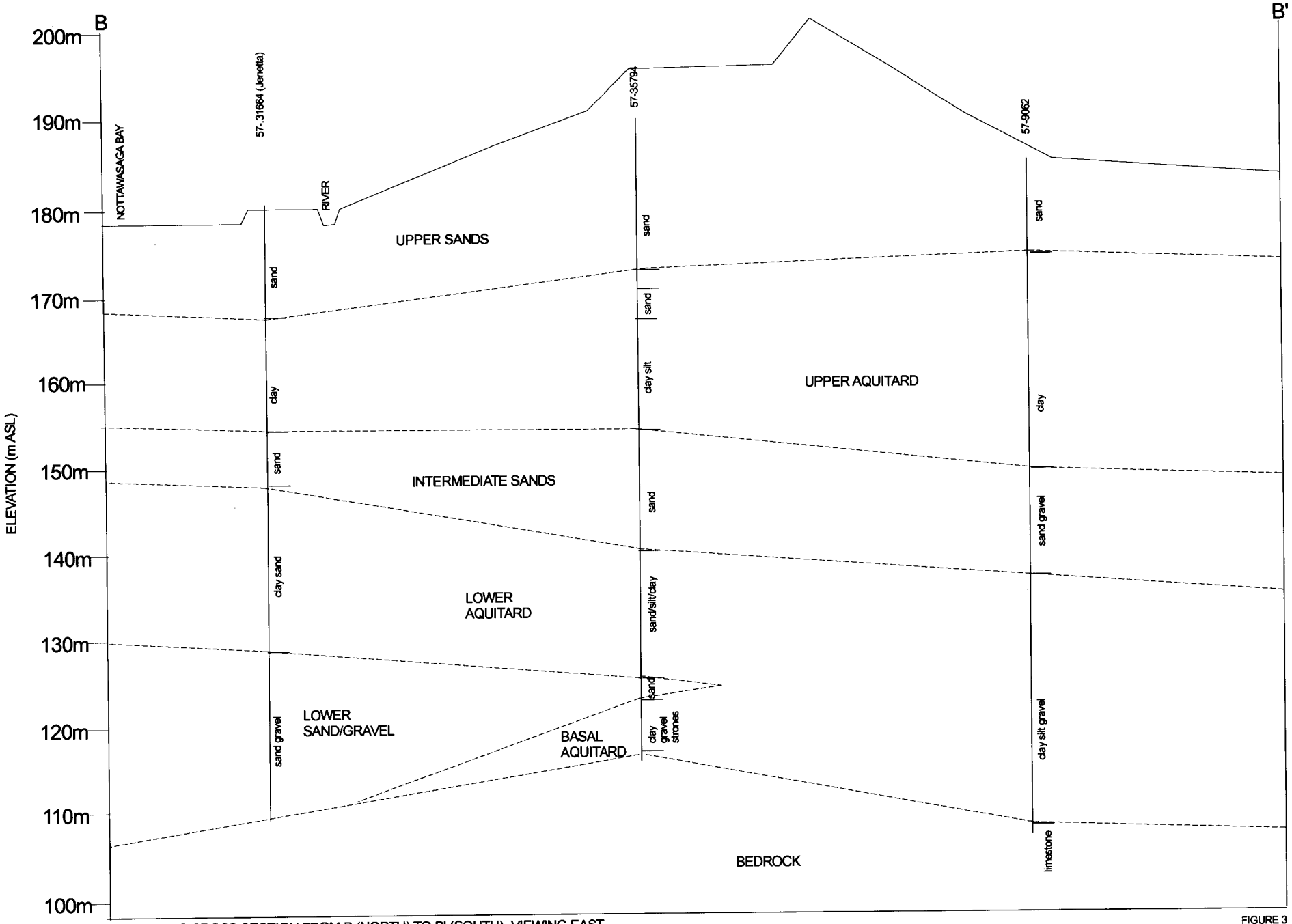


SCHEMATIC CROSS SECTION FROM A (WEST) TO A' (EAST), VIEWING NORTH
TOWN OF WASAGA BEACH

FIGURE 2

HORIZONTAL SCALE 1:68,500, VERTICAL SCALE 1:600, VERTICAL EXAGGERATION 114x

IAN D. WILSON ASSOCIATES LIMITED

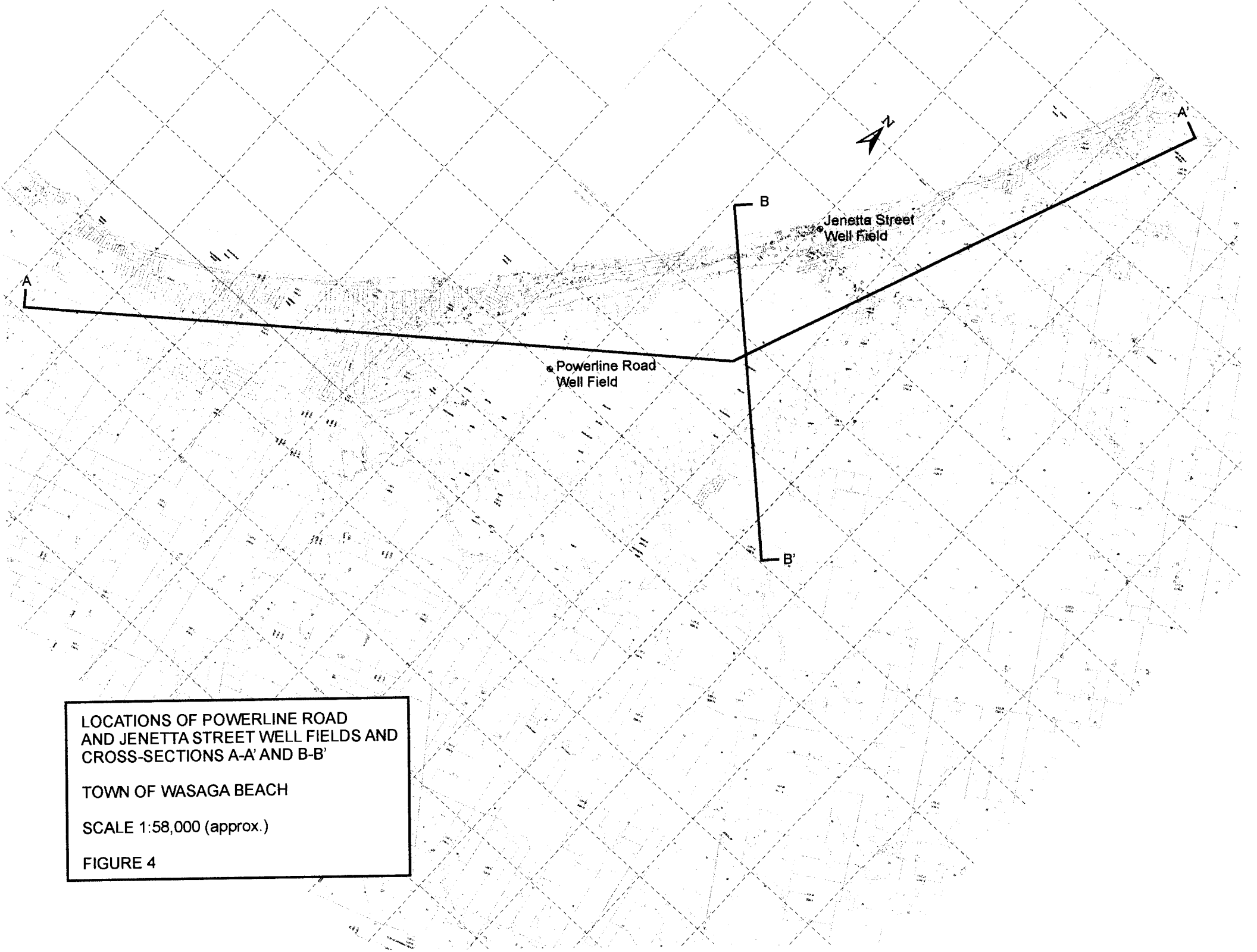


SCHEMATIC CROSS SECTION FROM B (NORTH) TO B' (SOUTH), VIEWING EAST
TOWN OF WASAGA BEACH

FIGURE 3

HORIZONTAL SCALE 1:20,200, VERTICAL SCALE 1:600, VERTICAL EXAGGERATION 34x

IAN D. WILSON ASSOCIATES LIMITED



LOCATIONS OF POWERLINE ROAD AND JENETTA STREET WELL FIELDS AND CROSS-SECTIONS A-A' AND B-B'

TOWN OF WASAGA BEACH

SCALE 1:58,000 (approx.)

FIGURE 4

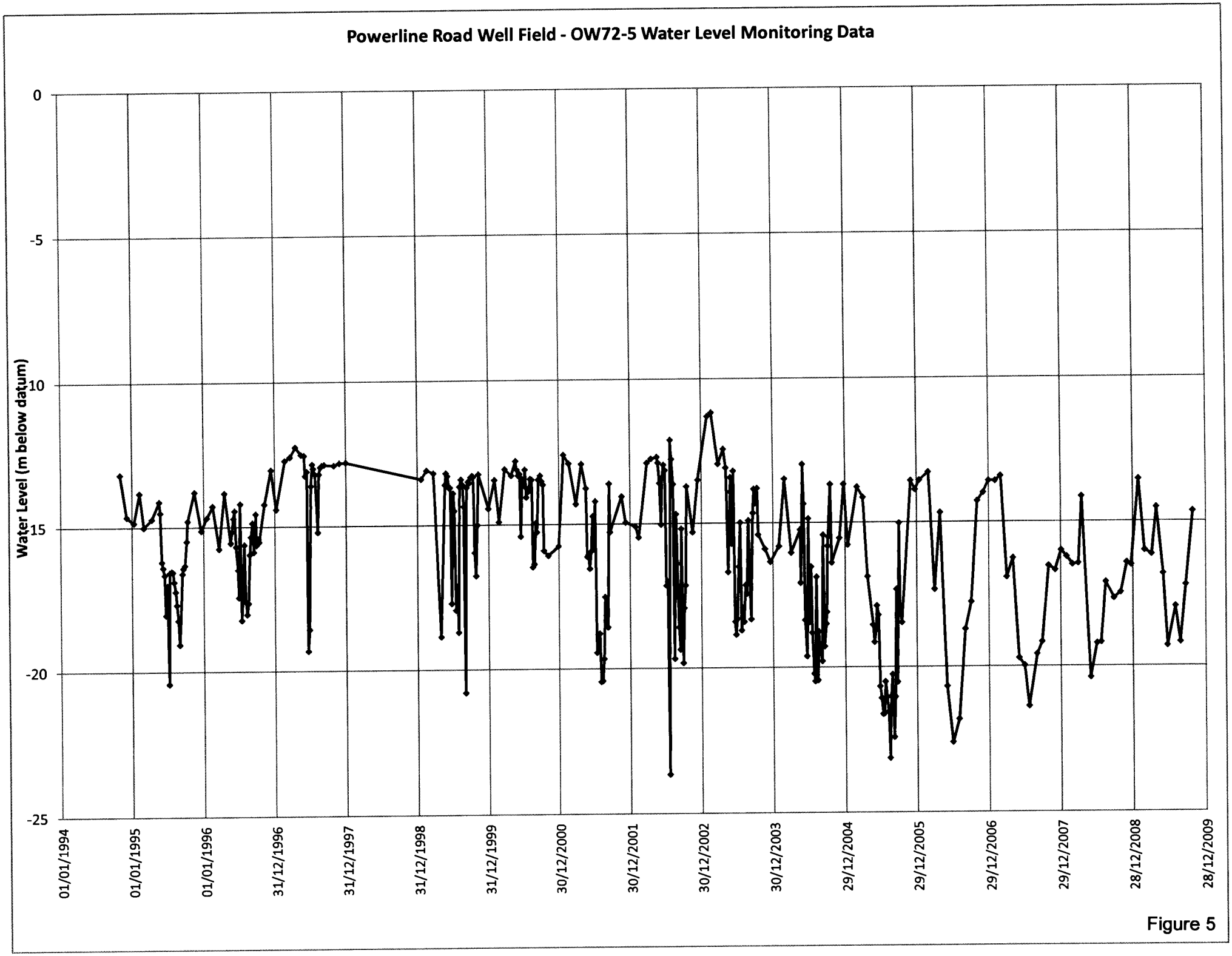
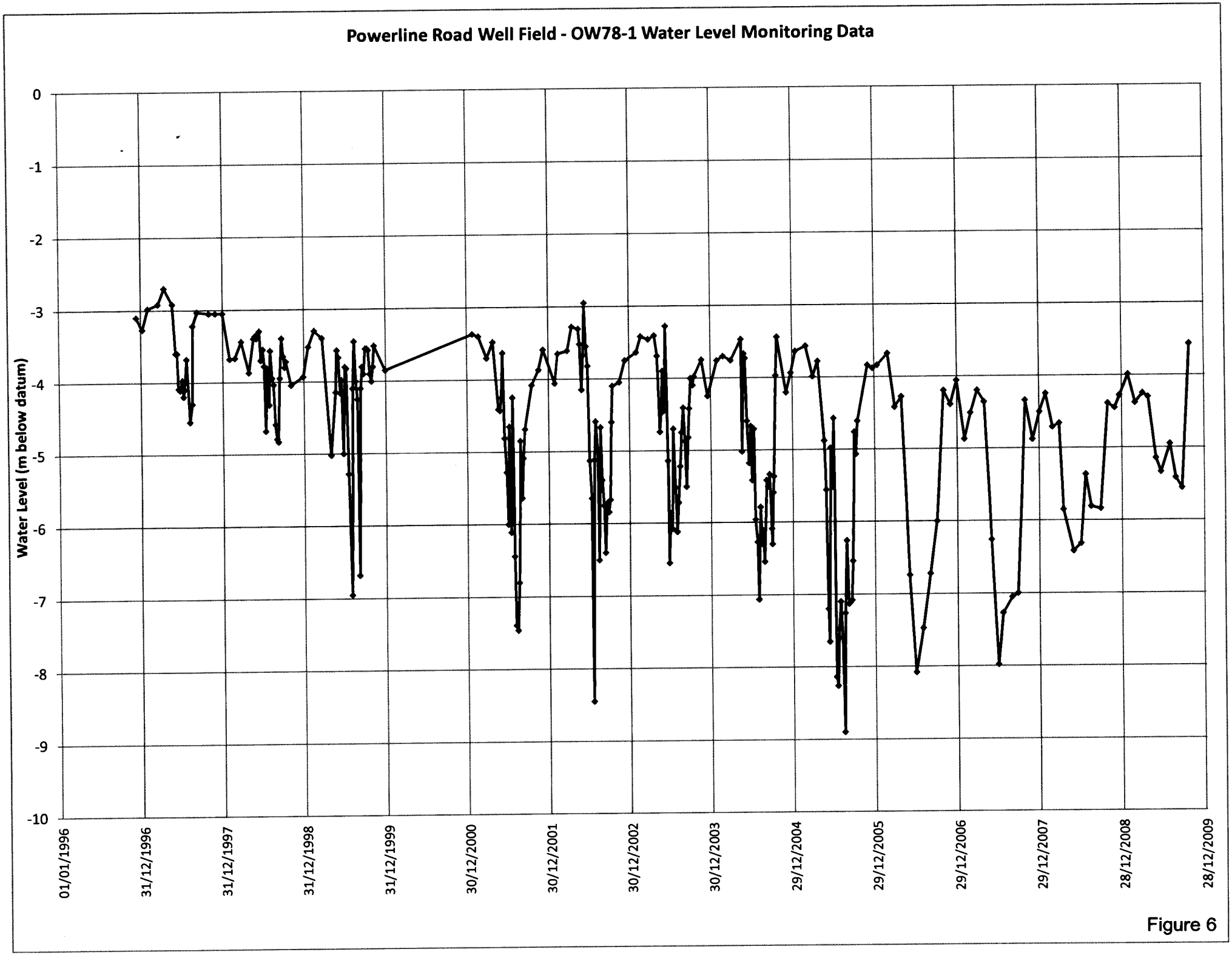

Powerline Road Well Field - OW72-5 Water Level Monitoring Data
Water Level (m below datum)
0
-5
-10
-15
-20
-25
01/01/1994
01/01/1995
01/01/1996
31/12/1996
31/12/1997
31/12/1998
31/12/1999
30/12/2000
30/12/2001
30/12/2002
30/12/2003
29/12/2004
29/12/2005
29/12/2006
29/12/2007
28/12/2008
28/12/2009

Figure 5


Powerline Road Well Field - OW78-1 Water Level Monitoring Data
Water Level (m below datum)
0
-1
-2
-3
-4
-5
-6
-7
-8
-9
-10
01/01/1996
31/12/1996
31/12/1997
31/12/1998
31/12/1999
30/12/2000
30/12/2001
30/12/2002
30/12/2003
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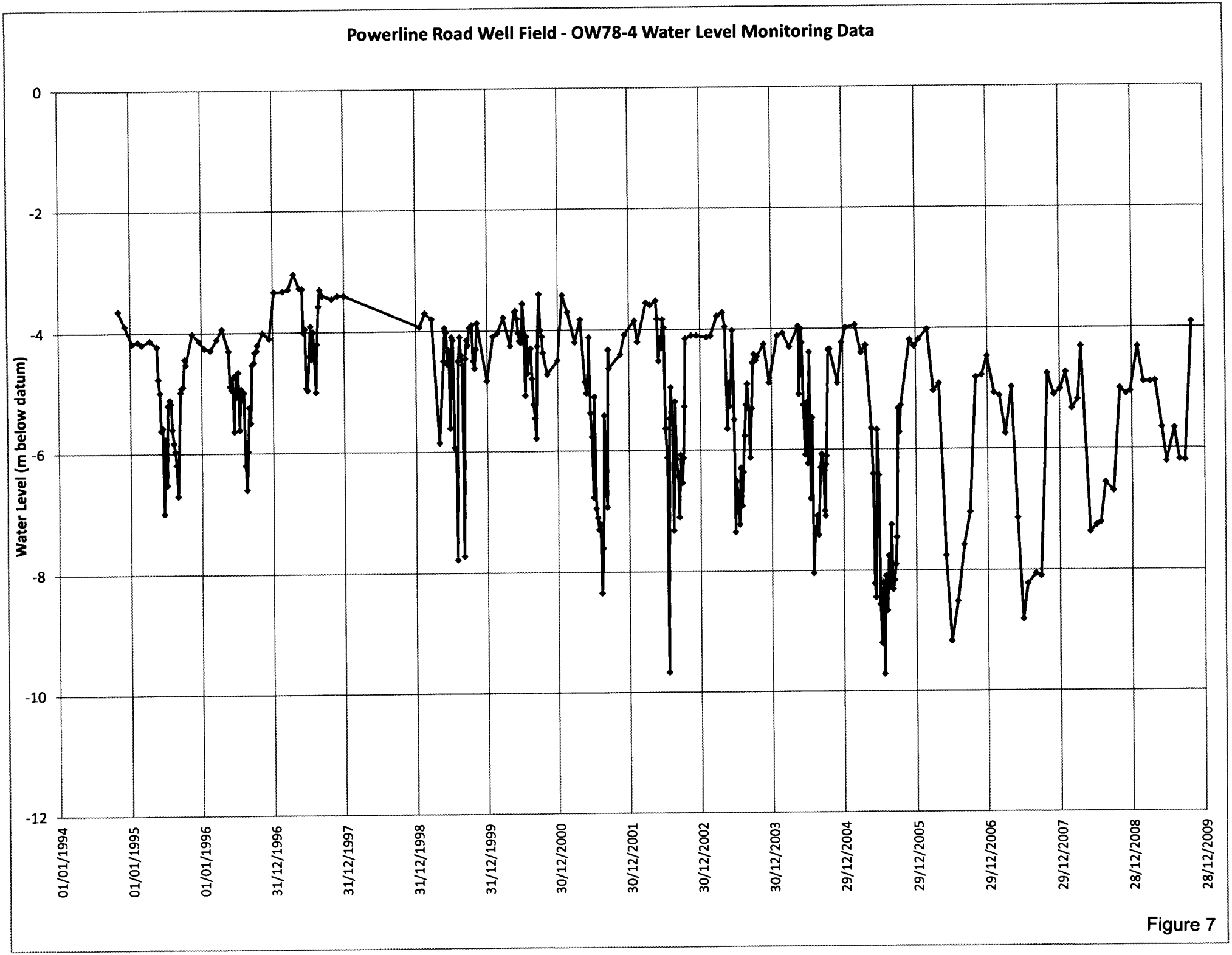
29/12/2005
29/12/2006
29/12/2007
28/12/2008
28/12/2009

Figure 6


Powerline Road Well Field - OW78-4 Water Level Monitoring Data
Water Level (m below datum)
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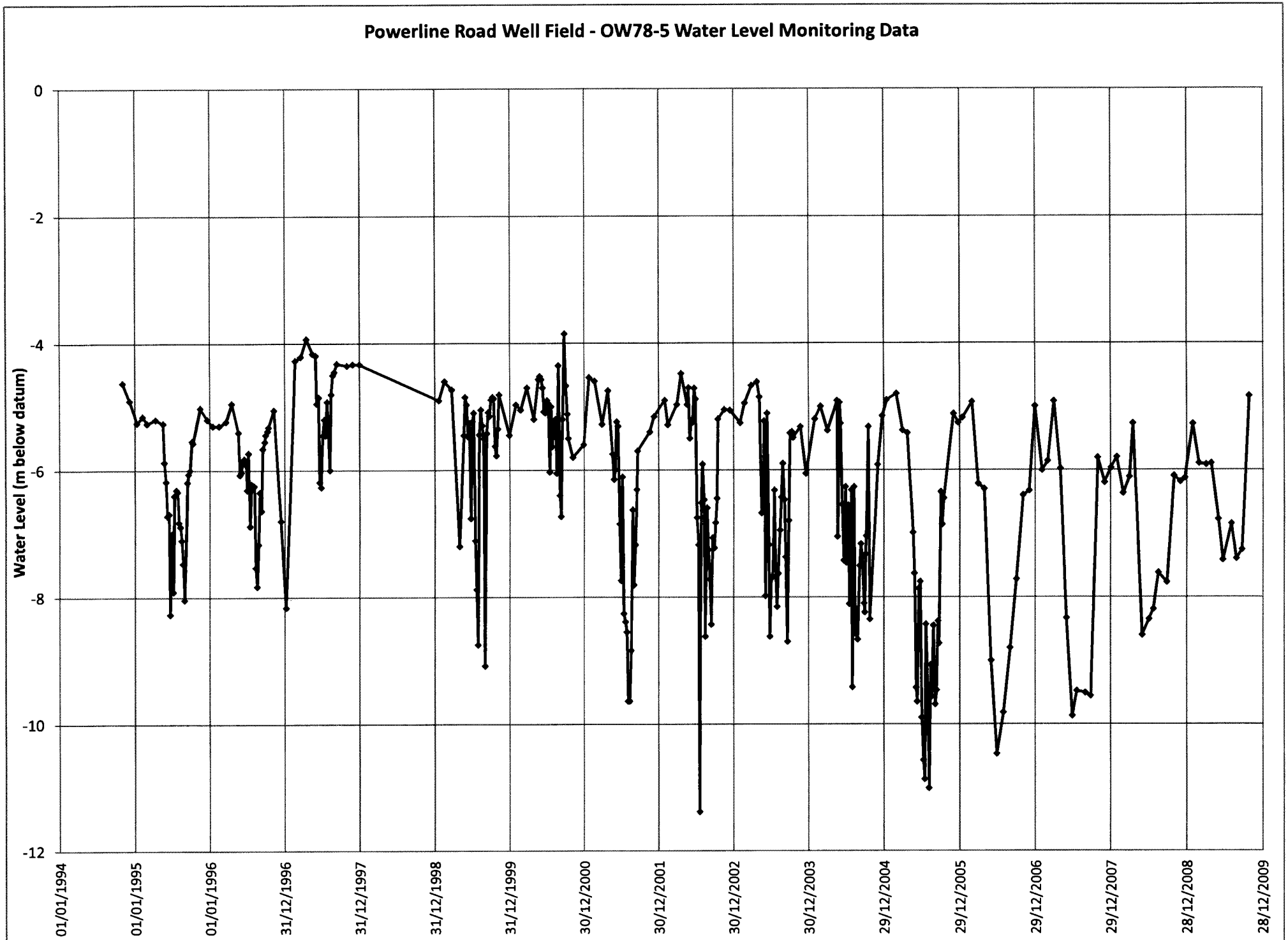
-2
-4
-6
-8
-10
-12
01/01/1994
01/01/1995
01/01/1996
31/12/1996
31/12/1997
31/12/1998
31/12/1999
30/12/2000
30/12/2001
30/12/2002
30/12/2003
29/12/2004
29/12/2005
29/12/2006
29/12/2007
28/12/2008
28/12/2009

Figure 7


Powerline Road Well Field - OW78-5 Water Level Monitoring Data
Water Level (m below datum)
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-2
-4
-6
-8
-10
-12
01/01/1994
01/01/1995
01/01/1996
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31/12/1997
31/12/1998
31/12/1999
30/12/2000
30/12/2001
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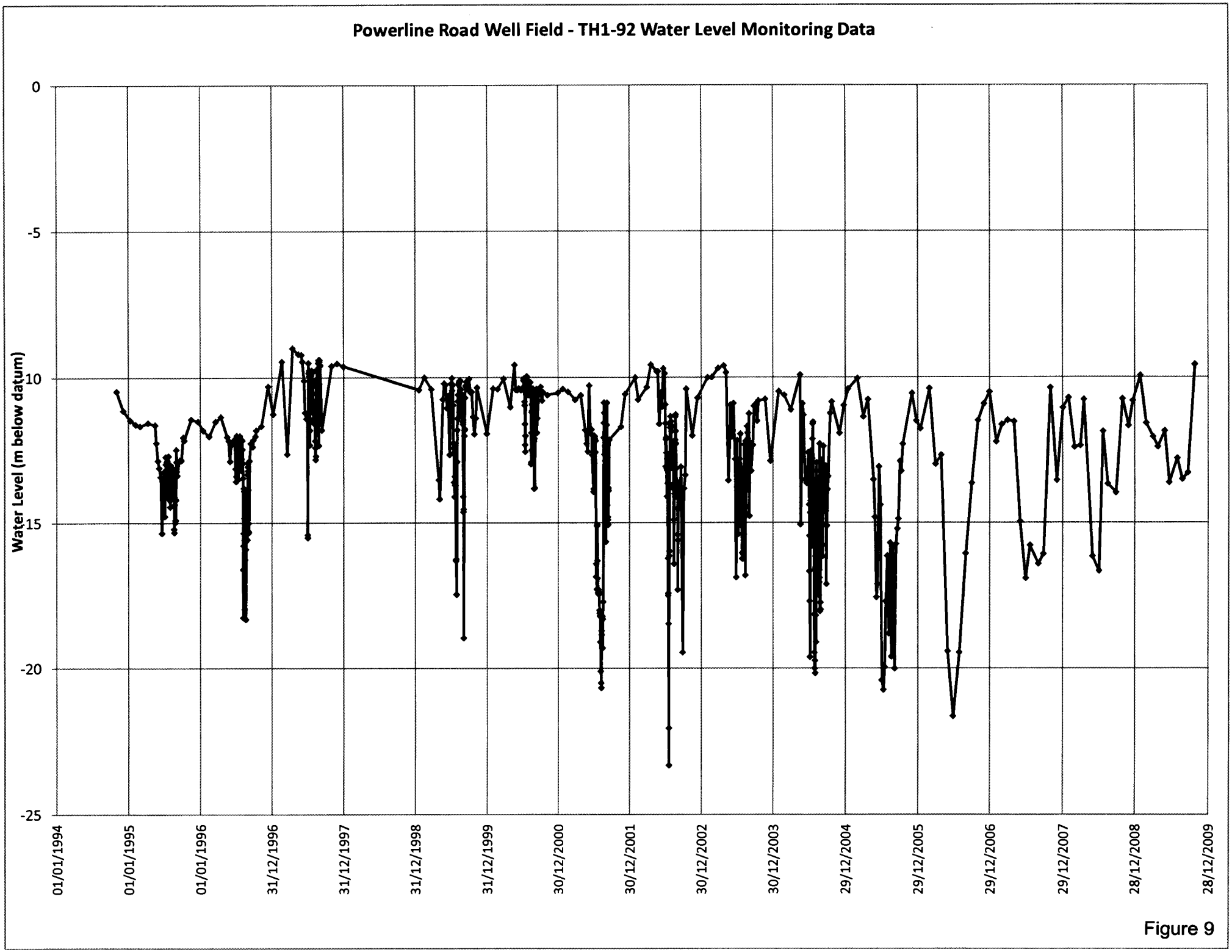
29/12/2007
28/12/2008
28/12/2009

Figure 8


Powerline Road Well Field - TH1-92 Water Level Monitoring Data
Water Level (m below datum)
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-5
-10
-15
-20
-25
01/01/1994
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29/12/2007
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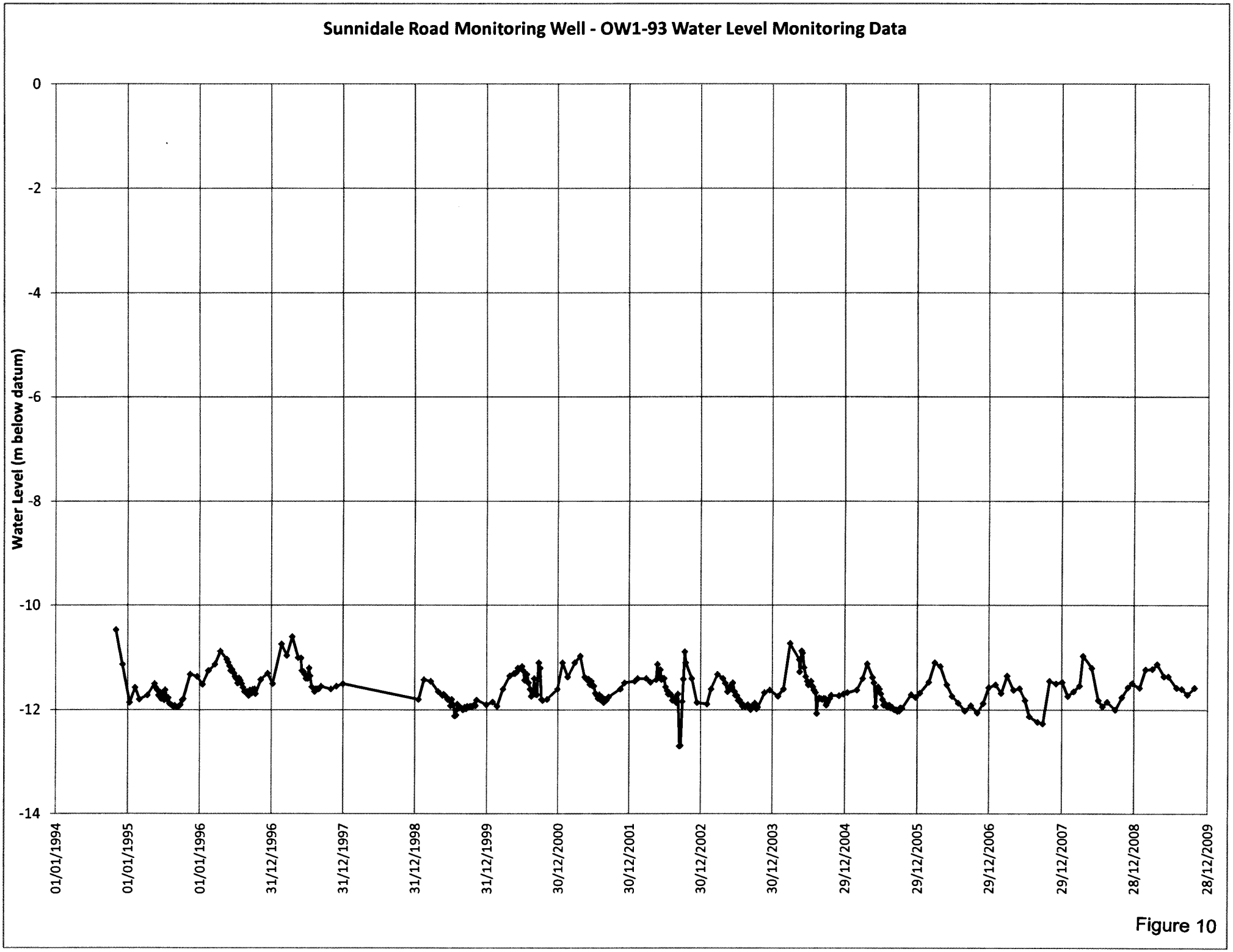
28/12/2009

Figure 9


Sunnidale Road Monitoring Well - OW1-93 Water Level Monitoring Data
Water Level (m below datum)
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-6
-8
-10
-12
-14
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01/01/1995
01/01/1996
31/12/1996
31/12/1997
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30/12/2000
30/12/2001
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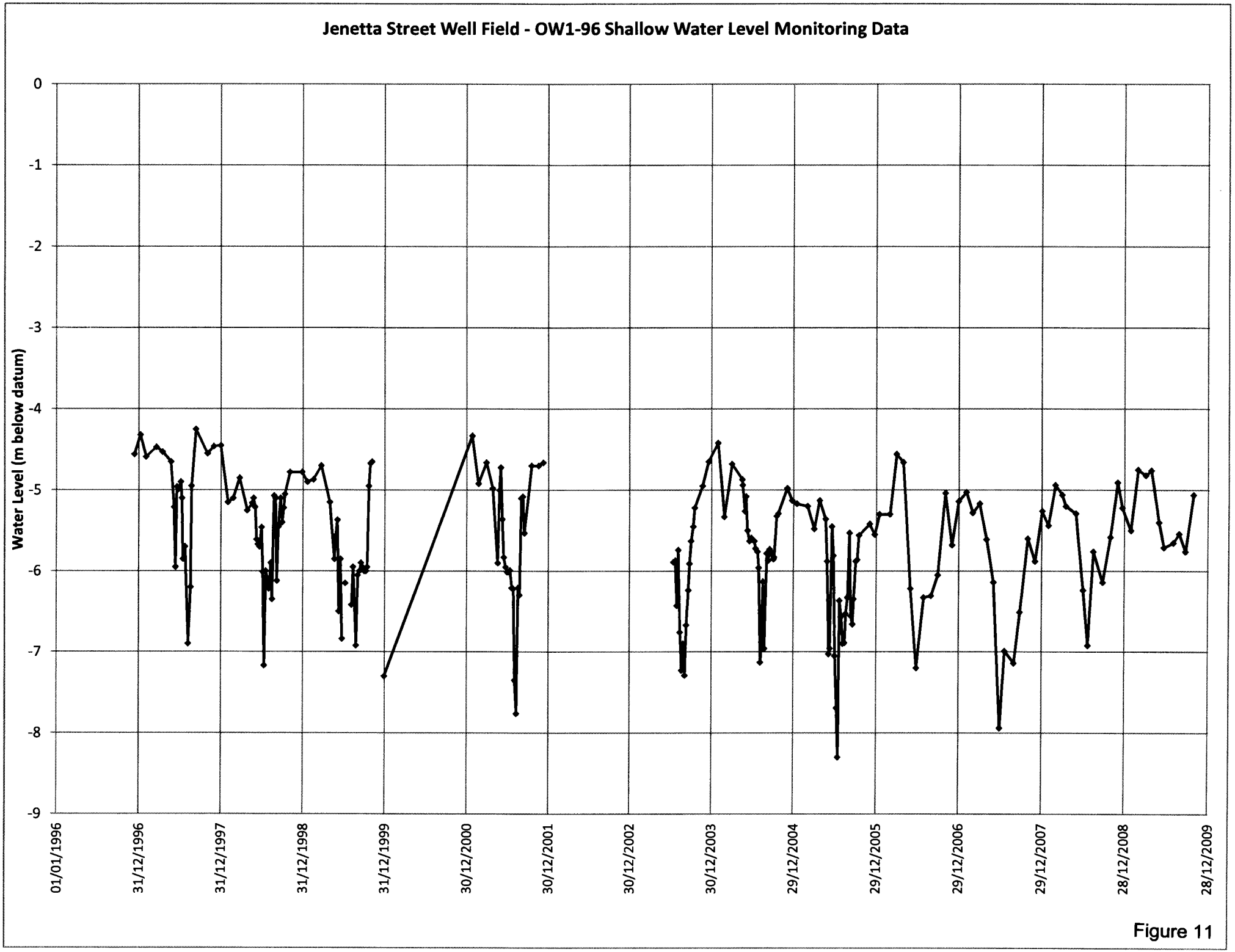
29/12/2007
28/12/2008
28/12/2009

Figure 10


Jenetta Street Well Field - OW1-96 Shallow Water Level Monitoring Data
Water Level (m below datum)
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-1
-2
-3
-4
-5
-6
-7
-8
-9
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31/12/1998
31/12/1999
30/12/2000
30/12/2001
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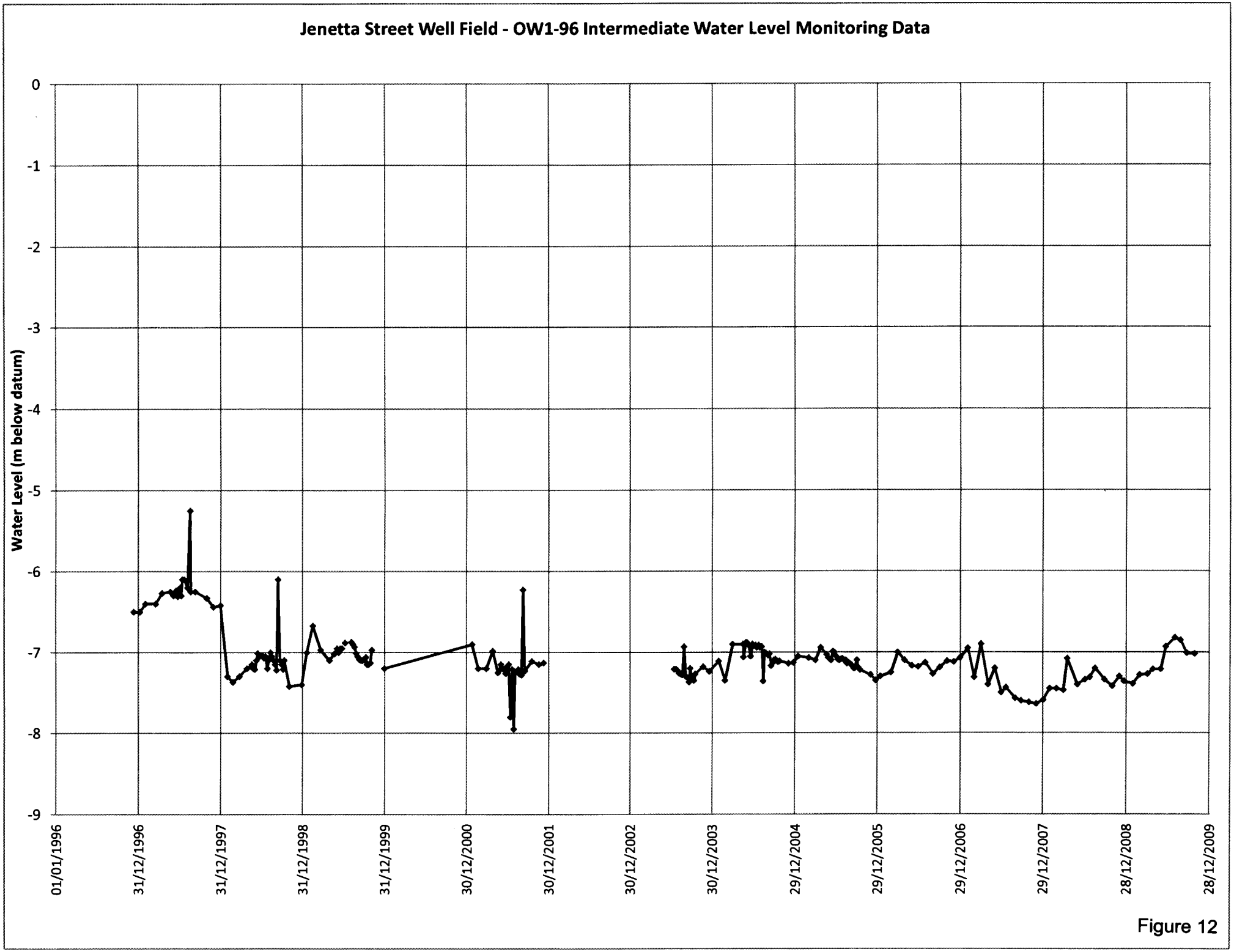
29/12/2007
28/12/2008
28/12/2009

Figure 11


Jenetta Street Well Field - OW1-96 Intermediate Water Level Monitoring Data
Water Level (m below datum)
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-2
-3
-4
-5
-6
-7
-8
-9
01/01/1996
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31/12/1997
31/12/1998
31/12/1999
30/12/2000
30/12/2001
30/12/2002
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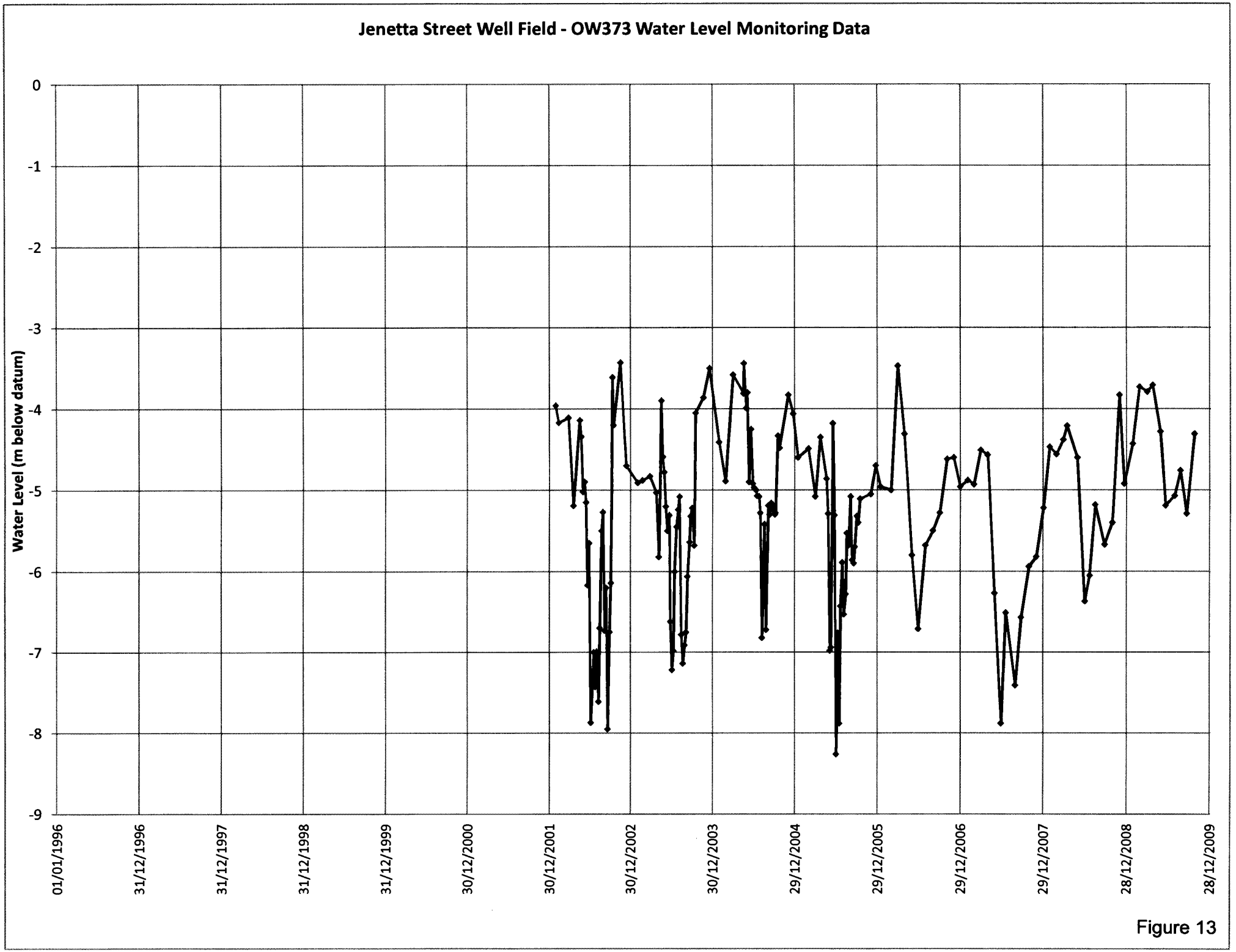
29/12/2005
29/12/2006
29/12/2007
28/12/2008
28/12/2009

Figure 12


Jenetta Street Well Field - OW373 Water Level Monitoring Data
Water Level (m below datum)
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-3
-4
-5
-6
-7
-8
-9
01/01/1996
31/12/1996
31/12/1997
31/12/1998
31/12/1999
30/12/2000
30/12/2001
30/12/2002
30/12/2003
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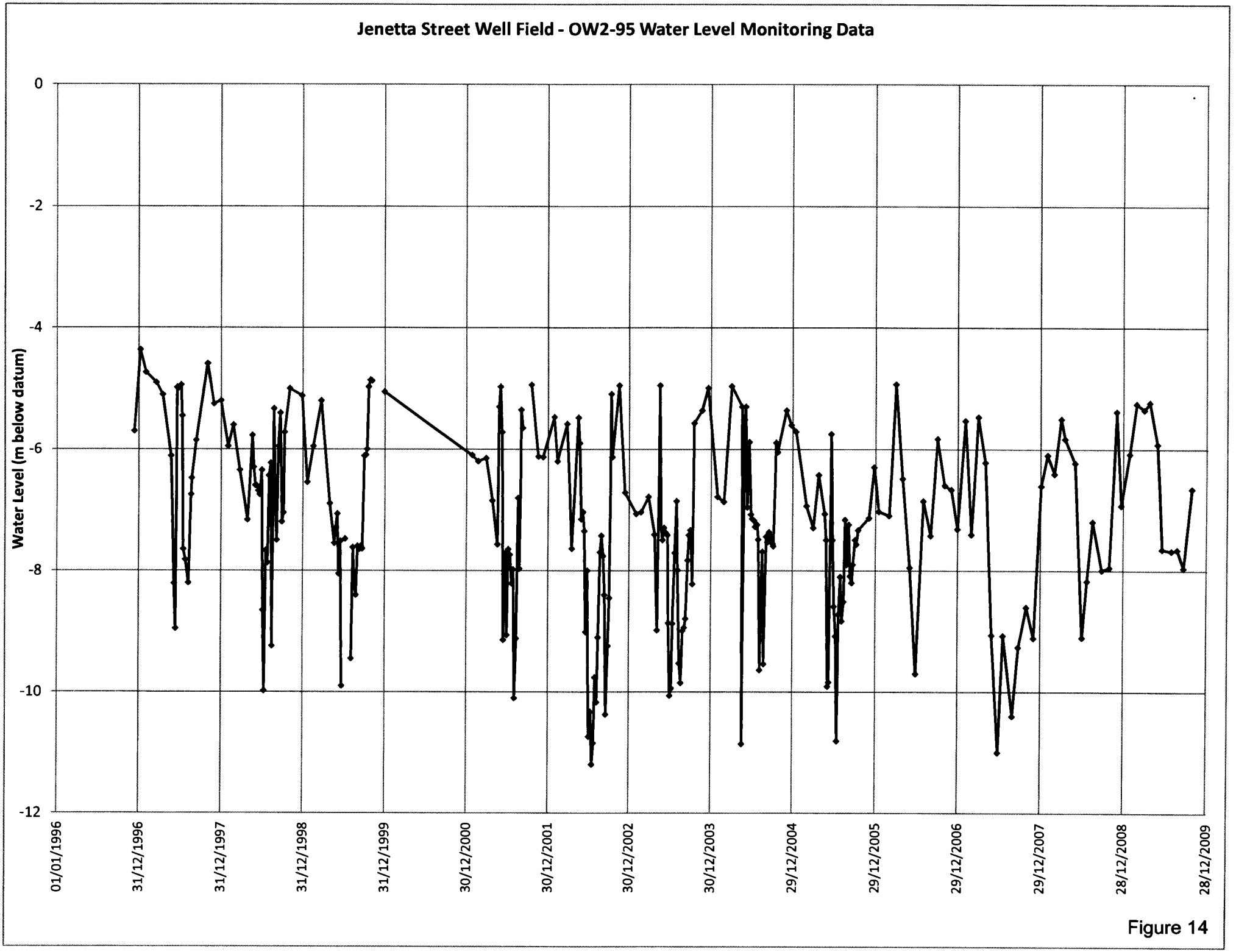
29/12/2005
29/12/2006
29/12/2007
28/12/2008
28/12/2009

Figure 13


Jenetta Street Well Field - OW2-95 Water Level Monitoring Data
Water Level (m below datum)
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-2
-4
-6
-8
-10
-12
01/01/1996
31/12/1996
31/12/1997
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31/12/1999
30/12/2000
30/12/2001
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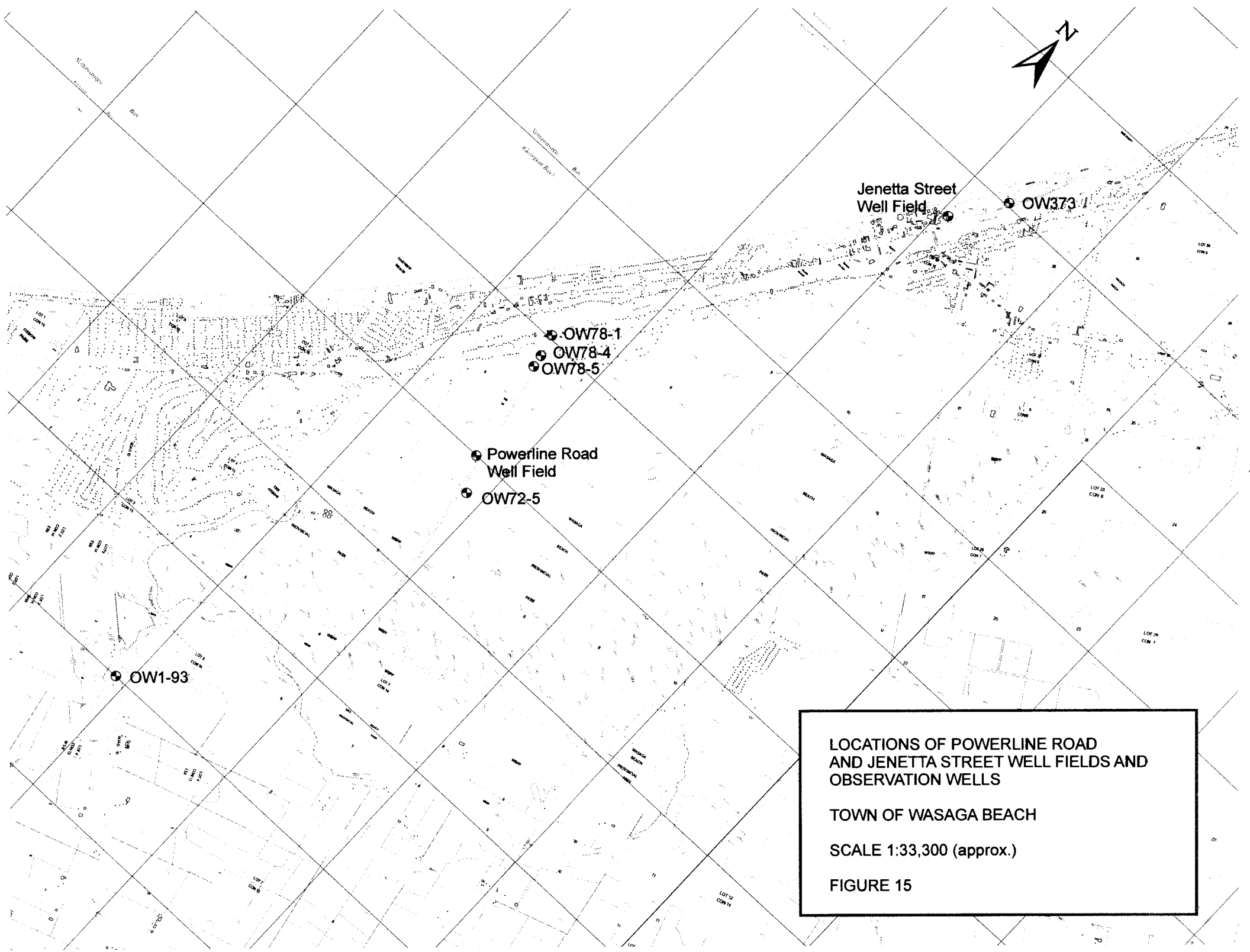
29/12/2007
28/12/2008
28/12/2009

Figure 14



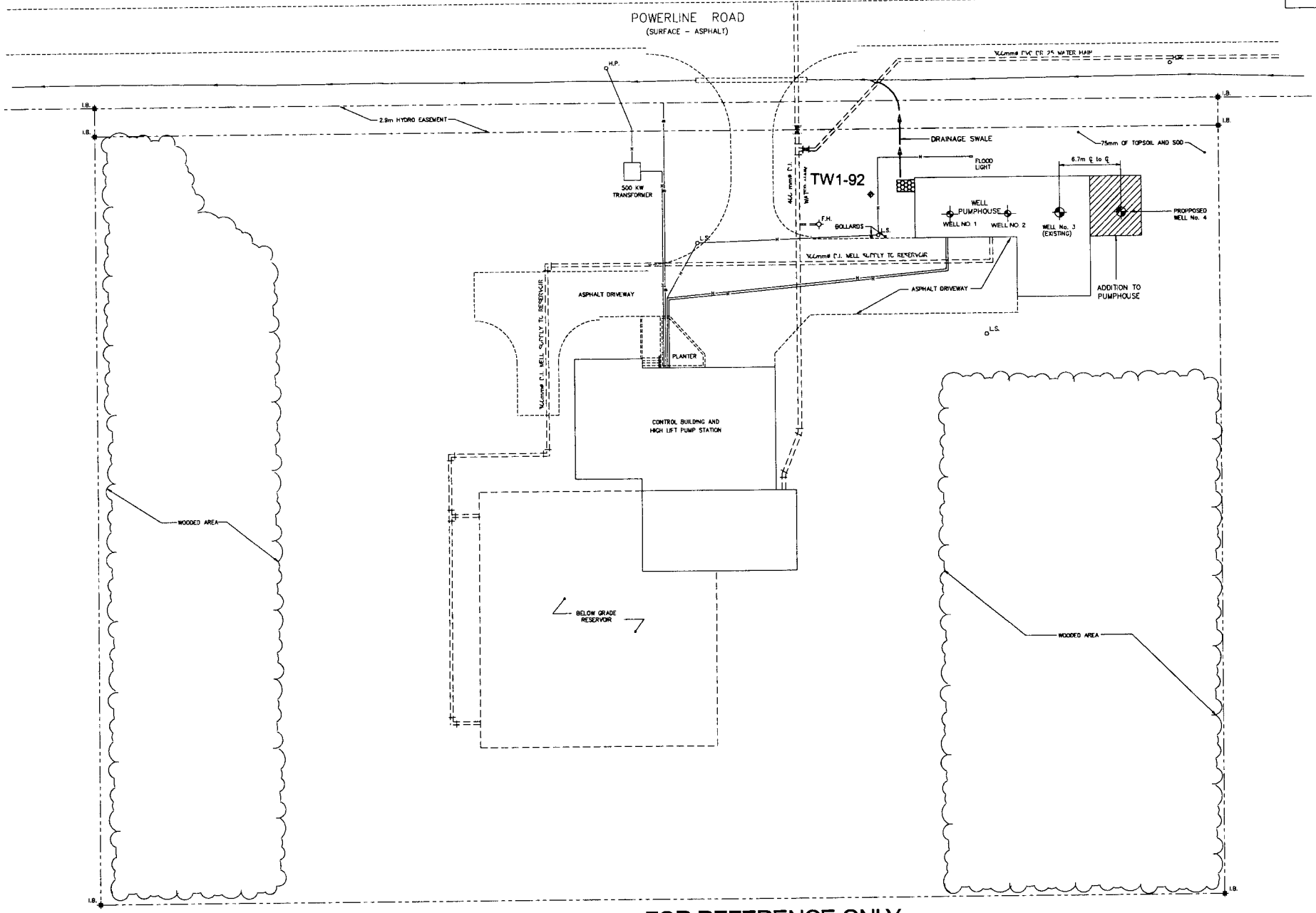
LOCATIONS OF POWERLINE ROAD AND JENETTA STREET WELL FIELDS AND OBSERVATION WELLS

TOWN OF WASAGA BEACH

SCALE 1:33,300 (approx.)

FIGURE 15

Figure 16



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LEGEND
- PROPERTY LINE
- EXISTING DITCH
- LIMIT OF VEGETATION
- BURIED BELL CABLE
- BURIED HYDRO

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SCALE:	N.T.S.
DESIGN:	I.N.
DRAWN:	D.H.
CHECKED:	I.N.
DATE:	FEB. 2002

TOWN OF WASAGA BEACH
WATER SUPPLY WORKS UPGRADE
POWERLINE ROAD WELL No. 4

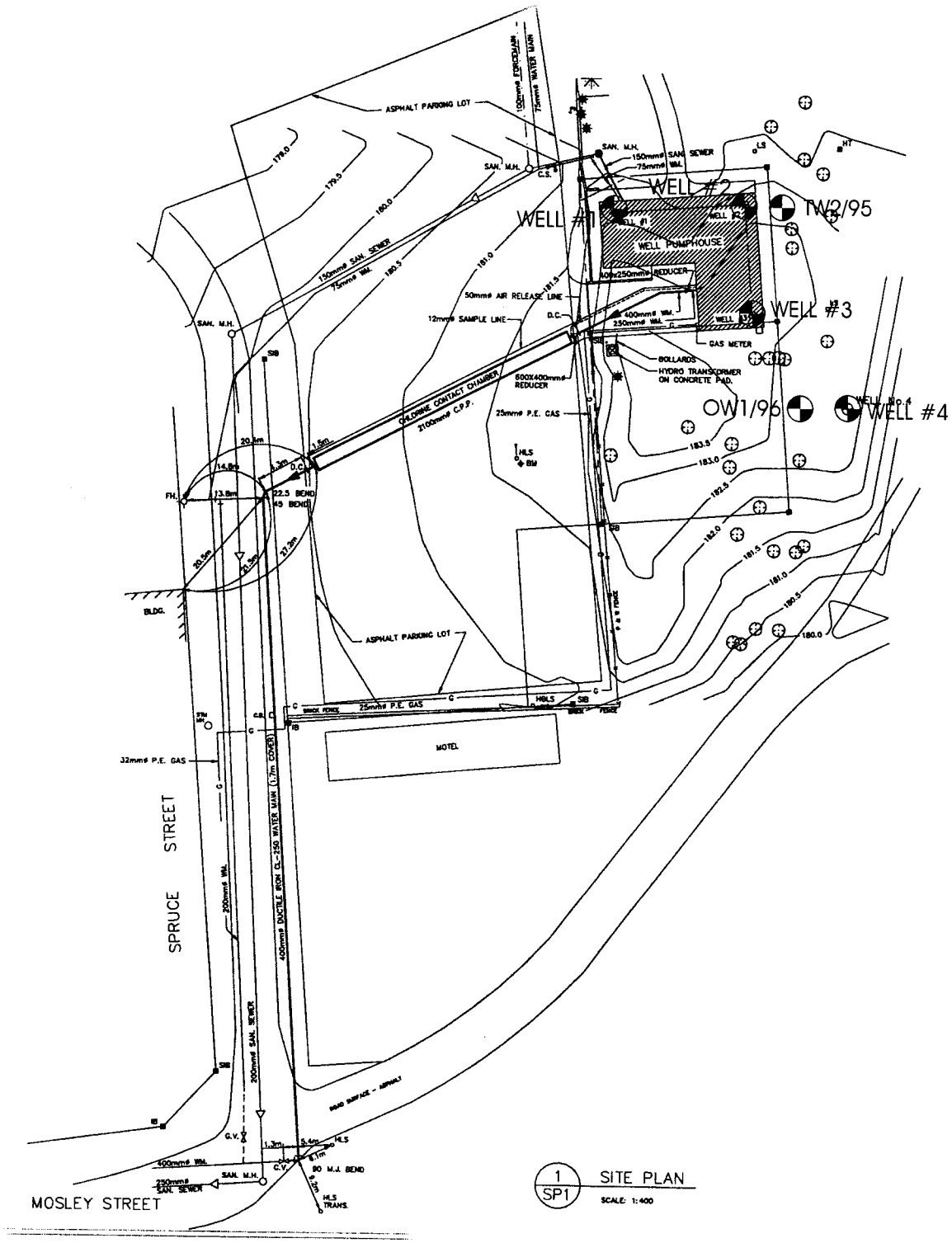
OVERALL PLAN

PROPOSED SITE CONDITIONS

Ainley GROUP — CONSULTING ENGINEERS PLANNERS

CONTRACT No.

DWG. 102029-OP2



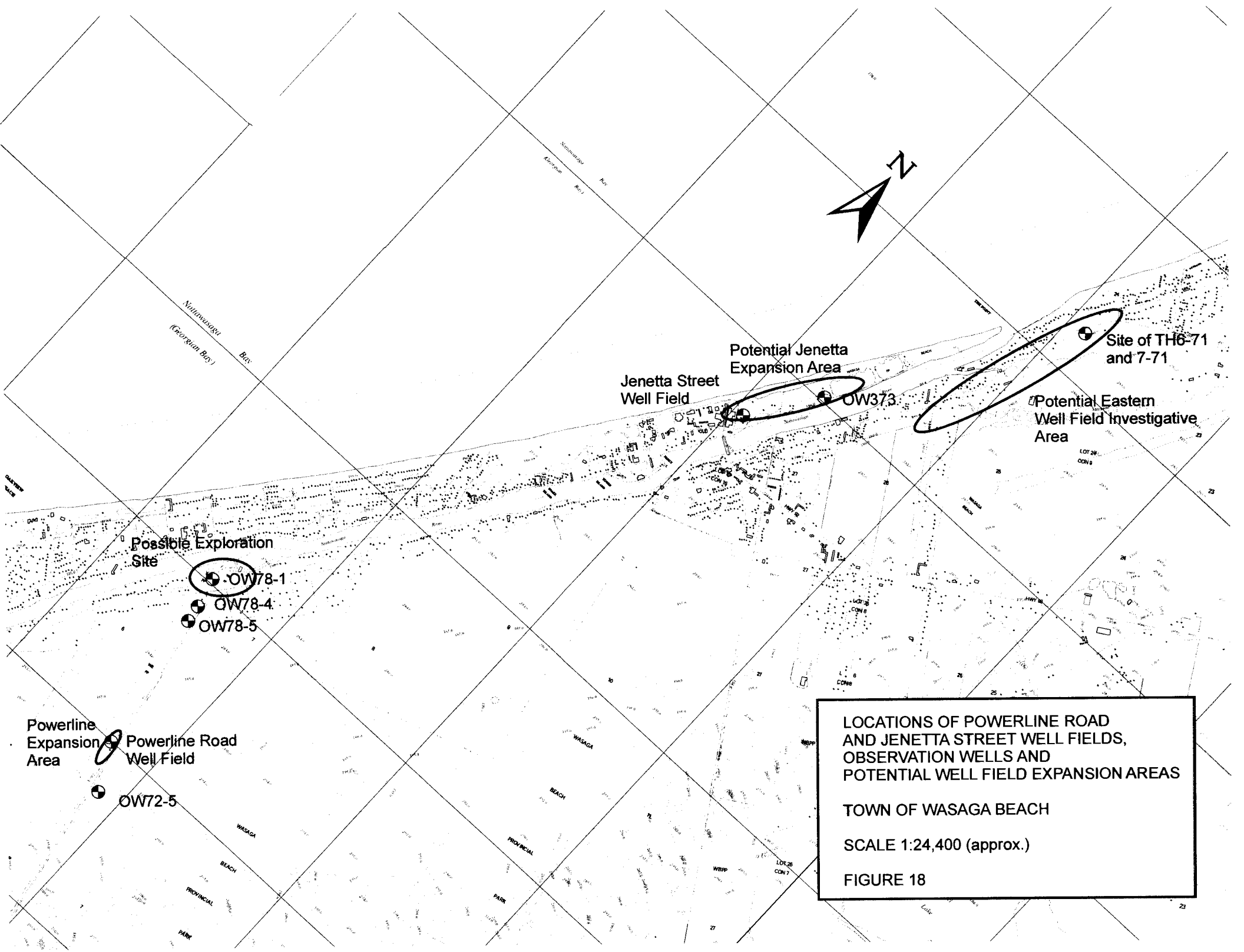
LOCATIONS OF PRODUCTION WELLS AND ON-SITE OBSERVATION WELLS

JENETTA STREET WELL FIELD, TOWN OF WASAGA BEACH

Figure 17

SCALE 1:1000 approx.

IAN D. WILSON ASSOCIATES LIMITED


N
Nottawasaga (Georgian Bay) Bay
Potential Jenetta Expansion Area
Jenetta Street Well Field
OW373
Site of TH6-71 and 7-71
Potential Eastern Well Field Investigative Area
Possible Exploration Site
OW78-1
OW78-4
OW78-5
Powerline Expansion Area
Powerline Road Well Field
OW72-5
WASAGA BEACH PROVINCIAL PARK
WBPP
LOCATIONS OF POWERLINE ROAD AND JENETTA STREET WELL FIELDS, OBSERVATION WELLS AND POTENTIAL WELL FIELD EXPANSION AREAS
TOWN OF WASAGA BEACH
SCALE 1:24,400 (approx.)
FIGURE 18

Ontario

Ministry of the Environment
Ministère de l'Environnement

AMENDED PERMIT TO TAKE WATER
Ground Water
NUMBER 7234-7VSR2W

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

The Corporation of the Town of Wasaga Beach
30 Lewis St
Wasaga Beach, Ontario
L9Z 1A1

For the water taking from: Powerline Well 1(WWR 5716860), Powerline Well 2 (WWR 5716861), Powerline Well 3 (WWR 5729667), Powerline Well 4 (WWR 5737100),

Jenetta Well 1 (WWR 5731664), Jenetta Well 2 (WWR 5731668), Jenetta Well 3 (WWR 5731666)

Located at: Lot 6, Concession 16
Wasaga Beach, County of Simcoe

Lot 10, Concession 16
Wasaga Beach, County of Simcoe

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

DEFINITIONS

(a) "Director" means any person appointed in writing as a Director pursuant to section 5 of the OWRA for the purposes of section 34, OWRA.

(b) "Provincial Officer" means any person designated in writing by the Minister as a Provincial Officer pursuant to section 5 of the OWRA.

(c) "Ministry" means Ontario Ministry of the Environment.

(d) "District Office" means the Barrie District Office.

(e) "Permit" means this Permit to Take Water No. 7234-7VSR2W including its Schedules, if any, issued in accordance with Section 34 of the OWRA.

(f) "Permit Holder" means The Corporation of the Town of Wasaga Beach.

(g) "OWRA " means the *Ontario Water Resources Act,* R.S.O. 1990, c. O. 40, as amended.

You are hereby notified that this Permit is issued subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. Compliance with Permit

1.1 Except where modified by this Permit, the water taking shall be in accordance with the application for this Permit To Take Water, dated June 18, 2004 and signed by Eric Collingwood , and all Schedules included in this Permit.

1.2 The Permit Holder shall ensure that any person authorized by the Permit Holder to take water under this Permit is provided with a copy of this Permit and shall take all reasonable measures to ensure that any such person complies with the conditions of this Permit.

1.3 Any person authorized by the Permit Holder to take water under this Permit shall comply with the conditions of this Permit.

1.4 This Permit is not transferable to another person.

1.5 This Permit provides the Permit Holder with permission to take water in accordance with the conditions of this Permit, up to the date of the expiry of this Permit. This Permit does not constitute a legal right, vested or otherwise, to a water allocation, and the issuance of this Permit does not guarantee that, upon its expiry, it will be renewed.

1.6 The Permit Holder shall keep this Permit available at all times at or near the site of the taking, and shall produce this Permit immediately for inspection by a Provincial Officer upon his or her request.

1.7 The Permit Holder shall report any changes of address to the Director within thirty days of any such change. The Permit Holder shall report any change of ownership of the property for which this Permit is issued within thirty days of any such change. A change in ownership in the property shall cause this Permit to be cancelled.

2. General Conditions and Interpretation

2.1 Inspections

The Permit Holder must forthwith, upon presentation of credentials, permit a Provincial Officer to carry out any and all inspections authorized by the OWRA, the *Environmental Protection Act* , R.S.O. 1990, the *Pesticides Act* , R.S.O. 1990, or the *Safe Drinking Water Act,* S. O. 2002.

2.2 Other Approvals

The issuance of, and compliance with this Permit, does not:

(a) relieve the Permit Holder or any other person from any obligation to comply with any other applicable legal requirements, including the provisions of the *Ontario Water Resources Act* , and the *Environmental Protection Act* , and any regulations made thereunder; or

(b) limit in any way any authority of the Ministry, a Director, or a Provincial Officer, including the authority to require certain steps be taken or to require the Permit Holder to furnish any further information related to this Permit.

2.3 Information

The receipt of any information by the Ministry, the failure of the Ministry to take any action or require any person to take any action in relation to the information, or the failure of a Provincial Officer to prosecute any person in relation to the information, shall not be construed as:

(a) an approval, waiver or justification by the Ministry of any act or omission of any person that contravenes this Permit or other legal requirement; or

(b) acceptance by the Ministry of the information's completeness or accuracy.

2.4 Rights of Action

The issuance of, and compliance with this Permit shall not be construed as precluding or limiting any legal claims or rights of action that any person, including the Crown in right of Ontario or any agency thereof, has or may have against the Permit Holder, its officers, employees, agents, and contractors.

2.5 Severability

The requirements of this Permit are severable. If any requirements of this Permit, or the application of any requirements of this Permit to any circumstance, is held invalid or unenforceable, the application of such requirements to other circumstances and the remainder of this Permit shall not be affected thereby.

2.6 Conflicts

Where there is a conflict between a provision of any submitted document referred to in this Permit, including its Schedules, and the conditions of this Permit, the conditions in this Permit shall take precedence.

3. Water Takings Authorized by This Permit

3.1 **Expiry**

This Permit expires on **May 31, 2015**. No water shall be taken under authority of this Permit after the expiry date.

3.2 Amounts of Taking Permitted

The Permit Holder shall only take water from the source, during the periods and at the rates and amounts of taking specified in Table A. Water takings are authorized only for the purposes specified in Table A.

Table A

	Source Name / Description:	Source: Type:	Taking Specific Purpose:	Taking Major Category:	Max. Taken per Minute (litres):	Max. Num. of Hrs Taken per Day:	Max. Taken per Day (litres):	Max. Num. of Days Taken per Year:	Zone/ Easting/ Northing:
1	Powerline Well 1 (5716860) Lot: 6, Con: 16	Well Drilled	Municipal	Water Supply	3,636	24	5,235,840	365	17 576754 4926959
2	Powerline Well 2 (5716861) Lot: 6, Con: 16	Well Drilled	Municipal	Water Supply	3,636	24	5,235,840	365	17 576756 4926952
3	Powerline Well 3 (5729667) Lot: 6, Con: 16	Well Drilled	Municipal	Water Supply	3,636	24	5,235,840	365	17 576757 4926945
4	Powerline Well 4 (5737100) Lot: 6, Con: 16	Well Drilled	Municipal	Water Supply	3,636	24	5,235,840	365	17 576776 4926927
5	Jenetta Well 1 (5731664) Lot: 10, Con: 16	Well Drilled	Municipal	Water Supply	3,636	24	5,235,840	365	17 578047 4930716
6	Jenetta Well 2 5731668) Lot: 10, Con: 16	Well Drilled	Municipal	Water Supply	3,636	24	5,235,840	365	17 578075 4930714
7	Jenetta Well 3 (5731666) Lot: 10, Con: 16	Well Drilled	Municipal	Water Supply	3,636	24	5,235,840	365	17 578065 4930729
						Total Taking:	31,415,040		

3.3 Total daily volume shall not exceed 31,415,040 Litres.

3.4 Powerline Well 1 is to operate only as a stand-by well and shall be used in combination with two of Powerline Wells 2,3, or 4 as required.

4. Monitoring

4.1 The Permit Holder shall install and maintain flow meters at each pump house location and shall continue to maintain a daily log of operations for each of the wells listed in Table A. Considering the cluster configuration of the wells at each location, combined metering of the individual wells is acceptable for both sites under this Permit. The Permit Holder shall keep all records up to date and available for inspection by a Provincial Officer upon his or her request.

4.2 The Permit Holder shall continue to operate and maintain the continuous water level recorders on monitor wells TW 1-92 and TW 2-95 at the Powerline and Jenetta locations respectively.

4.3. The Permit Holder shall equip and maintain water level recorders in each of the following monitor wells by March 31, 2010: OW 72-5, OW 78-1 and OW 373. The data from any of the 5 aforementioned water level recorders listed above shall be available electronically to Ministry staff at any time upon request.

4.4. Any request for an amendment or renewal of this Permit shall be accompanied by a report prepared by a Qualified Person (P.Geo. or equivalent) assessing the monitoring data collected under the above Conditions.

5. Impacts of the Water Taking

5.1 Notification
The Permit Holder shall immediately notify the local District Office of any complaint arising from the taking of water authorized under this Permit and shall report any action which has been taken or is proposed with regard to such complaint. The Permit Holder shall immediately notify the local District Office if the taking of water is observed to have any significant impact on the surrounding waters. After hours, calls shall be directed to the Ministry's Spills Action Centre at 1-800-268-6060.

5.2 For Groundwater Takings
If the taking of water is observed to cause any negative impact to other water supplies obtained from any adequate sources that were in use prior to initial issuance of a Permit for this water taking, the Permit Holder shall take such action necessary to make available to those affected, a supply of water equivalent in quantity and quality to their normal takings, or shall compensate such persons for their reasonable costs of so doing, or shall reduce the rate and amount of taking to prevent or alleviate the observed negative impact. Pending permanent restoration of the affected supplies, the Permit Holder shall provide, to those affected, temporary water supplies adequate to meet their normal requirements, or shall compensate such persons for their reasonable costs of doing so.

If permanent interference is caused by the water taking, the Permit Holder shall restore the water supplies of those permanently affected.

6. **Director May Amend Permit**
The Director may amend this Permit by letter requiring the Permit Holder to suspend or reduce the taking to an amount or threshold specified by the Director in the letter. The suspension or reduction in taking shall be effective immediately and may be revoked at any time upon notification by the Director. This condition does not affect your right to appeal the suspension or reduction in taking to the Environmental Review Tribunal under the *Ontario Water Resources Act* , Section 100 (4).

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is included to ensure that the conditions in this Permit are complied with and can be enforced.

2. Condition 2 is included to clarify the legal interpretation of aspects of this Permit.

3. Conditions 3 through 6 are included to protect the quality of the natural environment so as to safeguard the ecosystem and human health and foster efficient use and conservation of waters. These conditions allow for the beneficial use of waters while ensuring the fair sharing, conservation and sustainable use of the waters of Ontario. The conditions also specify the water takings that are authorized by this Permit and the scope of this Permit.

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 101 of the Ontario Water Resources Act, R.S.O. 1990, as amended, provides that the Notice requiring the hearing shall state:

1. The portions of the Permit or each term or condition in the Permit in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

In addition to these legal requirements, the Notice should also include:

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

This notice must be served upon:

The Secretary
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto ON
M5G 1E5

AND

The Director, Section 34
Ministry of the Environment
8th Floor
5775 Yonge St
Toronto ON M2M 4J1
Fax: (416)325-6347

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

by telephone at (416) 314-4600 ***by fax at (416) 314-4506*** ***by e-mail at www.ert.gov.on.ca***

This Permit cancels and replaces Permit Number 7854-6CGR5H, issued on 2005/06/02.

Dated at Toronto this 16th day of September, 2009.

Christopher Munro
Director, Section 34
Ontario Water Resources Act , R.S.O. 1990

Schedule A

This Schedule "A" forms part of Permit To Take Water 7234-7VSR2W, dated September 16, 2009.

1. Permit amendment application signed by Jim McIntosh, Director of Public Works on July 14, 2009.

2. Ainley Group letter to MOE dated July 14, 2009.

The Ontario Water Resources Commission Act

WATER WELL RECORD

Test Well #1-72

Project 5-0111-69

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

11 | 5709214 | Municip. 57709 Wasaga

OW373

County or District	Township, Borough, City, Town, Village	Con., Block, Tract, Survey, etc.
Simcoe	Wasaga Beach (Village)	

Owner (Surname First)	Address	Date Completed
OWRC (Wasaga Beach)		Day 27 Mo. 01 Yr. 72

21	Zone	Easting	Northing	RC	Elevation	RC	Basin Code
	17	578250	4931025	4	0590	3	22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

General Colour	Most Common Material	Other Materials	General Description	Depth – Feet From	Depth – Feet To
	Sand		fine	0	22
	Sand &	Gravel		22	30
grey	clay			30	87
	sand		fine	87	93
	clay			93	96
	sand		fine	96	101
	sand		medium	101	119
	sand w/streaks of clay			119	130
	clay &	silt		130	168
	sand		fine	168	170
	sand		medium	170	180
	Sand &	Gravel		180	194
grey	clay			194	200

31	0022 08	0030 2811	0087 2CST	0093 08	0096 CST	0101 ...
32	0119 09	0130 2309	0168 0508	0170 08	0180 09	0194 2811

41 WATER RECORD

Water Found at – Feet	Kind of Water
70-194	☒ Fresh ☐ Salty ☐ Sulphur ☐ Mineral
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Mineral
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Mineral
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Mineral
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Mineral

51 CASING & OPEN HOLE RECORD

Inside Diam Inches	Material	Wall Thickness Inches	Depth – Feet From	To
6	☒ Steel ☐ Galvanized ☐ Concrete ☐ Open Hole	.188	0	170
6	☐ Steel ☐ Galvanized ☐ Concrete ☒ Open Hole		170	200
	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open Hole			

SCREEN

Sizes of Opening (Slot No.)	Diameter	Length
Approx. 70	6 inches	24 feet

Material and Type	Depth to Top of Screen
Galvanized Louver	170 feet

61 PLUGGING & SEALING RECORD

Depth Set at – Feet From	To	Material and Type (Cement Grout, Lead Packer, etc.)
194	200	cuttings

PUMPING TEST

Pumping Test Method: ☒ Pump ☐ Bailer | Pumping Rate: 450 GPM | Duration of Pumping: 10 Hours Mins

Static Level	Water Level End of Pumping	15 Minutes	30 Minutes	45 Minutes	60 Minutes
6.37 feet	12.2 feet	10 feet	10.5 feet	11 feet	11.2 feet

Water levels during: ☐ Pumping ☐ Recovery

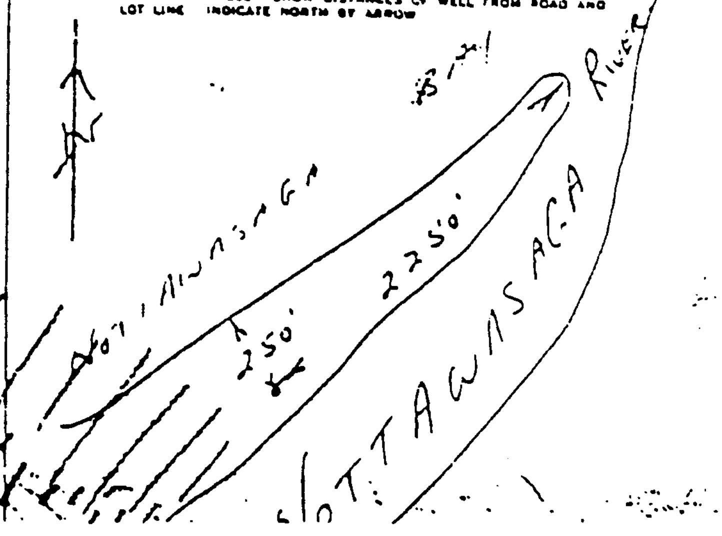
If flowing, give rate: GPM | Pump intake set at: feet | Water at end of test: ☒ Clear ☐ Cloudy

Recommended pump type: ☐ Shallow ☐ Deep | Recommended pump setting: feet | Recommended pumping rate: GPM

GPM/FT. Specific Capacity

LOCATION OF WELL

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



FINAL STATUS OF WELL

1 ☐ Water Supply
2 ☒ Observation Well
3 ☒ Test Hole
4 ☐ Recharge Well
5 ☐ Abandoned, Insufficient Supply
6 ☐ Abandoned, Poor Quality
7 ☐ Unfinished

WATER USE

1 ☐ Domestic
2 ☐ Stock
3 ☐ Irrigation
4 ☐ Industrial
☐ Other
5 ☐ Commercial
6 ☒ Municipal
7 ☐ Public Supply
8 ☐ Cooling or Air Conditioning
9 ☐ Not Used

METHOD

1 ☐ Cable Tool
2 ☒ Rotary (Conventional)
6 ☐ Boring
7 ☐ Diamond

Ontario Ministry of the Environment

WATER WELL RECORD

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

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	LOT, BLOCK, TRACT, SURVEY, ETC	LOT
Simcoe	Town of Wasaga Beach		

OWNER (SURNAME FIRST)	ADDRESS	DATE COMPLETED
Ministry of the Environment	40 St. Clair Ave. W., Toronto	DAY 11 MO 09 YR 78

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
brown	fine sand			0	35
grey	clay		soft	35	48
	clay	sand, gravel		48	68
	med. to coarse sand			68	131
	clay	gravel		131	151
	fine to med. sand	clay		151	170
	med. to coarse sand	clay		170	192
	sand	gravel		192	234
	limestone			234	238

WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
	☐ FRESH ☐ SULPHUR ☐ SALTY ☐ MINERAL
	☐ FRESH ☐ SULPHUR ☐ SALTY ☐ MINERAL
	☐ FRESH ☐ SULPHUR ☐ SALTY ☐ MINERAL
	☐ FRESH ☐ SULPHUR ☐ SALTY ☐ MINERAL
	☐ FRESH ☐ SULPHUR ☐ SALTY ☐ MINERAL

CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
2	☒ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE		+ 2	110
1	☒ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE		+ 2	122
	☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
slotted pipe	2 INCHES	9 FEET

MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN
steel	110 FEET

PLUGGING & SEALING RECORD

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

PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
☐ PUMP ☐ BAILER air	10 GPM	1 HOURS MINS

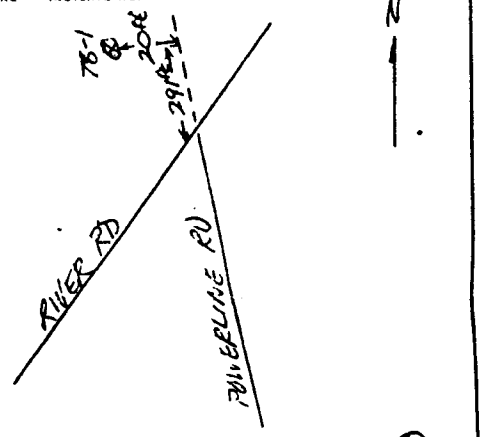
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
7 FEET	15.14 FEET	15.08 FEET	15.10 FEET	15.12 FEET	15.14 FEET

☒ PUMPING ☐ RECOVERY

IF FLOWING GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
GPM	FEET	☐ CLEAR ☐ CLOUDY
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☐ DEEP	RECOMMENDED PUMP SETTING FEET	RECOMMENDED PUMPING RATE GPM

LOCATION OF WELL

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



DRILLER'S REMARKS: TW 78-1

FINAL STATUS OF WELL	☐ WATER SUPPLY ☒ OBSERVATION WELL ☒ TEST HOLE ☐ RECHARGE WELL ☐ ABANDONED, INSUFFICIENT SUPPLY ☐ ABANDONED, POOR QUALITY ☐ UNFINISHED
WATER USE	☐ DOMESTIC ☐ STOCK ☐ IRRIGATION ☐ INDUSTRIAL ☐ OTHER ☐ COMMERCIAL ☒ MUNICIPAL ☐ PUBLIC SUPPLY ☐ COOLING OR AIR CONDITIONING ☐ NOT USED
METHOD OF DRILLING	☐ CABLE TOOL ☒ ROTARY (CONVENTIONAL) ☐ ROTARY (REVERSE) ☐ ROTARY (AIR) ☐ AIR PERCUSSION ☐ BORING ☐ DIAMOND ☐ JETTING ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR	LICENCE NUMBER
Snider Drilling Limited,	4816

ADDRESS	LICENCE NUMBER
Craighurst, Ontario.	

NAME OF DRILLER OR BORER	
Michael Arnold.	

SIGNATURE OF CONTRACTOR	SUBMISSION DATE
Ralph Snider.	DAY MO YR

OFFICE USE ONLY

FORM NO. 0506—6—77

CONTRACTOR'S COPY

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

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

(11) 5715940 5709

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN OR VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT
Simcoe	Wasaga Beach		

OWNER (SURNAME FIRST)	ADDRESS	DATE COMPLETED
Ministry of the Environment	40 St. Clair Ave. W., Toronto	DAY 27 MO 09 YR. 78

(21) 17 576600 4927650 5 0575 5 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
	fine sand			0	34
	clay	gravel stones		34	69
	sand		cemented	69	75
	fine to med.	sand		75	137
	clay			137	152
	fine sand	silt		152	169
	sand	gravel clay		169	195
	clay	broken limestone		195	217

JAN 06 198

(31) 0034 08 0069 05 1172 0075 2860 0137 09 0152 05 0169 0800
(32) 0195 28 1105 0217 05 1571

(41) WATER RECORD

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

(51) CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
02	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE		+ 2	0176
01	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE		+ 2	0187
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

SIZE(S) OF OPENING SLOT NO.'S	DIAMETER INCHES	LENGTH FEET
020 ~~slot~~	0 2000	15

MATERIAL AND TYPE: PVC wire wound
DEPTH TO TOP OF SCREEN: 0176 FEET

(61) PLUGGING & SEALING RECORD

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

(71) PUMPING TEST

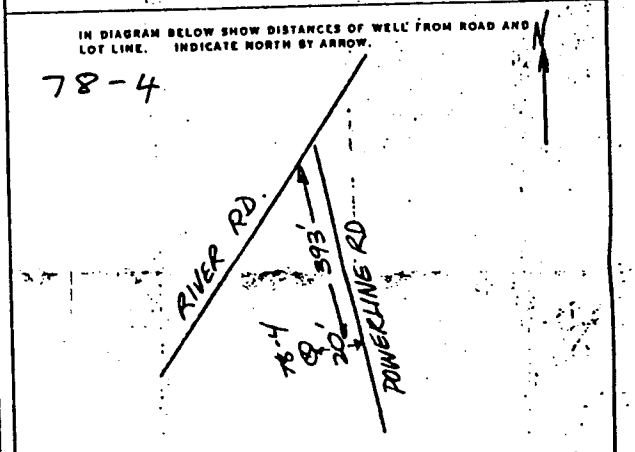
PUMPING TEST METHOD: 1 ☒ PUMP 2 ☐ BAILER — air
PUMPING RATE: 0020 GPM — DURATION OF PUMPING: 01 HOURS 00 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☐ PUMPING 2 ☐ RECOVERY	10 MINUTES	20 MINUTES	30 MINUTES	40 MINUTES	50 MINUTES	60 MINUTES
011	048	FEET	FEET		FEET		FEET	
10.6 FEET	FEET							

IF FLOWING, GIVE RATE: GPM
PUMP INTAKE SET AT: FEET
WATER AT END OF TEST: 1 ☐ CLEAR 2 ☐ CLOUDY
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☐ DEEP
RECOMMENDED PUMP SETTING: FEET
RECOMMENDED PUMPING RATE: GPM

LOCATION OF WELL

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



DRILLERS REMARKS: IW 78-4

FINAL STATUS OF WELL 3	1 ☐ WATER SUPPLY 2 ☒ OBSERVATION WELL 3 ☒ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED
WATER USE 02	1 ☐ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL 5 ☐ COMMERCIAL 6 ☒ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED 10 ☐ OTHER
METHOD OF DRILLING 2	1 ☐ CABLE TOOL 2 ☒ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR	LICENCE NUMBER
Snider Drilling Limited,	4816
ADDRESS: Craighurst, Ont.	
NAME OF DRILLER OR BORER: Michael Arnold.	LICENCE NUMBER
SIGNATURE OF CONTRACTOR: Ralph Snider.	SUBMISSION DATE: DAY ____ MO ____ YR. ____

OFFICE USE ONLY

DATE SOURCE 2	CONTRACTOR 4816	RECEIVED 05 04 79
DATE OF INSPECTION	INSPECTOR	
REMARKS		

FORM NO. 0506-4-77

MINISTRY OF THE ENVIRONMENT COPY

41A/8E

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

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

11 | 5715941 | Municip. 57110 | Con.

County or District	Township, Borough, City, Town, Village	Con., Block, Tract, Survey, etc.	Lot
Simcoe	Wasaga Beach		

Owner (Surname First)	Address	Date Completed
Ministry of the Environment	40 St. Clair Ave. W., Toronto	Day 3 Mo 10 Yr 78

21 | Zone | Easting | Northing | RC | Elevation | RC | Basin Code

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

General Colour	Most Common Material	Other Materials	General Description	Depth - Feet From	Depth - Feet To
	fine sand			0	28
	fine sand	silt, clay		28	59
	clay	gravel	hard	59	68
	clay	streaks of sand		68	79
	med. sand	clay		79	135
	fine sand			135	159
	sand	gravel		159	164
	sand	gravel	cemented	164	196
	clay	broken limestone		196	202

31

32

41 WATER RECORD

Water Found at - Feet	Kind of Water
	1 ☐ Fresh 3 ☐ Sulphur 2 ☐ Salty 4 ☐ Mineral
	1 ☐ Fresh 3 ☐ Sulphur 2 ☐ Salty 4 ☐ Mineral
	1 ☐ Fresh 3 ☐ Sulphur 2 ☐ Salty 4 ☐ Mineral
	1 ☐ Fresh 3 ☐ Sulphur 2 ☐ Salty 4 ☐ Mineral
	1 ☐ Fresh 3 ☐ Sulphur 2 ☐ Salty 4 ☐ Mineral

51 CASING & OPEN HOLE RECORD

Inside Diam Inches	Material	Wall Thickness Inches	Depth - Feet From	Depth - Feet To
2	1 ☒ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open Hole		+ 2	165
1	1 ☒ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open Hole		+ 2	119
	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open Hole			

SCREEN

Size(s) of Opening (Slot No.)	Diameter	Length
202 slot	2 inches	15 feet

Material and Type	Depth to Top of Screen
PVC wire wound	165 feet

61 PLUGGING & SEALING RECORD

Depth Set at - Feet From	To	Material and Type (Cement Grout, Lead Packer, etc.)

71 PUMPING TEST

Pumping Test Method	Pumping Rate	Duration of Pumping
air (1 ☐ Pump 2 ☐ Bailer)	20 GPM	1 Hours Mins

Water levels during: 1 ☒ Pumping 2 ☐ Recovery

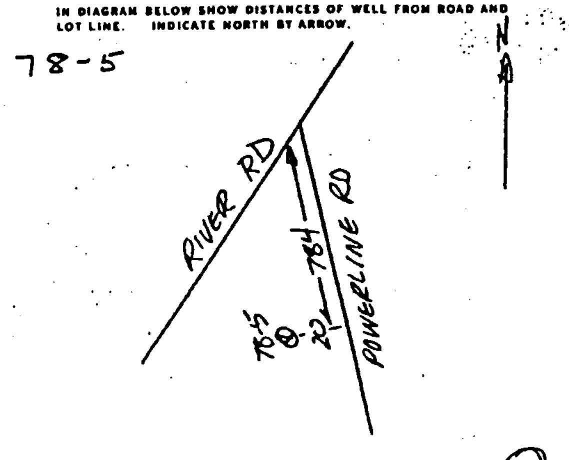
Static Level	Water Level End of Pumping	15 Minutes	30 Minutes	45 Minutes	60 Minutes
11 feet	50.45 feet	48.20 feet	49.30 feet	49.85 feet	50.45 feet

If flowing, give rate: GPM | Pump intake set at: feet | Water at end of test: 1 ☐ Clear 2 ☐ Cloudy

Recommended pump type: ☐ Shallow ☐ Deep | Recommended pump setting: feet | Recommended pumping rate: GPM

LOCATION OF WELL

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



Drillers Remarks: TW 78-5

FINAL STATUS OF WELL

1 ☐ Water Supply
2 ☒ Observation Well
3 ☒ Test Hole
4 ☐ Recharge Well
5 ☐ Abandoned, Insufficient Supply
6 ☐ Abandoned, Poor Quality
7 ☐ Unfinished

WATER USE

1 ☐ Domestic
2 ☐ Stock
3 ☐ Irrigation
4 ☐ Industrial
☐ Other
5 ☐ Commercial
6 ☒ Municipal
7 ☐ Public Supply
8 ☐ Cooling or Air Conditioning
9 ☐ Not Used

METHOD OF DRILLING

1 ☐ Cable Tool
2 ☒ Rotary (Conventional)
3 ☐ Rotary (Reverse)
4 ☐ Rotary (Air)
5 ☐ Air Percussion
6 ☐ Boring
7 ☐ Diamond
8 ☐ Jetting
9 ☐ Driving

CONTRACTOR

Name of Well Contractor: Snider Drilling Limited, | Licence Number: 4816
Address: Craighurst, Ont.
Name of Driller or Borer: Michael Arnold. | Licence Number:
Signature of Contractor: Ralph Snider. | Submission Date: Day Mo Yr

OFFICE USE ONLY

Data Source | Contractor 4816 | Date Received 050479
Date of Inspection | Inspector
Remarks: loc only 9/56 Pt

WDE

419/81

The Ontario Water Resources Act

WATER WELL RECORD

Ministry of the Environment
Ontario

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11 5715945 5712

County or District	Township, Borough, City, Town, Village	Con., Block, Tract, Survey, etc.	Lot
Simcoe	Wasaga Beach	XVI	6

Owner (surname first)	Address	Date Completed
Ministry of the Environment	40 St. Clair Ave. W., Toronto	Day 24 Mo 10 Yr 78

21 Zone / Easting / Northing / RC / Elevation / RC / Basin Code

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

General Colour	Most Common Material	Other Materials	General Description	Depth - Feet From	Depth - Feet To
	fine sand	gravel		0	55
	clay			55	66
	fine sand			66	72
	clay	fine sand, gravel streaks		72	169
	fine sand			169	177
	sand	gravel		177	199
	sand	gravel	cemented	199	220
	broken limestone	clay		220	230

31

32

41 WATER RECORD

Water Found at - Feet	Kind of Water
	1 ☐ Fresh 3 ☐ Sulphur 2 ☐ Salty 4 ☐ Mineral
	1 ☐ Fresh 3 ☐ Sulphur 2 ☐ Salty 4 ☐ Mineral
	1 ☐ Fresh 3 ☐ Sulphur 2 ☐ Salty 4 ☐ Mineral
	1 ☐ Fresh 3 ☐ Sulphur 2 ☐ Salty 4 ☐ Mineral
	1 ☐ Fresh 3 ☐ Sulphur 2 ☐ Salty 4 ☐ Mineral

51 CASING & OPEN HOLE RECORD

Inside Diam Inches	Material	Wall Thickness Inches	Depth - Feet From	Depth - Feet To
2	1 ☒ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open Hole		+ 2	176
	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open Hole			
	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open Hole			

SCREEN

Size(s) of Opening (Slot No.)	Diameter	Length
20 slot	2 inches	15 feet

Material and Type	Depth to Top of Screen
PVC wire wound	176 feet

61 PLUGGING & SEALING RECORD

Depth Set At - Feet From	To	Material and Type (Cement Grout, Lead Packer, etc.)

71 PUMPING TEST

Pumping Test Method	Pumping Rate	Duration of Pumping
air ☐ Pump ☐ Bailer	30 GPM	1 hours mins

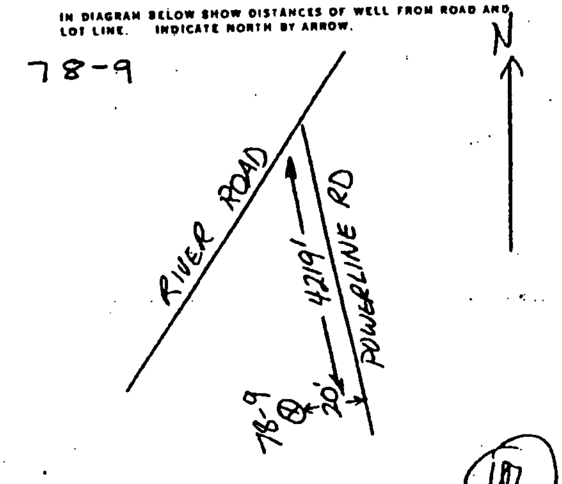
Static Level	Water Level End of Pumping	15 minutes	30 minutes	45 minutes	60 minutes
40.3 feet	41.7 feet	42.48 feet	42.56 feet	42.63 feet	42.7 feet

Water levels during: 1 ☐ Pumping 2 ☐ Recovery

If flowing, give rate: GPM
Pump intake set at: feet
Water at end of test: 1 ☐ Clear 2 ☐ Cloudy
Recommended pump type: ☐ Shallow ☐ Deep
Recommended pump setting: feet
Recommended pumping rate: GPM

LOCATION OF WELL

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



Drillers Remarks: TW 78-9

FINAL STATUS OF WELL

1 ☐ Water Supply
2 ☒ Observation Well
3 ☒ Test Hole
4 ☐ Recharge Well
5 ☐ Abandoned, insufficient supply
6 ☐ Abandoned, poor quality
7 ☐ Unfinished

WATER USE

1 ☐ Domestic
2 ☐ Stock
3 ☐ Irrigation
4 ☐ Industrial
☐ Other
5 ☐ Commercial
6 ☒ Municipal
7 ☐ Public Supply
8 ☐ Cooling or air conditioning
9 ☐ Not used

METHOD OF DRILLING

1 ☐ Cable Tool
2 ☒ Rotary (conventional)
3 ☐ Rotary (reverse)
4 ☐ Rotary (air)
5 ☐ Air percussion
6 ☐ Boring
7 ☐ Diamond
8 ☐ Jetting
9 ☐ Driving

CONTRACTOR

Name of Well Contractor: Snider Drilling Limited. Licence Number: 4816
Address: Craighurst, Ontario.
Name of Driller or Borer: Michael Arnold, Licence Number:
Signature of Contractor: RAlph Snider. Submission Date: Day Mo Yr

OFFICE USE ONLY

Data Source: Contractor 4816 Date Received 050479
Date of Inspection: Inspector:
Remarks: loc only 0186 FX
WDE

FORM NO. 0506

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The Ontario Water Resources Act

WATER WELL RECORD

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COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON. BLOCK ~~TRACT~~, SURVEY, ETC.	LOT
Simcoe	Town of Wasaga Beach	XVI	6

OWNER (SURNAME FIRST)	ADDRESS	DATE COMPLETED
Town of Wasaga Beach	30 Lewis St. Wasaga Beach	DAY 5 MO 5 YR. 92

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
	Sand	odd bit of clay		0	31
	Sand	little gravel		31	40
	clay	gravel, sand	soft	40	46
grey	clay	odd bit of gravel	stiff	46	53
grey	clay	odd pebble	soft.	53	60
	clay	sandy little gravel	soft	60	67
	silt	silty clay odd bit gravel	packed	167	126
	silt	sand, some sandy clay	packed	126	141
	silt	sand, silty clay	packed	141	156
	silt	& silty clay	packed	156	178
	gravel	sand		178	185
	gravel	sand		185	189

WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERALS ☐ GAS
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERALS ☐ GAS
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERALS ☐ GAS
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERALS ☐ GAS
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERALS ☐ GAS

CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
8	☑ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE ☐ PLASTIC	.322	+3'	16'
2	☑ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE ☐ PLASTIC	.154	+2.5'	173
	☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE ☐ PLASTIC			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
20 slot	2 INCHES	5 FEET

MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN
SS. Wire Wrap	173 FEET

PLUGGING & SEALING RECORD

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

PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
☐ PUMP ☐ BAILER	not pumped	HOURS ____ MINS

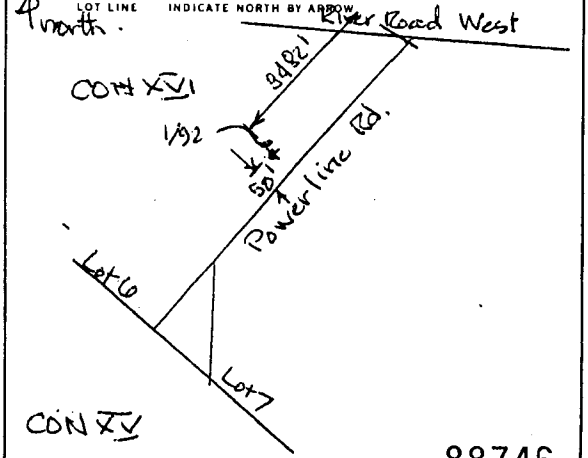
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING ☐ PUMPING ☐ RECOVERY			
		15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
35' FEET	FEET	N/A FEET	FEET	FEET	FEET

IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
GPM	FEET	☐ CLEAR ☐ CLOUDY

RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
☐ SHALLOW ☐ DEEP	FEET	GPM

LOCATION OF WELL 1/92 Pg 1

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



88746

DRILLERS REMARKS

FINAL STATUS OF WELL		
	☐ WATER SUPPLY	☐ ABANDONED, INSUFFICIENT SUPPLY
	☑ OBSERVATION WELL	☐ ABANDONED, POOR QUALITY
	☐ TEST HOLE	☐ UNFINISHED
	☐ RECHARGE WELL	☐ DEWATERING

WATER USE		
	☐ DOMESTIC	☐ COMMERCIAL
	☐ STOCK	☐ MUNICIPAL
	☐ IRRIGATION	☐ PUBLIC SUPPLY
	☐ INDUSTRIAL	☐ COOLING OR AIR CONDITIONING
	☐ OTHER	☑ NOT USED

METHOD OF CONSTRUCTION		
	☐ CABLE TOOL	☐ BORING
	☑ ROTARY (CONVENTIONAL)	☐ DIAMOND
	☐ ROTARY (REVERSE)	☐ JETTING
	☐ ROTARY (AIR)	☐ DRIVING
	☐ AIR PERCUSSION	☐ DIGGING ☐ OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR	WELL CONTRACTOR'S LICENCE NUMBER
International Water Supply	2801

ADDRESS	
PO Box 310 Barrie Ont	

NAME OF WELL TECHNICIAN	WELL TECHNICIAN'S LICENCE NUMBER
D. Peterman	T-0116

SIGNATURE OF TECHNICIAN / CONTRACTOR	SUBMISSION DATE
D Peterman	DAY 19 MO. 6 YR. 92

CONTRACTOR'S COPY

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Ministry of the Environment

Ontario

The Ontario Water Resources Act

WATER WELL RECORD

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COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON. BLOCK, TRACT, SURVEY, ETC.	LOT
Simcoe	Town of Wasaga Beach	XVI	6

OWNER (SURNAME FIRST)	ADDRESS	DATE COMPLETED
Town of Wasaga Beach	30 Lewis St. Wasaga Beach	DAY 5 MO 5 YR 92

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
	sand	gravel, clay, odd bldr.	cemented	180	191
	clay	little marl	hard packed	191	195
	clay	gravel stnks	hard packed	195	200

WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERALS ☐ GAS
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERALS ☐ GAS
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERALS ☐ GAS
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERALS ☐ GAS
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERALS ☐ GAS

CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
	☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE ☐ PLASTIC			
	☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE ☐ PLASTIC			
	☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE ☐ PLASTIC			

SCREEN

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

MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN FEET

PLUGGING & SEALING RECORD

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

PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
☐ PUMP ☐ BAILER	GPM	HOURS MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING ☐ PUMPING ☐ RECOVERY			
		15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
FEET	FEET	FEET	FEET	FEET	FEET

IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
GPM	FEET	☐ CLEAR ☐ CLOUDY

RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
☐ SHALLOW ☐ DEEP	FEET	GPM

LOCATION OF WELL 1/92 Pg 2

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

See Page 2 to 1

88728

DRILLERS REMARKS:

FINAL STATUS OF WELL	☐ WATER SUPPLY ☐ OBSERVATION WELL ☐ TEST HOLE ☐ RECHARGE WELL ☐ ABANDONED, INSUFFICIENT SUPPLY ☐ ABANDONED, POOR QUALITY ☐ UNFINISHED ☐ DEWATERING
WATER USE	☐ DOMESTIC ☐ STOCK ☐ IRRIGATION ☐ INDUSTRIAL ☐ OTHER ☐ COMMERCIAL ☐ MUNICIPAL ☐ PUBLIC SUPPLY ☐ COOLING OR AIR CONDITIONING ☐ NOT USED
METHOD OF CONSTRUCTION	☐ CABLE TOOL ☐ ROTARY (CONVENTIONAL) ☐ ROTARY (REVERSE) ☐ ROTARY (AIR) ☐ AIR PERCUSSION ☐ BORING ☐ DIAMOND ☐ JETTING ☐ DRIVING ☐ DIGGING ☐ OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR	WELL CONTRACTOR'S LICENCE NUMBER
International Water Supply	2801

ADDRESS
PO Box 310 Barrie Ont

NAME OF WELL TECHNICIAN	WELL TECHNICIAN'S LICENCE NUMBER
D Peterman	T-0116

SIGNATURE OF TECHNICIAN/CONTRACTOR	SUBMISSION DATE
D Peterman	DAY 19 MO. 6 YR 92

CONTRACTOR'S COPY

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FORM NO. 0506 (11/86) FORM 9

Ministry of the Environment
Ontario

The Ontario Water Resources Act
WATER WELL RECORD

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COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON, BLOCK, TRACT, SURVEY, ETC	LOT
SIMCOE	SUNNIDALE	XIV	4

OWNER (SURNAME FIRST)	ADDRESS	DATE COMPLETED
Town of Wasaga Beach	30 Lewis St. Wasaga Beach -	DAY 5 MO Oct YR 93

Page #1 of 2

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
brown	clay	odd stone	stiff	0	11
brown	clay	little gravel	stiff	11	20
grey	clay	gravel limestone bldr	hard packed	20	21
grey	clay	sandy, some sand & gravel &	soft	21	32
grey	clay	sandy, sand & gravel &	soft	32	36
	sand	silty, grey clay gravel & sand &	soft	36	51
grey	clay	silty odd bit gravel & sand &	soft	51	81
	sand &	some clay & gravel &	packed	81	83
	sand &	some clay	packed	83	86
grey	clay	silty, odd sand & stn	soft	86	90
brown & grey	clay		stiff	90	96
grey	clay	silty	soft	96	104

O.W. 1-93

WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERALS ☐ GAS
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERALS ☐ GAS
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERALS ☐ GAS
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERALS ☐ GAS
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERALS ☐ GAS

CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
8"	☒ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE ☐ PLASTIC	.322	+3	8
1 1/4"	☒ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE ☐ PLASTIC	.	+2	81
1 1/4"	☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE ☐ PLASTIC		+2	122

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
20 slot	1 1/4 INCHES	5 FEET

MATERIAL AND TYPE: st. steel wire wrap
DEPTH TO TOP OF SCREEN: S = 81' / = 120' FEET

PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
~~70~~ 271	~~85~~ ~~75~~ 130	BACKFILL
130 - 128 / 75 - 70 / 15 - 13		SEALS
78 - 110 / 115 - 123		silica gravel

PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
☐ PUMP ☐ BAILER	not pumped GPM	HOURS MINS

STATIC LEVEL: S = 38.5 MP + 3.0 / D = 38.54' FEET
WATER LEVEL END OF PUMPING: FEET
WATER LEVELS DURING ☐ PUMPING ☐ RECOVERY: 15 MINUTES ___ FEET; 30 MINUTES ___ FEET; 45 MINUTES ___ FEET; 60 MINUTES ___ FEET
IF FLOWING, GIVE RATE: GPM
PUMP INTAKE SET AT: FEET
WATER AT END OF TEST: ☐ CLEAR ☐ CLOUDY
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☐ DEEP
RECOMMENDED PUMP SETTING: FEET
RECOMMENDED PUMPING RATE: GPM

FINAL STATUS OF WELL

☐ WATER SUPPLY ☒ OBSERVATION WELL ☐ TEST HOLE ☐ RECHARGE WELL ☐ ABANDONED, INSUFFICIENT SUPPLY ☐ ABANDONED, POOR QUALITY ☐ UNFINISHED ☐ DEWATERING

WATER USE

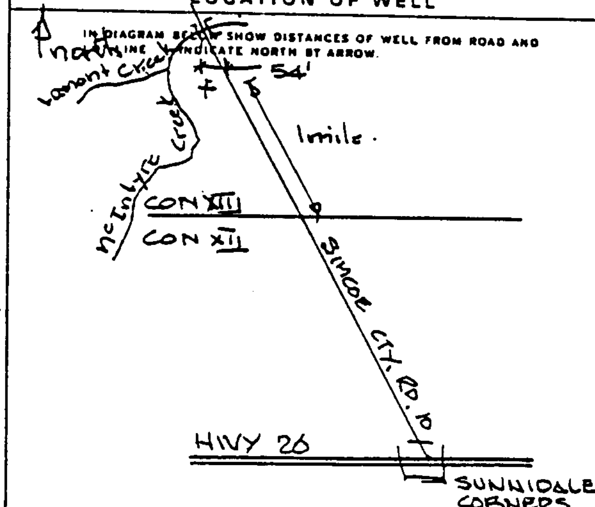
☐ DOMESTIC ☐ STOCK ☐ IRRIGATION ☐ INDUSTRIAL ☐ OTHER ☐ COMMERCIAL ☐ MUNICIPAL ☐ PUBLIC SUPPLY ☐ COOLING OR AIR CONDITIONING ☒ NOT USED

METHOD OF CONSTRUCTION

☐ CABLE TOOL ☒ ROTARY (CONVENTIONAL) ☐ ROTARY (REVERSE) ☐ ROTARY (AIR) ☐ AIR PERCUSSION ☐ BORING ☐ DIAMOND ☐ JETTING ☐ DRIVING ☐ DIGGING ☐ OTHER

LOCATION OF WELL

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



DRILLERS REMARKS

123218

CONTRACTOR

NAME OF WELL CONTRACTOR	WELL CONTRACTOR'S LICENCE NUMBER
International Water Supply	2801

ADDRESS: PO Box 310 Barrie

NAME OF WELL TECHNICIAN	WELL TECHNICIAN'S LICENCE NUMBER
H. Peterman	T-0116

SIGNATURE OF TECHNICIAN/CONTRACTOR	SUBMISSION DATE
[signature]	DAY 8 MO 10 YR 93

OFFICE USE ONLY

CONTRACTOR'S COPY

FORM NO. 0506 (11/86) FORM 9

Ministry of the Environment
Ontario

The Ontario W Resources Act

WATER WELL RECORD

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

COUNTY OR DISTRICT	TOWNSHIP BOROUGH CITY TOWN VILLAGE	CON BLOCK TRACT SURVEY ETC	LOT
SIMCOE	SUNNIDALE	X IV	4

OWNER (SURNAME FIRST)	ADDRESS	DATE COMPLETED
Town of Wasaga Beach.	30 Lewis St Wasaga Beach	DAY 5 MO Oct YR 93

Page 2 of 2

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
grey	clay		stiff	101	123
	sand m f	gravel f	packed.	123	126
	gravel	clay	packed very hard	126	184
	grey	clay, silty, little sand & gravel	soft	184	188
	grey	clay, little sand & gravel	soft add hard strk	188	197
	grey	clay	very hard	197	218
	grey	clay	softer	218	243
	grey	clay	very hard	243	270
	limestone			270	271

OW 1-93 contd.

WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERALS ☐ GAS
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERALS ☐ GAS
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERALS ☐ GAS
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERALS ☐ GAS
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERALS ☐ GAS

CASING & OPEN HOLE RECORD

INSIDE DIAM IN INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
	☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE ☐ PLASTIC			
	☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE ☐ PLASTIC			
	☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE ☐ PLASTIC			

SCREEN

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

MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN FEET

PLUGGING & SEALING RECORD

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

PUMPING TEST

PUMPING TEST METHOD ☐ PUMP ☐ BAILER
PUMPING RATE GPM
DURATION OF PUMPING HOURS MINS

STATIC LEVEL FEET	WATER LEVEL END OF PUMPING FEET	WATER LEVELS DURING ☐ PUMPING ☐ RECOVERY 10 MINUTES FEET	20 MINUTES FEET	45 MINUTES FEET	60 MINUTES FEET

IF FLOWING, GIVE RATE GPM
PUMP INTAKE SET AT FEET
WATER AT END OF TEST ☐ CLEAR ☐ CLOUDY
RECOMMENDED PUMP TYPE ☐ SHALLOW ☐ DEEP
RECOMMENDED PUMP SETTING FEET
RECOMMENDED PUMPING RATE GPM

LOCATION OF WELL

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

SEE PAGE #1

DRILLERS REMARKS 123217

FINAL STATUS OF WELL
☐ WATER SUPPLY ☐ OBSERVATION WELL ☐ TEST HOLE ☐ RECHARGE WELL ☐ ABANDONED, INSUFFICIENT SUPPLY ☐ ABANDONED, POOR QUALITY ☐ UNFINISHED ☐ DEWATERING

WATER USE
☐ DOMESTIC ☐ STOCK ☐ IRRIGATION ☐ INDUSTRIAL ☐ COMMERCIAL ☐ MUNICIPAL ☐ PUBLIC SUPPLY ☐ COOLING OR AIR CONDITIONING ☐ OTHER ☐ NOT USED

METHOD OF CONSTRUCTION
☐ CABLE TOOL ☐ ROTARY (CONVENTIONAL) ☐ ROTARY (REVERSE) ☐ ROTARY (AIR) ☐ AIR PERCUSSION ☐ BORING ☐ DIAMOND ☐ JETTING ☐ DRIVING ☐ DIGGING ☐ OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: International Water Supply
WELL CONTRACTOR'S LICENCE NUMBER: 2801
ADDRESS: PO Box 310 Barrie
NAME OF WELL TECHNICIAN: R Peterman
WELL TECHNICIAN'S LICENCE NUMBER: 0116
SIGNATURE OF TECHNICIAN/CONTRACTOR: R Peterman
SUBMISSION DATE: DAY 8 MO. 10 YR 93

CONTRACTOR'S COPY

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FORM NO. 0506 (11/86) FORM 9

Ministry of Environment and Energy
Ontario

The Ontario Water Resources Act
WATER WELL RECORD

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

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot
Simcoe	Wasaga Beach.		

Owner's surname / First name	Address	Date completed (day / month / year)
Town of Wasaga Beach	Wasaga Beach Ont.	3 / 5 / 95

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions) 2/95

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
	Sand f. - silty			0	21
	Sand	strks of gravel		21	31
	Sand & gravel			31	40
Gray	clay		very soft	40	83
Gray	clay	sand & gravel	soft	83	96
Gray	clay	few soft strks	firm	96	120
	Sand			120	132
Gray	clay		firm.	132	163
	Sand f-m	some clay, some gravels		163	193
	clay	gravel		193	197
	Gravel & bldrs			197	219
	Till	silty clay & gravel.		219	236

PILOT HOLE 2-95

WATER RECORD

Water found at - feet	Kind of water
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas

CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
2	☐ Steel ☑ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.154	+2	198
6"	☑ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.280	+2	8'
	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			

SCREEN

Sizes of opening (Slot No.)	Diameter	Length
Y8" torchcut	2 inches	22 feet

Material and type	Depth at top of screen
black	198 feet

PLUGGING & SEALING RECORD

☐ Annular space ☐ Abandonment

Depth set at - feet From	To	Material and type (Cement grout, bentonite, etc.)
230	10	pea gravel
+0	8	hole plug

PUMPING TEST

Pumping test method	Pumping rate	Duration of pumping
☐ Pump ☐ Bailer	not pumped	...... Hours ...... Mins

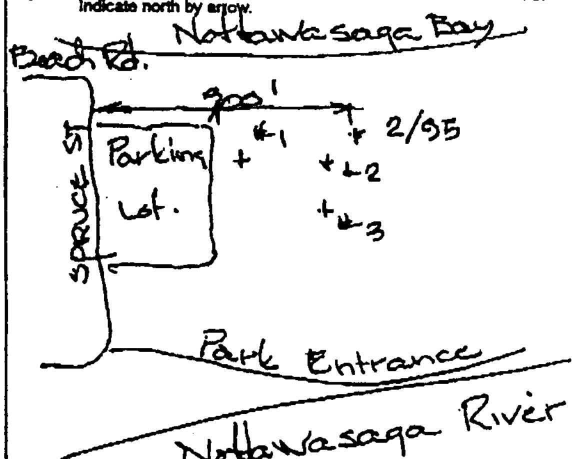
Static level	Water level end of pumping	Water levels during ☐ Pumping ☐ Recovery: 15 minutes	30 minutes	45 minutes	60 minutes
15 feet	feet	feet	feet	feet	feet

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

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

LOCATION OF WELL

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



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FINAL STATUS OF WELL

☐ Water supply
☑ Observation well
☐ Test hole
☐ Recharge well
☐ Abandoned, insufficient supply
☐ Abandoned, poor quality
☐ Abandoned (Other)
☐ Dewatering
☐ Unfinished
☐ Replacement well

WATER USE

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

METHOD OF CONSTRUCTION

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

Name of Well Contractor	Well Contractor's Licence No.
International Water Supply	2801

Address: P.O. Box 310 Barrie

Name of Well Technician	Well Technician's Licence No.
A. Grimster	T-0120

Signature of Technician/Contractor	Submission date
[signature]	day 7 mo 7 yr 95

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0506 (07/94) Front Form 9

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

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot
Simcoe	Town of Wasaga Beach	WHISMGH BEACH	
Owner's surname / **First name**	**Address**	**Date completed** day / month / year	
Town of Wasaga Beach	BOX 110, WHISMGH BEACH LOL 2 PO	4 / 4 / 96	

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
Brown	Sand	Fine gravel		0	25
Gray	Sand	Fine gravel	wet	25	38
Gray	clay		soft wet	38	79
Gray	Fine Sand	gravel	wet	79	91
Gray	Clay		dense	91	95

WATER RECORD

Water found at - feet	Kind of water		
9.1 m	☑ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
26.5 m	☑ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	

CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
2 (1)	☐ Steel ☑ Galvanized ☐ Concrete ☐ Open hole ☑ Plastic		2	35
2 (2)	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☑ Plastic		2	92
	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			

SCREEN

Sizes of opening (Slot No.)	Diameter	Length
10	2 inches	5 feet
Material and type	**Depth at top of screen** #1	#2
Plastic	35'	92'

PLUGGING & SEALING RECORD

☑ Annular space ☐ Abandonment

Depth set at - feet From	To	Material and type (Cement grout, bentonite, etc.)
13	20	Holeplug
46	56	Holeplug

PUMPING TEST

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

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

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

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

FINAL STATUS OF WELL

☐ Water supply
☑ Observation well
☐ Test hole
☐ Recharge well
☐ Abandoned, insufficient supply
☐ Abandoned, poor quality
☐ Abandoned (Other)
☐ Dewatering
☐ Unfinished
☐ Replacement well

WATER USE

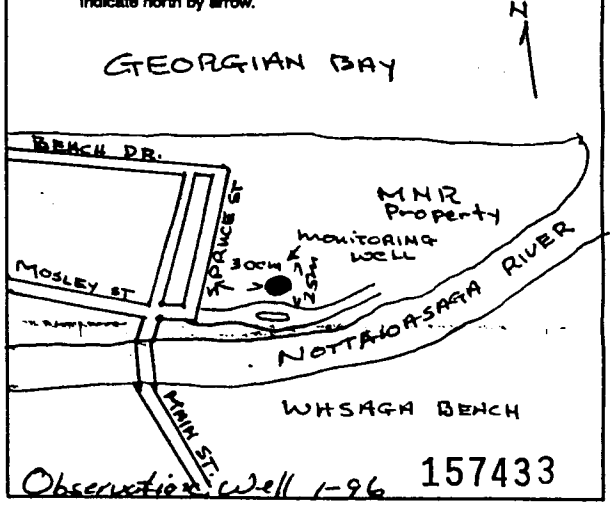
☐ Domestic ☐ Commercial ☐ Not used
☐ Stock ☐ Municipal ☐ Other
☐ Irrigation ☐ Public supply
☐ Industrial ☐ Cooling & air conditioning

METHOD OF CONSTRUCTION

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

LOCATION OF WELL

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



Name of Well Contractor	Well Contractor's Licence No.
Highland Water Wells	2576
Address	
Box 141 Durham	
Name of Well Technician	**Well Technician's Licence No.**
Nigel Poppleton	72130
Signature of Technician/Contractor	**Submission date** day 29 mo 4 yr 96

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Ontario of the Environment

WATER WELL

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

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT
Simcoe	Town of Wasaga Beach		

OWNER (SURNAME FIRST)	ADDRESS	DATE COMPLETED
Ministry of the Environment	40 St. Clair Ave., West, Toronto	DAY 16 MO 4 YR 80

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
	fine sand			0	44
	clay			44	77
	fine sand	silt, streaks of clay		77	170
	sand	gravel		170	199
	sand	gravel, silt		199	213

WELL 1

WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER		
	☐ FRESH ☐ SALTY	☐ SULPHUR ☐ MINERAL	
	☐ FRESH ☐ SALTY	☐ SULPHUR ☐ MINERAL	
	☐ FRESH ☐ SALTY	☐ SULPHUR ☐ MINERAL	
	☐ FRESH ☐ SALTY	☐ SULPHUR ☐ MINERAL	
	☐ FRESH ☐ SALTY	☐ SULPHUR ☐ MINERAL	

CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
29¼	☒ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE	0.375	+1.5	8.0
23"	☒ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE	0.500	+2.5	171
	☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE			

SCREEN

SIZE(S) OF OPENINGS (SLOT NO.)	DIAMETER	LENGTH
45 slot gravel packed	16 INCHES	26 FEET
MATERIAL AND TYPE: stainless steel wire wound	DEPTH TO TOP OF SCREEN: 170 FEET	

PLUGGING & SEALING RECORD

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

PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
☒ PUMP ☐ BAILER	800 GPM	23 HOURS MINS

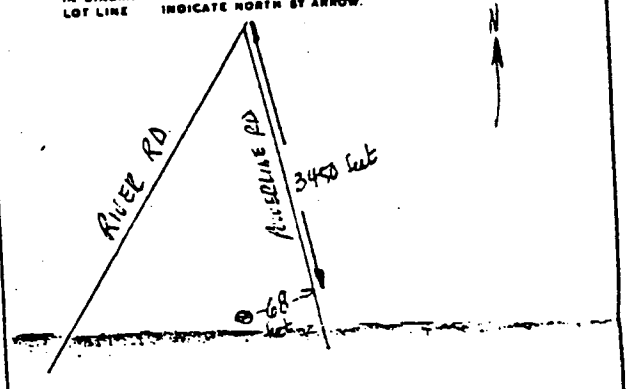
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING ☒ PUMPING ☐ RECOVERY			
		15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
27.19 FEET	59.24 FEET	49.23 FEET	50.55 FEET	FEET	52.03 FEET

IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
GPM	110 FEET	☒ CLEAR ☐ CLOUDY

RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
☐ SHALLOW ☐ DEEP	FEET	GPM

LOCATION OF WELL

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



DRILLERS REMARKS: Production Well 79-1

FINAL STATUS OF WELL		
	☒ WATER SUPPLY ☐ OBSERVATION WELL ☐ TEST HOLE ☐ RECHARGE WELL	☐ ABANDONED, INSUFFICIENT SUPPLY ☐ ABANDONED, POOR QUALITY ☐ UNFINISHED
WATER USE	☐ DOMESTIC ☐ STOCK ☐ IRRIGATION ☐ INDUSTRIAL ☐ OTHER	☐ COMMERCIAL ☒ MUNICIPAL ☐ PUBLIC SUPPLY ☐ COOLING OR AIR CONDITIONING ☐ NOT USED
METHOD OF DRILLING	☐ CABLE TOOL ☒ ROTARY (CONVENTIONAL) ☐ ROTARY (REVERSE) ☐ ROTARY (AIR) ☐ AIR PERCUSSION	☐ BORING ☐ DIAMOND ☐ JETTING ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR	LICENCE NUMBER
Snider Drilling Limited.	4816
ADDRESS: R R #1, (Craighurst), BARRIE, Ont. L4M 4Y8	
NAME OF DRILLER OR BORER: Donald Prince.	LICENCE NUMBER
SIGNATURE OF CONTRACTOR: Snider Drilling Limited.	DECOMMISSIONING DATE: DAY MO YR

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FORM NO 0506—77 FORM 7

CONTRACTOR'S COPY

41N/8F

Production Well #2

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

5716861

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2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT
Simcoe	Town of Wasaga Beach		

OWNER (SURNAME FIRST)	ADDRESS	DATE COMPLETED
Ministry of the Environment	40 St. Clair Ave., West, Toronto	DAY 16 MO 04 YR 80

ZONE | EASTING | NORTHING | ELEVATION | BASIN CODE

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
	fine sand			0	44
	clay			44	77
	fine sand	silt, streaks of clay		77	170
	sand	gravel		170	194
	sand	gravel, silt		194	210

41 WATER RECORD

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

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
29¼	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	0.375	+1.5	8.0
23	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	0.500	+3.0	172
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
65 slot gravel packed	16 INCHES	20 FEET
MATERIAL AND TYPE: stainless steel wire wound	DEPTH TO TOP OF SCREEN: 170 FEET	

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 ☒ PUMP 2 ☐ BAILER	800 GPM	HOURS MINS

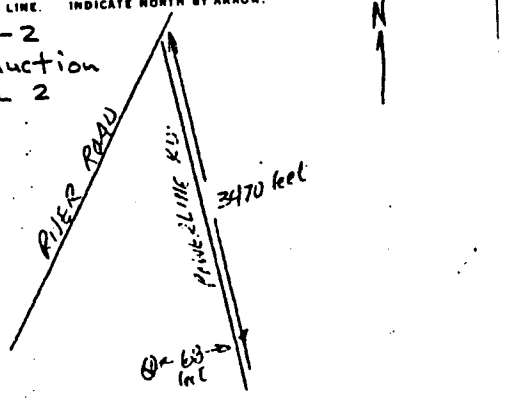
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☐ PUMPING 2 ☐ RECOVERY			
		10 MINUTES	20 MINUTES	45 MINUTES	60 MINUTES
27.71 FEET	FEET	FEET	FEET	FEET	FEET

IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST	
GPM	FEET	1 ☐ CLEAR 2 ☐ CLOUDY	
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☐ DEEP	RECOMMENDED PUMP SETTING: FEET	RECOMMENDED PUMPING RATE: GPM	

FINAL STATUS OF WELL	WATER USE	METHOD OF DRILLING
1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED	1 ☐ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL 5 ☐ COMMERCIAL 6 ☒ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED 0 ☐ OTHER	1 ☐ CABLE TOOL 2 ☒ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING

LOCATION OF WELL

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



DRILLERS REMARKS: Production Well 79-2

CONTRACTOR

NAME OF WELL CONTRACTOR	LICENCE NUMBER
Snider Drilling Limited,	4816

ADDRESS: R.R. #1 (Craighurst), BARRIE, Ont. L4M 4Y8

NAME OF DRILLER OR BORER: Michael Arnold.

SIGNATURE OF CONTRACTOR: Snider Drilling Limited.

SUBMISSION DATE: DAY ____ MO. ____ YR. ____

OFFICE USE ONLY

DATA SOURCE	CONTRACTOR	WELL RECORD
	4816	0990780

DATE OF INSPECTION: ____ INSPECTION: ____

REMARKS: loc only 01/81 PK

WDE

FORM NO. 0506-4-77 FORM

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Ministry of the Environment
Ontario

WATER WELL RECORD

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

COUNTY OR DISTRICT	TOWNSHIP BOROUGH CITY TOWN VILLAGE	CON BLOCK TRACT SURVEY ETC	LOT
Simcoe	Town of Wasaga Beach	XVI	6

OWNER (SURNAME FIRST)	ADDRESS	DATE COMPLETED
Town of Wasaga Beach	30 Lewis St. Wasaga Beach.	DAY 5 MO 5 YR 92

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
	sand	& blk muck	dirty	0	3
	sand	odd pebble, odd bit of	sandy clay	3	39
	gravel	sand + clay	broken	39	42
grey	clay	sandy, odd pebble	stiff	42	55
gray	clay	sandy, odd pebble	softer	55	61
	clay	& silt, some sand.	stiff	61	63
	clay	silty, some sand		63	172
	sand + gravel			172	186
	gravel	sand, odd bldr.		186	192
	gravel	some clay + sand		192	193
	clay	gravel		193	196
	clay	gravel	cemented.	196	204

WELL 3

WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
	☐ FRESH ☐ SULPHUR ☐ SALTY ☐ MINERALS ☐ GAS
	☐ FRESH ☐ SULPHUR ☐ SALTY ☐ MINERALS ☐ GAS
	☐ FRESH ☐ SULPHUR ☐ SALTY ☐ MINERALS ☐ GAS
	☐ FRESH ☐ SULPHUR ☐ SALTY ☐ MINERALS ☐ GAS
	☐ FRESH ☐ SULPHUR ☐ SALTY ☐ MINERALS ☐ GAS

CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
24"	☑ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE ☐ PLASTIC	.375	0	172
16"	☑ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE ☐ PLASTIC	.375	0	176
	☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE ☐ PLASTIC			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
50 slot	16 INCHES	26.5' FEET

MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN
stain. steel wire wrap.	176' FEET

PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
203'	171'	silica gravel
171'	60'	2 bags hole plug + grout.
171'	10'	washed sand 10-0-grout

PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
☑ PUMP ☐ BAILER	800 GPM	72 HOURS ___ MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING	10 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
36' FEET	76' FEET	☑ PUMPING ☐ RECOVERY	58.62 FEET	61.38 FEET	FEET	65.77 FEET

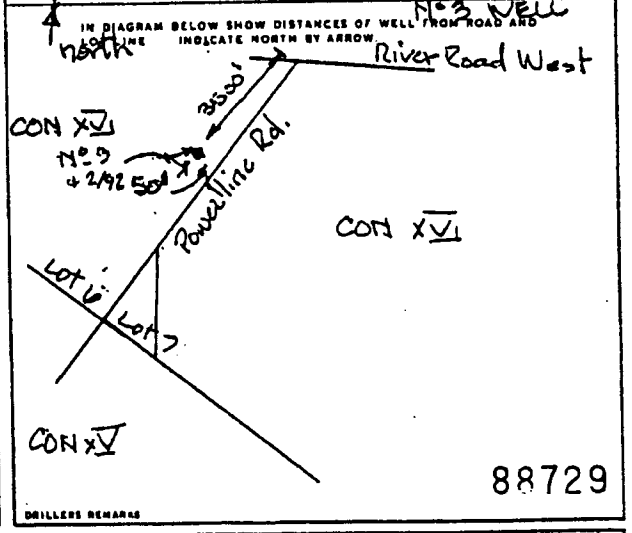
IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
— GPM	— FEET	☑ CLEAR ☐ CLOUDY

RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
☐ SHALLOW ☑ DEEP	FEET	GPM

FINAL STATUS OF WELL	☑ WATER SUPPLY ☐ OBSERVATION WELL ☐ TEST HOLE ☐ RECHARGE WELL	☐ ABANDONED, INSUFFICIENT SUPPLY ☐ ABANDONED, POOR QUALITY ☐ UNFINISHED ☐ DEWATERING
WATER USE	☐ DOMESTIC ☐ STOCK ☐ IRRIGATION ☐ INDUSTRIAL ☐ OTHER	☐ COMMERCIAL ☑ MUNICIPAL ☐ PUBLIC SUPPLY ☐ COOLING OR AIR CONDITIONING ☐ NOT USED
METHOD OF CONSTRUCTION	☐ CABLE TOOL ☐ ROTARY (CONVENTIONAL) ☑ ROTARY (REVERSE) ☐ ROTARY (AIR) ☐ AIR PERCUSSION	☐ BORING ☐ DIAMOND ☐ JETTING ☐ DRIVING ☐ DIGGING ☐ OTHER

LOCATION OF WELL 2/92a

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



88729

DRILLERS REMARKS

CONTRACTOR

NAME OF WELL CONTRACTOR	WELL CONTRACTOR'S LICENCE NUMBER
International Water Supply	2801

ADDRESS	
P.O. Box 310 Barrie Ontario	

NAME OF WELL TECHNICIAN	WELL TECHNICIAN'S LICENCE NUMBER
B.C. Mayer	T-0117

SIGNATURE OF TECHNICIAN/CONTRACTOR	SUBMISSION DATE
	DAY 19 MO 6 YR 92

CONTRACTOR'S COPY

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FORM NO 0506 (11/80) FORM 9

Ontario Ministry of the Environment

The Ontario Water Resources Act

WATER WELL RECORD

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

Well 4

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot
SIMCOE	SUNNIDALE	XVI	6

Owner's surname	First Name	Address	Date completed (day / month / year)
TOWN OF WASAGA BEACH		P.O. BOX 110 WASAGA BEACH	9 / 8 / 02

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
	SAND			0	9
	SAND + FINE GRAVEL		PACKED	9	42
GREY	CLAY	COARSE GRAVEL	STREAKS	42	53
GREY	CLAY	ODD STONE		53	58
GREY	CLAY AND	GRAVEL		58	67
GREY	CLAY	SAND STREAKS		67	82
	SAND & SILT	STREAK CLAY	PACKED	82	153
GREY	CLAY			153	160
	SAND + SILT	STREAK CLAY	PACKED	160	171
	GRAVEL		FINE TO MEDIUM	171	186
	GRAVEL	BOULDERS	MEDIUM TO COARSE	186	190

WATER RECORD

Water found at - feet	Kind of water		
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	

CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
24	☒ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	0.406	2	171
16	☒ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	0.375	2	173
16	☒ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	0.188	200	205

SCREEN

Sizes of opening (Slot No.)	Diameter	Length	Material and type	Depth at top of screen
50	16 inches	21'9" feet	S.S. W.W.	173 feet

PLUGGING & SEALING RECORD

☒ Annular space ☐ Abandonment

Depth set at - feet From	Depth set at - feet To	Material and type (Cement grout, bentonite, etc.)
150	3	CEMENT GROUT

PUMPING TEST

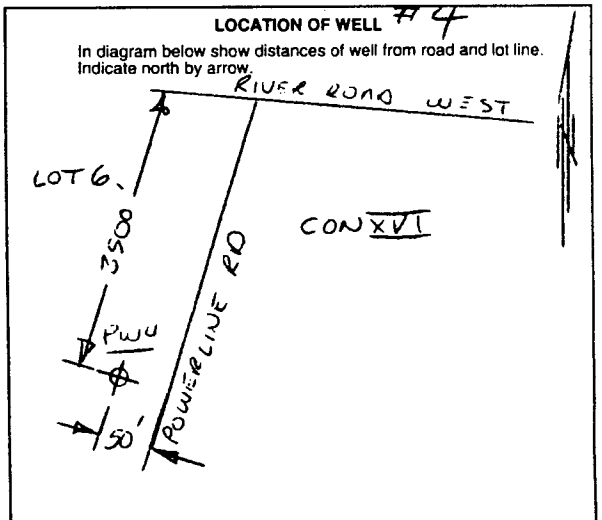
Pumping test method: ☒ Pump ☐ Bailer
Pumping rate: 800 GPM
Duration of pumping: 72 Hours 0 Mins

Static level	Water level end of pumping	Water levels during ☐ Pumping ☐ Recovery: 15 minutes	30 minutes	45 minutes	60 minutes
40.6 feet	90.6 feet	58.4 feet	59.4 feet	67.2 feet	68.7 feet

If flowing give rate	Pump intake set at	Water at end of test
GPM	feet	☐ Clear ☐ Cloudy
Recommended pump type: ☐ Shallow ☐ Deep	Recommended pump setting: feet	Recommended pump rate: GPM

LOCATION OF WELL #4

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



232069

FINAL STATUS OF WELL

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

WATER USE

☐ Domestic ☐ Stock ☐ Irrigation ☐ Industrial
☐ Commercial ☒ Municipal ☐ Public supply ☐ Cooling & air conditioning
☐ Not use ☐ Other

METHOD OF CONSTRUCTION

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

Name of Well Contractor	Well Contractor's Licence No.
INTERNATIONAL WATER SUPPLY	2501
Address: P.O. BOX 310 CARRIE ONT L4M 4T5	
Name of Well Technician: R C MAGEE	Well Technician's Licence No.: TO 117
Signature of Technician/Contractor	Submission date (day / mo / yr): 7 / 8 / 02

MINISTRY USE ONLY

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Environment

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

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot
SIMCOE	SUNNIDALE	XVL	6
Owner's surname / **First Name**	**Address**	**Date completed** day / month / year	
TOWN OF WASAGA BEACH	P.O. BOX 110 WASAGA BEACH	9 / 8 / 02	

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
	COARSE GRAVEL	BOULDERS		190	193
	CLAY GRAVEL	BOULDERS		193	209

WATER RECORD

Water found at - feet	Kind of water		
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	

CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			
	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			
	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			

SCREEN

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

PLUGGING & SEALING RECORD

☐ Annular space ☐ Abandonment

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

PUMPING TEST

Pumping test method ☐ Pump ☐ Bailer		Pumping rate GPM		Duration of pumping ____ Hours ____ Mins	
Static level	Water level end of pumping	Water levels during ☐ Pumping ☐ Recovery			
		15 minutes	30 minutes	45 minutes	60 minutes
feet	feet	feet	feet	feet	feet
If flowing give rate GPM		Pump intake set at feet		Water at end of test ☐ Clear ☐ Cloudy	
Recommended pump type ☐ Shallow ☐ Deep		Recommended pump setting feet		Recommended pump rate GPM	

LOCATION OF WELL

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

249763

FINAL STATUS OF WELL

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

WATER USE

☐ Domestic ☐ Commercial ☐ Not use
☐ Stock ☐ Municipal ☐ Other
☐ Irrigation ☐ Public supply
☐ Industrial ☐ Cooling & air conditioning

METHOD OF CONSTRUCTION

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

Name of Well Contractor	Well Contractor's Licence No.
Address	
Name of Well Technician	Well Technician's Licence No.
Signature of Technician/Contractor	Submission date day mo yr

MINISTRY USE ONLY

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.

County or District	Township/Borough/City/Town/Village	Con	block	tract	survey, etc.	Lot
Simcoe	Wasaga Beach.					
Owner's surname / First name	Address	Date completed: day 5, month 6, year 95
Town of Wasaga Beach	Wasaga Beach	

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth – feet From	Depth – feet To
	Sand & Gravel			0	40
Grey	clay	odd str of gravel	soft	40	62
Grey	clay		soft	62	84
	Sand & Gravel			84	104
Grey	clay		firm	104	168
	Sand			168	170
	Sand f-m	Gravel f		170	185
	Sand	Gravel f		185	208
	Gravel f	bldr sand		208	220
	Gravel	clay		220	224
	Gravel sand	bldr some clay		224	235

WELL 1

WATER RECORD

Water found at – feet	Kind of water		
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☑ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	

CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth – feet From	Depth – feet To
24	☑ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.375	+3'	201
16	☑ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.375	+3'	204
	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			

SCREEN

Slots of opening (Slot No.)	Diameter	Length
50 slot	16 inches	25 feet
Material and type: st steel	Depth at top of screen: 204 feet	

PLUGGING & SEALING RECORD

☐ Annular space ☐ Abandonment

Depth set at – feet From	Depth set at – feet To	Material and type (Cement grout, bentonite, etc.)
0	201	Cement grout.

PUMPING TEST

Pumping test method: ☑ Pump ☐ Bailer
Pumping rate: 880 GPM
Duration of pumping: 72 Hours ..... Mins

Static level	Water level end of pumping	Water levels during ☑ Pumping ☐ Recovery: 15 minutes	30 minutes	45 minutes	60 minutes
26' feet	48' feet	34 feet	35 feet	feet	36 feet

If flowing give rate: GPM
Pump intake set at: feet
Water at end of test: ☐ Clear ☐ Cloudy
Recommended pump type: ☐ Shallow ☐ Deep
Recommended pump setting: feet
Recommended pump rate: GPM

FINAL STATUS OF WELL

☑ Water supply ☐ Observation well ☐ Test hole ☐ Recharge well
☐ Abandoned, insufficient supply ☐ Abandoned, poor quality ☐ Abandoned (Other) ☐ Dewatering
☐ Unfinished ☐ Replacement well

WATER USE

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

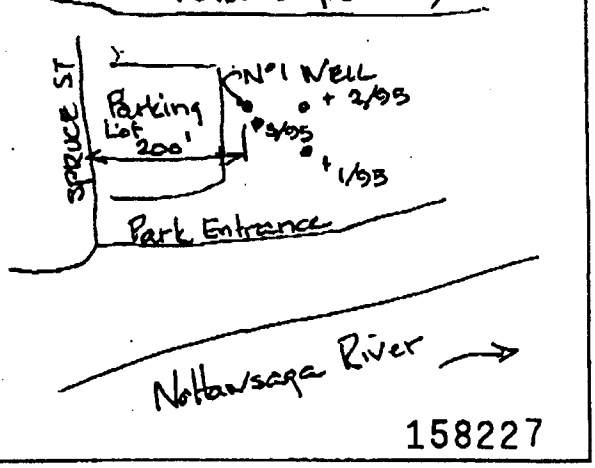
METHOD OF CONSTRUCTION

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

4

LOCATION OF WELL N° 1

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



158227

Name of Well Contractor	Well Contractor's Licence No.
International Water Supply	2801
Address: P.O. Box 310 Barrie	
Name of Well Technician: W. Forbes	Well Technician's Licence No.: T-0115
Signature of Technician/Contractor: W. Forbes	Submission date: day ... mo ... yr ...

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Ministry of Environment and Energy
Ontario

The Ontario Water Resources Act
WATER WELL RECORD

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Mark correct box with a checkmark, where applicable.

County or District	Township/Borough/City/Town/Village	Con	block	tract	survey, etc.	Lot
Simcoe	Wasaga Beach					
Owner's surname: Town of Wasaga Beach / First name	Address: Wasaga Beach Ont.	Date completed: 5 day		6 month	95 year	

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions) Page #1

General colour	Most common material	Other materials	General description	Depth – feet From	Depth – feet To
	Sand			0	21
	Sand	sty & gravel		21	41
Grey	clay	sty & gravel & sand		41	71
Grey	clay		hard	71	82
	Gravel	clay & bldrs		82	84
Grey	clay	sandy & gravel		84	92
Grey	clay	sandy some gravel	firm	92	107
	clay	silty	firm	107	115
Grey	clay			115	122
	Sand			122	139
	clay	silty	firm	139	158

WELL 2

WATER RECORD

Water found at – feet	Kind of water		
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	

CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth – feet From	Depth – feet To
24	☑ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.375	+1.83	190
16	☑ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.375	+1.83	195
	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			

SCREEN

Sizes of opening (Slot No.)	Diameter	Length
50 slot	16 inches	25 feet
Material and type: st. steel	Depth at top of screen: 195. feet	

PLUGGING & SEALING RECORD

☑ Annular space ☐ Abandonment

Depth set at – feet From	Depth set at – feet To	Material and type (Cement grout, bentonite, etc.)
0	190	Cement grout.

PUMPING TEST

Pumping test method	Pumping rate	Duration of pumping
☑ Pump ☐ Bailer	800 GPM	72 Hours ____ Min

Static level	Water level end of pumping	Water levels during ☑ Pumping ☐ Recovery: 15 minutes	30 minutes	45 minutes	60 minutes
15 feet	41. feet	30 feet	31½ feet	feet	33. feet

If flowing give rate	Pump intake set at	Water at end of test
GPM	feet	☐ Clear ☐ Cloudy
Recommended pump type: ☐ Shallow ☐ Deep	Recommended pump setting: feet	Recommended pump rate: GPM

FINAL STATUS OF WELL

☑ Water supply ☐ Observation well ☐ Test hole ☐ Recharge well
☐ Abandoned, insufficient supply ☐ Abandoned, poor quality ☐ Abandoned (Other) ☐ Dewatering
☐ Unfinished ☐ Replacement well

WATER USE

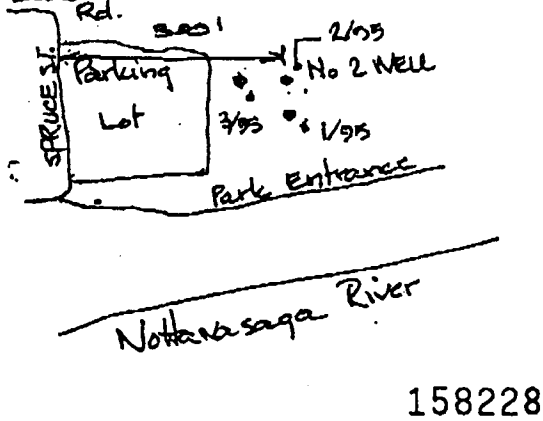
☐ Domestic ☐ Stock ☐ Irrigation ☐ Industrial
☐ Commercial ☑ Municipal ☐ Public supply ☐ Cooling & air conditioning
☐ Not used ☐ Other

METHOD OF CONSTRUCTION

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

LOCATION OF WELL 2

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



158228

Name of Well Contractor	Well Contractor's Licence No.
International Water Supply	2801
Address: P.O. Box 340	
Name of Well Technician: Walter Hobbs	Well Technician's Licence No.: T0115
Signature of Technician/Contractor: [signature]	Submission date: day 7 mo 7 yr 95

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Ministry of Environment and Energy
Ontario

The Ontario Water Resources Act
WATER WELL RECORD

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Mark correct box with a checkmark, where applicable.

County or District	Township/Borough/City/Town/Village	Con	block	tract	survey, etc.	Lot
Simcoe	Wasaga Beach					

Owner's surname: Town of Wasaga Beach — First name — Address — Date completed: 5 (day) 6 (month) 95 (year)

#N° 2

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

Page #2

General colour	Most common material	Other materials	General description	Depth - From	Depth - To
	Sand	str of clay		159	172
	Gravel & sand			172	174
	Sand	odd str of gravel		174	194
	Gravel f-c			194	196
	Sands			196	200
	Gravel f-c	bldrs		200	210
	Gravel f-c			210	220
	Sandy	clay		220	

WELL 2 Contd.

WATER RECORD

Water found at - feet	Kind of water	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas

CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - From	Depth - To
	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			
	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			
	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			

SCREEN

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

PLUGGING & SEALING RECORD

☐ Annular space ☐ Abandonment

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

PUMPING TEST

Pumping test method: ☐ Pump ☐ Bailer — Pumping rate: GPM — Duration of pumping: Hours Mins

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

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

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

LOCATION OF WELL

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

158229

FINAL STATUS OF WELL

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

WATER USE

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

METHOD OF CONSTRUCTION

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

Name of Well Contractor: International Water Supply — Well Contractor's Licence No.: 2801

Address: P. O. Box 310

Name of Well Technician: E. W. Nobes — Well Technician's Licence No.: T-0115

Signature of Technician/Contractor — Submission date: day 7 mo 7 yr 95

MINISTRY USE ONLY

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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.

County or District	Township/Borough/City/Town/Village	Con	block	tract	survey, etc.	Lot
Simcoe	Wasaga Beach.					

Owner's surname: Town of Wasaga Beach — First name: — Address: Wasaga Beach. Ont. — Date completed: 5 (day) 6 (month) 95 (year)

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
	Sand &	Gravel.		0	40
Grey	clay	sandy gravel str.	soft	40	91
	Gravel	clay		91	97
	Sand & Gravel			97	100
Grey	clay	str. soft sand		100	108
Grey	clay		hard	108	128
	Sand &			129	135
Grey	clay	little sand		135	186
	Sand	str of gravel		186	200
	Gravel & c	Bldrs		200	210
grey	clay	sandy		219	227

WELL 3

WATER RECORD

Water found at - feet	Kind of water		
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	
	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	

CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
24	☑ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.375	+1.83	194
16	☑ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.375	+1.83	194
	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			

SCREEN

Size of opening (Slot No.)	Diameter inches	Length feet
50 slot	16	25

Material and type: st. steel — Depth at top of screen: 194 feet

PLUGGING & SEALING RECORD

☑ Annular space ☐ Abandonment

Depth set at - feet From	To	Material and type (Cement grout, bentonite, etc.)
0	194	Cement grout.

PUMPING TEST

Pumping test method: ☐ Pump ☐ Bailer — Pumping rate: 800 GPM — Duration of pumping: 1.2 Hours ..... Mins

Static level	Water level end of pumping	Water levels during ☑ Pumping ☐ Recovery: 15 minutes	30 minutes	45 minutes	60 minutes
16. feet	45 1/2 feet	24 feet	25 feet	feet	26 feet

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

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

FINAL STATUS OF WELL

☑ Water supply ☐ Abandoned, insufficient supply ☐ Unfinished
☐ Observation well ☐ Abandoned, poor quality ☐ Replacement well
☐ Test hole ☐ Abandoned (Other)
☐ Recharge well ☐ Dewatering

WATER USE

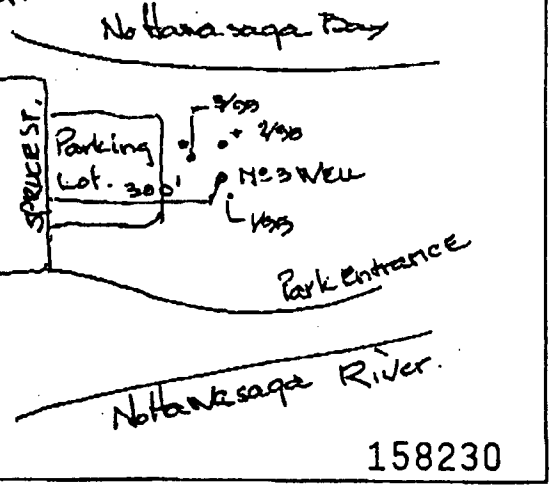
☐ Domestic ☐ Commercial ☐ Not used
☐ Stock ☑ Municipal ☐ Other
☐ Irrigation ☐ Public supply
☐ Industrial ☐ Cooling & air conditioning

METHOD OF CONSTRUCTION

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

LOCATION OF WELL W#3

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



158230

Name of Well Contractor: International Water Supply — Well Contractor's Licence No.: 2801
Address: P.O. Box 310 Barrie
Name of Well Technician: D. Nobes — Well Technician's Licence No.: T0115
Signature of Technician/Contractor: [signature] — Submission date: 7 (day) 7 (mo) 95 (yr)

MINISTRY USE ONLY

1 - CONTRACTOR'S COPY

0506 (07/94) Front Form 9

Ontario Ministry of the Environment

Well Tag Numbe A011212
A011212

Well Record
Regulation 903 Ontario Water Resources Act

page 1 of 1

WELL 4

Instructions for Completing Form

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

Ministry Use Only
MUN | CON | LOT

Well Owner's Information and Location of Well Information

First Name: TOWN OF | Last Name: WASAGA BEACH | Mailing Address (Street Number/Name, RR,Lot,Concession): BOX 110, LEWIS STREET

County/District/Municipality: SIMCOE | Township/City/Town/Village: WASAGA BEACH | Province: Ontario | Postal Code: L0L 2P0 | Telephone Number (include area code): 705 429 3844

Address of Well Location (County/District/Municipality): SIMCOE | Township: SUNNIDALE | Lot: 10 | Concession: XVIII

RR#/Street Number/Name: JENNETTA STREET | City/Town/Village: WASAGA BEACH | Site/Compartment/Block/Tract etc.: PARK 1

GPS Reading: NAD 8 3 | Zone 17 | Easting 578105 | Northing 4930724 | Unit Make/Model: MAGELLAN | Mode of Operation: [ ] Undifferentiated [X] 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	STONES		0	11.9
GREY	CLAY	SAND		11.9	12.8
GREY	CLAY		SOFT	12.8	25.9
GREY	CLAY		HARD	25.9	33.2
GREY	CLAY	SAND & SILT	LAYERED	33.2	40.8
GREY	CLAY		HARD	40.8	52.1
GREY	CLAY	SILT		52.1	55.8
	GRAVEL	SAND & BOULDERS		55.8	66.8
GREY	CLAY			66.8	69.2

Hole Diameter

Depth From	Metres To	Diameter Centimetres
0	6.3	106.7
6.3	56	99.0
56	68	71.1

Water Record

Water found at 55 Metres | Kind of Water: [ ] Fresh [ ] Salty [ ] Sulphur [ ] Minerals [ ] Gas [ ] Other

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

Chlorinated: [X] Yes [ ] No

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Depth To
Casing				
59	[X] Steel [ ] Fibreglass [ ] Plastic [ ] Concrete [ ] Galvanized	0.95	0.8	57.3
39	[X] Steel [ ] Fibreglass [ ] Plastic [ ] Concrete [ ] Galvanized	0.95	0.8	57.3
	[ ] Steel [ ] Fibreglass [ ] Plastic [ ] Concrete [ ] Galvanized			
Screen				
Outside diam		Slot No.		
61	[X] Steel [ ] Fibreglass [ ] Plastic [ ] Concrete [ ] Galvanized	50	57.3	64.9
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	4.18		
Pumping rate - (litres/min) 3660	1		1	
Duration of pumping 72 hrs + 0 min	2	6.35	2	11.83
Final water level end of pumping 19.41 metres	3		3	
Recommended pump type. [ ] Shallow [ ] Deep	4	6.46	4	11.50
Recommended pump depth. ____ metres	5		5	
Recommended pump rate. 3660 (litres/min)	10	6.63	10	10.91
If flowing give rate - (litres/min)	15	6.73	15	10.59
	20	6.80	20	10.37
	25	6.86	25	10.11
If pumping discontinued, give reason.	30	6.93	30	9.92
	40	7.02	40	9.62
	50	7.10	50	9.37
	60	7.16	60	9.16

Plugging and Sealing Record

[X] Annular space [ ] Abandonment

Depth set at - Metres From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
57.3	0	CEMENT GROUT	23.75

Method of Construction

[ ] Cable Tool [ ] Rotary (air) [ ] Diamond [ ] Digging
[ ] Rotary (conventional) [ ] Air percussion [ ] Jetting [ ] Other
[X] Rotary (reverse) [ ] Boring [ ] Driving

Water Use

[ ] Domestic [ ] Industrial [ ] Public Supply [ ] Other
[ ] Stock [ ] Commercial [ ] Not used
[ ] Irrigation [X] Municipal [ ] Cooling & air conditioning

Final Status of Well

[X] Water Supply [ ] Recharge well [ ] Unfinished [ ] Abandoned, (Other)
[ ] Observation well [ ] Abandoned, insufficient supply [ ] Dewatering
[ ] Test Hole [ ] Abandoned, poor quality [ ] Replacement well

Well Contractor/Technician Information

Name of Well Contractor: INTERNATIONAL WATER SUPPLY | Well Contractor's Licence No.: 2801

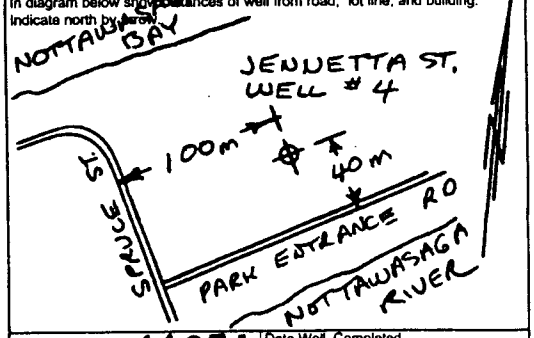
Business Address (street name, number, city etc.): PO BOX 310 BARRIE ON L4M4T5

Name of Well Technician (last name, first name): RC MACEE | Well Technician's Licence No.: T0117

Signature of Technician/Contractor: X | Date Submitted YYYY MM DD: 2004 06 03

Location of Well

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



Audit No. Z 11254 | Date Well Completed YYYY MM DD: 2004 05 20

Was the well owner's information package delivered? [ ] Yes [X] No | Date Delivered YYYY MM DD

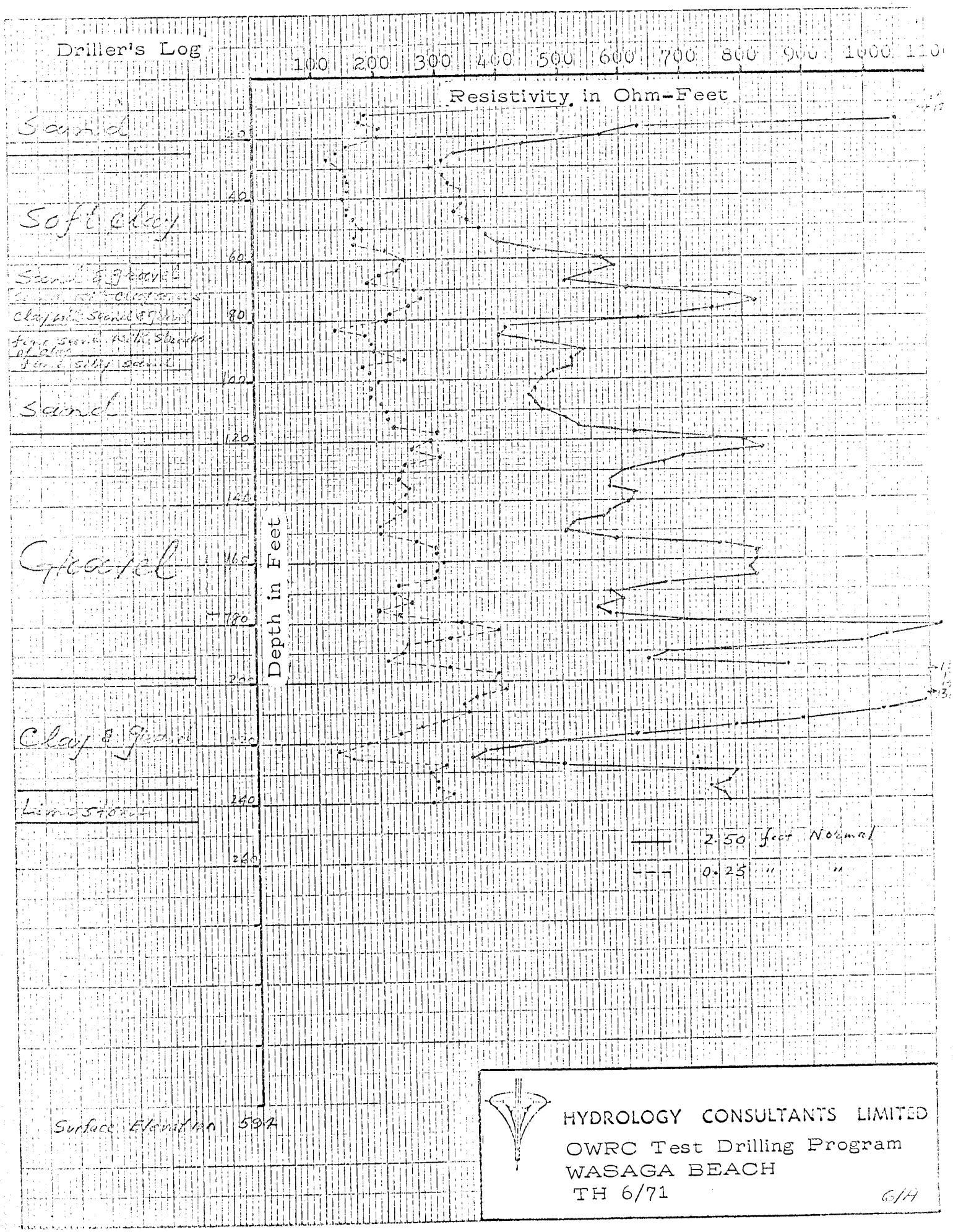
Ministry Use Only

Data Source | Contractor

Date Received YYYY MM DD | Date of Inspection YYYY MM DD

Remarks | Well Record Number

Cette formule est disponible en français


Driller's Log
100
200
300
400
500
600
700
800
900
1000
Resistivity in Ohm-Feet
Sand
Soft clay
Sand & gravel
Sand
Gravel
Clay & gravel
Limestone
Depth in Feet
40
60
80
100
120
140
160
180
200
220
240
260
2.50 feet Normal
0.25 " "
Surface Elevation 597
HYDROLOGY CONSULTANTS LIMITED
OWRC Test Drilling Program
WASAGA BEACH
TH 6/71
6/4

TOWNSHIP CONCESSION (LOT)	UTM[1]	DATE[2] CNTR[3]	CASING DIA[4]	WATER[5,6] DETAIL	STAT LVL/PUMP LVL[7] RATE[8]/TIME HR:MIN	WATER USE[9]	SCREEN INFO[10]	WELL # (AUDIT#) WELL TAG # DEPTHS TO WHICH FORMATIONS EXTEND[5,11]
WASAGA BEACH TOWN ()	17 575264 4925474[W]	1978/06 3602	04	FR 0049	008 / 030 007 / 1:30	DO	51 3	5715273 () BRWN SAND 0011 GREY CLAY STKY 0032 GREY CLAY SNDS 0049 BRWN SAND WBRG 0054
WASAGA BEACH TOWN ()	17 574220 4925930[W]	1973/08 5510	02	FR 0078	008 / 013 006 / 2:0	DO	75 4	5710755 () BRWN SAND 0023 GREY CLAY SAND STNS 0029 BLUE CLAY 0047 GREY CLAY SAND 0078 BRWN MSND FSND 0085
WASAGA BEACH TOWN ()	17 571195 4924424[W]	1973/06 5510	02	FR 0064	002 / 007 005 / 2:0	DO	59 10	5710756 () BRWN SAND 0019 GREY SAND CLAY HPAN 0039 BLUE CLAY SAND 0047 BLUE CLAY HPAN SAND 0064 BRWN SAND 0069
WASAGA BEACH TOWN ()	17 574982 4926885[W]	1973/09 5510	02	FR 0089	004 / 009 005 / 2:30	DO	86 10	5710773 () BRWN SAND 0023 GREY CLAY SAND 0031 BLUE CLAY 0047 GREY CLAY SAND HPAN 0083 GREY CLAY STNS 0089 BRWN MSND 0096
WASAGA BEACH TOWN ()		1995/06 2801	24 16		026 / 048 800 / 72:0	PS MN	204 25	5731664 (158227) SAND GRVL 0040 GREY CLAY GRVL SOFT 0062 GREY CLAY SOFT 0084 SAND GRVL 0104 GREY CLAY FSND 0168 FSND MGRD 0179 SAND FGVL 0185 SAND FGVL 0208 FGVL BLDR SAND 0220 GRVL CLAY 0224 GRVL SAND BLDR 0235
WASAGA BEACH TOWN ()	17 575164 4926124[W]	1975/08 5521	02	FR 0095	004 / 018 003 / 2:0	DO		5712569 () BRWN SAND 0021 GREY CLAY SNDY 0034 BLUE CLAY 0049 BLUE CLAY HPAN SNDY 0095 GREY FSND 0095
WASAGA BEACH TOWN ()	17 573495 4924478[W]	2007/12 6926						7101521 (Z76048) A058473 GREY LOAM SAND 0002 BRWN SAND SILT 0015
WASAGA BEACH TOWN ()	17 574333 4925801[W]	2007/12 6926	00	0002				7101524 (Z76054) A066225 BRWN LOAM SAND 0003 BRWN SAND WBRG 0018
WASAGA BEACH TOWN ()	17 574127 4926048[W]	2007/12 6926	00	0002				7101526 (Z76051) A066219 GREY LOAM FILL SAND 0003 BRWN SAND GRVL 0018
WASAGA BEACH TOWN ()	17 571841 4923602[W]	2010/05 7241	01				3.5 2.5	7147049 (Z114161) A063305
WASAGA BEACH TOWN ()	17 573984 4925434[W]	2010/04 7190	02	0002			5 5	7146773 (Z104040) A066651 BRWN SAND PEAT LOOS 0010
WASAGA BEACH TOWN ()	17 572487 4923444[W]	2010/04 7190	02	0004			5 5	7146767 (Z82515) A066612 BRWN SAND SILT LOOS 0010
WASAGA BEACH TOWN ()	17 573964 4925804[W]	1969/05 5510	02	FR 0089	008 / 012 005 / 2:0	DO	85 9	5706274 () FSND 0019 CLAY MSND HPAN 0032 MSND CLAY 0043 CLAY MSND 0084 FSND 0090 FSND 0094

TOWNSHIP CONCESSION (LOT)	UTM[1]	DATE[2] CNTR[3]	CASING DIA[4]	WATER[5,6] DETAIL	STAT LVL/PUMP LVL[7] RATE[8]/TIME HR:MIN	WATER USE[9]	SCREEN INFO[10]	WELL # (AUDIT#) WELL TAG # DEPTHS TO WHICH FORMATIONS EXTEND[5,11]
WASAGA BEACH TOWN ()	17 578742 4931855[W]	1959/07 5510	04	FR 0099	006 / 009 003 / 2:0	DO	89 10	5705027 () MSND 0008 MSND CLAY STNS 0028 BLUE CLAY 0079 CLAY MSND STNS 0087 MSND 0099
WASAGA BEACH TOWN ()	17 576204 4927914[W]	1962/08 5510	04	FR 0083	002 / 027 002 / 4:0	DO	69 14	5705036 () MSND 0010 CLAY MSND STNS 0017 CLAY MSND 0019 MSND 0029 BLUE CLAY 0053 CLAY 0058 HPAN GRVL 0073 FSND 0083
WASAGA BEACH TOWN ()	17 577761 4930241[W]	1965/05 5510	04	FR 0130	003 / 070 005 / 2:0	DO	130 6	5705065 () MSND 0025 CLAY 0100 MSND CLAY 0136
WASAGA BEACH TOWN ()	17 577303 4929587[W]	1965/06 5510	02	FR 0063 FR 0083	005 / 008 002 / 12:0	DO		5705067 () MSND 0003 MSND CLAY 0017 CLAY MSND STNS 0034 BLUE CLAY 0051 CLAY STNS 0063 FSND SILT 0078 HPAN 0083 MSND FSND 0084
WASAGA BEACH TOWN ()	17 577445 4929927[W]	1965/06 2216	04	FR 0092 UK 0012	008 / 014 021 / 20:0	CO	116 7	5705069 () FSND 0027 CLAY SILT 0053 CLAY SILT STNS 0092 MSND 0131 CLAY SILT STNS 0135
WASAGA BEACH TOWN ()	17 577817 4930186[W]	1965/08 5510	02	FR 0121	/ 008 003 / 2:0	DO	118 15	5705072 () MSND 0007 CLAY MSND STNS 0014 MSND 0024 CLAY STNS HPAN 0030 BLUE CLAY 0084 CLAY MSND GRVL 0097 CLAY MSND 0110 MSND HPAN 0121 FSND 0133
WASAGA BEACH TOWN ()	17 575609 4927750[W]	1966/08 5510	02	FR 0060	008 / 017 002 / 2:0	DO	56 15	5705087 () MSND 0009 MSND STNS 0024 BLUE CLAY 0046 CLAY MSND 0060 FSND 0071
WASAGA BEACH TOWN ()	17 575014 4927024[W]	1970/07 3602	04	FR 0083	005 / 040 007 / 1:15	DO	84 3	5707535 () BRWN FSND CLAY 0030 GREY CLAY 0083 BRWN MSND 0087
WASAGA BEACH TOWN ()	17 574775 4926304[W]	1953/07 1637	02	FR 0083	002 / 016 006 / 2:0	CO		5703736 () YLLW FSND 0010 BLCK FSND 0020 WHIT CLAY SHLE 0065 SHLE 0071 HPAN 0083 FSND GRVL 0090
WASAGA BEACH TOWN ()	17 574271 4925834[W]	1956/08 3807	02	FR 0070	/ 003 004 / :0	DO		5703745 () MSND 0025 CLAY 0070 GRVL 0072
WASAGA BEACH TOWN ()	17 573594 4925519[W]	1968/09 5510	02	FR 0079	004 / 009 006 / 2:0	DO		5706024 () MSND 0008 CLAY MSND 0014 FSND 0019 CLAY MSND STNS 0033 BLUE CLAY MSND 0058 CLAY MSND HPAN 0079
WASAGA BEACH TOWN ()	17 578544 4930274[W]	1968/07 5510	02	FR 0106	010 / 014 005 / 2:0	DO	101 11	5706032 () MSND 0010 MSND CLAY 0017 CLAY MSND STNS 0032 BLUE CLAY 0083 FSND CLAY 0104 FSND 0112
WASAGA BEACH TOWN ()	17 575661 4927716[W]	1974/05 2402	07 07	SU 0225	015 / 200 010 / 8:0	PS		5711414 () SAND 0040 CLAY 0045 QSND 0094 CLAY 0112 HPAN 0216 LMSN 0230
WASAGA BEACH TOWN ()	17 572659 4925106[W]	1977/07 3602	04	FR 0084	002 / 015 015 / 1:30	DO	85 3	5714514 () BRWN SAND 0018 GREY CLAY SAND 0084 BRWN FSND MSND WBRG 0088

TOWNSHIP CONCESSION (LOT)	UTM[1]	DATE[2] CNTR[3]	CASING DIA[4]	WATER[5,6] DETAIL	STAT LVL/PUMP LVL[7] RATE[8]/TIME HR:MIN	WATER USE[9]	SCREEN INFO[10]	WELL # (AUDIT#) WELL TAG # DEPTHS TO WHICH FORMATIONS EXTEND[5,11]
WASAGA BEACH TOWN ()	17 577964 4929924[W]	1978/11 3602	04	FR 0024	014 / 020 004 / 1:0	DO	26 3	5715650 () PRDG 0004 BRWN SAND 0020 GREY CLAY HARD 0024 BRWN SAND WBRG 0029
WASAGA BEACH TOWN ()	17 578354 4931194[W]	1971/07 4816	02		006 / / :0		174 20	5709051 () FSND 0022 MSND GRVL 0029 GREY CLAY 0088 FSND 0093 GREY CLAY 0096 FSND 0101 MSND FSND 0119 MSND CLAY 0130 GREY CLAY SILT 0168 FSND 0170 MSND 0181 MSND GRVL 0195 GREY CLAY GRVL 0215
WASAGA BEACH TOWN ()	17 575464 4925904[W]	1973/08 3602	04	FR 0100	029 / 090 006 / 1:30	DO	103 3	5710160 () BRWN SAND 0040 GREY CLAY 0090 GREY CLAY HPAN 0100 BRWN FSND 0106
WASAGA BEACH TOWN ()	17 572514 4925074[W]	1974/07 2340	04	FR 0078	002 / 018 010 / 4:0	DO	79 3	5712028 () GREY FSND LOOS 0009 GREY SAND SILT STNS 0011 GREY SILT FSND CLAY 0044 BRWN MSND SILT PCKD 0051 GREY SILT CLAY PCKD 0060 BRWN SILT FSND PCKD 0072 GREY SILT FSND CMTD 0078 BRWN MSND PCKD 0082 BRWN MSND SILT PCKD 0084
WASAGA BEACH TOWN ()	17 575114 4925174[W]	1977/09 3602	04	FR 0106	040 / 090 015 / 2:0	DO	108 3	5714731 () BRWN SAND 0045 GREY CLAY SNDS HARD 0106 BRWN SAND WBRG 0111
WASAGA BEACH TOWN ()	17 573454 4925284[W]	1971/02 3602	04	FR 0077	003 / 030 010 / 1:20	DO	78 3	5708092 () BRWN MSND 0018 BRWN MSND CLAY 0053 BRWN CLAY GRVL 0077 BRWN CSND 0081
WASAGA BEACH TOWN ()	17 575287 4925287[W]	1974/08 3602	04	FR 0051	009 / 030 008 / 1:0	DO	52 3	5711311 () BRWN SAND 0007 BRWN SAND CLAY 0014 BRWN SAND GRVL CLAY 0030 GREY CLAY 0051 BRWN SAND 0055
WASAGA BEACH TOWN ()	17 575064 4925974[W]	1975/07 5521	02	FR 0106	009 / 014 / :0	DO	102 10	5712404 () BRWN SAND 0019 GREY CLAY HPAN SNDY 0028 BLUE CLAY 0041 BLUE CLAY HPAN SNDY 0101 BRWN FSND MSND 0114
WASAGA BEACH TOWN ()	17 575084 4926474[W]	1977/03 3602	06	FR 0105	009 / 060 050 / 2:0	CO	111 9	5714084 () BRWN SAND 0025 GREY CLAY GVLY 0060 GREY CLAY 0105 BRWN CSND MSND WBRG 0120
WASAGA BEACH TOWN ()	17 575364 4925104[W]	1977/04 3602	04	FR 0089	037 / 050 012 / 1:30	DO	90 3	5714117 () BRWN SAND GRVL CLAY 0044 GREY CLAY STNS 0049 GREY CLAY HPAN 0089 BRWN SAND WBRG 0093
WASAGA BEACH TOWN ()	17 575464 4925324[W]	1977/08 3602	04	FR 0040	006 / 025 015 / :0	DO	42 3	5714550 () BRWN SAND GRVL 0014 BRWN SAND CLAY 0020 GREY CLAY STKY 0035 GREY CLAY SNDS 0040 BRWN SAND WBRG 0045
WASAGA BEACH TOWN ()	17 574214 4925824[W]	1970/05 5510	02	FR 0076	005 / 014 / :0	DO	76 4	5707360 () BRWN MSND 0007 BLUE MSND STNS CLAY 0017 BRWN FSND CLAY 0024 BLUE CLAY 0058 BLUE MSND CLAY 0074 BRWN FSND MSND 0080

TOWNSHIP CONCESSION (LOT)	UTM[1]	DATE[2] CNTR[3]	CASING DIA[4]	WATER[5,6] DETAIL	STAT LVL/PUMP LVL[7] RATE[8]/TIME HR:MIN	WATER USE[9]	SCREEN INFO[10]	WELL # (AUDIT#) WELL TAG # DEPTHS TO WHICH FORMATIONS EXTEND[5,11]
WASAGA BEACH TOWN (F CON 10(022)	17 580114 4933924[W]	1977/08 3602	04	FR 0071	013 / 030 006 / 0:45	DO	73 3	5714549 () BRWN SAND 0010 BRWN SAND CLAY 0030 GREY CLAY STKY 0071 BRWN SAND WBRG 0076
WASAGA BEACH TOWN (F CON 10(022)	17 579669 4933359[W]	1971/07 4816	02				156 20	5709058 () MSND 0010 GREY CLAY GRVL 0024 CLAY MSND 0046 MSND 0075 CLAY GRVL 0101 MSND CLAY 0155 MSND 0180 GREY CLAY 0185
WASAGA BEACH TOWN (F CON 10(022)	17 580214 4933024[W]	1978/05 3602	04	FR 0080	024 / 075 015 / 1:30	DO	83 6	5715170 () BRWN SAND CLAY 0014 GREY CLAY STNS 0080 BRWN SAND WBRG 0089
WASAGA BEACH TOWN (F CON 10(022)	17 579839 4933824[W]	1968/04 1204	04	FR 0101 SU 0012 MN 0025	012 / 035 005 / 1:30	DO	101 3	5705757 () FSND 0025 GRVL CLAY 0044 GREY CLAY 0073 CLAY SILT 0101 FSND 0104
WASAGA BEACH TOWN (F CON 10(022)	17 579939 4933590[L]	1987/11 3602	06	FR 0146	-003 / 140 100 / 1:30	DO	150 10	5722872 (23655) BRWN SAND 0003 BRWN GRVL 0006 BLUE CLAY SNDS 0038 GREY CLAY STKY 0080 GREY SILT SAND SILT 0146 BRWN CSND CLN WBRG 0160
WASAGA BEACH TOWN (F CON 10(022)	17 579718 4933810[W]	1984/05 3602	06	FR 0080	012 / 065 015 / 1:30	DO	82 3	5719156 () BRWN CLAY SAND LYRD 0030 GREY CLAY SNDS HARD 0060 GREY CLAY SAND 0080 BRWN SAND CLN WBRG 0085
WASAGA BEACH TOWN (F CON 10(022)	17 579939 4933590[L]	1988/01 3602	06	FR 0146	010 / 135 / 24:0	DO	150 10	5722994 (23658) BRWN SAND FILL 0003 BRWN GRVL 0006 BLUE CLAY SNDS 0039 GREY CLAY STKY 0081 GREY SILT 0146 BRWN CSND CLN WBRG 0160
WASAGA BEACH TOWN (F CON 10(022)	17 579939 4933590[L]	1982/06 3602	05	FR 0080 FR 0129	001 / 030 015 / 1:0	DO	131 3	5718108 () PRDR 0086 GREY CLAY SNDS 0129 BRWN SAND CLN WBRG 0134
WASAGA BEACH TOWN (F CON 10(022)	17 579725 4933609[W]	2004/08 3602	06	0075 0083	015 / 068 012 / 1:0	DO	77 6	5739045 (Z14087) A014009 BRWN SAND 0007 BRWN SAND GRVL 0013 GREY SAND CLAY GRVL 0066 GREY CLAY HARD 0075 BRWN SAND WBRG CLN 0083
WASAGA BEACH TOWN (F CON 10(022)	17 579778 4932787[W]	1992/11 1851	06	FR 0079	/ 045 009 / 3:0	DO	81 3	5729733 (128437) BRWN SAND 0016 RED FGVL 0018 GREY SAND LOOS GRVL 0028 GREY CLAY SLTY 0035 GREY SAND 0047 GREY CLAY SOFT 0078 GREY SAND WBRG 0085
WASAGA BEACH TOWN (F CON 10(022)	17 579939 4933590[L]	1982/05 3602	05	FR 0070	008 / 050 015 / 1:0	DO	72 3	5718112 () BRWN SAND LOAM 0008 BRWN CLAY SAND GRVL 0028 GREY CLAY HARD 0051 GREY CLAY SNDS 0070 BRWN SAND CLN WBRG 0075
WASAGA BEACH TOWN (F CON 10(022)	17 579689 4933359[W]	1971/07 4816	02	FR 0046 FR 0155	009 / 012 034 / 6:0	NU	156 20	5709057 () MSND 0010 GREY CLAY MSND SILT 0046 MSND 0075 CLAY SILT MSND 0155 CSND 0179 CLAY MSND 0191 CLAY GRVL 0201 LMSN 0205

TOWNSHIP CONCESSION (LOT)	UTM[1]	DATE[2] CNTR[3]	CASING DIA[4]	WATER[5,6] DETAIL	STAT LVL/PUMP LVL[7] RATE[8]/TIME HR:MIN	WATER USE[9]	SCREEN INFO[10]	WELL # (AUDIT#) WELL TAG # DEPTHS TO WHICH FORMATIONS EXTEND[5,11]
WASAGA BEACH TOWN (F ()		1981/07 3602	05	FR 0090	004 / 020 010 / 1:0	DO	96 3	5717567 () BRWN SAND 0018 GREY CLAY STKY 0060 GREY CLAY SNDS 0090 BRWN SAND WBRG 0099
WASAGA BEACH TOWN (F ()		1984/10 3602	05	FR 0070	001 / 020 020 / 1:0	DO	74 4	5719573 () BRWN SAND 0006 GREY CLAY HARD 0070 BRWN SAND CLN WBRG 0078
WASAGA BEACH TOWN (F ()		1983/08 3602	05	FR 0095	006 / 012 012 / 20:0	DO	98 4	5718687 () BRWN SAND 0022 GREY CLAY STKY 0051 GREY CLAY SNDS 0070 GREY CLAY SAND SNDY 0080 GREY CLAY HARD 0095 BRWN SAND CLN WBRG 0101
WASAGA BEACH TOWN (F ()		1985/04 3602	05	FR 0069	001 / 033 010 / 0:30	DO	71 4	5719892 () BRWN SAND 0012 BRWN CLAY SAND SNDY 0030 GREY CLAY STKY 0052 GREY CLAY SNDS HPAN 0069 BRWN SAND CLN WBRG 0074
WASAGA BEACH TOWN (F ()	17 579336 4931706[W]	2008/01 7241	02					7104485 (Z75110) A061506 BRWN GRVL SAND SOFT 0002 BRWN SAND SOFT 0004 BRWN SAND SOFT 0012
WASAGA BEACH TOWN (F ()		1980/04 4816	29 23		/ 800 / :0	MN	170 20	5716861 () FSND 0044 CLAY 0077 FSND SILT LYRD 0170 SAND GRVL 0194 SAND GRVL SILT 0210
WASAGA BEACH TOWN (F ()		1984/06 3602	05	FR 0100	005 / 040 015 / 5:0	DO	107 4	5719259 () BRWN SAND 0012 GREY CLAY HARD 0045 GREY SAND SILT SLTY 0050 GREY CLAY SNDS 0100 BRWN SAND WBRG 0110
WASAGA BEACH TOWN (F ()	17 576714 4927211[W]	1978/10 4816	02 01		022 / 034 020 / 1:0	MN	158 15	5715943 () FSND 0041 CLAY 0068 FSND SILT CLAY 0164 SAND GRVL CLAY 0175 MSND 0180 SAND GRVL 0196 SAND GRVL CMTD 0212 LMSN 0230
WASAGA BEACH TOWN (F ()		1983/11 1467	05	FR 0076	008 / 019 008 / 2:0	DO	78 4	5718876 () BRWN SAND 0019 GREY SAND 0028 GREY CLAY SAND 0059 GREY SILT 0074 GREY GRVL 0076 GREY FSND CGRD 0082 GREY CLAY SOFT
WASAGA BEACH TOWN (F ()		1985/07 3602	05	FR 0090	003 / 020 020 / 1:0	DO	93 4	5720084 () BRWN CLAY SAND 0034 GREY CLAY STKY 0075 GREY CLAY SNDS 0090 BRWN SAND CLN WBRG 0096
WASAGA BEACH TOWN (F ()		1980/11 3602	05	FR 0058	/ 006 020 / 1:0	DO	63 3	5717157 () BRWN SAND 0008 GREY CLAY SAND STNY 0050 GREY CLAY SNDS 0058 BRWN SAND WBRG 0066
WASAGA BEACH TOWN (F ()		1981/04 3602	05	FR 0094	008 / 036 012 / 1:30	DO	99 3	5717459 () BRWN SAND 0008 GREY SAND CLAY 0030 GREY CLAY HARD 0070 GREY SAND CLAY 0080 GREY CLAY SNDS 0094 BRWN SAND CLN WBRG 0102

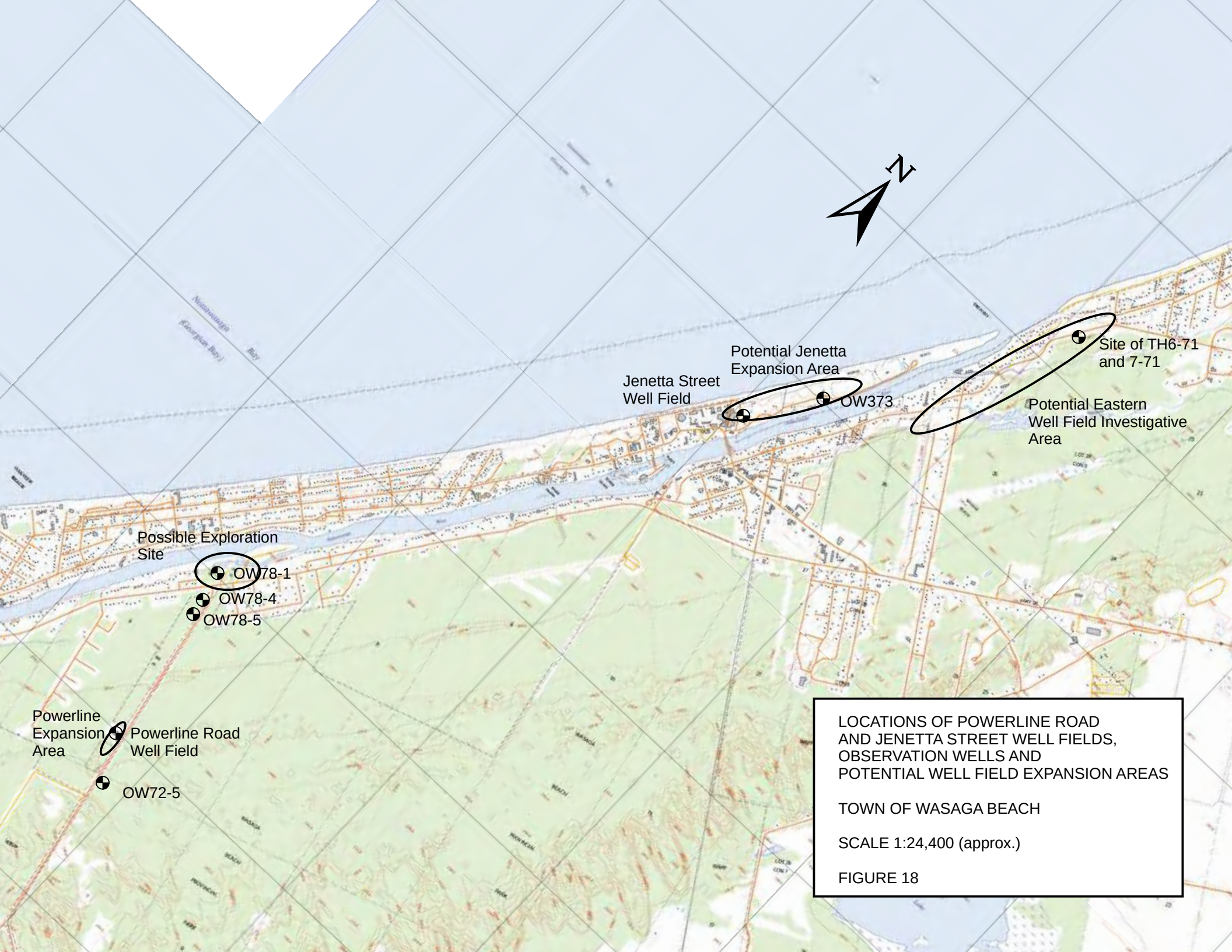
TOWNSHIP CONCESSION (LOT)	UTM[1]	DATE[2] CNTR[3]	CASING DIA[4]	WATER[5,6] DETAIL	STAT LVL/PUMP LVL[7] RATE[8]/TIME HR:MIN	WATER USE[9]	SCREEN INFO[10]	WELL # (AUDIT#) WELL TAG # DEPTHS TO WHICH FORMATIONS EXTEND[5,11]
WASAGA BEACH TOWN (N CON 01(034)	17 573014 4925217[W]	1954/06 3807	02	FR 0092	/ 003 005 / 2:0	DO	92 8	5701956 () FSND 0035 YLLW CLAY 0092 MSND 0100
WASAGA BEACH TOWN (N CON 01(034)	17 572314 4924854[W]	1968/05 3602	04	FR 0062	001 / 015 020 / 1:0	DO	65 3	5705502 () LOAM 0001 FSND CLAY 0019 GREY CLAY 0062 FSND 0065 MSND 0068
WASAGA BEACH TOWN (N CON 01(034)	17 572864 4924974[W]	1977/11 3602	04	FR 0068	005 / 030 005 / 1:0	DO	70 3	5714817 () BRWN SAND CLAY 0032 GREY CLAY STKY 0050 GREY CLAY SNDS 0068 BRWN SAND WBRG 0073
WASAGA BEACH TOWN (N CON 01(034)	17 572922 4925183[W]	1983/08 3602	05	FR 0085	004 / 030 123 / 24:0	DO	92 4	5718678 () BRWN SAND 0012 GREY CLAY STNY 0085 BRWN SAND CLN WBRG 0095
WASAGA BEACH TOWN (N CON 01(034)	17 573066 4924996[W]	1966/10 5510	02	FR 0074	008 / 013 002 / 2:0	DO	69 14	5702066 () MSND 0008 CLAY MSND STNS 0017 FSND 0023 CLAY MSND STNS 0034 BLUE CLAY 0039 HPAN 0071 MSND 0084
WASAGA BEACH TOWN (N CON 01(034)	17 572874 4924914[W]	1970/10 5510	02	FR 0062	004 / 005 / :0	DO	61 9	5705439 () BRWN MSND 0007 BRWN MSND CLAY 0021 GREY MSND CLAY STNS 0034 GREY CLAY MSND 0062 BRWN MSND 0070
WASAGA BEACH TOWN (N CON 01(034)	17 572954 4925114[W]	1969/06 5510	02	FR 0076	002 / 007 / :0	DO	77 4	5706775 () BRWN MSND 0012 BRWN MSND STNS 0014 BRWN FSND 0023 BLUE CLAY MSND 0061 BLUE CLAY MSND 0076 BRWN MSND 0081
WASAGA BEACH TOWN (N CON 01(034)	17 572830 4925058[L]	1960/07 5510	02	FR 0092	/ 004 003 / 1:0	DO	79 13	5701974 () MSND 0006 CLAY MSND BLDR 0032 BLUE CLAY 0057 HPAN MUCK 0079 MSND 0092
WASAGA BEACH TOWN (N CON 01(034)	17 573175 4925422[W]	1964/06 5510	02	FR 0071	008 / 017 002 / 2:0	DO	67 15	5701993 () MSND 0009 CLAY MSND 0014 FSND 0024 CLAY BLDR 0047 BLUE CLAY MSND 0071 MSND FSND 0082
WASAGA BEACH TOWN (N CON 01(034)	17 573047 4925094[W]	1966/07 5510	02	FR 0062	008 / 014 002 / 2:0	DO	58 14	5702016 () MSND 0007 CLAY MSND STNS 0015 FSND 0019 CLAY MSND GRVL 0029 CLAY MSND HPAN 0053 CLAY 0062 MSND 0072
WASAGA BEACH TOWN (N CON 01(034)	17 573187 4925297[W]	1967/10 5510	02	FR 0076	004 / 009 004 / 2:0	DO	72 13	5705118 () LOAM 0001 CLAY MSND 0014 FSND 0019 CLAY MSND STNS 0034 BLUE CLAY 0060 CLAY HPAN 0076 MSND 0086
WASAGA BEACH TOWN (N CON 01(034)	17 572469 4925072[W]	1955/08 3807	02	FR 0077	003 / 006 004 / :0	DO		5701959 () MSND 0020 CLAY 0077 GRVL 0079
WASAGA BEACH TOWN (N CON 01(034)	17 572964 4925179[W]	1956/07 3807	02	FR 0072	002 / 006 004 / :0	DO	72 8	5701961 () MSND 0025 CLAY 0072 MSND 0080
WASAGA BEACH TOWN (N CON 01(034)	17 573144 4925274[W]	1971/07 5510	02	FR 0072	004 / 011 004 / 2:0	DO	73 4	5708686 () BRWN MSND 0017 GREY CLAY MSND STNS 0028 BLUE CLAY 0037 BLUE CLAY MSND STNS 0072 BRWN MSND 0077

TOWNSHIP CONCESSION (LOT)	UTM[1]	DATE[2] CNTR[3]	CASING DIA[4]	WATER[5,6] DETAIL	STAT LVL/PUMP LVL[7] RATE[8]/TIME HR:MIN	WATER USE[9]	SCREEN INFO[10]	WELL # (AUDIT#) WELL TAG # DEPTHS TO WHICH FORMATIONS EXTEND[5,11]
WASAGA BEACH TOWN (N CON 02(032)	17 571366 4923085[W]	1989/01 3602	06	FR 0080	014 / 050 075 / 24:0		88 13	5724671 (37973) BRWN LOAM 0001 GREY CLAY STNS 0038 BRWN SAND DRY SAND 0042 BRWN CLAY SAND SILT 0065 GREY CLAY HARD 0080 BRWN SAND WBRG 0100
WASAGA BEACH TOWN (N CON 02(032)	17 571313 4922992[W]	1973/06 3602	04	FR 0075 FR 0093	025 / 080 007 / 2:10	DO	94 3	5709905 () BRWN LOAM 0001 BRWN SAND CLAY 0025 GREY CLAY GRVL 0075 BRWN SAND CLAY 0084 GREY CLAY HPAN 0093 BRWN SAND 0097
WASAGA BEACH TOWN (N CON 02(032)	17 571822 4923441[L]	1999/10 3602	06	FR 0103	026 / 090 025 / 1:0	DO	100 3	5734655 (209614) BRWN SAND 0019 GREY CLAY GRVL 0027 GREY SAND CLAY LYRD 0065 GREY FSND 0076 GREY CLAY HARD 0095 BRWN SAND WBRG 0103
WASAGA BEACH TOWN (N CON 02(032)	17 571297 4923462[W]	1965/04 1804	04 04	FR 0170	050 / 100 012 / 5:0	DO		5702050 () PRDG 0024 GREY MSND 0100 GREY CLAY MSND 0125 GREY MSND 0164 GREY LMSN 0184
WASAGA BEACH TOWN (N CON 02(032)	17 571228 4923398[W]	1953/07 3807	04	FR 0060	012 / 014 010 / 3:0	DO	52 8	5702048 () CLAY 0060
WASAGA BEACH TOWN (N CON 02(032)	17 571274 4923225[W]	1984/10 3602	06	FR 0091	035 / 060 015 / 1:0	DO	93 7	5719574 () BRWN LOAM 0001 GREY CLAY STNS STNY 0060 GREY CLAY STKY 0065 GREY CLAY SAND SILT 0075 GREY CLAY HARD 0091 BRWN SAND CLN WBRG 0100
WASAGA BEACH TOWN (N CON 02(032)	17 571264 4923254[W]	1970/02 3602	04	FR 0084	021 / 060 006 / 1:20	DO	85 3	5707248 () BRWN CLAY STNS 0022 BRWN MSND CLAY 0065 BRWN FSND 0074 GREY CLAY 0084 BRWN CSND FSND 0088
WASAGA BEACH TOWN (N CON 02(033)	17 571959 4924374[W]	1983/05 3602	05	FR 0079	004 / 010 012 / 2:30	DO	82 6	5718588 () BRWN CLAY SAND GRVL 0040 GREY CLAY SNDS 0060 GREY CLAY STNS STNY 0079 BRWN SAND CLN WBRG 0085
WASAGA BEACH TOWN (N CON 02(033)	17 571321 4923706[W]	1998/08 3602	06	FR 0080	017 / 033 025 / 1:30	DO	82 4	5733688 (194076) BLCK LOAM 0001 BRWN SAND 0006 GREY CLAY STNS 0031 GREY CLAY SAND CMTD 0080 BRWN SAND CLN WBRG 0086
WASAGA BEACH TOWN (N CON 02(033)	17 571938 4924381[W]	1962/06 5510	02	FR 0062	009 / 021 002 / 3:0	DO	46 16	5702058 () MSND 0006 CLAY STNS 0027 BLUE CLAY 0036 CLAY MSND 0052 FSND 0062
WASAGA BEACH TOWN (N CON 02(033)	17 572022 4924515[W]	1964/05 5510	02	FR 0064	008 / 021 002 / 2:0	DO	59 15	5702060 () MSND 0008 CLAY MSND 0017 FSND 0024 CLAY MSND 0027 BLUE CLAY 0051 CLAY MSND 0064 FSND 0074
WASAGA BEACH TOWN (N CON 02(033)	17 571979 4924375[W]	1967/05 5510	02	FR 0074	008 / 014 002 / 2:0	DO	70 14	5702062 () MSND 0011 CLAY MSND 0017 FSND 0021 CLAY MSND 0034 HPAN 0036 BLUE CLAY 0059 QSND CLAY 0068 FSND 0084

TOWNSHIP CONCESSION (LOT)	UTM[1]	DATE[2] CNTR[3]	CASING DIA[4]	WATER[5,6] DETAIL	STAT LVL/PUMP LVL[7] RATE[8]/TIME HR:MIN	WATER USE[9]	SCREEN INFO[10]	WELL # (AUDIT#) WELL TAG # DEPTHS TO WHICH FORMATIONS EXTEND[5,11]
WASAGA BEACH TOWN (N CON 08(025)	17 579165 4930472[W]	1963/09 2216	04 04	FR 0003	003 / 020 005 / 20:0	DO	20 2	5700793 () FSND 0022 SILT 0023
WASAGA BEACH TOWN (N CON 08(025)	17 564770 4916885[L]	1986/10 3602	05	FR 0048	022 / 030 / 1:0	DO	50	5721127 (03510) BRWN SAND GRVL 0020 BRWN SAND GRVL LYRD 0048 BRWN SAND CLN WBRG 0054
WASAGA BEACH TOWN (N CON 08(026)	17 579114 4930014[W]	1970/09 4608	30	UK 0030	030 / 039 005 / 1:0	DO		5707486 () BRWN FSND 0015 GREY CSND 0030 GREY GRVL STNS 0041
WASAGA BEACH TOWN (N CON 08(026)	17 579396 4930057[W]	1973/09 3602	04	FR 0054	025 / 038 010 / 0:30	DO	54 3	5710277 () BRWN SAND 0006 BRWN CLAY SAND 0014 BRWN GRVL 0030 BRWN CLAY SAND SILT 0050 GREY HPAN 0054 BRWN SAND GRVL 0057
WASAGA BEACH TOWN (N CON 08(026)	17 579378 4929862[W]	1973/06 4608	03	FR 0025	020 / 005 / 0:30	DO		5710468 () SAND 0010 GRVL 0025 SAND 0040
WASAGA BEACH TOWN (N CON 08(026)	17 579034 4930294[W]	1971/08 3602	04	FR 0095 FR 0099	010 / 085 004 / 1:20	DO	96 3	5708382 () BRWN SAND CLAY 0010 GREY CLAY 0095 BRWN MSND FSND 0099
WASAGA BEACH TOWN (N CON 08(026)	17 579337 4930431[W]	1964/08 2216	04	FR 0042	024 / 028 020 / 3:0	PS	44 7	5700794 () PRDG 0020 GREY FSND 0041 SILT 0042 MSND 0054
WASAGA BEACH TOWN (N CON 08(026)	17 579364 4929834[W]	1970/05 4608	30	FR 0025 FR 0036	025 / 033 / 1:15	DO		5707164 () GREY CSND 0036
WASAGA BEACH TOWN (N CON 08(027)	17 578892 4930269[W]	1965/01 2216	04	FR 0102	012 / 032 005 / 4:0	DO	109 3	5700795 () LOAM 0002 FSND 0048 PEAT 0050 GREY CLAY SILT 0088 CLAY MSND STNS 0102 FSND MSND 0112
WASAGA BEACH TOWN (N CON 09(022)	17 579990 4931957[W]	1961/06 5510	04	FR 0126	019 / 022 003 / 4:0	PS	111 15	5700808 () MSND 0012 CLAY MSND 0018 CLAY MSND STNS 0053 CLAY GRVL 0061 HPAN CLAY 0091 CLAY 0109 CLAY HPAN 0116 MSND 0126
WASAGA BEACH TOWN (N CON 09(022)	17 581002 4931761[W]	1963/06 2216	04	FR 0028	006 / 014 005 / 20:0	DO	28 2	5700809 () SILT MSND 0004 SILT CLAY 0012 SILT CLAY STNS 0028 MSND CSND 0030
WASAGA BEACH TOWN (N CON 09(024)	17 578994 4932064[W]	1971/07 4816	02	FR 0008	008 / 010 036 / 4:0	NU	156 20	5709055 () MSND 0024 GREY CLAY 0057 CLAY GRVL 0068 CLAY MSND GRVL 0083 MSND SILT CLAY 0095 MSND 0116 GRVL 0197 CLAY GRVL 0234 LMSN 0245
WASAGA BEACH TOWN (N CON 09(024)	17 578999 4932064[W]	1971/07 4816	02	FR 0010	010 / / :0	NU	156 20	5709056 () MSND 0024 GREY CLAY 0055 CLAY GRVL 0070 MSND CLAY 0089 MSND SILT 0096 MSND 0116 MSND GRVL 0196 CLAY GRVL 0200
WASAGA BEACH TOWN (N CON 09(025)	17 579039 4931890[W]	1965/09 2216	01	FR 0009	009 / 005 / 2:0	PS	22 4	5700811 () MSND 0026

TH6/71
TH7-71

TOWNSHIP CONCESSION (LOT)	UTM[1]	DATE[2] CNTR[3]	CASING DIA[4]	WATER[5,6] DETAIL	STAT LVL/PUMP LVL[7] RATE[8]/TIME HR:MIN	WATER USE[9]	SCREEN INFO[10]	WELL # (AUDIT#) WELL TAG # DEPTHS TO WHICH FORMATIONS EXTEND[5,11]
WASAGA BEACH TOWN (S CON 16(009)	17 578105 4930030[W]	1951/05 3807	02	MN 0140	010 / 013 005 / 4:0	DO	132 8	5703849 () MSND 0030 BLUE CLAY 0120 MSND GRVL 0140
WASAGA BEACH TOWN (S CON 16(010)	17 578014 4930724[W]	1968/07 2402	06	FR 0175	008 / 023 025 / 4:0	PS	176 4	5705707 () MSND 0047 CLAY 0078 GRVL CLAY 0083 CLAY GRVL 0165 GRVL 0166 GRVL CLAY 0170 GRVL 0180
WASAGA BEACH TOWN (S CON 16(010)	17 578364 4930244[W]	1970/06 5510	02	FR 0102	010 / 016 004 / 2:0	DO		5707372 () BRWN MSND 0014 GREY MSND CLAY 0017 GREY CLAY MSND STNS 0024 BLUE HPAN 0026 BLUE CLAY MSND 0037 BLUE CLAY 0051 BLUE CLAY MSND 0090 BLUE CLAY STNS 0092 GREY MSND CLAY 0102
WASAGA BEACH TOWN (S CON 16(010)	17 578373 4930205[W]	1962/08 3807	04	FR 0120	008 / 012 005 / 1:0	DO		5703853 () BRWN CLAY 0002 BLUE CLAY 0110 HPAN 0120 GRVL 0125
WASAGA BEACH TOWN (S CON 16(010)	17 578293 4928746[W]	2000/11 5528	03 03	UK 0120	027 / 100 040 / 1:30		120 30	5735794 (215107) BRWN SAND GRVL 0015 BRWN FSND 0054 GREY CLAY SILT LYRD 0060 BRWN FSND 0071 GREY CLAY SILT 0116 BRWN FSND MSND 0165 GREY SAND SILT CLAY 0210 BRWN MSND 0218 GREY CLAY GRVL STNS 0237 GREY LMSN 0244
WASAGA BEACH TOWN (S CON 16(011)	17 579296 4927429[W]	1971/08 4816	01	FR 0032	032 / 033 027 / 4:0	NU	128 20	5709063 () MSND 0032 MSND CLAY 0050 FSND 0061 CLAY SILT 0119 MSND GRVL 0153 GRVL FSND 0159 MSND SILT 0180 SILT CLAY 0185
WASAGA BEACH TOWN (S CON 16(011)	17 579294 4927424[W]	1971/08 4816	02	FR 0033	032 / / :0	NU	129 20	5709062 () MSND 0032 CLAY MSND 0118 MSND 0123 MSND GRVL 0152 GRVL FSND 0158 MSND SILT 0179 CLAY SILT 0203 CLAY GRVL 0253 LMSN 0257
WASAGA BEACH TOWN (S CON 16(011)	17 579556 4927697[W]	1981/06 1368	01	FR 0006	006 / 006 003 / 2:0	IR	17 3	5717572 () BLCK UNKN LOAM 0001 WHIT CLAY SAND SNDY 0002 BRWN FSND 0020
WASAGA BEACH TOWN (S CON 16(017)		1991/09 2652	06	FR 0084	008 / 030 010 / 1:30	DO	78 3	5728607 (107472) BRWN SAND 0020 GREY CLAY 0045 GREY SILT SAND 0055 CLAY 0068 BRWN CLAY SAND 0076 BRWN SAND 0084
WASAGA BEACH TOWN (S CON 16(018)		1991/05 3602	05	FR 0123	016 / / :0	DO		5728186 (103042) BRWN SAND 0040 GREY CLAY SAND LYRD 0064 GREY CLAY FSND 0095 GREY CLAY HARD 0123 GREY SAND CMTD 0126
WASAGA BEACH TOWN (S CON 16(018)		1991/05 3602	06	FR 0034	008 / 036 008 / 1:0	DO	34 4	5728185 (103037) BRWN SAND 0034 BRWN SAND WBRG 0038 GREY CLAY 0041
WASAGA BEACH TOWN (S CON 16(048)		1989/08 3602	06	FR 0097	015 / 020 020 / 1:15	DO	100 3	5725357 (64564) BRWN SAND GRVL STNS 0027 GREY CLAY STNS STNY 0040 GREY CLAY SOFT 0054 GREY CLAY GRVL HPAN 0097 BRWN SAND CGVL WBRG 0103



LOCATIONS OF POWERLINE ROAD
AND JENETTA STREET WELL FIELDS,
OBSERVATION WELLS AND
POTENTIAL WELL FIELD EXPANSION AREAS

TOWN OF WASAGA BEACH

SCALE 1:24,400 (approx.)

FIGURE 18

Dave Ellis

From: Geoff Rether <grether@tcc.on.ca>
Sent: August 1, 2012 5:27 PM
To: Dave Ellis
Subject: Re: Wasaga Beach Town Wide Well Development Study/EA

Hi Dave,

Sorry to be a bit vague on this matter, however there are some uncertainties.

Based on existing information, I think its a safe assumption that one more well can be located within the Jenetta Street well field compound to achieve a well field total of 26,179m^3/day (if there is room and access for a 5th well) without impacting the existing 4 wells' safe yield. I think a 6th well within the compound area is not likely to be a safe undertaking. If 2 or more new wells are to be developed in this area, I would forego the 5th well at Jenetta and develop a new well field with 2-3 wells that would need to be spaced at least beyond OW373 (>400m to 500m for 2 new wells and >1km for 3 or more wells). This is based on interference observations during the 2004 pumping test, and interference from 2 or more new wells located any closer would use up the available drawdown "buffer" I assumed for this analysis (i.e. 75%).

Subject to additional testing results (to determine boundary effects), there is a good likelihood that one more well can be located within the Powerline Well Field (again, if there is room and access). Further wells will likely need to be more than 1km away, due to the lower efficiency of the Powerline wells (vs. Jenetta).

Geoff

From: Dave Ellis
Sent: Wednesday, August 01, 2012 4:20 PM
To: 'Geoff Rether'
Subject: RE: Wasaga Beach Town Wide Well Development Study/EA

Hi Geoff,

In Section 5.2, 2nd last paragraph, it states that "…we would recommend that if possible the additional wells be located some distance from the existing wells…". What is the recommended minimum distance that the new well(s) should be drilled from the existing wells? What would be the absolute minimum distance if the recommended minimum distance is not attainable? Please also provide the same information for the Powerline Road Well Field. Thanks.

Regards, Dave

Dave Ellis, P. Eng.
Ainley Group, Collingwood Office
Tel: (705) 445-3451 Ext. 217
Fax: (705) 445-0968

From: Geoff Rether [mailto:grether@tcc.on.ca]
Sent: July 31, 2012 4:59 PM
To: Dave Ellis
Subject: Re: Wasaga Beach Town Wide Well Development Study/EA

Dave,

Attached is a scan of the First Phase Report. Also attached are pdf copies of Figures 15 and 18, as the colour diagrams did not scan well.

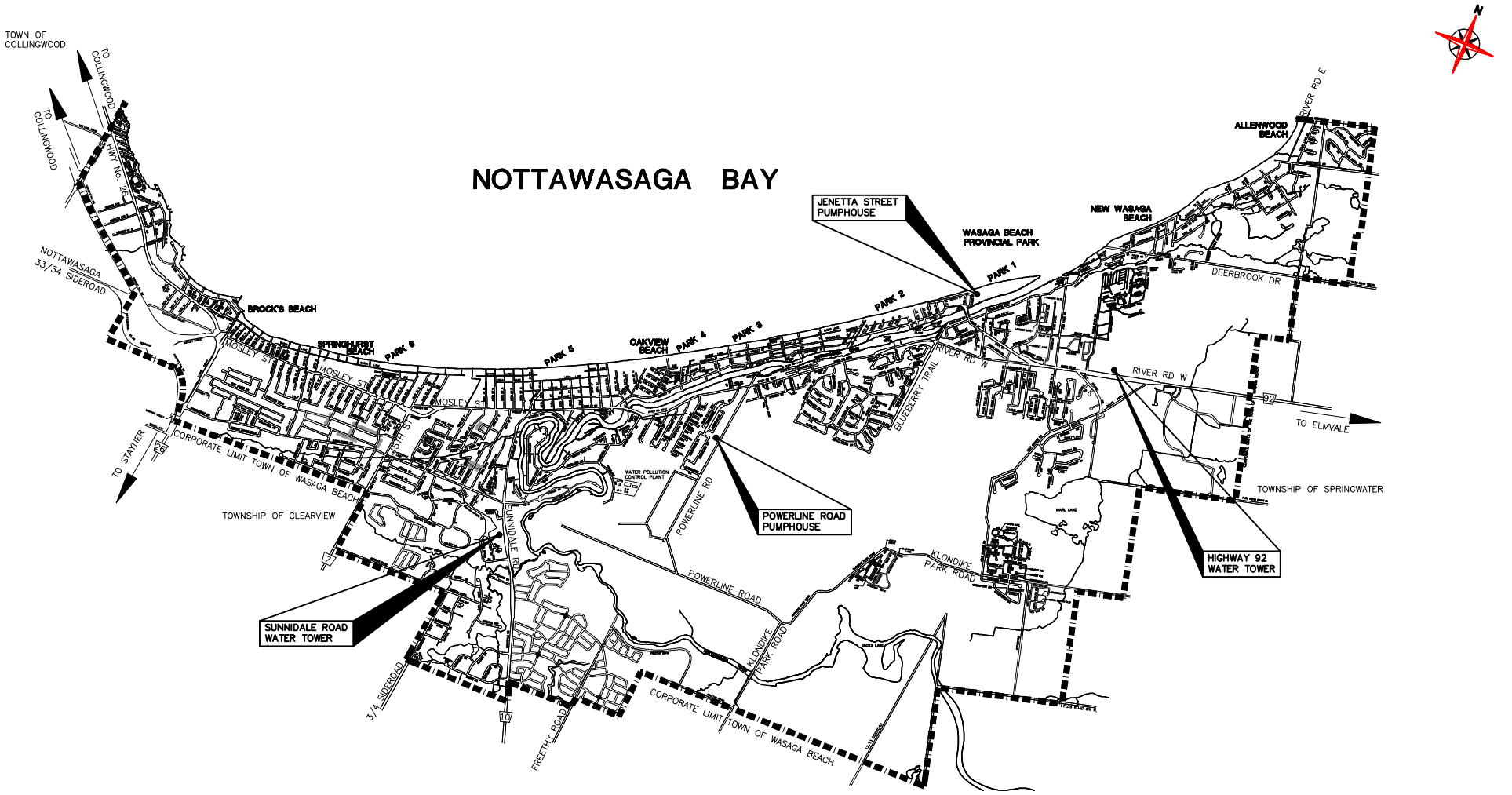
The overall conclusions do not differ substantially from the preliminary report, except perhaps for less emphasis on the need to provide distance between the existing wells and expansion wells.

At this stage, I assume you would want to review. If you need hard copies, let me know how many copies you will need.

Thanks,

Geoff Rether
Wilson Associates

Appendix C
Drawing 1 – Study Area & Service Area



LEGEND:

SERVICE AREA

Tatham Engineering Limited
Minley Associates
CONSULTING ENGINEERS PLANNERS

TOWN OF WASAGA BEACH
WATER SUPPLY SYSTEM EXPANSION CLASS EA
STUDY/SERVICE AREA

SCALE: N.T.S.

DATE: JUNE 2012

DWG. 112029–Fig.1

Appendix D
Phase 1 Correspondence

Nicole Sartor

From: Dave Ellis [ellis@ainleygroup.com]
Sent: May 25, 2012 11:29 AM
To: Nicole Sartor
Subject: FW: Bell Canada - updated contact information

Hi Nicole,

See new Bell contact information below. Our communication plan for the Wasaga Beach EA should be updated as I believe you had listed Colin Bonnell as the Bell contact.

Regards, Dave

Dave Ellis, P.Eng.
Ainley Group, Collingwood Office
Tel: (705) 445-3451 Ext. 217
Fax: (705) 445-0968

-----Original Message-----
From: Mike Neumann [mailto:neumann@ainleygroup.com]
Sent: October 2, 2011 1:50 AM
To: Mark MacLeod; Mike Kusiar; Tom Nollert; 'Dave Ellis'; Sean Sexsmith; Marvin Ponce; Ariane Stewart
Subject: FW: Bell Canada - updated contact information

See below. Please pass along to anyone that may need this. Thanks

---

From: Kevin Lalonde [mailto:publicworksdirector@wasagabeach.com]
Sent: September-30-11 2:23 PM
To: 'Mike Neumann'
Subject: FW: Bell Canada - updated contact information

Hi Mike,
Please see below - For your information and circulation internally.
Regards,
--
Kevin Lalonde, P.Eng.
Director of Public Works

Town of Wasaga Beach
30 Lewis Street
Wasaga Beach, ON
L9Z 1A1

Office (705) 429-2540 Ext. 2302
Fax (705) 429-8226
Cell (705) 443-7540

From: Twyla Nicholson [mailto:clerk@wasagabeach.com]
Sent: September 30, 2011 11:36 AM
To: 'Ray Kelso'; 'Kevin Lalonde'; 'Pam Archdekin'; 'Tracey Jarratt'; 'Doug Herron'; 'Debbie Wulff'; 'Sue Carnovale'; 'Monica Quinlan'; 'Kathy Wilson'
Subject: FW: Bell Canada - updated contact information

FYI

Twyla Nicholson, CMM111
Town Clerk
Town of Wasaga Beach
30 Lewis Street
Wasaga Beach, ON L9Z 1A1
Tel: 705-429-3844 ex 2223
Fax: 705-429-6732
email: clerk@wasagabeach.com
www.wasagabeach.com

From: colin.bonnell@bell.ca [mailto:colin.bonnell@bell.ca]
Sent: Thursday, September 29, 2011 10:19 AM
To: clerk@wasagabeach.com
Cc: wendy.lefebvre@bell.ca; cameron.bell@bell.ca
Subject: Bell Canada - updated contact information

Hello,

Please be advised that Bell has undergone some re-organization and all correspondence (I.e. Notice of Decisions, Planning notification, etc..) should directed to:

Wendy Lefebvre
Bell Canada
136 Bayfield Street,
Floor 2,
Barrie, On
L4M 3B1

Thank you.
--
Regards,

Colin Bonnell
Right of Way Manager (613)
Bell Canada

WE HAVE MOVED - UPDATED ADDRESS BELOW
140 Bayfield St., Fl. 2
Barrie, Ontario
L4M 3B1

Office: (705) 722-2236 Toll Free: (800) 394-7740

Fax: (705) 722-2263

Nicole Sartor

From: Dave Ellis [ellis@ainleygroup.com]
Sent: June 8, 2012 8:34 AM
To: Nicole Sartor
Cc: Mike Ainley
Subject: FW: Water Supply System Expansion

Hi Nicole,

See attached response letter from the MOE. I believe this is a standard letter.

Regards, Dave

Dave Ellis, P.Eng.
Ainley Group, Collingwood Office
Tel: (705) 445-3451 Ext. 217
Fax: (705) 445-0968

-----Original Message-----
From: Liu, Chunmei (ENE) [mailto:Chunmei.Liu@ontario.ca]
Sent: June 8, 2012 8:00 AM
To: pwengineer@wasagabeach.com; ellis@ainleygroup.com
Cc: Panko, Dan (ENE); Hood, Cindy (ENE); Hyde, Chris (ENE)
Subject: Water Supply System Expansion

Dear Mr. Pincivero and Mr. Ellis

Please find our comments as attached. If clarification is needed regarding these comments, please feel free to contact the undersigned.

Regards,

Chunmei Liu | Environmental Resource Planner | Environmental Assessment Coordinator
Central Region, Ontario Ministry of the Environment | 5775 Yonge Street, 8th Flr | Toronto, Ontario M2M 4J1
Tel: 416-326-4886 | Fax: 416-325-6347 | Email: Chunmei.Liu@ontario.ca | Website: http://www.ene.gov.on.ca/

Nicole Sartor

From: Dave Ellis [ellis@ainleygroup.com]
Sent: June 7, 2012 2:06 PM
To: Karen Lorente
Cc: Mike Ainley; Nicole Sartor
Subject: RE: Town of Wasaga Beach - OCWA Contact

Thanks Karen. We will make the change on our distribution list.

Regards, Dave

Dave Ellis, P.Eng.
Ainley Group, Collingwood Office
Tel: (705) 445-3451 Ext. 217
Fax: (705) 445-0968

-----Original Message-----
From: Karen Lorente [mailto:KLorente@ocwa.com]
Sent: June 7, 2012 1:59 PM
To: ellis@ainleygroup.com
Cc: Mike Pincivero
Subject: Town of Wasaga Beach - OCWA Contact

Hi Dave,

I received a copy of the Notice of Study Commencement you sent Radu Apavaloae.

Please be advised Mr. Apavaloae is no longer with OCWA.

Please direct all future correspondence to my attention.

Thank you,
Karen Lorente
Operations Manager
Georgian Bay Hub

Ontario Clean Water Agency
30 Woodland Drive
Wasaga Beach, ON L9Z 2V4

Tel (705) 429-2525 or (705) 322-7666
Cell (705) 715-6865
Fax (705) 429-7967

Ministry of the Environment

Central Region
Technical Support Section

5775 Yonge Street, 8th Floor
North York, OntarioM2M 4J1

Tel.: (416) 326-6700
Fax: (416) 325-6347

Ministère de l'Environnement

Région du Centre
Section d'appui technique

5775, rue Yonge, 8ième étage
North York, Ontario M2M 4J1

Tél. : (416) 326-6700
Téléc. : (416) 325-6347

Ontario

Via Email Only

June 8, 2012 EA 01-06-02

Michael Pincivero, P.Eng.
Public Works Engineer
Wasaga Beach Public Works
Town of Wasaga Beach
30 Lewis Street
Wasaga Beach, ON L9Z 1A1

RE: Water Supply System Expansion
Town of Wasaga Beach
Municipal Class Environmental Assessment
Notice of Study Commencement

The Ministry of the Environment (MOE) has received your Notice of Study Commencement for the above noted Environmental Assessment (EA) undertakings. This response acknowledges that the study is following the approved environmental planning process for a Schedule B under the *Municipal Engineers Association Municipal Class Environmental Assessment* (Class EA).

Based on the information submitted, the MOE Central Region is providing the general comments to assist you and your project team members in effectively addressing the following issues:

- Ecosystem Protection and Restoration
- Surface Water and Groundwater
- Dust and Noise
- Servicing and Facilities
- Waste Materials and Spills
- Mitigation and Monitoring
- Planning and Policy
- Class EA Process
- Aboriginal Consultation

Ecosystem Protection and Restoration

Any impacts to ecosystem form and function must be avoided where possible. The EA Document should describe any proposed mitigation measures and how project planning will protect and enhance the local ecosystem.

All natural heritage features should be identified and described in detail to assess potential impacts and to develop appropriate mitigation measures. The Class EA study should

identify if the following sensitive environmental features are located within or adjacent to the study area and what mitigation measures are needed to minimize the impacts from the proposed works:

- Areas of Natural and Scientific Interest (ANSIs)
- Environmentally Sensitive Areas (ESAs)
- Rare Species of Flora or Fauna
- Watercourses
- Wetlands
- Woodlots

The EA Document must include a sufficient level of information to demonstrate that there will be no negative impacts on these environmental features. The MOE also recommends consulting with the Ministry of Natural Resources (MNR), Fisheries and Oceans Canada (DFO) and your local conservation authority to determine if special measures or additional study will be necessary to preserve and protect these sensitive features.

The County of Simcoe and the Town of Wasaga Beach Official Plan policies related to ecosystem protection within the study area should be referenced to ensure that all environmental protection policies are satisfied.

Planning and Policy

The 2005 *Provincial Policy Statement* contains policies that protect Ontario's Natural Heritage. Applicable policies should be referenced in the EA Document, and you should demonstrate how the proposed activities are consistent with these policies.

The *Places to Grow Plan* contains policies which guide decisions on a range of issues such as infrastructure planning and land-use planning to ensure that stronger and more prosperous communities are built in the Greater Golden Horseshoe. The EA Document should demonstrate how the proposed undertakings adhere to the relevant policies of the *Places to Grow Plan*, including Sections 3 and 6, which contain specific policies for Infrastructure to Support Growth and Simcoe Sub-area.

Surface Water and Groundwater

The EA Document must include a sufficient level of information to demonstrate that there will be no negative impacts on the natural features or ecological functions of any watercourses within the study area. Measures should be included in the planning and design process to ensure that any impacts to watercourses from construction or operational activities (e.g. spills, erosion, and pollution) are mitigated as part of the proposed undertakings. The MOE's Guideline B-6, *Evaluating Construction Activities Impacting on Water Resources* should be used to plan and construct the proposed activities.

The status of, and potential impacts to, any well water supplies should be addressed. If the proposed activities involve groundwater takings or changes to drainage patterns, the quantity and quality of groundwater may be affected due to drawdown effects or the redirection of existing contamination flows. In addition, project activities may infringe on existing wells such that they must be reconstructed or sealed and abandoned. Appropriate information to define

existing groundwater conditions should be included in the EA Document.

If the potential construction or decommissioning of water wells is identified as an issue, the EA Document should refer to Ontario Regulation 903, Wells, under the *Ontario Water Resources Act*.

The MOE recommends preparing a Contingency Plan for dealing with potential adverse effects on surface water (e.g. spills) and groundwater (e.g. well impacts), and including a description of this plan in the EA Document.

Potential impacts to groundwater-dependent natural features should be addressed. Any changes to groundwater flow or quality from groundwater taking may interfere with the ecological processes of streams, wetlands or other surficial features. In addition, discharging contaminated or high volumes of groundwater to these features may have direct impacts on their function. Any potential effects should be identified, and appropriate mitigation measures should be recommended. The level of detail required will be dependent on the significance of the potential impacts.

Any potential approval requirements for groundwater taking or discharge should be identified in the EA Document. In particular, a Permit to Take Water (PTTW) under the *Ontario Water Resources Act* will be required for any water takings that exceed 50,000 litres per day. A PTTW application must be accompanied by an assessment of potential effects as noted above, and may require a higher level of detail than what is provided in the EA Document. Please note that when significant long-term water taking is proposed, the maximum rate identified in the EA Document must not be exceeded in any subsequent PTTW applications. For more information on the application and approval process, The MOE suggests you refer to the MOE *Permit to Take Water Manual* (April 2005).

Dust and Noise

Dust and noise control measures should be addressed and included in the construction plans to ensure that nearby residential and other sensitive land uses within the study area are not adversely affected during construction activities. If dust suppressants are proposed to be used, The MOE recommends the use of non-chloride based compounds to protect water quality.

Servicing and Facilities

Subsequent approval requirements should be described in the EA Document. Please consult with the MOE's Barrie District Office and the Environmental Approvals Branch (EAB) to determine whether an Environmental Compliance Approval will be required for the proposed works or infrastructures. Consultation with the Barrie District Office and EAB should be documented.

The MOE recommends referring to the MOE's "D-Series" guidelines – *Land Use Compatibility* to ensure that all applicable Ministry procedures are followed in planning for any infrastructure

or facilities related to wastewater, pipelines, landfills or industrial uses.

Reference to the following MOE's documents is recommended in the EA Document to ensure that all applicable Ministry procedures are followed in planning for this water and sewer infrastructure:

- Guideline D-5, *Planning for Sewage and Water Services*; and
- *Guide for Applying for Approval of Municipal and Private Water and Sewage Works* (Sections 52 and 53 Ontario Water Resources Act R.S.O. 1990).

Waste Materials and Spills

All waste generated during construction must be disposed of in accordance with the MOE's requirements.

Since the removal or movement of soils may be required, appropriate tests to determine contaminant levels from previous land uses or dumping should be undertaken. If the soils are contaminated, you must determine how and where they are to be disposed of, consistent with Part XV.1 of the *Environmental Protection Act* (EPA) and Ontario Regulation 153/04, Records of Site Condition, which details the new requirements related to site assessment and clean up. The MOE recommends contacting the MOE's Barrie District Office for further consultation if contaminated sites are present.

Any current or historical waste disposal sites should be identified in the EA Document. The status of these sites should be determined to confirm whether approval pursuant to Section 46 of the *Environmental Protection Act* may be required for land uses on former disposal sites.

The EA Document should identify any underground transmission lines in the study area. The owners should be consulted to avoid impacts to this infrastructure, including potential spills.

The location of any underground storage tanks should be included in the EA Document. Measures should be identified to ensure the integrity of these tanks and to ensure an appropriate response in the event of a spill. The MOE Spills Action Centre in the Barrie District must be contacted in such an event.

Mitigation and Monitoring

Design and construction reports and plans should be based on a best management approach that centres on the prevention of impacts, protection of the existing environment, and opportunities for rehabilitation and enhancement of any impacted areas.

Contractors must be made aware of all environmental considerations so that all environmental standards and commitments for both construction and operation are met. Mitigation measures should be clearly referenced in the EA Document and regularly monitored during the construction stage of the undertakings. In addition, The MOE

encourages you to conduct post-construction monitoring to ensure all mitigation measures have been effective and are functioning properly. The construction and post-construction monitoring plans should be documented in the EA Document.

Class EA Process

The EA Document should provide clear and complete documentation of the planning process in order to allow traceability of decision-making. It must also demonstrate how the consultation provisions of the Class EA have been fulfilled, including documentation of all public consultation efforts undertaken during the planning process. Additionally, it should identify all concerns that were raised and how they have been addressed throughout the planning process. You should include copies of any comments submitted on the project by interested stakeholders, and your responses to these comments.

The Class EA requires the consideration of the effects of each alternative on all aspects of the environment. The EA Document should include a level of detail (e.g. hydrogeological investigations, terrestrial and aquatic assessments) such that all potential impacts can be identified and appropriate mitigation measures can be developed. Any supporting studies conducted during the Class EA process should be referenced and included as part of the EA Document.

Please include in the EA Document a list of all subsequent permits or other approvals that may be required for the implementation of the preferred alternative, including Permits to Take Water, Certificates of Approval or other ministerial approvals, approval under the *Canadian Environmental Assessment Act* (CEAA), and conservation authority permits.

Please note that the MOE's guidelines and other information related to the issues noted above are available at www.ene.gov.on.ca under the publications link. The MOE encourages you to review all the available guides and to reference any relevant information in the EA Document.

Aboriginal Consultation

Please note that as part of the required stakeholder and agency consultation, you are advised to contact the Ministry of Aboriginal Affairs and the Department of Indian and Northern Affairs to determine potentially affected Aboriginal Peoples in the project area. Please refer to the website http://www.ene.gov.on.ca/en/eaab/aboriginal-resources.php for a list of appropriate government contacts.

Once identified, you are advised to provide notification directly to the Aboriginal Peoples who may be affected by the project and provide them with an opportunity to participate in any planned public consultation sessions and comment on the project.

Thank you for the opportunity to comment on this project. Please ensure that the MOE's Central Region, EA and Planning Coordinator, is placed on the project mailing list. Please forward us a hardcopy of the EA Document for our review when the Notice of Completion

issued.

Should you or any members of your project team have any questions regarding the above, please feel free to contact me at (416) 326-4886 or via an email: Chunmei.Liu@ontario.ca. Myself or any of Central Region's EA and Planning Coordinators would be pleased to assist you.

Yours truly,

Chunmei Liu
Environmental Assessment and Planning Coordinator
Air, Pesticides and Environmental Planning

c. C. Hood, Manager, Barrie District Office, MOE
Central Region EA File
A & P File

Nicole Sartor

From: Dave Ellis [ellis@ainleygroup.com]
Sent: June 11, 2012 2:04 PM
To: Diana Vangelisti
Cc: Nicole Sartor; Mike Pincivero
Subject: RE: Water Supply System Expansion - Class EA

Dear Ms. Vangelisti,

Thank you for your interest in this project. We have added you to the distribution list.

Regards, Dave

Dave Ellis, P.Eng.
Ainley Group, Collingwood Office
Tel: (705) 445-3451 Ext. 217
Fax: (705) 445-0968

-----Original Message-----
From: Diana Vangelisti [mailto:diana.vangelisti@bell.net]
Sent: June 11, 2012 1:58 PM
To: ellis@ainleygroup.com; pwengineer@wasagabeach.com
Subject: Water Supply System Expansion - Class EA

I kindly request to be added to the mailing list for the above noted project. I wish to receive project updates and notices.
Thank you.
Diana Vangelisti
28 17th Street North,
Wasaga Beach, ON L9Z 2H9

Nicole Sartor

From: Dave Ellis [ellis@ainleygroup.com]
Sent: June 15, 2012 9:31 AM
To: Twardowski, Mark
Cc: Nicole Sartor; clansing@scdsb.on.ca
Subject: RE: Town of Wasaga Beach Water Supply System Expansion

Mr. Twardowski,

Thank you for your interest in this project. We have added you to our distribution list.

Regards, Dave

Dave Ellis, P.Eng.
Ainley Group, Collingwood Office
Tel: (705) 445-3451 Ext. 217
Fax: (705) 445-0968

-----Original Message-----
From: Lansing, Carrie [mailto:CLansing@scdsb.on.ca]**On Behalf Of** Twardowski, Mark
Sent: June 15, 2012 9:04 AM
To: ellis@ainleygroup.com
Subject: Town of Wasaga Beach Water Supply System Expansion

Att: Dave Ellis, Project Engineer
Ainley Group

Hello,

Further to your letter of June 5, 2012 indicating your intention to conduct an assessment of the Town's water supply, please include Mark Twardowski in your mailing list.

Mark Twardowski
Manager – Maintenance and Environmental Services
Simcoe County District School Board
1170 Hwy 26 West
Midhurst, ON
L0L 1X0

Tel: (705) 734-6363 ext 11266
mtwardowski@scdsb.on.ca

Thank you,

Carrie Lansing
Senior Clerk
Maintenance and Environmental Services

Simcoe County District School Board
(705) 734-6363 ext 11227
clansing@scdsb.on.ca

-----Original Message-----
From: Patti Young [mailto:pyoung@nvca.on.ca]
Sent: June 18, 2012 5:01 PM
To: Mike Pincivero; ellis@ainleygroup.com
Subject: Water supply study commencement

Good afternoon,
NVCA staff requests receiving further information on this project as we have an interest from a Source Water perspective. In addition NVCA staff wishes to ensure that the many natural features of interest in the Town, including watercourses, fisheries and wetlands, would not be negatively impacted by future increased water taking.

Kindest regards,
Patti Young

Patti Young, B.Sc., MCIP, RPP
Senior Planner, Nottawasaga Valley Conservation Authority, 8195 8th Line, Utopia, ON L0M 1T0
ph 705-424-1479 x 231, f 705-424-2115, pyoung@nvca.on.ca

Nicole Sartor

From: Wendy Smeh <smeh@ainleygroup.com>
Sent: July 11, 2012 10:39 AM
To: Dave Ellis; Nicole Sartor
Subject: NVCA - Conversation with Patti Young

Hi Dave and Nicole,

I spoke with Patti Young from the NVCA this morning. The NVCA is interested in the project from a source water perspective. I explained that we are currently looking at water supply options that are available to the Town and we will be reviewing these options to determine the preferred solution. Patti indicated that the NVCA will need to be informed of anything that may have an impact on source water, wetlands, rivers, etc. When we get to a point where we have determined the preferred option, the NVCA would like to be informed, especially if any tests or actions that may affect source water (such as pumps tests) are going to be performed.

Regards,

Wendy Smeh
Ainley Group,
Collingwood Office

smeh@ainleygroup.com
Tel: (705) 445-3451 Ext. 141

ALDERVILLE FIRST NATION
P.O. Box 46
11696 Second Line
Roseneath, Ontario K0K 2X0

June 13th, 2012

Att: Dave Ellis, P.Eng.

Re: Town of Wasaga Beach
Class Environmental Assessment
Water Supply System Expansion
Notice of Study Commencement

Dear Dave,

Thank you for your consultation request to Alderville First Nation regarding the **Class Environmental Assessment for the Water Supply System Expansion,** which is being proposed within our Traditional and Treaty Territory. We appreciate the fact that **Ainley Group** and the **Town of Wasaga Beach,** recognizes the importance of First Nations Consultation and that your office is conforming to the requirements within the Duty to Consult Process.

As per the Alderville First Nation Consultation Protocol, your proposed project is deemed a level 3, having minimal potential to impact our First Nations' rights, therefore, please keep Alderville apprised of any archaeological findings, burial sites or any environmental impacts, should any occur.

Although we may not always have representation at all stakeholders meetings, it is our wish to be kept apprised throughout all phases of this project. I can be contacted at the mailing address above or electronically via email, at the email address below.

In good faith and respect,

Dave Simpson
Lands and Resources
Communications Officer
Alderville First Nation

dsimpson@aldervillefirstnation.ca

Tele: (905) 352-2662
Fax: (905) 352-3242

Appendix E
Phase 2 Correspondence

Wendy Smeh

From: Dave Ellis <ellis@ainleygroup.com>
Sent: August 17, 2012 11:35 AM
To: 'Dianne or Allan Lamb'
Cc: Nicole Sartor (Nicole Sartor); Wendy Smeh (Wendy Smeh)
Subject: RE: mailing list

Mr. Lamb,

Thank you for your interest in the project. We will add you to the mailing list.

Regards, Dave

Dave Ellis, P. Eng.
Ainley Group, Collingwood Office
Tel: (705) 445-3451 Ext. 217
Fax: (705) 445-0968

From: Dianne or Allan Lamb [mailto:aanddlamb@sympatico.ca]
Sent: August 17, 2012 11:19 AM
To: ellis@ainleygroup.com
Subject: mailing list

Please add me to the mailing list to receive project information pertaining to sewer and water info, regarding the meeting at the recplex on sept. 30th

Allan Lamb
aanddlamb@sympatico.ca
265 Knox Road East
Wasaga Beach, ON
L9Z 2T6

Ainley GROUP
CONSULTING
ENGINEERS
PLANNERS

Ainley & Associates Limited
280 Pretty River Parkway, Collingwood, Ontario L9Y 4J5
Tel: (705) 445-3451 • Fax: (705) 445-0968
E-mail: collingwood@ainleygroup.com

August 16, 2012

File No. 112029

Chief Donna Big Canoe,
Chippewas of Georgina Island
dbigcanoe@geoginaisland.com
RR#2, Box 12
Sutton West, ON
L0E 1R0

Ref: **Town of Wasaga Beach**
Class Environmental Assessment
Water Supply System Expansion
Notice of Public Information Centre

Dear Chief Big Canoe:

Further to the Notice of Study Commencement dated June 6, 2012 for the Town of Wasaga Beach Water Supply Expansion Class Environmental Assessment, please find attached a copy of the Notice of Public Information Centre. The Public Information Centre will be held on August 30, 2012. Details are included in the attached copy of the Notice, which will appear in the Wasaga Sun on August 16 and August 23, 2012.

Yours truly

AINLEY & ASSOCIATES LIMITED

Dave Ellis, P. Eng.

DBE/nms/S:\112029\Correspondence\Letter\Notice of PIC\Notice Cover Letter August 16, 2012.doc
Encl.

cc: Michael Pincivero, P. Eng., Public Works Engineer

TOWN OF WASAGA BEACH
WATER SUPPLY SYSTEM EXPANSION
CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF PUBLIC INFORMATION CENTRE

Further to the Notice of Study Commencement issued June 6, 2012, the Town of Wasaga Beach is continuing to consider Options to ensure that the Town's water supply system will have adequate supply to meet future demands. A total of twelve (12) Options (including Do Nothing) have been identified and evaluated.

This Project is being planned as a Schedule "B" project under the Municipal Class Environmental Assessment planning process. A Public Information Centre is planned to provide further information to the public on all Options including the Recommended Solution and to receive input and comment from interested persons.

The Public Information Centre is scheduled for the following date and time:

Date:	**August 30, 2012**
Time:	**7:00pm – 9:00pm**
Location:	**Wasaga Beach RecPlex, Oakview Room**

Public input and comment on all Options including the Recommended Solution will be incorporated into the planning process. Comments will be received until September 14, 2012.

If you have any comments or questions, or if you would like to be placed on the mailing list to receive project information, please contact the Consultant undertaking the study or the Town of Wasaga Beach.

This notice issued August 16, 2012.

Mike Pincivero, P.Eng.
Public Works Engineer
Town of Wasaga Beach
30 Lewis Street
Wasaga Beach, Ontario
L9Z 1A1
Tel: (705) 429-2540
Fax: (705) 429-8226
Email: pwengineer@wasagabeach.com

Dave Ellis, P.Eng.
Project Engineer
Ainley Group
280 Pretty River Parkway
Collingwood, Ontario
L9Y 4J5
Tel: (705) 445-3451
Fax: (705) 445-0968
Email: ellis@ainleygroup.com

Ainley GROUP
CONSULTING
ENGINEERS
PLANNERS

Ainley & Associates Limited
280 Pretty River Parkway, Collingwood, Ontario L9Y 4J5
Tel: (705) 445-3451 • Fax: (705) 445-0968
E-mail: collingwood@ainleygroup.com

August 16, 2012

File No. 112029

Chief Keith Knott,
Curve Lake First Nation
dutytoconsult@curvelakefn.ca

Ref: **Town of Wasaga Beach**
Class Environmental Assessment
Water Supply System Expansion
Notice of Public Information Centre

Dear Chief Knott:

Further to the Notice of Study Commencement dated June 6, 2012 for the Town of Wasaga Beach Water Supply Expansion Class Environmental Assessment, please find attached a copy of the Notice of Public Information Centre. The Public Information Centre will be held on August 30, 2012. Details are included in the attached copy of the Notice, which will appear in the Wasaga Sun on August 16 and August 23, 2012.

Yours truly

AINLEY & ASSOCIATES LIMITED

Dave Ellis, P. Eng.

DBE/nms/S:\112029\Correspondence\Letter\Notice of PIC\Notice Cover Letter August 16, 2012.doc
Encl.

cc: Michael Pincivero, P. Eng., Public Works Engineer

TOWN OF WASAGA BEACH
WATER SUPPLY SYSTEM EXPANSION
CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF PUBLIC INFORMATION CENTRE

Further to the Notice of Study Commencement issued June 6, 2012, the Town of Wasaga Beach is continuing to consider Options to ensure that the Town's water supply system will have adequate supply to meet future demands. A total of twelve (12) Options (including Do Nothing) have been identified and evaluated.

This Project is being planned as a Schedule "B" project under the Municipal Class Environmental Assessment planning process. A Public Information Centre is planned to provide further information to the public on all Options including the Recommended Solution and to receive input and comment from interested persons.

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Public input and comment on all Options including the Recommended Solution will be incorporated into the planning process. Comments will be received until September 14, 2012.

If you have any comments or questions, or if you would like to be placed on the mailing list to receive project information, please contact the Consultant undertaking the study or the Town of Wasaga Beach.

This notice issued August 16, 2012.

Mike Pincivero, P.Eng.
Public Works Engineer
Town of Wasaga Beach
30 Lewis Street
Wasaga Beach, Ontario
L9Z 1A1
Tel: (705) 429-2540
Fax: (705) 429-8226
Email: pwengineer@wasagabeach.com

Dave Ellis, P.Eng.
Project Engineer
Ainley Group
280 Pretty River Parkway
Collingwood, Ontario
L9Y 4J5
Tel: (705) 445-3451
Fax: (705) 445-0968
Email: ellis@ainleygroup.com

Wendy Smeh

From: dutytoconsult@curvelakefn.ca
Sent: August 24, 2012 10:50 AM
To: smeh@ainleygroup.com
Subject: Re: Town of Wasaga Beach, Class Environmental Assessment, Water Supply Expansion, Notice of PIC

Thank you for the additional information.

For your information, Curve Lake First Nation elected a new Chief in June, her name is Chief Phyllis Williams any future information should be addressed to her.

Thank you again,

Melissa

------Original Mail------
From: "Wendy Smeh" <smeh@ainleygroup.com>
To: <dutytoconsult@curvelakefn.ca>
Sent: Thu, 16 Aug 2012 09:41:12 -0400
Subject: Town of Wasaga Beach, Class Environmental Assessment, Water Supply Expansion, Notice of PIC

Hello Chief Knott,

Attached please find a copy of the Notice of Public Information Centre for the Town of Wasaga Beach, Class Environmental Assessment for Water Supply Expansion. The PIC will be held August 30th, 2012. Details are included in the attached Notice.

Regards,

Wendy Smeh, C.E.T.

Engineering Technologist

<http://www.ainleygroup.com/> Description: Description: Description: Description: AinleyEmail

280 Pretty River Parkway

Collingwood, ON L9Y 4J5

<mailto:smeh@ainleygroup.com> smeh@ainleygroup.com

Tel: (705) 445-3451 Ext. 141

Fax: (705) 445-0968

Cell: (705) 443-9334

Wendy Smeh

From: Dave Ellis <ellis@ainleygroup.com>
Sent: September 19, 2012 11:39 AM
To: Mike Ainley (Mike Ainley); Nicole Sartor (Nicole Sartor); Wendy Smeh (Wendy Smeh)
Subject: FW: Planned Water System Changes
Attachments: Recommended Solution.pdf; Well Record for Jenetta Well No. 4.pdf

FYI

Regards, Dave

Dave Ellis, P. Eng.
Ainley Group, Collingwood Office
Tel: (705) 445-3451 Ext. 217
Fax: (705) 445-0968

From: Dave Ellis [mailto:ellis@ainleygroup.com]
Sent: September 19, 2012 11:36 AM
To: Ryan Post (rpost@nvca.on.ca)
Cc: Mike Pincivero (Mike Pincivero); Kevin Lalonde (Kevin Lalonde); Ray Kelso (Ray Kelso); Nathan Wukasch (nwukasch@wasagabeach.com)
Subject: Planned Water System Changes

Hello Ryan,

I was asked to respond to your September 17, 2012 email regarding "Planned Water System Changes" on behalf of the Town of Wasaga Beach.

Please be advised that the Town is currently undertaking a Schedule B Class Environmental Assessment for an expansion of the existing municipal water supply system. A Phase 2 Public Information Centre (PIC) was held on August 30, 2012. At the PIC, twelve alternative solutions were presented including the recommended solution which is described on the attached PIC display board. You will note that the recommended solution includes commissioning of an existing drilled well and drilling of one or more new wells at the existing Jenetta Street well site. Drilling of a new well at the existing Powerline Road well site is also part of the recommended solution but would only be needed if the new wells at the Jenetta Street site are insufficient to meet ultimate demands. No new well sites are proposed as part of the recommended solution. There is no established timeline for implementing the recommended solution, however it is expected that commissioning of the existing drilled well (Well No. 4) at the Jenetta Street site would be undertaken within the next 10 years. It is likely that the additional well(s) at the Jenetta Street site would be drilled at the same time so that all of the wells would be contained in one building.

Attached for your information is the well record for existing Well No. 4 at the Jenetta Street site, which includes the GPS coordinates. This well was drilled in 2004 but has not yet been commissioned. Potential future wells at the Jenetta Street site would likely be drilled in close proximity to existing Well No. 4.

Please let me know if you would like me to send you all of the display boards from the August 30, 2012 PIC or if there is any other information that you require.

Regards, Dave

Dave Ellis, P. Eng.
Ainley Group, Collingwood Office
Tel: (705) 445-3451 Ext. 217
Fax: (705) 445-0968

Wendy Smeh

From: Diana Vangelisti <diana.vangelisti@bell.net>
Sent: September 20, 2012 12:12 PM
To: smeh@ainleygroup.com
Subject: RE: Wasaga Water Supply Class EA

Thank you.

From: smeh@ainleygroup.com
To: diana.vangelisti@bell.net
CC: Ellis@ainleygroup.com
Subject: Wasaga Water Supply Class EA
Date: Thu, 20 Sep 2012 11:27:35 -0400

Hello Diana,

Attached please find the information boards that were on display at the Public Information Centre for the Wasaga Beach Water Supply Class Environmental Assessment.

If you have any questions, or require any further information, please do not hesitate to contact us.

Regards,

Wendy Smeh, C.E.T.
Engineering Technologist

Ainley
280 Pretty River Parkway
Collingwood, ON L9Y 4J5
smeh@ainleygroup.com
Tel: (705) 445-3451 Ext. 141
Fax: (705) 445-0968
Cell: (705) 443-9334

From: Diana Vangelisti [mailto:diana.vangelisti@bell.net]
Sent: September 12, 2012 11:52 AM
To: Dave Ellis
Subject: Wasaga Water Supply Class EA

Greetings Dave,
I was unable to attend the PIC for the Class EA Water supply study held in August at the Wasaga RecPlex. Is there PIC information available to review. I am interested in the recommended solution and the evaluation used to reach the recommendation.
Thank you
Diana Vangelisti

Ainley GROUP
CONSULTING
ENGINEERS
PLANNERS

Ainley & Associates Limited
280 Pretty River Parkway, Collingwood, Ontario L9Y 4J5
Tel: (705) 445-3451 • Fax: (705) 445-0968
E-mail: collingwood@ainleygroup.com

August 16, 2012

File No. 112029

Department of Indian & Northern Affairs
EACoordination_ON@inac-ainc.gc.ca

Ref: **Town of Wasaga Beach**
Class Environmental Assessment
Water Supply System Expansion
Notice of Public Information Centre

Further to the Notice of Study Commencement dated June 6, 2012 for the Town of Wasaga Beach Water Supply Expansion Class Environmental Assessment, please find attached a copy of the Notice of Public Information Centre. The Public Information Centre will be held on August 30, 2012. Details are included in the attached copy of the Notice, which will appear in the Wasaga Sun on August 16 and August 23, 2012.

Yours truly

AINLEY & ASSOCIATES LIMITED

Dave Ellis, P. Eng.

DBE/nms/S:\112029\Correspondence\Letter\Notice of PIC\Notice Cover Letter August 16, 2012.doc
Encl.

cc: Michael Pincivero, P. Eng., Public Works Engineer

TOWN OF WASAGA BEACH
WATER SUPPLY SYSTEM EXPANSION
CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF PUBLIC INFORMATION CENTRE

Further to the Notice of Study Commencement issued June 6, 2012, the Town of Wasaga Beach is continuing to consider Options to ensure that the Town's water supply system will have adequate supply to meet future demands. A total of twelve (12) Options (including Do Nothing) have been identified and evaluated.

This Project is being planned as a Schedule "B" project under the Municipal Class Environmental Assessment planning process. A Public Information Centre is planned to provide further information to the public on all Options including the Recommended Solution and to receive input and comment from interested persons.

The Public Information Centre is scheduled for the following date and time:

Date:	**August 30, 2012**
Time:	**7:00pm – 9:00pm**
Location:	**Wasaga Beach RecPlex, Oakview Room**

Public input and comment on all Options including the Recommended Solution will be incorporated into the planning process. Comments will be received until September 14, 2012.

If you have any comments or questions, or if you would like to be placed on the mailing list to receive project information, please contact the Consultant undertaking the study or the Town of Wasaga Beach.

This notice issued August 16, 2012.

Mike Pincivero, P.Eng.
Public Works Engineer
Town of Wasaga Beach
30 Lewis Street
Wasaga Beach, Ontario
L9Z 1A1
Tel: (705) 429-2540
Fax: (705) 429-8226
Email: pwengineer@wasagabeach.com

Dave Ellis, P.Eng.
Project Engineer
Ainley Group
280 Pretty River Parkway
Collingwood, Ontario
L9Y 4J5
Tel: (705) 445-3451
Fax: (705) 445-0968
Email: ellis@ainleygroup.com

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Tel: (705) 445-3451 • Fax: (705) 445-0968
E-mail: collingwood@ainleygroup.com

August 16, 2012

File No. 112029

Chief Sandra Moore
Hiawatha First Nations
chiefmoore@hiawathafn.ca
123 Paudash Street
R.R. #2
Keene, ON, L0L 2G0

Ref: **Town of Wasaga Beach**
Class Environmental Assessment
Water Supply System Expansion
Notice of Public Information Centre

Dear Chief Moore:

Further to the Notice of Study Commencement dated June 6, 2012 for the Town of Wasaga Beach Water Supply Expansion Class Environmental Assessment, please find attached a copy of the Notice of Public Information Centre. The Public Information Centre will be held on August 30, 2012. Details are included in the attached copy of the Notice, which will appear in the Wasaga Sun on August 16 and August 23, 2012.

Yours truly

AINLEY & ASSOCIATES LIMITED

Dave Ellis, P. Eng.

DBE/nms/S:\112029\Correspondence\Letter\Notice of PIC\Notice Cover Letter August 16, 2012.doc
Encl.

cc: Michael Pincivero, P. Eng., Public Works Engineer

TOWN OF WASAGA BEACH
WATER SUPPLY SYSTEM EXPANSION
CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF PUBLIC INFORMATION CENTRE

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This notice issued August 16, 2012.

Mike Pincivero, P.Eng.
Public Works Engineer
Town of Wasaga Beach
30 Lewis Street
Wasaga Beach, Ontario
L9Z 1A1
Tel: (705) 429-2540
Fax: (705) 429-8226
Email: pwengineer@wasagabeach.com

Dave Ellis, P.Eng.
Project Engineer
Ainley Group
280 Pretty River Parkway
Collingwood, Ontario
L9Y 4J5
Tel: (705) 445-3451
Fax: (705) 445-0968
Email: ellis@ainleygroup.com

Water Well EA

RECEIVED
SEP 04 2012

TOWN OF WASAGA BEACH

WATER SUPPLY SYSTEM EXPANSION
CLASS ENVIRONMENTAL ASSESSMENT

Public Information Centre – Thursday, August 30, 2012
7:00 p.m. to 9:00 p.m. – RecPlex – Oakview Room

COMMENT SHEET

Please print all responses.

NAME OF RESPONDENT:

LOIS KOWAL

REPRESENTING (Agency, Municipality, Property Owner, Tenant, etc.):

ADDRESS (Including Postal Code, Telephone Number & Email Address):

39 Timberland Cres Wasaga Beach L9Z 1G7

705-429-7692 walko@bmts.com

COMMENTS (Please use the back of this sheet if necessary)

A well presented plan and proposal for the water supply system expansion for Wasaga Beach. I agree the expansion of the existing well faseilities is the best plan for water supply and the most economical solution for the town to support.

A lot of factors have been taken into concideration with much input from many departments involved especially the

Do you wish to be informed of the publication of the Notice of Study Completion?

☒ Yes ☐ No

Please submit this comment sheet by **Friday, September 14, 2012** to:

Dave Ellis, P.Eng. **Project Engineer** Ainley & Associates Limited 280 Pretty River Parkway Collingwood Ontario L9Y 4J5 Tel: (705) 445-3451 ext. 217 Fax: (705) 445-0968 E-mail: ellis@ainleygroup.com	**Mike Pincivero, P.Eng.** **Public Works Engineer** Town of Wasaga Beach 30 Lewis Street Wasaga Beach, Ontario L9Z 1A1 Tel: (705) 429-2540 ext. 2307 Fax: (705) 429-8226 Email: pwengineer@wasagabeach.com

environment. I had a question to ask until I came around to the board that listed the Species at Risk Piping Plover. I am impressed with the impact this little shore bird has made on the development of our beach areas. The Town of Wasaga Beach and the MNR take the servival of this endangered bird very seriously. Thank you also for your consideration in the planning of this project when construction should be done at the Jenetta wellsite.

Ainley GROUP
CONSULTING
ENGINEERS
PLANNERS

Ainley & Associates Limited
280 Pretty River Parkway, Collingwood, Ontario L9Y 4J5
Tel: (705) 445-3451 • Fax: (705) 445-0968
E-mail: collingwood@ainleygroup.com

August 16, 2012

File No. 112029

Chief Tracy Gauthier,
Mississaugas of Scugog Island
Tgauthier@scugogfirstnation.com
22521 Island Road, R.R.#5
Port Perry, ON
L9L 1B6

Ref: **Town of Wasaga Beach**
Class Environmental Assessment
Water Supply System Expansion
Notice of Public Information Centre

Dear Chief Gauthier:

Further to the Notice of Study Commencement dated June 6, 2012 for the Town of Wasaga Beach Water Supply Expansion Class Environmental Assessment, please find attached a copy of the Notice of Public Information Centre. The Public Information Centre will be held on August 30, 2012. Details are included in the attached copy of the Notice, which will appear in the Wasaga Sun on August 16 and August 23, 2012.

Yours truly

AINLEY & ASSOCIATES LIMITED

Dave Ellis, P. Eng.

DBE/nms/S:\112029\Correspondence\Letter\Notice of PIC\Notice Cover Letter August 16, 2012.doc
Encl.

cc: Michael Pincivero, P. Eng., Public Works Engineer

TOWN OF WASAGA BEACH
WATER SUPPLY SYSTEM EXPANSION
CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF PUBLIC INFORMATION CENTRE

Further to the Notice of Study Commencement issued June 6, 2012, the Town of Wasaga Beach is continuing to consider Options to ensure that the Town's water supply system will have adequate supply to meet future demands. A total of twelve (12) Options (including Do Nothing) have been identified and evaluated.

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Location:	**Wasaga Beach RecPlex, Oakview Room**

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This notice issued August 16, 2012.

Mike Pincivero, P.Eng.
Public Works Engineer
Town of Wasaga Beach
30 Lewis Street
Wasaga Beach, Ontario
L9Z 1A1
Tel: (705) 429-2540
Fax: (705) 429-8226
Email: pwengineer@wasagabeach.com

Dave Ellis, P.Eng.
Project Engineer
Ainley Group
280 Pretty River Parkway
Collingwood, Ontario
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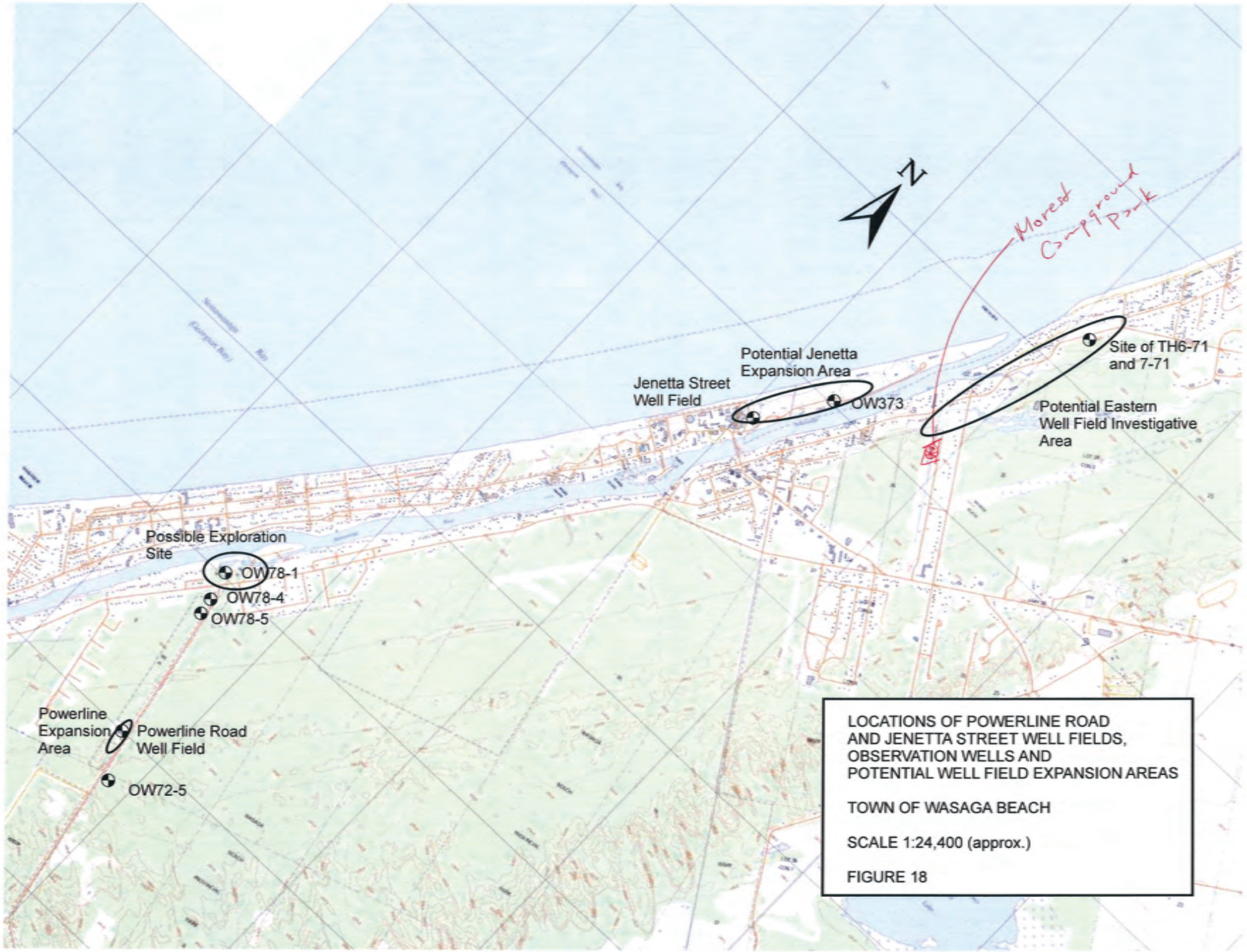
Tel: (705) 445-3451
Fax: (705) 445-0968
Email: ellis@ainleygroup.com



LOCATIONS OF POWERLINE ROAD AND JENETTA STREET WELL FIELDS, OBSERVATION WELLS AND POTENTIAL WELL FIELD EXPANSION AREAS

TOWN OF WASAGA BEACH

SCALE 1:24,400 (approx.)

FIGURE 18

Wendy Smeh

From: Nicole Gray <nicoleg@ramafirstnation.ca>
Sent: August 27, 2012 9:39 AM
To: smeh@ainleygroup.com
Cc: Chief Sharon Stinson Henry; K.A.Sandy-McKenzie (k.a.sandy-mckenzie@rogers.com); Chief Roly Monague (rolymonague@chimnissing.ca); Chief Donna Big Canoe(dbigcanoe@georginaisland.com); Jeffery Hewitt
Subject: FW: Town of Wasaga Beach, Class Environmental Assessment, Water Supply Expansion, Notice of PIC
Attachments: Rama FN_001.pdf

Importance: High

Dear Ms. Smeh :

As a member of the Williams Treaties First Nations, Rama First Nation acknowledges receipt of your letter of August 16, 2012, which was received by email.

A copy of your letter has been forwarded to Karry Sandy-McKenzie, Barrister & Solicitor, Coordinator for Williams Treaties First Nations for further review and response directly to you. Please direct all future correspondence and inquires, with a copy to Rama First Nation, to Ms. Sandy-McKenzie at 8 Creswick Court, Barrie, ON L4M 2J7 or her email address at k.a.sandy-mckenzie@rogers.com. Her telephone number is (705) 792-5087.

We appreciate your taking the time to share this important information with us.

Sincerely,

Chief Sharon Stinson Henry

Nicole Gray
Executive Assistant to the Chief, Administration
Chippewas of Rama First Nation
(ph) 705-325-3611 ext.1216
(cell)
(fax) 705-325-0879
(url) www.ramafirstnation.ca

From: Wendy Smeh [mailto:smeh@ainleygroup.com]
Sent: Thursday, August 16, 2012 9:27 AM
To: Chief Sharon Stinson Henry
Subject: Town of Wasaga Beach, Class Environmental Assessment, Water Supply Expansion, Notice of PIC
Importance: High

Hello Chief Stinson Henry,

Attached please find a copy of the Notice of Public Information Centre for the Town of Wasaga Beach, Class Environmental Assessment for Water Supply Expansion. The PIC will be held August 30th, 2012. Details are included in the attached Notice.

Please feel free to contact us if you have any questions, or require any further information.

Regards,

Wendy Smeh, C.E.T.
Engineering Technologist

Ainley
280 Pretty River Parkway
Collingwood, ON L9Y 4J5
smeh@ainleygroup.com
Tel: (705) 445-3451 Ext. 141
Fax: (705) 445-0968
Cell: (705) 443-9334

From: aalscan@ainleygroup.com [mailto:aalscan@ainleygroup.com]
Sent: August 16, 2012 9:11 AM
To: smeh@ainleygroup.com
Subject: Attached Image
Importance: High

Ainley GROUP
CONSULTING
ENGINEERS
PLANNERS

Ainley & Associates Limited
280 Pretty River Parkway, Collingwood, Ontario L9Y 4J5
Tel: (705) 445-3451 • Fax: (705) 445-0968
E-mail: collingwood@ainleygroup.com

August 16, 2012

File No. 112029

Chief Sharon Stinson Henry,
Rama First Nation
chiefofmnjikaningfirstnations@mnjikaning.ca

Ref: **Town of Wasaga Beach**
Class Environmental Assessment
Water Supply System Expansion
Notice of Public Information Centre

Dear Chief Stinson Henry:

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Yours truly

AINLEY & ASSOCIATES LIMITED

Dave Ellis, P. Eng.

DBE/nms/S:\112029\Correspondence\Letter\Notice of PIC\Notice Cover Letter August 16, 2012.doc
Encl.

cc: Michael Pincivero, P. Eng., Public Works Engineer

TOWN OF WASAGA BEACH
WATER SUPPLY SYSTEM EXPANSION
CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF PUBLIC INFORMATION CENTRE

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This notice issued August 16, 2012.

Mike Pincivero, P.Eng.
Public Works Engineer
Town of Wasaga Beach
30 Lewis Street
Wasaga Beach, Ontario
L9Z 1A1
Tel: (705) 429-2540
Fax: (705) 429-8226
Email: pwengineer@wasagabeach.com

Dave Ellis, P.Eng.
Project Engineer
Ainley Group
280 Pretty River Parkway
Collingwood, Ontario
L9Y 4J5
Tel: (705) 445-3451
Fax: (705) 445-0968
Email: ellis@ainleygroup.com

Ainley GROUP
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280 Pretty River Parkway, Collingwood, Ontario L9Y 4J5
Tel: (705) 445-3451 • Fax: (705) 445-0968
E-mail: collingwood@ainleygroup.com

August 16, 2012

File No. 112029

Scugog First Nations
jkozlinsky@scugogfirstnation.com

Ref: **Town of Wasaga Beach**
Class Environmental Assessment
Water Supply System Expansion
Notice of Public Information Centre

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Yours truly

AINLEY & ASSOCIATES LIMITED

Dave Ellis, P. Eng.

DBE/nms/S:\112029\Correspondence\Letter\Notice of PIC\Notice Cover Letter August 16, 2012.doc
Encl.

cc: Michael Pincivero, P. Eng., Public Works Engineer

TOWN OF WASAGA BEACH
WATER SUPPLY SYSTEM EXPANSION
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This notice issued August 16, 2012.

Mike Pincivero, P.Eng.
Public Works Engineer
Town of Wasaga Beach
30 Lewis Street
Wasaga Beach, Ontario
L9Z 1A1
Tel: (705) 429-2540
Fax: (705) 429-8226
Email: pwengineer@wasagabeach.com

Dave Ellis, P.Eng.
Project Engineer
Ainley Group
280 Pretty River Parkway
Collingwood, Ontario
L9Y 4J5
Tel: (705) 445-3451
Fax: (705) 445-0968
Email: ellis@ainleygroup.com

ALDERVILLE FIRST NATION
P.O. Box 46
11696 Second Line
Roseneath, Ontario K0K 2X0

September 4th, 2012

Att: Dave Ellis, P.Eng.

Re: Town of Wasaga Beach
Class Environmental Assessment
Water Supply System Expansion
Notice of Public Information Centre

Dear Dave,

Thank you for keeping Alderville First Nation updated regarding the **Class Environmental Assessment for the Water Supply System Expansion,** which is being proposed within our Traditional and Treaty Territory. We appreciate the fact that **Ainley Group** and the **Town of Wasaga Beach,** recognizes the importance of First Nations Consultation and that your office is conforming to the requirements within the Duty to Consult Process.

Again, we may not always have representation at all Public Information Centres; it is our wish to be kept apprised throughout all phases of this project. I can be contacted at the mailing address above or electronically via email, at the email address below.

In good faith and respect,

Dave Simpson
Lands and Resources
Communications Officer
Alderville First Nation

dsimpson@aldervillefirstnation.ca

Tele: (905) 352-2662
Fax: (905) 352-3242

Wendy Smeh

From: Dave Ellis <ellis@ainleygroup.com>
Sent: August 21, 2012 5:18 PM
To: Mike Pincivero (Mike Pincivero)
Cc: Nicole Sartor (Nicole Sartor); Wendy Smeh (Wendy Smeh)
Subject: FW: Town Wide Water Well Development Study/EA
Attachments: 20120623131744.pdf

Hi Mike,

See email from Ray below and attached plan. The potential location identified by Ray is outside the area identified in the Hydrogeological report so may not be ideal. Would you like us to investigate this option further?

Regards, Dave

Dave Ellis, P. Eng.
Ainley Group, Collingwood Office
Tel: (705) 445-3451 Ext. 217
Fax: (705) 445-0968

From: Ray Kelso [mailto:rkelso@wasagabeach.com]
Sent: August 21, 2012 4:51 PM
To: 'Dave Ellis'
Subject: RE: Town Wide Water Well Development Study/EA

Hi Dave;

I reviewed your potential well fields and identified a park area near one of them. Take a look it is just outside of your investigative area.

Yours truly,

Ray Kelso

From: Dave Ellis [mailto:ellis@ainleygroup.com]
Sent: August 2, 2012 12:02 PM
To: Ray Kelso (Ray Kelso)
Cc: Mike Pincivero (Mike Pincivero); Mike Ainley (Mike Ainley); Nicole Sartor (Nicole Sartor); Wendy Smeh (Wendy Smeh)
Subject: Town Wide Water Well Development Study/EA

Hi Ray,

As you know, we are working on an EA for expansion of the Town's water supply. We have just received the hydrogeological report which identifies potential new well field expansion areas. I have attached Figure 18 which identifies these areas. Can you please review and advise if there are any suitable Town-owned properties located within these areas or if there would be a potential for purchase of a suitable property for development of a new well field. We

would be looking for a property about the size of the one where the existing Powerline Road Water Supply Works is situated. Thanks.

Regards, Dave

Dave Ellis, P. Eng.
Ainley Group, Collingwood Office
Tel: (705) 445-3451 Ext. 217
Fax: (705) 445-0968

Appendix F
PIC Presentation Material and Sign-In Sheet

TOWN OF WASAGA BEACH
WATER SUPPLY SYSTEM EXPANSION
CLASS ENVIRONMENTAL ASSESSMENT
(SCHEDULE B)

PUBLIC INFORMATION CENTRE
AUGUST 30, 2012

SIGN IN SHEET – PLEASE PRINT

NAME	ADDRESS	TELEPHONE NO.	E-MAIL ADDRESS
FINAL COPY OF SIGN-IN SHEET IS IN WORKING FILE FILED UNDER APPENDICES			

Water Supply System Expansion
Class Environmental Assessment
Public Information Centre
August 30, 2012

WELCOME

- Please sign in
- Representatives are available to answer questions
- Please complete a comment sheet and place it in the box provided or send it to the Consultant undertaking the study or the Town of Wasaga Beach at the addresses provided

Water Supply System Expansion
Class Environmental Assessment
Public Information Centre
August 30, 2012

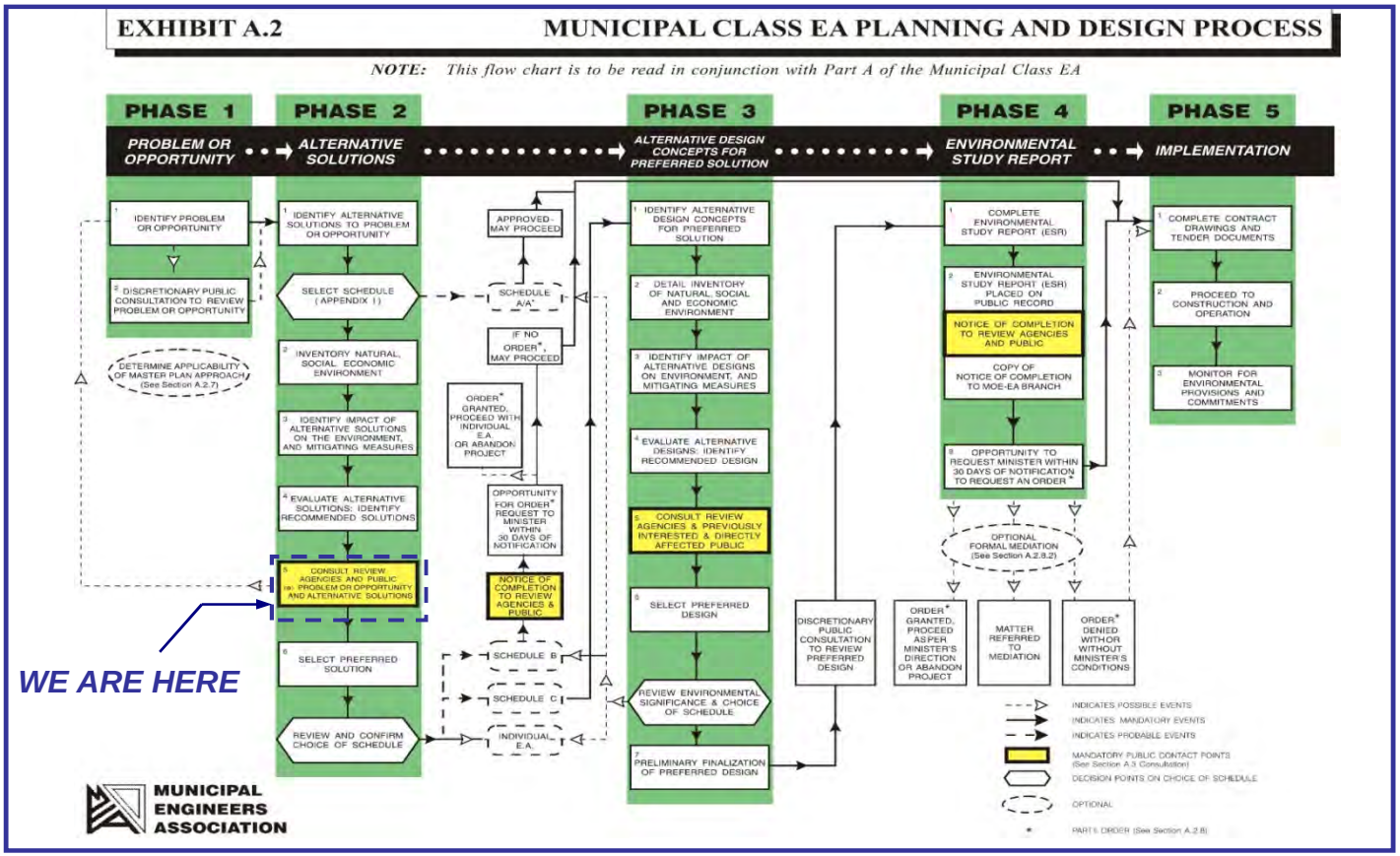
PROBLEM STATEMENT

The Town of Wasaga Beach is undertaking a Class Environmental Assessment (EA) Planning Process to consider options to ensure that the Town's water supply system will have adequate supply to meet future demands. The current capacity of the system is 31,415 m^3/day, which is sufficient to meet the current demands. However, with continued growth and summer tourism, the current capacity may need to be increased to meet future demands. The Class EA Planning Process will be undertaken in accordance with Town Reports and Studies including the Town's Official Plan, dated September 9, 2003 and consolidated in April 2008.

Water Supply System Expansion
Class Environmental Assessment
Public Information Centre
August 30, 2012

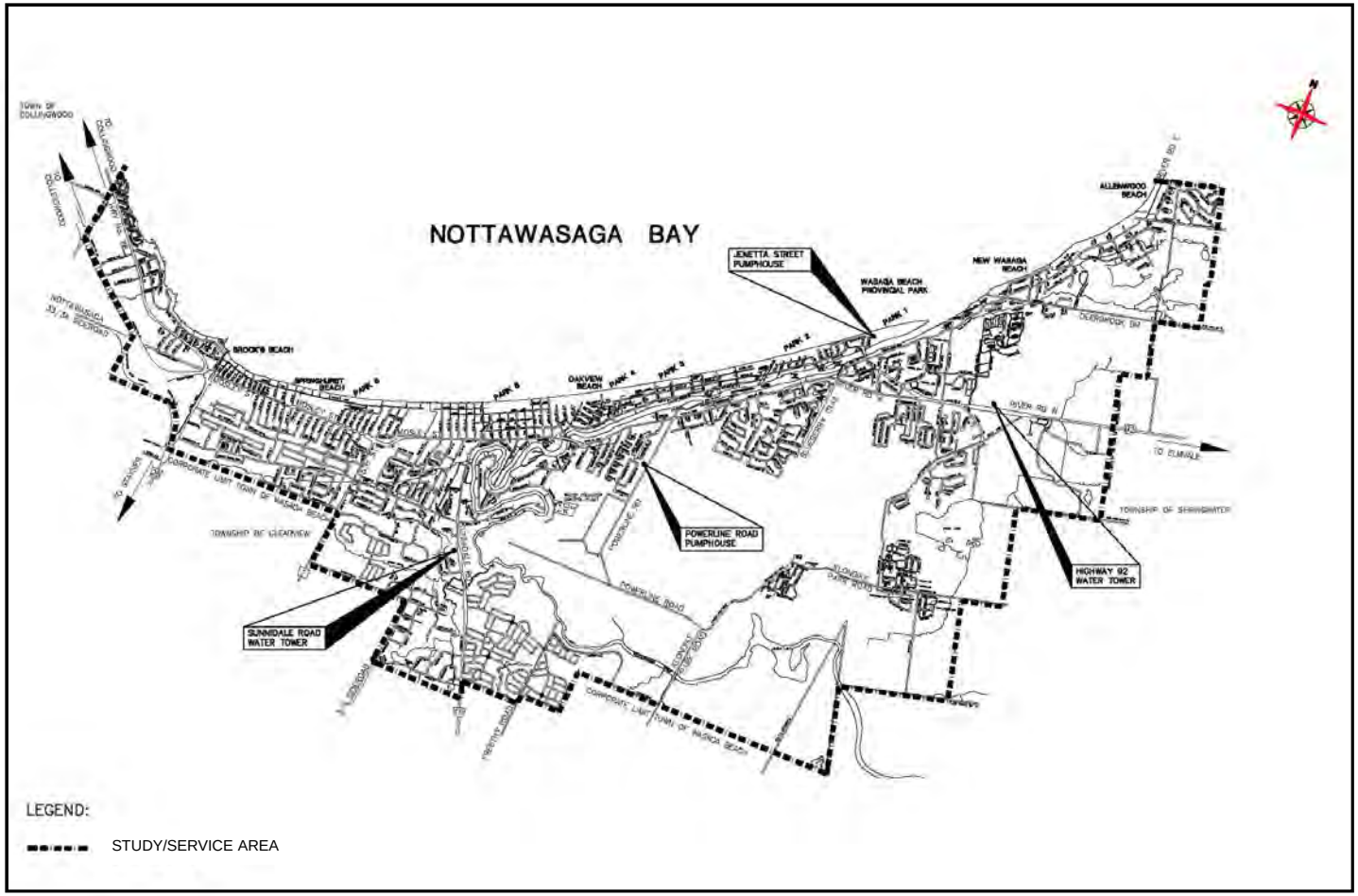
MEA CLASS Environmental Assessment

This Project is being planned in accordance with the Municipal Engineer's Association's Municipal Class Environmental Assessment (October 2000, as amended in 2007 & 2011) document. The MEA Planning and Design Process Flow Chart is provided for public information. At the present time, the Wasaga Beach Water Supply Expansion Assessment is in Phase 2.



Water Supply System Expansion
Class Environmental Assessment
Public Information Centre
August 30, 2012

STUDY AREA & SERVICE AREA



EXISTING CONDITIONS

EXISTING WATER SUPPLY SYSTEM

The existing Town of Wasaga Beach water supply system comprises:

- Approximately 200km of watermain, various sizes;
- one well pumphouse with a capacity of 15,707m^3/day located on Spruce Street (Jenetta Street Facility). The Pumphouse houses three wells, each rated at a maximum of 5,236m^3/day. A fourth well has been drilled at Jenetta Street for future development;
- one well pumphouse and separate high lift building with a capacity of 15,707m^3/day and one 3,405m^3 single cell baffled reservoir located on Powerline Road. The Pumphouse houses four wells each rated at 5,236m^3/day, with Well No. 1 as standby only;
- one 2,838m^3 steel spheroid elevated storage tank located at the intersection of River Road West and Park entrance driveway (East of Theme Park Drive, formerly Dinosaur Park Road); and
- one 9,550m^3 concrete pedestal steel elevated storage tank located on Sunnidale Road south of Andrew Court.

FUTURE DEMANDS

Maximum Day Demand (MDD) Forecast

The highest MDD for the three-year period 2009-2011 was 19,039 m^3 and occurred on July 17, 2011. For the purpose of forecasting future demands it is assumed that MDD attributable to existing development will be equal to the 2011 MDD. For future development, it is assumed that the MDD per equivalent unit will range from a low of 1.566 m^3 (2011 MDD per equivalent unit) to 2.036 m^3 (2011 MDD per equivalent unit plus 30%). The 30% buffer accounts for a potential increase in persons per unit over time.

At the end of 2011, a total of 12,159 equivalent units were connected to the water distribution system. Based on full build out to the existing Town limits, it is forecast that 26,266 equivalent units will ultimately be connected to the system. Using the historical rate for the period 2009 to 2011, it is assumed that the number of new connections per year will be approximately 387. At this rate, the ultimate build out will be reached in the year 2048.

FUTURE DEMANDS

The table below summarizes the forecast high and low end MDD for the period 2012 to 2048.

Year	Number of Equivalent Units Connected	Low End MDD (m^3/day)	High End MDD (m^3/day)
2012	12,546	19,645	19,827
2015	13,707	21,463	22,191
2020	15,642	24,493	26,130
2025	17,577	27,524	30,070
2030	19,512	30,554	34,010
2035	21,447	33,584	37,949
2040	23,382	36,614	41,889
2045	25,317	39,644	45,829
2048	26,266	41,131	47,761

Water Supply System Expansion
Class Environmental Assessment
Public Information Centre
August 30, 2012

WELL SITE ANALYSIS

A Town wide water well development study is being conducted as a part of this Environmental Assessment to identify the Town's short-term and long-term water demands, to assess potential water supplies and to confirm a source to meet the Town's future water requirements.

The following well field expansion options were identified in a hydrogeological report prepared by Ian D. Wilson & Associates:

- Expand the Powerline Road well field by one well capable of a yield of 5,236 m^3/day. This may require additional testing to assess westerly aquifer boundary affects and the possibility of replacing existing Well 2. This option could include a fourth well on the Powerline Road Well site, or conceivably a new well site to the north along the Powerline Road corridor near the intersection of River Road West and Powerline Road, if land is available. Should Powerline Road be considered for expansion, it is recommended that an extended pumping test of the existing wells be conducted to confirm that boundary effects will not become an issue at the western periphery of the Lower Aquifer.
- Expand the Jenetta Street field by up to two wells each capable of a yield of 5,236 m^3/day. Site limitations and mutual interference concerns may partially restrict this option, and a secondary Jenetta Street well site nearby to the east may be considered if needed and if land is available. A Memorandum of Agreement is required with the Ministry of Natural Resources, which owns the property at the Jenetta site.
- Existing information suggests that the area in the vicinity of River Road East and Zoo Park Road is the most promising location for developing a third well field, if land is available.

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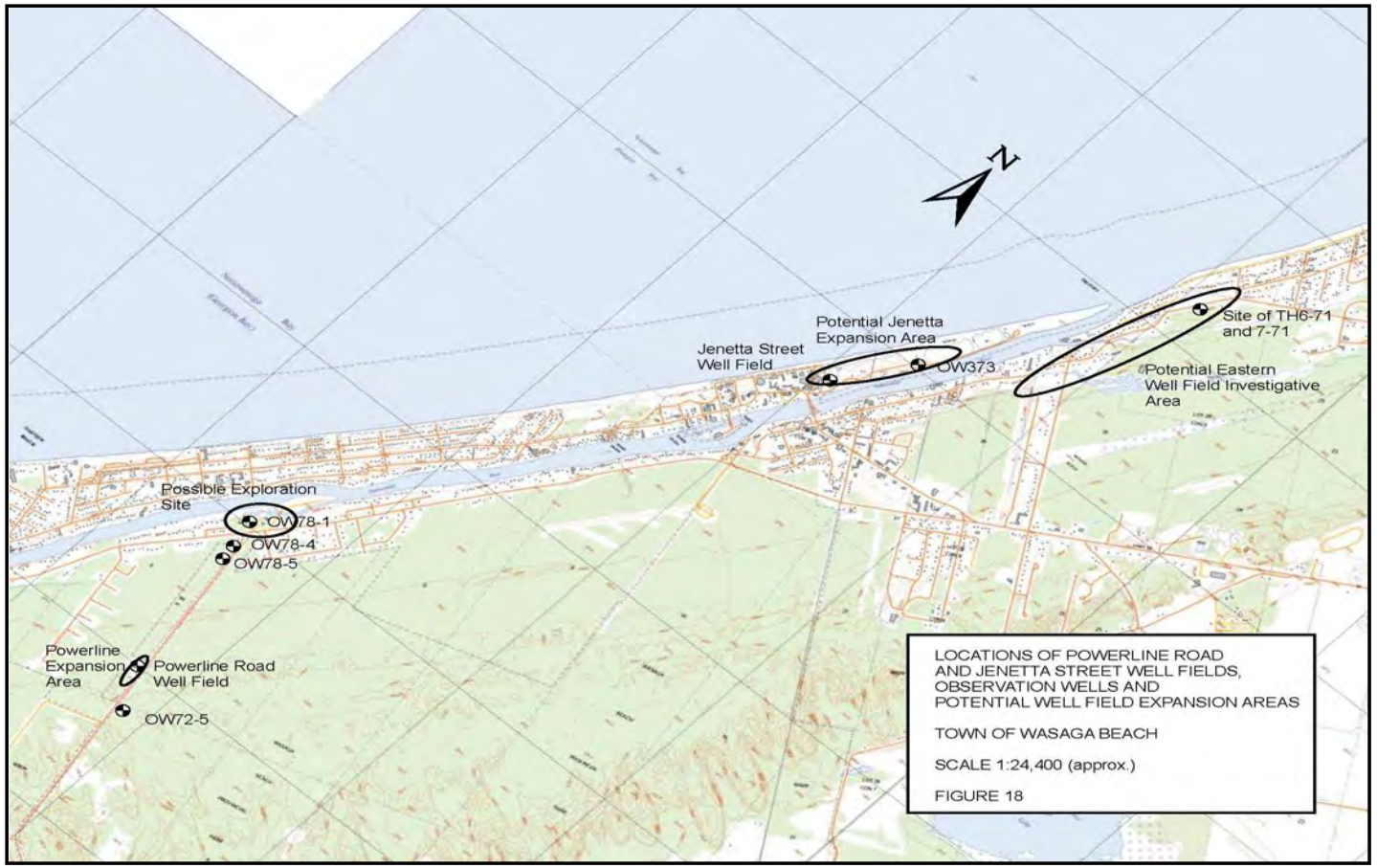
POTENTIAL WELL FIELD EXPANSION AREAS



ALTERNATIVE 1 – Do Nothing

Description

Under the Do Nothing Alternative, the Town would maintain the existing system without providing any upgrades for servicing.

Opportunities

- No Cost to Town and/or Developers
- No Environmental Impact

Challenges

- Approved development cannot proceed
- May be legal implications if existing approved developments are suspended
- Future development would be limited or not allowed
- Does not address Problem Statement

No further assessment of this Alternative is warranted.

ALTERNATIVE 2 – Water Conservation

Description

Under the Water Conservation alternative, the Town would expand its existing water conservation initiatives in an attempt to further reduce water consumption. Water conservation may be achieved through increased public education and awareness programs, incentive/rebate programs for residents and businesses and increased water rates.

Opportunities

- Relatively lost cost option
- No environmental impact

Challenges

- Need to increase water rates to pay for operation and maintenance of existing system if demand is reduced
- Water metering was recently introduced. Water users may resist further measures to reduce consumption
- Water conservation measures may result in short term reduction in demand followed by “rebound effect” (increased demand)
- Conservation alone would not likely reduce demands sufficiently to ensure that the ultimate demands will be met by the existing infrastructure.

This Alternative would be a viable alternative when used in conjunction with another alternative solution.

ALTERNATIVE 3 – Water Re-use/Recycling

Description

Effluent from the Water Pollution Control Plant may be used for applications where potable water is not needed (e.g. for irrigation of municipally owned properties such as sports fields).

Opportunities

- Eliminates cost of unnecessarily treating irrigation water to drinking water standards

Challenges

- Need to construct separate distribution system or transport water by truck
- Risk of cross contamination with potable water system
- Current MOE policy discourages practice of using effluent water for irrigation

This Alternative may be considered by the Town in the future as technology improves.

ALTERNATIVE 4 – Restrict Development and Servicing Extensions to Existing Residences

Description

The Town would need to immediately begin restricting development, since the current water supply is not sufficient for all committed development. The capacity would need to be monitored and evaluated before approving any watermain extensions.

Opportunities

- No cost
- No environmental impact
- Undeveloped land may be used for other purposes (recreation/leisure activities)

Challenges

- Limits increase in municipal tax base
- Restricts opportunities for residents (employment, shopping, etc.)
- Does not address problem of meeting future demands from development already committed
- Suspending already committed development may have legal implications

No further assessment of this Alternative is warranted.

ALTERNATIVE 5 – Water Loss Study/Leak Detection and Repair Program

Description

The Town would initiate a water loss study to find and repair leaks within the water distribution system.

Opportunities

- Relatively small investment may result in long term savings if significant leaks are found and repaired

Challenges

- Town's water system is relatively new and therefore it is anticipated that it will have very few leaks. Program may not be cost effective
- A leak detection/repair program alone would not likely reduce demands sufficiently to ensure that the ultimate demands will be met by the existing infrastructure. As such, a leak detection/repair program would only be considered a viable alternative when used in conjunction with another alternative solution

This Alternative would only be a viable alternative when used in conjunction with another alternative solution.

ALTERNATIVE 6 – Commission Drilled Well at Jenetta Street Well Field

Description

An additional well would be commissioned at the Jenetta Street Well Field under this alternative. There are currently four existing wells at this location with three being duty wells and one drilled but not commissioned.

Opportunities

- Proven source (well already drilled and quality/quantity has been confirmed by testing)
- Close proximity to existing treatment plant and distribution system (easy to connect)

Challenges

- Construction will be disruptive to nearby Wasaga Beach Provincial Park Beach Area One and tourist commercial area
- Moderately high cost to commission (need to provide new building, controls, piping and modifications to existing treatment plant)
- Need to acquire/lease property from MNR

This option is viable to increase the demand on an interim basis (20 years), but alone will not provide capacity for the ultimate build-out demands. For ultimate build-out, this alternative will need to be used in conjunction with other alternatives.

ALTERNATIVE 7A & 7B – Expand Existing Powerline Road and/or Jenetta Well Fields (Drill New Wells)

Description

Under this alternative, new well(s) would be drilled at the Jenetta Street Well Field (Alternative 7A) and/or Powerline Road Well Field (Alternative 7B).

Opportunities

- Hydrogeological review identifies both Jenetta Street and Powerline Road as having potential for expansion with Jenetta having more potential
- Close proximity to existing treatment plant and distribution system (easy to connect)

Challenges

- Construction will be disruptive to nearby Wasaga Beach Provincial Park Area One and tourist commercial area at Jenetta Street Site
- High cost to drill and commission new well(s) (need to provide new building, controls, piping and modifications to existing treatment plant)
- May need to acquire/lease additional property from MNR
- Does not increase redundancy in supply system (i.e. only one supply plant operational if other one is out of service)
- May need to replace existing Well No. 2 at Powerline Road to achieve maximum well field production efficiency

This alternative addresses the problem statement and is a viable option.

ALTERNATIVE 8 – Construct New Well Field at New Location

Description

A new well field could be constructed at a new location. This would include a new pump control building as well as the acquisition of land above a suitable aquifer.

Opportunities

- A new supply facility will increase redundancy in supply system (i.e. will have two supply facilities operational if one supply facility is out of service)

Challenges

- Will likely need to acquire property
- Will need to drill test well(s) to confirm available water quality/quantity
- Development of a new well site will impact adjacent property owners more than expansion of an existing well site
- Possible source water protection issues due to presence of closed and active landfills
- Higher cost than expanding existing well site
- New site may not be in close proximity to a trunk watermain (may need to extend trunk watermain to site)

This alternative addresses the problem statement and is a viable option.

ALTERNATIVE 9 – Connect to the Town of Collingwood Water Supply

Description

The Town would connect to the existing Collingwood water supply system under this alternative.

Opportunities

- Collingwood would supply water directly to the west end of Wasaga Beach where it is most needed (all existing and potential future Town well supplies are located in the east end of Wasaga Beach since the lower aquifer is not present in the west end)
- Would provide redundancy in the event that the lower aquifer is impacted (Collingwood has a surface water supply)

Challenges

- Town loses some autonomy/control of its water supply
- Cost may be higher than increasing Town's well supply
- Would likely require additional infrastructure (booster pumping station, duplicate trunk watermain) in order to provide acceptable pressures
- Mixing of surface water and groundwater may affect uniformity of aesthetic water quality parameters
- May be very difficult/time consuming to negotiate a mutually acceptable water purchase agreement

This alternative addresses the problem statement and is a viable option.

ALTERNATIVE 10 – Utilize Surface Water Supply and Construct Water Filtration Plant

Description

The Town of Wasaga Beach could consider construction of a surface water filtration plant and obtaining water from Georgian Bay.

Opportunities

- Would provide a secure source of water with limitless potential capacity

Challenges

- Surface water would require more extensive treatment than existing groundwater supply due to lower raw water quality
- Cost would be prohibitively high. It would be significantly higher than increasing the Town's well supply
- Aesthetically, construction of a surface water treatment plant on the Georgian Bay shoreline is undesirable due to the tourist nature of the Town and the focus on waterfront activities.
- A large piece of land would be required on the water front to construct the facility
- Town operations staff would require training to operate two different types of facilities
- Higher operational costs

This alternative addresses the problem statement and is a viable option.

ALTERNATIVE 11 – Private Individual Wells for New Development

Description

Under this alternative, developers of new homes would construct individual wells to service units.

Opportunities

- No additional demand on municipal water supply

Challenges

- Cost to residents is likely higher than providing municipal water unless the area to be serviced is far from the existing water distribution system
- Water supply is less secure than municipally supplied water (private well is more susceptible to quality/quantity issues)
- Construction of private wells increases the risk of contaminating the upper aquifers, especially if the wells are not properly abandoned when no longer needed.
- Not consistent with the Town's objective to provide municipal water to all properties within the Town

This alternative does not support the Problem Statement or conform to the Official Plan. No further assessment of this alternative is warranted.

ALTERNATIVE 12 – Private Water Systems for New Development

Description

Under this alternative, developers would be required to construct a water supply system to provide water for an entire development of homes.

Opportunities

- No additional demand on municipal water supply

Challenges

- Cost to residents is likely higher than providing municipal water unless the area to be serviced is far from the existing water distribution system
- Not consistent with the Town's objective to provide municipal water to all properties within the Town
- The Ministry of the Environment no longer issues Permits for Private Drinking Water Systems. The Town would be responsible for all of the systems.

This alternative does not support the Problem Statement or conform to the Official Plan. No further assessment of this alternative is warranted.

SCREENING CRITERIA

Screening for all of the water supply solutions discussed is as follows:

COMPULSORY CRITERIA	ALL POSSIBLE WATER SUPPLY SOLUTIONS (OPTIONS 1 through 12)											
	1	2	3	4	5	6	7	8	9	10	11	12
Compliance – The alternative could comply with all existing and proposed regulations and land use policies (i)	x	x	x	x	x	√	√	√	√	√	x	x
Capacity - The alternative would be capable of providing capacity as it is required, or sooner	x	x	x	x	x	√	√	√	√	√	√	√
Technical Feasibility – no logistical, infrastructure, storage or technology performance requirements related to the alternative that cannot be accomplished using logical and established engineering solutions.	√	√	x	√	√	√	√	√	√	√	√	√

(i) Limiting growth contradicts the Official Plan and may have legal implications if existing approved development projects are suspended due to insufficient capacity. Options that do not meet the compulsory criteria do not provide a full solution to the problem statement but may be used in conjunction with a long-term solution as a complementary solution. No further assessment of the alternatives that do not meet full criteria is warranted as part of this Class EA. However, some options may be considered as complementary to the recommended solutions.

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EVALUATION OF ALTERNATIVES SUMMARY

		ALTERNATIVE NO.					
EVALUATION CRITERIA	**Weightings - %**	**6**	**7A**	**7B**	**8**	**9**	**10**
NATURAL ENVIRONMENT							
Fisheries	2	2	2	2	2	2	1
Wetlands, Floodplains & Shorelines	10	8	8	10	8	10	7
Woodlands	2	1.5	1.5	0.5	0	1	0
Groundwater	11	8	8	8	8	11	11
Sensitive Species & ANSI/PSW	4	0	0	4	2	4	2
Air/Noise/Vibration	5	4	4	4	3	4	2
SOCIO-ECONOMIC							
Response to Official Plan Growth	15	13	15	15	15	15	15
Social Impacts on Residents	8	8	7	7	4	7	1
Social Impacts on Social Features	8	6	6	7	5	8	4
Capital Costs	5	5	4	4	3	3	1
TECHNICAL							
Construction, Design, Land Ownership & Policies	15	15	14	14	5	5	1
Impacts on Existing Utilities	5	5	4	4	2	3	1
Operational Considerations	10	10	10	9	8	5	5
TOTALS	**100**	**85.5**	**83.5**	**88.5**	**64**	**78**	**51**

PHASE 2 RECOMMENDED SOLUTION

The Phase 2 Recommended Solution is to increase the water supply through phasing in wells to meet demands as follows:

- Commission the existing drilled well at the existing Jenetta Street well site (Alternative No. 6)
- Drill one new well (and possibly an additional standby well) at the existing Jenetta Street well site (subject to a Memorandum of Agreement from the Ministry of Natural Resources – property owner) including the expansion of the pump house and associated piping (Alternative 7A)
- Drill a new well at the existing Powerline Road well site if required, including expansion of the pump house and associated piping (Ultimate Build-out) (Alternative 7B)
- Research and implement water conservation methods on an ongoing basis to ensure adequate water supply capacity.

The Jenetta Street well site has a greater potential for expansion than the Powerline Road well site. It is therefore recommended that a fifth well be constructed at the Jenetta Street site which, together with existing Well No. 4, may provide enough additional capacity to meet the ultimate demands. An additional well at the Powerline Road site would only be constructed if needed.

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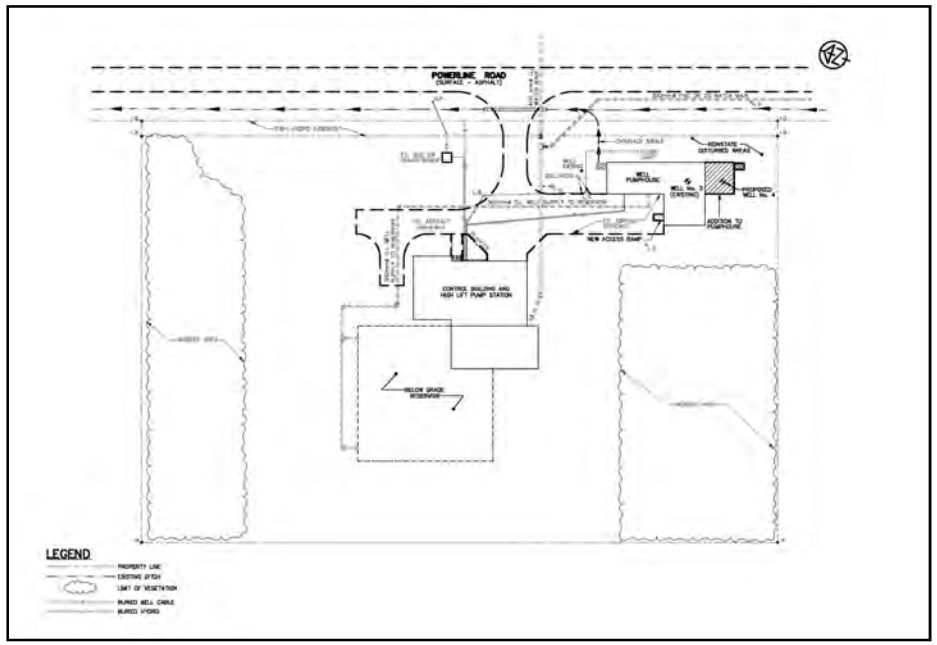
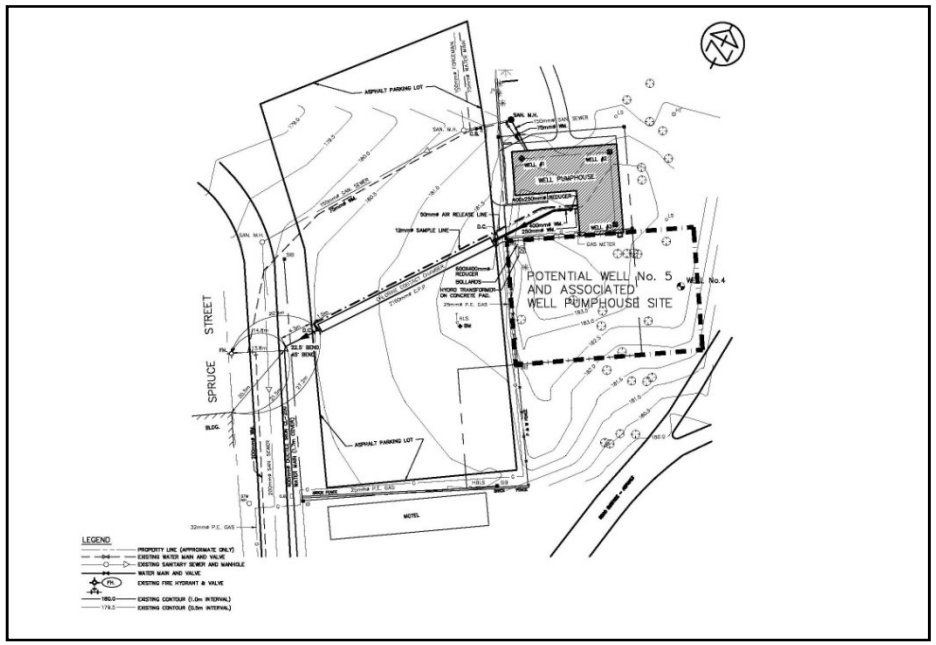
EXISTING SITE PLANS



Powerline Road Well Field



Jenetta Street Well Field

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CONSTRUCTION MITIGATION

EFFECT	MITIGATION
Social Impacts	- minimize impacts to tourism by avoiding construction at Beach Area 1 during tourist season
Species Protection	- ensure Contractor is aware of nearby endangered Piping Plover nesting site and mitigation measures are utilized to avoid harm - Communication and feedback with the MNR and interested parties
Sedimentation	- erosion control with sediment traps - adhere to buffer and setback requirements
Drainage Disruption	- maintain and use existing drainage courses
Contamination of Surface Waters	- spill control/containment measures to be in place - install check dams on drainage swales
Dewatering	- employ proper dewatering techniques
Contamination of Ground and Surface Water - Spills	- construction refuelling precautions
Tree Removal	- minimize tree removal - replace trees through landscape design where possible
Traffic Flow	- ensure continuous use of Powerline Road for public transportation, traffic flagging when necessary - Minimize disruption to Beach Area 1 and Spruce Street
Soils Geology - mixing of topsoil/subsoil	- strip and stockpile topsoil separate from subsoil
Public Health - exhaust emissions	- minimize operation and establish reasonable daily and seasonal construction periods
Noise	- establish reasonable daily and seasonal construction periods
Dust	- use dust control measures

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LONG TERM MITIGATION

EFFECT	MITIGATION
Surface Water Drainage	- design new site drainage to match into existing drainage system - landscape new site to provide adequate drainage
Residential	- monitor noise and air quality
Recreational	- monitor noise and air quality
Economic - increases in operating cost	- assess annual operating cost and enact a by-law to allow for any needed increase
Economic - capital cost	- adequate development charges
Odour - Air Quality	- air emissions will be from upgraded standby diesel generator (if required), air modelling will be done as part of Ministry of Environment approval - measures can be taken to minimize impact based on modelling, e.g. increase stack height
Noise	- proper muffling devices and acoustical louvers on buildings (generators)

NEXT STEPS

1. Review Comments received from Public Information Centre
2. Select Preferred Solution – September 2012
3. Confirm Class EA Schedule (Schedule B) – September 2012
4. Finalize Phase 1 & 2 Report as a DRAFT for public review – late October 2012
5. Publish Notice of Completion of Class EA – late October 2012
6. Public and Agency review of DRAFT Phase 1 & 2 Report (30 days) – November 2012
7. Finalize Phase 1 & 2 Report based on comments received
8. Memo to Ministry of Environment – Completion of Class EA – December 2012
9. Town of Wasaga Beach may undertake design upon Completion of Class EA

WHAT CAN YOU DO?

- Fill out a comment sheet
- Send your comments to:

Mike Pincivero, P.Eng.
Public Works Engineer
Town of Wasaga Beach
30 Lewis Street
Wasaga Beach, Ontario
L9Z 1A1
Tel: (705) 429-2540 ext. 2307
Fax: (705) 429-8226
Email: pwengineer@wasagabeach.com

Dave Ellis, P.Eng.
Project Engineer
Ainley Group
280 Pretty River Parkway
Collingwood, Ontario
L9Y 4J5
Tel: (705) 445-3451 ext. 217
Fax: (705) 445-0968
Email: ellis@ainleygroup.com

Appendix G
Summary Score Analysis and Water Supply Evaluation of Options

Town of Wasaga Beach
WATER SUPPLY SYSTEM EXPANSION
Class Environmental Assessment
Summary Score Analysis (Weighted Rankings)

		ALTERNATIVE NO.					
EVALUATION CRITERIA	**Weightings - %**	**6**	**7A**	**7B**	**8**	**9**	**10**
NATURAL ENVIRONMENT							
Fisheries	2	2	2	2	2	2	1
Wetlands, Floodplains & Shorelines	10	8	8	10	8	10	7
Woodlands	2	1.5	1.5	0.5	0	1	0
Groundwater	11	8	8	8	8	11	11
Sensitive Species & ANSI/PSW	4	0	0	4	2	4	2
Air/Noise/Vibration	5	4	4	4	3	4	2
SOCIO-ECONOMIC							
Response to Official Plan Growth	15	13	15	15	15	15	15
Social Impacts on Residents	8	8	7	7	4	7	1
Social Impacts on Social Features	8	6	6	7	5	8	4
Capital Costs	5	5	4	4	5	3	1
TECHNICAL							
Construction, Design, Land Ownership & Policies	15	15	14	14	5	5	1
Impacts on Existing Utilities	5	5	4	4	2	3	1
Operational Considerations	10	10	10	9	8	5	5
TOTALS	**100**	**85.5**	**83.5**	**88.5**	**67**	**78**	**51**

TOWN OF WASAGA BEACH
CLASS ENVIRONMENTAL ASSESSMENT FOR
WASAGA BEACH WATER SUPPLY OPTIONS

WATER SUPPLY – EVALUATION OF OPTIONS

CRITERIA / WEIGHTING	OPTION 6 - COMMISSION EXISITING WELL NO.4 AT JENETTA STREET WATER SUPPLY PLANT	OPTION 7A - EXPAND EXISTING JENETTA STREET WELL FIELD	OPTION 7B - EXPAND EXISTING POWERLINE ROAD WELL FIELD	OPTION 8 - NEW WELL FIELD AT ALTERNATIVE LOCATION	OPTION 9 - CONNECT TO COLLINGWOOD SUPPLY	OPTION 10 - CONSTRUCT WATER TREATMENT PLANT
NATURAL ENVIROMENT (TOTAL WEIGHTING 34%)						
Fisheries Weighting - 2%	No anticipated impact based on supply from Jenetta Weighting – 2/2%	No anticipated impact based on supply from Jenetta Weighting – 2/2%	No anticipated impact based on supply from Powerline Road Weighting – 2/2%	No anticipated impact based on supply from alternate well field Weighting – 2/2%	No anticipated impact based on supply from Collingwood Weighting – 2/2%	Potential Impact based on fish habitat Weighting – 1/2%
Wetlands, Floodplains & Shorelines Weighting - 10%	No anticipated impact Weighting – 8/10%	Potential impact on shorelines Weighting – 8/10%	No anticipated impacts Weighting – 10/10%	Unknown Weighting – 8/10%	No anticipated impacts Weighting – 10/10%	Depending on location and construction methods there are potential impacts to wetlands, floodplains and shorelines Weighting – 7/10%
Woodlands Weighting - 2%	No anticipated impact based on supply from Jenetta Weighting – 1.5/2%	No anticipated impact based on supply from Jenetta Weighting – 1.5/2%	Potential for impact on selected trees as this area is heavily wooded Weighting – 0.5/2%	Dependent on site Weighting – 0/2%	Dependent on site Weighting – 1/2%	Very probable impact, dependent on site Weighting – 0/2%
Groundwater Weighting - 11%	Preliminary Hydrogeological Reports indicate that acceptable groundwater supplies can be found Weighting – 8/11%	Preliminary Hydrogeological Reports indicate that acceptable groundwater supplies can be found Weighting – 8/11%	Preliminary Hydrogeological Reports indicate that acceptable groundwater supplies can be found Weighting – 8/11%	Preliminary Hydrogeological Reports indicate that acceptable groundwater supplies can be found Weighting – 8/11%	No permanent impact to groundwater supplies Weighting -11/11%	No permanent impact to groundwater supplies Weighting – 11/11%
Sensitive Species & ANSI/PSW Weighting - 4%	Piping Plover nesting area close to site, mitigation measures will be implemented if necessary Weighting – 0/4%	Piping Plover nesting area close to site, mitigation measure will be implemented if necessary Weighting – 0/4%	Potential impact to sensitive snake species. Weighting – 4/4%	Potential for impact to sensitive species Weighting – 2/4%	Likely no impact to sensitive species Weighting – 4/4%	Piping Plover nesting area close to site, mitigation measures will be implemented if necessary Weighting – 2/4%
Air Quality, Noise & Vibration Weighting - 5%	Minor impacts during construction Weighting – 4/5%	Minor impacts during construction Weighting – 4/5%	Minor impacts during construction Weighting – 4/5%	Minor impacts during construction and permanent impact at new well sites with respect to diesel generator set Weighting – 3/5%	Minor impacts during construction Weighting – 4/5%	Impacts at new well sites with respect to potential equipment and diesel generator sets Weighting – 2/5%

CRITERIA / WEIGHTING	OPTION 6 - COMMISSION EXISITING WELL NO.4 AT JENETTA STREET WATER SUPPLY PLANT	OPTION 7A - EXPAND EXISTING JENETTA STREET WELL FIELD	OPTION 7B - EXPAND EXISTING POWERLINE ROAD WELL FIELD	OPTION 8 - NEW WELL FIELD AT ALTERNATIVE LOCATION	OPTION 9 - CONNECT TO COLLINGWOOD SUPPLY	OPTION 10 - CONSTRUCT WATER TREATMENT PLANT
SOCIO-ECONOMIC (TOTAL WEIGHTING 36%)						
Response to Official Plan Growth Weighting - 15%	Based on currently available hydrogeological assessments, it is considered that this Option would provide adequate service for interim growth Weighting – 13/15%	Based on currently available hydrogeological assessments, it is considered that this Option would provide adequate service for future growth Weighting – 15/15%	Based on currently available hydrogeological assessments, it is considered that this Option would provide adequate service for future growth Weighting – 15/15%	Based on currently available hydrogeological assessments, it is considered that this Option would provide adequate service for future growth Weighting – 15/15%	Based on expansion at the Collingwood Water Treatment Plant, it is considered that this Option would provide adequate service for growth Weighting – 15/15%	It is considered that this Option would provide adequate service for growth Weighting – 15/15%
Social Impacts on Residents Weighting - 8%	Short-term impacts during construction and costs associated with expansion Weighting – 8/8%	Short-term impacts during construction and costs associated with expansion Weighting – 7/8%	Short-term impacts during construction and costs associated with expansion Weighting – 7/8%	Short-term impacts during construction, costs associated with construction, may impact nearby residents Weighting – 4/8%	Short-term impacts during construction, costs associated with treatment , construction and higher water costs Weighting – 7/8%	Short-term impacts during construction, high costs associated with construction, may impact nearby residents Weighting – 1/8%
Social Impacts on Social Features Weighting - 8%	Construction may affect tourism opportunities Weighting – 6/8%	Construction may affect tourism opportunities Weighting – 6/8%	No significant impacts Weighting – 7/8%	Potential for impacts to social features Weighting – 5/8%	No permanent impacts to social features Weighting – 8/8%	Plant may have impact on beach tourism for aesthetic reasons Weighting – 4/8%
Capital Cost Weighting - 5%	Best Weighting – 5/5%	Better Weighting – 4/5%	Better Weighting – 4/5%	Medium Weighting – 3/5%	Medium Weighting – 3/5%	High Weighting – 1/5%
TECHNICAL (TOTAL WEIGHTING 30%)						
Construction Design, Land Ownership & Policies Weighting - 15%	Existing well would require new enclosure and piping. Land transfer required. Weighting – 15/15%	Some existing infrastructure on-site, new well, enclosure and piping required. Land transfer required. Weighting – 14/15%	Some existing infrastructure on-site, new well, enclosure and piping required. Land transfer required. Weighting – 14/15%	New construction required. Town would likely need to buy property at new location. New infrastructure may be required to distributions system. Weighting – 5/15%	Would use some existing infrastructure. Pump house and treatment equipment would be required. Agreement between Town's may be difficult to reach. Weighting – 5/15%	Significant construction required. Valuable land on or near waterfront would be required. Weighting – 1/15%
Impacts on Existing Utilities Weighting - 5%	Not significant. Weighting – 5/5%	Not significant Weighting – 4/5%	Not significant Weighting – 4/5%	More significant impact due to new utilities for water treatment plant at new location. Weighting – 2/5%	Some significance due to new utilities for pumping station. Weighting – 3/5%	Significant impact due to new utilities for surface water treatment plant at a new location. Weighting – 1/5%
Operational Considerations Weighting - /10%	Not significant. Weighting - 10/10%	Not significant. Weighting - 10/10%	Not significant. Weighting - 9/10%	Same type of system but increase amount of operating time. Adds redundancy to system. Weighting - 8/10%	Surface water vs. groundwater issues Weighting - 5/10%	Surface water vs. groundwater. Would require more man hours and knowledge base to operate two different types of systems. Weighting - 5/10%

Appendix H
Preferred Alternative – Preliminary Opinion of Cost

Town of Wasaga Beach
Water Supply System Expansion
Class Environmental Assessment
Draft Preliminary Opinion of Cost

Cost to Commission Drilled Well at Jenetta Street

General (Div 1)			150,000
Site Works			530,000
Building - 300m.sq		2000	600,000
Modify existing building - 380m.sq		500	190,000
Well Pump (pump, installation, hook-up, electrical)			90,000
Well Pump Discharge Lines complete with air release valves sample taps, pressure switches and pump control valves			80,000
Sodium Hypochlorite system			30,000
Sodium silicate iron sequestering system			30,000
Div 15 HVAC and Plumbing			30,000
Electrical (including DG set, MCC, wiring,etc)			330,000
Sub-total			**1,580,000**
add construction overhead and profit (15%)			237,000
add 15% contingency allowance for unforseen items			237,000
Total			**2,054,000**

Cost for a Fifth Well at Jenetta Street

Cost for 5th well (drilling, testing, permitting, etc)			350,000
Well Pump (pump, installation, hook-up, electrical)			90,000
Well Pump Discharge Lines complete with air release valves sample taps, pressure switches and pump control valves			80,000
Subtotal			**520,000**
add construction overhead and profit (15%)			78,000
add 15% contingency allowance for unforseen items			78,000
Total			**676,000**
Total Well 4 and Well 5			**2,730,000**

Prepared December 2012
Conceptual Design only, this is not a detailed cost breakdown
This cost should be revisited when a comprehensive design is available to include an up-to-date cost analysis and a higher level review of actual items to be included.

Appendix I
Permit to Take Water

Ministry of the Environment
Central Region
Technical Support Section
Water Resources
8th Floor
5775 Yonge St
Toronto ON M2M 4J1
Fax: (416)325-6347
Tel: (416) 326-3708

Ministère de l'Environnement
Direction régionale du Centre
Section du Soutien Technique
Ressource en eau
8e étage
5775 rue Yonge
Toronto ON M2M 4J1
Télécopieur: (416)325-6347
Tél:(416) 326-3708

Ontario

September 16 2009

The Corporation of the Town of Wasaga Beach
30 Lewis St
Wasaga Beach, Ontario
L9Z 1A1
Attn: Jim McIntosh, Director of Public Works

THIS IS CERTIFIED TO BE A TRUE COPY OF THE ORIGINAL DOCUMENT.
R. Hodgins Sept 16/09
Signature Date:

Dear Mr. McIntosh

RE: Permit to Take Water:
Amendment - Wasaga Beach Municipal Well System
Powerline & Jenetta Well Site Locations
Reference Number 1012-7U2HTT

Please find attached Amended Permit No. **7234-7VSR2W** issued to **The Corporation of the Town of Wasaga Beach** which authorizes the withdrawal of water in accordance with the application for this Permit to Take Water, and Schedule "A" which is attached to and forms part of this Permit.

Please note the expiry date of this Amended Permit remains as May 31, 2015. All data collected under the monitoring conditions of the Permit shall be kept available for inspection available electronically to Ontario Ministry of the Environment staff.

As per the recent discussions with Ross Hodgins, the Conditions of this Permit have been revised to allow for combined metering of the Powerline and Jenetta Well systems rather than individual metering of each well supply. Considering the proximity of the various wells at each pump house location, the wells essentially operate as one taking at each site hence the Permit revision to allow metering of the combined output from each pump house.

The existing water level recorders on TW 1-92 and TW 2-95 at the Powerline and Jenetta locations respectively effectively track the water level in the immediate area of each site. In place of the previous manual monitoring of various monitor wells throughout the community, this Permit now requires the installation of continuous water level recorders on OW 72-5, OW 78-1 and MOE 373 by March 31, 2010.

A review of the historic information collected confirms significant offsite effects during peak

demands in the summer but full recovery each winter. The installation of the continuous recorders at OW 2-75 located some 300m south of the Powerline wells and OW 78-1 to the north will effectively monitor the long term performance of the Powerline wells.

OW 78-1 is roughly 1050m from the Powerline wells and about 3500m from the Jenetta well site. While the past impact observed in OW 78-1 may be related to both operations, conceivably the major portion is related to the Powerline wells but this recorder would have benefits for both well systems. Considering the extensive historical information available for MOE 373, the re-installation of a continuous water level recorder at this location roughly 275m from the Jenetta wells would provide an excellent comparison of water levels for the pre and post Jenetta well operations.

The water level recorders would replace the need for manual measurements in the deep monitors along Powerline Road and Sunnidale Road as well as the shallow monitors MW 1 and MW 2 near the Jenetta well site. The existing information from OW 1-93 and both MW 1& 2 indicates no impact from the municipal well operations to this time but should be retained on file for future reference if necessary.

Take notice that in issuing this Permit to Take Water, terms and conditions pertaining to the taking of water and to the results of the taking have been imposed on The Corporation of the Town of Wasaga Beach. The terms and conditions have been designed to allow for the development of water resources for beneficial purposes, while providing reasonable protection to existing water uses and users.

Our main concern is that the taking of water under the authority of this Permit does not cause negative impacts to the environment or other water supplies which were in use prior to the date of this Permit. If the taking of water should result in any negative impacts, the permit holder will be required to restore the water supplies of those affected in a manner acceptable to the Ontario Ministry of the Environment or to reduce the rate and amount of taking until any negative impacts are eliminated.

Any change of address or ownership of the property for which this Permit is issued must be reported immediately to the Director. The issuance of this Permit To Take Water does not relieve you from compliance with this or any other agencies' legislative requirements.

It is the responsibility of The Corporation of the Town of Wasaga Beach to ensure that any person taking water under the authority of this Permit is familiar with and complies with the terms and conditions.

Yours truly,

Christopher Munro
Director, Section 34, OWRA
Central Region

THIS IS CERTIFIED TO BE A TRUE COPY OF THE ORIGINAL DOCUMENT.
R. Woolgar Sept 16/09
Signature: Date:

File Storage Number: SI-SI-WB-C16-220
rh

c. Rick Sorge, OCWA 100 Woodland Drive, Wasaga Beach, L9Z 2V4
Wendy Patterson Ainley Group, 280 Pretty River Parkway, Collingwood L9Y 4J5
Cindy Hood, District Manager, MOE Barrie District Office
James Crumbie, MOE Barrie District Office

THIS IS CERTIFIED TO BE A TRUE COPY OF THE ORIGINAL DOCUMENT.
R. Hodgens Sept 16/09
Signature: Date:

Ontario

Ministry of the Environment
Ministère de l'Environnement

AMENDED PERMIT TO TAKE WATER
Ground Water
NUMBER 7234-7VSR2W

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

The Corporation of the Town of Wasaga Beach
30 Lewis St
Wasaga Beach, Ontario
L9Z 1A1

For the water taking from: Powerline Well 1(WWR 5716860), Powerline Well 2 (WWR 5716861), Powerline Well 3 (WWR 5729667), Powerline Well 4 (WWR 5737100),

Jenetta Well 1 (WWR 5731664), Jenetta Well 2 (WWR 5731668), Jenetta Well 3 (WWR 5731666)

Located at: Lot 6, Concession 16
Wasaga Beach, County of Simcoe

Lot 10, Concession 16
Wasaga Beach, County of Simcoe

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

DEFINITIONS

(a) "Director" means any person appointed in writing as a Director pursuant to section 5 of the OWRA for the purposes of section 34, OWRA.

(b) "Provincial Officer" means any person designated in writing by the Minister as a Provincial Officer pursuant to section 5 of the OWRA.

(c) "Ministry" means Ontario Ministry of the Environment.

(d) "District Office" means the Barrie District Office.

(e) "Permit" means this Permit to Take Water No. 7234-7VSR2W including its Schedules, if any, issued in accordance with Section 34 of the OWRA.

(f) "Permit Holder" means The Corporation of the Town of Wasaga Beach.

(g) "OWRA " means the *Ontario Water Resources Act*, R.S.O. 1990, c. O. 40, as amended.

You are hereby notified that this Permit is issued subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. Compliance with Permit

1.1 Except where modified by this Permit, the water taking shall be in accordance with the application for this Permit To Take Water, dated June 18, 2004 and signed by Eric Collingwood , and all Schedules included in this Permit.

1.2 The Permit Holder shall ensure that any person authorized by the Permit Holder to take water under this Permit is provided with a copy of this Permit and shall take all reasonable measures to ensure that any such person complies with the conditions of this Permit.

1.3 Any person authorized by the Permit Holder to take water under this Permit shall comply with the conditions of this Permit.

1.4 This Permit is not transferable to another person.

1.5 This Permit provides the Permit Holder with permission to take water in accordance with the conditions of this Permit, up to the date of the expiry of this Permit. This Permit does not constitute a legal right, vested or otherwise, to a water allocation, and the issuance of this Permit does not guarantee that, upon its expiry, it will be renewed.

1.6 The Permit Holder shall keep this Permit available at all times at or near the site of the taking, and shall produce this Permit immediately for inspection by a Provincial Officer upon his or her request.

1.7 The Permit Holder shall report any changes of address to the Director within thirty days of any such change. The Permit Holder shall report any change of ownership of the property for which this Permit is issued within thirty days of any such change. A change in ownership in the property shall cause this Permit to be cancelled.

2. General Conditions and Interpretation

2.1 Inspections

The Permit Holder must forthwith, upon presentation of credentials, permit a Provincial Officer to carry out any and all inspections authorized by the OWRA, the *Environmental Protection Act* ,

R.S.O. 1990, the *Pesticides Act* , R.S.O. 1990, or the *Safe Drinking Water Act,* S. O. 2002.

2.2 Other Approvals

The issuance of, and compliance with this Permit, does not:

(a) relieve the Permit Holder or any other person from any obligation to comply with any other applicable legal requirements, including the provisions of the *Ontario Water Resources Act* , and the *Environmental Protection Act* , and any regulations made thereunder; or

(b) limit in any way any authority of the Ministry, a Director, or a Provincial Officer, including the authority to require certain steps be taken or to require the Permit Holder to furnish any further information related to this Permit.

2.3 Information

The receipt of any information by the Ministry, the failure of the Ministry to take any action or require any person to take any action in relation to the information, or the failure of a Provincial Officer to prosecute any person in relation to the information, shall not be construed as:

(a) an approval, waiver or justification by the Ministry of any act or omission of any person that contravenes this Permit or other legal requirement; or

(b) acceptance by the Ministry of the information's completeness or accuracy.

2.4 Rights of Action

The issuance of, and compliance with this Permit shall not be construed as precluding or limiting any legal claims or rights of action that any person, including the Crown in right of Ontario or any agency thereof, has or may have against the Permit Holder, its officers, employees, agents, and contractors.

2.5 Severability

The requirements of this Permit are severable. If any requirements of this Permit, or the application of any requirements of this Permit to any circumstance, is held invalid or unenforceable, the application of such requirements to other circumstances and the remainder of this Permit shall not be affected thereby.

2.6 Conflicts

Where there is a conflict between a provision of any submitted document referred to in this Permit, including its Schedules, and the conditions of this Permit, the conditions in this Permit shall take precedence.

3. Water Takings Authorized by This Permit

3.1 **Expiry**

This Permit expires on **May 31, 2015.** No water shall be taken under authority of this Permit after the expiry date.

3.2 Amounts of Taking Permitted

The Permit Holder shall only take water from the source, during the periods and at the rates and amounts of taking specified in Table A. Water takings are authorized only for the purposes specified in Table A.

Table A

	Source Name / Description	Source Type	Taking - Specific Purpose	Taking - Major Category	Max Taken per Minute (litres)	Max Num of Hrs Taken per Day	Max Taken per Day (litres)	Max Num of Days Taken per Year	Zone / Easting / Northing
1	Powerline Well 1 (5716860) Lot: 6; Con: 16	Well Drilled	Municipal	Water Supply	3,636	24	5,235,840	365	17 576764 4926959
2	Powerline Well 2 (5716861) Lot: 6, Con: 16	Well Drilled	Municipal	Water Supply	3,636	24	5,235,840	365	17 576766 4926952
3	Powerline Well 3 (5729667) Lot: 6, Con: 16	Well Drilled	Municipal	Water Supply	3,636	24	5,235,840	365	17 576757 4926945
4	Powerline Well 4 (5737100) Lot: 6, Con: 16	Well Drilled	Municipal	Water Supply	3,636	24	5,235,840	365	17 576776 4926927
5	Jenetta Well 1 (5731664) Lot: 10, Con: 16	Well Drilled	Municipal	Water Supply	3,636	24	5,235,840	365	17 578047 4930716
6	Jenetta Well 2 5731666) Lot: 10, Con: 16	Well Drilled	Municipal	Water Supply	3,636	24	5,235,840	365	17 578075 4930714
7	Jenetta Well 3 (5731666) Lot: 10, Con: 16	Well Drilled	Municipal	Water Supply	3,636	24	5,235,840	365	17 578065 4930729
						Total Taking:	31,415,040		

3.3 Total daily volume shall not exceed 31,415,040 Litres.

3.4 Powerline Well 1 is to operate only as a stand-by well and shall be used in combination with two of Powerline Wells 2,3, or 4 as required.

4. Monitoring

4.1 The Permit Holder shall install and maintain flow meters at each pump house location and shall continue to maintain a daily log of operations for each of the wells listed in Table A. Considering the cluster configuration of the wells at each location, combined metering of the individual wells is acceptable for both sites under this Permit. The Permit Holder shall keep all records up to date and available for inspection by a Provincial Officer upon his or her request.

4.2 The Permit Holder shall continue to operate and maintain the continuous water level recorders on monitor wells TW 1-92 and TW 2-95 at the Powerline and Jenetta locations respectively.

4.3. The Permit Holder shall equip and maintain water level recorders in each of the following monitor wells by March 31, 2010: OW 72-5, OW 78-1 and OW 373. The data from any of the 5 aforementioned water level recorders listed above shall be available electronically to Ministry staff at any time upon request.

4.4 Any request for an amendment or renewal of this Permit shall be accompanied by a report prepared by a Qualified Person (P.Geo. or equivalent) assessing the monitoring data collected under the above Conditions.

5. Impacts of the Water Taking

5.1 Notification

The Permit Holder shall immediately notify the local District Office of any complaint arising from the taking of water authorized under this Permit and shall report any action which has been taken or is proposed with regard to such complaint. The Permit Holder shall immediately notify the local District Office if the taking of water is observed to have any significant impact on the surrounding waters. After hours, calls shall be directed to the Ministry's Spills Action Centre at 1-800-268-6060.

5.2 For Groundwater Takings

If the taking of water is observed to cause any negative impact to other water supplies obtained from any adequate sources that were in use prior to initial issuance of a Permit for this water taking, the Permit Holder shall take such action necessary to make available to those affected, a supply of water equivalent in quantity and quality to their normal takings, or shall compensate such persons for their reasonable costs of so doing, or shall reduce the rate and amount of taking to prevent or alleviate the observed negative impact. Pending permanent restoration of the affected supplies, the Permit Holder shall provide, to those affected, temporary water supplies adequate to meet their normal requirements, or shall compensate such persons for their reasonable costs of doing so.

If permanent interference is caused by the water taking, the Permit Holder shall restore the water supplies of those permanently affected.

6. **Director May Amend Permit**
The Director may amend this Permit by letter requiring the Permit Holder to suspend or reduce the taking to an amount or threshold specified by the Director in the letter. The suspension or reduction in taking shall be effective immediately and may be revoked at any time upon notification by the Director. This condition does not affect your right to appeal the suspension or reduction in taking to the Environmental Review Tribunal under the *Ontario Water Resources Act* , Section 100 (4).

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is included to ensure that the conditions in this Permit are complied with and can be enforced.

2. Condition 2 is included to clarify the legal interpretation of aspects of this Permit.

3. Conditions 3 through 6 are included to protect the quality of the natural environment so as to safeguard the ecosystem and human health and foster efficient use and conservation of waters. These conditions allow for the beneficial use of waters while ensuring the fair sharing, conservation and sustainable use of the waters of Ontario. The conditions also specify the water takings that are authorized by this Permit and the scope of this Permit.

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 101 of the Ontario Water Resources Act, R.S.O. 1990, as amended, provides that the Notice requiring the hearing shall state:

1. The portions of the Permit or each term or condition in the Permit in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

In addition to these legal requirements, the Notice should also include:

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

This notice must be served upon:

The Secretary
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto ON
M5G 1E5

AND

The Director, Section 34
Ministry of the Environment
8th Floor
5775 Yonge St
Toronto ON M2M 4J1
Fax: (416)325-6347

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

by telephone at (416) 314-4600 ***by fax at (416) 314-4506*** ***by e-mail at www.ert.gov.on.ca***

This Permit cancels and replaces Permit Number 7854-6CGR5H, issued on 2005/06/02.

Dated at Toronto this 16th day of September, 2009.

Christopher Munro
Director, Section 34
Ontario Water Resources Act , R.S.O. 1990

CERTIFIED TO BE A TRUE COPY OF THE ORIGINAL DOCUMENT.
Signature: Date: Sept 16/09

Schedule A

This Schedule "A" forms part of Permit To Take Water 7234-7VSR2W, dated September 16, 2009.

1. Permit amendment application signed by Jim McIntosh, Director of Public Works on July 14, 2009.

2. Ainley Group letter to MOE dated July 14, 2009.

I CERTIFIED TO BE A TRUE COPY OF THE ORIGINAL DOCUMENT
R. Hodgins Sept/16/09
Signature Date

Appendix J
Notice of Completion and Correspondence

TOWN OF WASAGA BEACH
WATER SUPPLY SYSTEM EXPANSION
CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF COMPLETION

In order to meet projected growth in the Town of Wasaga Beach, the Town is planning to expand the existing water supply system to ensure it has adequate supply to meet future demands. The current capacity of the system is 31,415m³/day, which is sufficient to meet the current demands. To meet future needs, the Preferred Solution is to increase the capacity of the existing well system by drilling and commissioning new wells. Specifically, the project involves increasing the water supply through phasing in wells to meet demands as follows:

- Stage 1 - Commission the existing drilled well at the existing Jenetta Street well site in the estimated year of 2026
- Stage 2 - Drill one new well (and possibly an additional standby well) at the existing Jenetta Street well site including the expansion of the pump house and associated piping in the estimated year of 2033
- Stage 3 - Drill a new well at the existing Powerline Road well site if required, including expansion of the pump house and associated piping in the estimated year of 2039 (Ultimate Build-out)
- Research and implement water conservation methods on an ongoing basis to ensure adequate water supply capacity.

The Project has been planned as a Schedule 'B' of the Municipal Class Environmental Assessment document as issued by the Municipal Engineers Association (October 2000, amended 2007 & 2011). Subject to comments received as a result of this Notice and the receipt of necessary approvals, the Town intends to proceed with the design and construction of the pumphouse expansions.

The Draft Phase I & II Report is being placed on the public record for review and comment in accordance with the requirements of the Municipal Class Environmental Assessment. The Report is available for review at the following locations:

Town Office
30 Lewis Street
Wasaga Beach, Ontario

Mon-Fri: 9:00am – 4:30pm
Tel: 705-429-3844

Municipal Library
150 Glenwood Drive
Wasaga Beach, Ontario

Tues – Thurs: 10:00 am – 8:00 pm
Fri & Sat: 10:00 am – 4:00 pm
Sun: noon – 4:00pm

Further information can be provided by the Town's Consultants, Ainley & Associates Limited at the address provided below.

Interested persons should provide written comment to the Town on the proposal within 30 calendar days from the date of this Notice. Comment should be directed to Mr. Mike Pincivero at the address below.

If concerns arise regarding this project, which cannot be resolved in discussion with the Town, a person or party may request that the Minister of the Environment make an order for the project to comply with Part II of the Environmental Assessment Act (referred to as a Part II Order), which addresses individual environmental assessments. Requests must be received by the Minister at the address below within 30 calendar days of this Notice. A copy of the request must also be sent to Mr. Pincivero. If there is no request received by October 26th, 2013, the project will proceed to design and construction as presented in the Phase I&II Report.

Minister of the Environment
Ministry of the Environment, 77 Wellesley St. West, 11th Floor, Ferguson Block
Toronto, Ontario M7A 2T5

This Notice issued September 26th, 2013.

Mike Pincivero, P.Eng.
Manager of Engineering Services, RMO/RMI
Town of Wasaga Beach
30 Lewis Street
Wasaga Beach, Ontario
L9Z 1A1
Tel: (705) 429-2540
Fax: (705) 429-8226
Email: pwengineer@wasagabeach.com

Dave Ellis, P.Eng.
Project Engineer
Ainley Group
280 Pretty River Parkway
Collingwood, Ontario
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Tel: (705) 445-3451
Fax: (705) 445-0968
Email: ellis@ainleygroup.com