Master Plan - Phase 1 Report

Community of Clarksburg Water and Wastewater Servicing Master Plan
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Executive Summary

The Town of The Blue Mountains (Town) is undertaking a Master Plan Class Environmental Assessment (Master Plan) in accordance with the Municipal Class Environmental Assessment (MCEA) framework to evaluate opportunities to improve the water and wastewater services to all properties in the Clarksburg Service Area (the Community). The water systems in the Community primarily consist of private wells and onsite septic systems. Of the 375 existing units, 72 are connected to municipal water services with treatment provided at the Blue Mountains Water Treatment Plant (WTP). Sixteen (16) homes are attached to sewer services which connect to the Thornbury Wastewater Treatment Plant (WWTP).

The Environmental Assessment (EA) is being undertaken to determine the quality and quantity of drinking water and the adequacy of the wastewater treatment in the community. This was achieved through a Well and Septic Impact Assessment, a Hydrogeological Assessment, and a Land Use Assessment, which offered many opportunities for stakeholder involvement.

The Hydrogeological Assessment was completed by collecting water samples to analyze the groundwater quality in the Community. Participation in the survey was reasonably high and a sample was provided by 80% of the eligible survey participants. Many samples did not pass either the Ontario Drinking Water Standards (ODWS) or the Grey Bruce Health Unit Standards. These samples were distributed throughout the Community and originated from both shallow dug and deep-drilled wells. An Aquifer Vulnerability Assessment determined that this area has a low to moderate aquifer vulnerability.

The Well and Septic Impact Assessment was conducted in the fall and winter of 2017 through door-to-door and telephone surveys. The survey found that many existing on-site sewage treatment systems are reaching the end of their service life. The arrangement of these septic systems varied but the majority were located at the back of the property. Due to the age of these septic systems, most are undersized and would require removal of trees and decks on properties to comply with the current standards.

Public consultation was accomplished through a public information session and the door-to-door surveys. One concern from respondents was the financial implications of the project. Residents were worried about the cost of the project and potential changes to the value of their properties. Residents mentioned that it would be nice to have restaurants or cafés in the downtown core, as the existing water and wastewater systems cannot support them. Some residents, however, emphasized the importance of maintaining the historical character of the downtown core and were concerned about over-development in the area.

Phase 2 of the report will address project alternatives, cost, an analysis of environmental and socioeconomic impacts, further public consultation, and the preparation of conceptual drawings.
1.0 Introduction

1.1 Background

The Town of The Blue Mountains (Town) is undertaking a Master Plan Class Environmental Assessment (Master Plan) to evaluate opportunities to improve the water and wastewater services to all properties in the Clarksburg Service Area (Community). The Community is just south of Thornbury, Ontario and covers approximately 2 km$^2$. The purpose of the Class EA is to evaluate servicing options to improve water and wastewater services in the Community.

The Community has a population of approximately 630, consisting of both year-round and seasonal residents. There is also a commercial area concentrated in the downtown of the Community. Vacant lots are present throughout the Community, and many have the potential to be subdivided. Existing properties in the Community are primarily serviced by private wells and onsite septic systems with a smaller proportion of properties serviced by municipal water and/or sewer. Where provided, municipal water in the Community is supplied by the Blue Mountains Water Treatment Plant (rated capacity of 15,140 m$^3$/day) and wastewater service is provided by the Thornbury Wastewater Treatment Plant (rated capacity of 3,580 m$^3$/day).

The Master Plan is being carried out in accordance with Phases 1 and 2 of the Ontario Municipal Class EA framework. It will assess the quality of drinking water and the effectiveness of wastewater treatment in the Community, analyze the current well and septic system, and identify alternative solutions and assess their impacts, including mitigation measures to either reduce or eliminate negative impacts to determine a preferred long-term solution to the provision of water and wastewater servicing. The Class EA is being conducted by a consulting team led by J.L. Richards & Associates Limited in association with Golder Associates Ltd, Hemson Consulting Ltd, and Lura Consulting.

1.2 Class Environmental Assessment and Master Planning Process

The Ontario Environmental Assessment Act (Act) sets out a planning and decision-making process so that potential environmental effects are considered before a project begins. The purpose of the Act is to provide for the protection and conservation of the natural environment (R.S.O. 1990, c.E.18, s.2). The Municipal Class EA process is followed for common types of projects to streamline the review process while ensuring that the project meets the requirements of the Act. It involves detailed site-specific information gathering and studies, as well as consultation with the public and stakeholder agencies. In 1987, the first Class EA document prepared by the Municipal Engineers Association (MEA) on behalf of Ontario Municipalities was approved under the Act. Updates and amendments were subsequently made in 1993, 2000, 2007, 2011 and 2015.
This Master Plan is being conducted in accordance with Phases 1 and 2 of the Municipal Engineers Association (MEA) Municipal Class Environmental Assessment (updated November 2015), with a sufficient level of investigation, consultation, and documentation to fulfill the requirements for Schedule B projects (Approach 2).

Projects categorized as Schedule B undertakings have the potential for significant environmental effects, and are required to follow Phase 1 and Phase 2 specified under the Municipal Class EA. This includes consultation with all parties that may potentially be affected by the project, and the preparation of a Class EA Project File that documents the Class EA process for the project. The Class EA framework defines the process for each type of project (refer to Figure 1).

The study Project File shall be made available for public and agency review at the completion of Phase 2 of the Class EA process for a mandatory 30-day period. If there are no requests to the Minister of the Environment and Climate Change (MOECC) for a ‘Part II Order’ within this 30-day review period, then the project may proceed to implementation (Phase 5).

It should be noted that although this Master Plan is being completed to fulfill the requirements of Schedule B projects, the Schedule will be revisited at key milestones in order to confirm the Schedule of proposed undertakings. If Schedule C projects are identified they will be noted as such and Phases 3 and 4 of the Class EA process would be required prior to implementation.
1.3 Objectives of the Master Plan

The objective of this Master Plan is to identify the preferred servicing option for 10- and 20-year planning periods for the Community. The Phase 1 Report provides a summary of existing background information and identifies the problems/opportunities associated with the existing water and wastewater systems. The report also serves as the basis for moving forward into Phase 2 of the Class EA which will involve identifying and evaluating solutions to the identified deficiencies.

Seven (7) technical memorandum will be developed throughout the course of this project at various milestones and used to identify specific issues or existing conditions that will allow decisions to be made in order to advance the project forward.

The seven technical memorandum will cover the following topics:

1. Planning and Policy Context Review and Growth Projections (TM1 - Appendix A)
2. Well and Septic Impact Assessment (TM2 - Appendix B)
3. Hydrogeological Assessment (TM3 - Appendix C)
4. Geotechnical Assessment (TM4)
5. Ecological and Environmental Impact Study (TM5)
6. Stage 1 Archeological Assessment (TM6)
7. Cultural Heritage Conditions Review (TM7)

2.0 Study Area Description And Profile

2.1 Study Area Overview

The Clarksburg Service Area (Community) covers approximately 2 km² and is located just south of Thornbury, Ontario in the Town of The Blue Mountains. A map of the Community is provided in Figure 2.

Residents in the Community occupy the area on a permanent and seasonal basis, with the majority residing there year-round. Other property uses in the study area include retail space and offices, farm properties with residences, and vacant lots. Vacant lots currently comprise approximately 14% of the lots in the Community.

Occupied properties are generally serviced by individual wells and private septic systems. Municipal water services are provided on a limited number of streets in the north western part of the Community and municipal wastewater services are provided on Russell Street West. Currently, 72 properties in the Community are on municipal water and of those, 16 properties are also on municipal sewer. Municipal water is supplied from the Blue Mountains Water Treatment Plant (rated capacity of 15,140 m³/day) in Thornbury and sewage is conveyed to the Thornbury Wastewater Treatment Plant (rated capacity of 3,580 m³/day).
2.2 Previous Studies

The following is a brief chronological summary of the history of the studies completed related to the Community’s water and wastewater servicing.

Table 1  Brief Chronological History of Previous Water and Wastewater Studies

<table>
<thead>
<tr>
<th>Year</th>
<th>Study Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>A voluntary door-to-door water well and septic system survey was carried out (Ian D. Wilson Associates Ltd, 1997). Of the 85 wells sampled, 39% failed to meet at least one criterion from Ontario Drinking Water Objectives. Although contaminated wells were found throughout the Community, two (2) concentrations of wells with poor water quality were identified. The majority of on-site sewage systems surveyed were septic systems with reported ages averaging 16 years; however, 33% of respondents did not know the age of their septic systems. It appears that in the same year a description of a municipal water and sewer system was developed by Ainley &amp; Associates in support of a funding application under the Provincial Water Protection Fund.</td>
</tr>
<tr>
<td>2000</td>
<td>In 2000, the Town of The Blue Mountains completed a Master Servicing Plan to evaluate current and future requirements for various “service areas”.</td>
</tr>
<tr>
<td>2002</td>
<td>As a follow up to the Master Servicing Plan, a Class EA was conducted (Skelton Brumwell &amp; MacViro, 2002) to look specifically at servicing four (4) service areas including Clarksburg. Capacity of the Town’s water and wastewater plant was reviewed along with area specific servicing alternatives. At the time of the Class EA it was the Town’s intent that full municipal water and wastewater sewage services would be extended to existing and new development in the service areas; however, in the implementation plan it was noted that the level of commitment from Council to service Clarksburg would need to be confirmed.</td>
</tr>
<tr>
<td>2016</td>
<td>In August of 2016 the Town retained C3 Water and GeoAdvice to complete a Water Distribution Capital Improvements Plan (CIP). The proposed upgrades included a municipal water distribution system for Clarksburg. It appears that the new water tower identified in previous studies may not be required and individual booster systems would serve homes in low pressure areas. A loop would also be provided to the existing Victoria St. Elevated Tank (or new tank at the same or nearby location) to provide redundancy. The estimated cost to service Clarksburg (projects WM1-6 &amp; WM1-7) was approximately $5.1 million.</td>
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2.3 Planning and Policy Context

A Planning Context Report (TM1 – Appendix A) was prepared by JRL in consultation with the Town. The report found that, in summary:

- The overall average development density assigned to the Primary Settlement Area is 20 units per net hectare (ha).
- The lands in the Community are specifically designated as follows:
  - The ‘Community Living Area’ consists of the existing and planned residential development. The majority of residents live within this area.
  - The ‘Downtown Area’ focuses on commercial, institutional, and residential uses within the downtown core of Thornbury-Clarksburg. All buildings in this area are subject to 3-storey height restriction to preserve the cultural heritage fabric of the area.
  - The ‘Hazard Lands’ are designated lands having inherent environmental hazards, such as flood and erosion susceptibility. These hazard lands follow the path of the Beaver River.
  - The ‘Former Landfill’ is an abandoned municipal landfill located near the west border of the study area. No development or site alteration is permitted within 500 metres of the site, unless a D-4 Study is completed.
- ‘Significant Woodlands’ are present in and around the community. Development cannot occur in this area without an Environmental Impact Study.
- The Beaver River watercourse shall be protected from incompatible developments.
- An Intake Protection Zone (IPZ) has been identified around the intake in Thornbury-Clarksburg in accordance with the Saugeen, Grey Sauble, Northern Bruce Peninsula Source Protection Plan.

2.4 Population and Growth

Future growth and growth rates in Clarksburg will depend on many factors including the type of water and wastewater servicing provided. For the purposes of this assignment, a build-out scenario has been developed by the Town which considers existing lot density, character, patterns of development, and policy direction under the Official Plan. The lot density proposed is 14 residential units per hectare compared to 20 residential units per hectare, as identified in the Official Plan. The total number of residential units in the Town at build-out has been estimated to be 780.
2.5 Water and Wastewater Systems

2.5.1 Existing Water Systems

An overview of the water service types and existing water infrastructure is provided in Figure 3. All of the properties designated in the Town’s Official Plan as “Downtown” are serviced by private water systems. Occupied properties in the Community are generally serviced by either dug or drilled private wells. The construction dates for the wells in the Community range from 1964 to 2016, with the majority completed prior to 1994. Additional information regarding wells and water quality in the Community is provided in a subsequent section. In addition to private wells, municipal water is supplied from the Blue Mountains Water Treatment Plant (rated at 15,140 m³/day) in Thornbury to some streets in the north western part of the Community. Connection to the municipal system for fronting properties has not been made mandatory. There are currently 72 properties connected to the municipal system in the Community.

A summary of water service type by land use is provided in Table 2. Information on property types was obtained from the Municipal Property Assessment Corporation (MPAC) property descriptions and 2016 servicing information provided by the Town. Community Living Area and Downtown area refer to the Town’s Official Plan designations.

Table 2 Existing Water Service Type by Property Type

<table>
<thead>
<tr>
<th>Water Service</th>
<th>Community Living Area</th>
<th>Downtown Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipal</td>
<td>72</td>
<td>0</td>
</tr>
<tr>
<td>Private</td>
<td>207</td>
<td>38</td>
</tr>
<tr>
<td>Vacant1.</td>
<td>44</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>323</strong></td>
<td><strong>45</strong></td>
</tr>
</tbody>
</table>

Notes: 1. Count excludes non-buildable land, natural areas, parks, etc.

Water system highlights include:

- There are 245 properties in the study are serviced by private wells or other private water sources (e.g. cistern). Based on MOECC well records, wells in the community consist of both dug and drilled wells with construction ages ranging from 1964 to 2016.

- There are 72 properties currently connected to municipal water services. An additional 13 properties that front the municipal water system could connect, but are not connected.

- All of the properties designated in the Town’s Official Plan as “Downtown” are serviced by private water systems.
2.5.2 Existing Wastewater Systems

An overview of the wastewater service types and existing wastewater infrastructure is provided in Figure 4. Occupied properties in the Community are generally serviced by private on-site septic systems. The majority of systems in the Community consist of a septic tank and leaching bed (Class 4 system) with a limited number of other systems. More information about private on-site septic systems in the Community is provided in a subsequent section. Municipal sewer services are provided to 16 homes on Russell Street West. Sewage from connected homes on this street is conveyed to the Thornbury Wastewater Treatment Plant (rated at 3,580 m$^3$/day).

A summary of wastewater service type by land use is provided in Table 3. Information on property types was obtained from the Municipal Property Assessment Corporation (MPAC) property descriptions and 2016 servicing information provided by the Town. Where properties are used for both residential and commercial purposes they have been included in the commercial property count.

<table>
<thead>
<tr>
<th>Wastewater Service</th>
<th>Community Living Area</th>
<th>Downtown Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipal</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>Private</td>
<td>263</td>
<td>38</td>
</tr>
<tr>
<td>Vacant$^1$</td>
<td>44</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>323</strong></td>
<td><strong>45</strong></td>
</tr>
</tbody>
</table>

Notes: 1. Count excludes non-buildable land, natural areas, parks, etc.

Wastewater system highlights include:

- There are 263 properties in the study serviced by private septic systems. The majority of systems in the Community consist of a septic tank and leaching bed (Class 4 system).

- Currently 16 properties are connected to municipal wastewater services as well as municipal water services. There are an additional 7 properties that front the municipal wastewater system and could connect, but are not connected.

- All of the properties designated in the Town’s Official Plan as “Downtown” are serviced by private wastewater systems.
3.0 Natural And Built Environment

3.1 Well and Septic Impact Assessment

Door-to-door and telephone surveys of Clarksburg Service Area (Community) residents and business owners were undertaken to better understand the current conditions and issues surrounding water and wastewater services. (Refer to Appendix B (TM2) for full report). The surveys asked respondents questions about their current water and wastewater systems and asked them to identify any questions or concerns they had. J.L. Richards and Associates (JLR) and Golder Associates (Golder) staff conducted the surveys in the fall and winter of 2017. Key findings from the survey include:

• Overall, given the number of surveys completed and representation from a variety of stakeholders (e.g. full time residents, seasonal residents, and business owners), the survey team was able to reach a broad cross section of developed property owners in the Community. This suggests that results are representative of the entire Community. Underrepresented groups may include renters in both single family and multi dwelling units and vacant lot owners. Consideration can be given to reaching these groups in subsequent phases of the Class EA.

• In general, house sizes are modest in the community and three (3) bedrooms and two (2) bathrooms is typical. There doesn’t appear to be consistent arrangements of the well and septic systems on the properties surveyed although at least 50% of homes have the septic systems in the rear yard. This information will be used to develop “typical” residence sizes and lot arrangements for conceptual design and costing of water and wastewater servicing alternatives.

• Water supply in the Community is varied, with drilled wells being the most common. Well water is often treated using some combination of ultraviolet light, reverse osmosis, and iron and manganese removal systems. Residents are generally satisfied with water quality and quantity, although there are issues that include hardness, iron taste and/or rust stains, and sulfur smell. Bottled water use is relatively common. Frequent well testing is uncommon in the community; however there are reports of adverse water quality test results.

• In general, on-site sewage treatment systems in the Community are, or may be, nearing the end of their useful service life. Owners frequently report regular servicing of their septic system (at least once every 10 years), and most did not report issues related to their systems.

• Key comments from residents in the Community were related to the upfront cost and affordability of any change in the level of service; support for improving services for downtown, in particular those to the commercial business; both opposition to and support for municipal water and/or wastewater servicing.
3.2 Hydrogeological Assessment

A Hydrogeological Assessment was completed by Golder (TM3 – Appendix C). The following sub-sections summarize key findings of the report.

3.2.1 Water Quality Survey

A water quality survey was conducted by Golder and JLR over a period of seven (7) days (November 4 through 7, November 19, and November 26 and 27). Of the people that completed the survey and were eligible to provide a sample (i.e. there was a well on their property), 80% provided a sample.

In total, bacteriological samples were collected from 88 properties. Water samples were collected from residents’ kitchen taps where possible, the intent being to sample water as it is used in the home. No effort was made to by-pass water treatment systems.

The water quality samples were collected by trained hydrogeological technicians and the samples were transported on ice and received by an accredited water testing laboratory within 24-hours. Water samples were tested for comparison to the Ontario Drinking Water Standards (ODWS) and the Grey Bruce Health Unit Standards for *E. coli*, total coliform, and background bacteria. In total, there were 45 samples that had detectable bacteria (either background, total coliforms, or *E. coli*).

The number of those that passed or failed the ODWS and/or Grey Bruce Standards are summarized below.

- There were 16 samples with detectable background bacteria (less than 200 cfu/100 ml), but no total coliforms or *E. coli*. These samples passed the ODWS and the Grey Bruce Standards; however, the presence of background bacteria suggests these wells may be vulnerable to impacts from surface water.
- There were four (4) samples with detectable background bacteria (more than 200 cfu/100 ml), but no total coliforms. These samples passed the current ODWS, but would have failed the historical standard (background bacteria was recently removed from the ODWS).
- There were 13 samples with detectable total coliforms (less than 5 cfu/100 ml), but no *E. coli*. These samples failed the ODWS, but passed the Grey Bruce Health Unit Standards.
- There were 11 samples with detectable total coliforms (more than 5 cfu/100 ml), but no *E. coli*. These samples failed both the ODWA and Grey Bruce Health Unit Standard.
There was one sample with detectable *E. coli*. This sample failed both the ODWA and Grey Bruce Health Unit Standard. The residents of this property were contacted. All residents were sent a copy of the results upon request.

Additional findings from the well survey include:

- A total of 88 treated water samples were collected, and 14% (12 samples) failed to meet the Grey Bruce Health Unit Standard for bacterial water quality.

- The results indicate that both shallow (e.g. dug or bored) wells and deeper drilled wells are vulnerable to coliform contamination, with the occurrence of coliforms slightly more prevalent than expected at shallow wells based on the distribution of well types sampled.

- The results indicate that of the 35 residents who reported the use of UV treatment, samples from 13 residents (36%) showed the presence of bacteria (background or total coliforms). As would be expected, the use of UV treatment appears to reduce the likelihood that bacterial contamination would be present in the treated water, but does not eliminate the possibility.

- A comparison was made between the 25 wells that were sampled in both 1997 (Wilson, 1997) and 2017. It is noteworthy that the samples collected in Wilson (1997) were untreated while in the 2017 study samples were collected downstream of any treatment systems. Of these 25 wells, 13 (52%) failed the ODWS either in 1997 or in 2017 or in both samplings.

- The distribution of bacteriological impacts was relatively even across the survey area with impacted wells intermingled with properties with no impacts. This suggests that the source of bacterial impacts is likely associated with individual wells and properties rather than continuous, widespread contamination. However, the presence of samples with detectable coliforms and/or *E. Coli*, indicates that groundwater supplies in the Clarksburg community are vulnerable to bacteriological contamination. It appears that all portions of the Community are susceptible to vulnerability.

### 3.2.2 Aquifer Vulnerability Assessment

An aquifer vulnerability assessment was completed using the high-level Intrinsic Susceptibility Index (ISI) approach. The aquifer vulnerability classification derived from this method is related to groundwater travel time derived theoretically as a function of the hydraulic conductivity and the thickness of the geological material overlying the water table/aquifer. Key findings are as follows:

- Most of the aquifer in the Community was found to have “low” vulnerability, but the downtown area had “moderate vulnerability”.

• The largest areas of moderate vulnerability (and the only areas of high vulnerability) are in the downtown core, which is also an area of high water use and human activity.

• When aquifer vulnerability is considered along with the sampling results, the broad presence of bacteria in Clarksburg private wells suggests that despite most of the area being classed as low vulnerability, there are pathways for surficial contaminants to enter the aquifer system.

3.2.3 Density of Development

The MOECC Guidelines for development based on on-site sewage disposal systems (MOE, 1995, Procedure D-5-4) were used to assess how the density of homes compares with the current guidelines. Based on this assessment, the density of developed lots is approximately two (2) times what would be permitted under current standards to protect the neighbouring environment from adverse effects.

3.2.4 Conceptual Septic System Design

For this assessment, on-site sewage systems were conceptually designed for three (3) case study lots in the study area. The beds were based on typical bed construction criteria obtained through discussions with the Towns Chief Building Officer and the current Ontario Building Code (OBC). The evaluation looked at the ability of lots to accommodate on-site sewage disposal systems that meet Part 8 of the current Ontario Building Code. Key findings are as follows:

• Standards have changed and a replacement system built to current OBC standards will have a larger septic tank and larger disposal bed than one built prior to the 1980s. It is therefore expected that many older homes in Clarksburg have undersized septic tanks and in-ground septic effluent disposal beds compared to current standards.

• A sewage disposal system design for a detached, single family dwelling assumes an effluent loading rate of 1,600 to 2,400 L/day, which is equivalent to a three or four bedroom home. Effluent disposal beds suitable for these rates, which would be typical for the area, require a footprint of 310 to 400 m².

A relatively level, open area of 15 m by 21 m to 16 m by 25 m would be required by homes in Clarksburg to accommodate a replacement sewage disposal system. For many homes with this yard area, it would require the removal of trees, outbuildings, or decks. Additionally, most replacement sewage disposal systems would be raised filter beds. A raised bed typically rises above the adjacent ground by approximately 1.2 m.
4.0 Summary Of Servicing Needs And Constraints

Based on a review of the background information and support studies, the following have emerged as key issues requiring consideration:

- **Groundwater Source Constraints**: Safe drinking water is important for maintaining health and avoiding waterborne illness. In order to safely drink well water, it should meet specific guidelines for bacteriological contamination. Treated or untreated well water (i.e. tap water) was tested in 88 homes in the Community. Of those samples, 28% (25 homes) failed the Ontario Drinking Water Standard for bacterial water quality and 14% (12 homes) failed the Grey-Bruce Heath Unit standards. Well water that failed the standards was distributed broadly throughout the Community in both shallow dug wells and deep drilled wells.

  The widespread nature of this contamination suggests that surface contaminate can enter the aquifer by various methods including through areas of moderate to high aquifer vulnerability and though improperly constructed or poorly maintained wells. As a result, new and existing wells in the Community are likely to be susceptible to contamination regardless of the depth, construction, or maintenance practices followed.

- **Septic Age and Performance**: On-site sewage treatment systems in the Community generally are or may be near the end of their useful service life. A level, open area would be required on each property in Clarksburg to accommodate a replacement sewage disposal system. For many homes to provide this area in the yard, it would require the removal of trees, outbuildings, or decks.

- **Downtown Commercial/Business Opportunities**: It was widely identified during the door to door visits with residents and business owners that current water and wastewater servicing in the downtown core presents unique challenges. Current issues include limits on the types of business that can operate (e.g. no cafés or restaurants) and hard to manage service arrangements (e.g. shared wells and septic systems).

  In discussions about downtown, residents frequently expressed desires to maintain the historical character of the downtown area. The lot density is high downtown and the area has moderate to high aquifer vulnerability.

- **Residential Growth**: Property density in Clarksburg is approximately twice what would be allowed under current standards for homes on private wells and septic systems and growth in the Community is currently limited by lack of services. However, the Town’s Official Plan designates a number of undeveloped properties in the Community as “Community Living Areas” and future growth is allocated to those areas.
5.0 Problem/Opportunity Statement

The problem and opportunity statement developed for the Clarksburg Water and Wastewater Servicing Master Plan is as follows:

The Town of The Blue Mountains is undertaking a Master Plan under the Municipal Class EA framework to evaluate the need for and the feasibility of improving the water and wastewater services for properties in the Clarksburg community. There are two main issues that this Class EA will consider. The first is the quality and quantity of drinking water and the second is the adequacy of wastewater treatment.

6.0 Phase 1 Public And Agency Consultation

6.1 Public Consultation Plan

During project initiation, a Public Consultation Plan (provided in Appendix D) was developed to ensure that the public and other stakeholders would have numerous opportunities to be involved in and to provide comments throughout the Class EA.

6.2 Notice of Study Commencement

In accordance with Phase 1 requirements of the Class EA process, a Notice of Study Commencement (provided in Appendix E) was prepared by the consulting team. The Notice was issued by the following means and also included a survey for stakeholders to return by mail or email.

- Mailed to all property owners in the study area August 29, 2017.
- Placed on the Town’s website starting September 1, 2017.
- Mailed to mandatory review agencies October 18, 2017.

6.3 Phase 1 Public Information Centres

The Phase 1 Public Information Centres (PIC) were the first PICs hosted by the Town of The Blue Mountains as part of the Master Plan Class Environmental Assessment. The PICs took place on Thursday, September 14, 2017, from 5 pm to 8 pm and Saturday, September 16, 2017, from 10 am to noon at The Town of The Blue Mountains Office and Council Chambers (32 Mill Street).

The PICs were widely publicized through distribution of a notice to residents in the study area, promotion on the Town’s website, and in the local newspaper. The purpose of the PIC was to provide information about study area and an overview of the Class EA process, how to get involved, next steps, and a project schedule. Additional information regarding the Phase 1 PIC, including a summary of stakeholder comments, is provided in Appendix F.
6.4 Stakeholder and Review Agency Consultation

A project mailing list was developed that identified review agency stakeholders. Refer to Appendix G for a copy of the project agency mailing list. The project agency mailing list will be updated throughout each Phase of this Class EA. The Project Team considered all input from agencies and no significant concerns were raised in response to the Notice of Commencement. Written correspondence from the review agencies is provided in Appendix G.

6.5 Community Liaison Committee Meetings

A Community Liaison Committee (CLC) was established at the study onset. To facilitate the consultation process, JLR team members and staff from the Town have met with the CLC at regular intervals during the Class EA. To date three (3) meetings have been held at various Phase 1 milestones.

7.0 Conclusion And Next Steps

This concludes Phase 1 of the Class EA process. In Phase 2 alternative solutions to address the Problem/Opportunity Statement will be considered and evaluated against any environmental, social and economic impacts. Additional Phase 2 activities will include undertaking an inventory of the natural environment, confirming and expanding upon criteria and constraints, evaluating environmental and socioeconomic impacts, conducting a Public Information Centre (PIC), preparing conceptual drawings and an opinion of probable cost for the preferred alternative, and preparing and filing a Phase 2 Report for public comment.
8.0 Limitations

This report has been prepared for the exclusive use of The Town of The Blue Mountains, for the stated purpose, for the named study area. Its discussions and conclusions are summary in nature and cannot be properly used, interpreted or extended to other purposes without a detailed understanding and discussions with the client as to its mandated purpose, scope and limitations. This report was prepared for the sole benefit and use of The Town of The Blue Mountains and may not be used or relied on by any other party without the express written consent of J.L. Richards & Associates Limited.

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J.L. RICHARDS & ASSOCIATES LIMITED

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Reviewed by:

Michael Troop, P.Eng.
Manager, Senior Environmental Engineer

EJW/KB
Appendix ‘A’
Planning Context
Technical Memorandum No. 1 –
Land Use Planning Context Report

Community of Clarksburg Water and
Wastewater Servicing Master Plan
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# Statement of Confidentiality

This Proposal is the property of J.L. Richards & Associates Limited and is intended for the use of the Community of Clarksburg to evaluate engineering consultants for the purposes of selecting a firm to provide engineering services for the referenced project. This document may contain information such as the know-how, personnel, billing rates and methodology of the firm. J.L. Richards & Associates Limited's competitors could identify in this proposal technical, industrial, human resources and financial information that would provide them with considerable advantage in this and other projects and may cause damage to the operations of J.L. Richards & Associates Limited. The contents of the proposal are considered confidential and must be exempt from disclosure under Access to Information or similar legislation.
1.0 INTRODUCTION

The Town of the Blue Mountains (Town) is undertaking a Master Plan Municipal Class Environmental Assessment (Master Plan), in accordance with the Municipal Class Environmental Assessment (MCEA) framework, to evaluate opportunities to improve the water and wastewater services to all properties in the Thornbury-Clarksburg Service Area (Community). This Master Plan is being carried out in accordance with Phases 1 and 2 of the MCEA framework. As such, it will assess the quality of drinking water and the effectiveness of wastewater treatment in the Community; analyze the current private well and septic system; and identify alternative solutions and assess their impacts, including mitigation measures to either reduce or eliminate negative impacts.

The purpose of this report is to outline the land use planning context which will be used to support: the identification and assessment of the alternative solutions for the Master Plan; and the implementation of its recommendations within applicable planning instruments.

2.0 LAND USE REGULATORY CONTEXT

2.1 2014 Provincial Policy Statement

The 2014 Provincial Policy Statement (PPS) provides general policy guidance on matters of provincial interest related to land use planning and development. The 2014 PPS provides policy direction for appropriate development while protecting resources of provincial interest, public health and safety as well as the quality of the natural environment. The 2014 PPS is issued under Section 3 of the Planning Act. All local planning matters shall be consistent with the 2014 PPS.

Section 1.6 of the 2014 PPS deals with infrastructure and public service facilities. Noteworthy policy excerpts include:

“1.6.1 Planning for infrastructure … shall be coordinated and integrated with land use planning so that they are:

a) financially viable over their life cycle …; and

b) available to meet current and projected needs …

1.6.6.1 Planning for sewage and water services shall:

b) ensure that these systems are provided in a manner that:

1. can be sustained by the water resources upon which such services rely;

2. is feasible, financially viable and complies with all regulatory requirements; and

3. protects human health and the natural environment.

d) integrate servicing and land use considerations at all stages of the planning process; and
e) be in accordance with the servicing hierarchy outlined through policies 1.6.6.2, 1.6.6.3, 1.6.6.4 and 1.6.6.5.

1.6.6.2 Municipal sewage services and municipal water services are the preferred form of servicing for settlement areas …

1.6.6.3 Where municipal sewage services and municipal water services are not provided, municipalities may allow the use of private communal sewage services and private communal water services.

1.6.6.4 Where municipal sewage services and municipal water services or private communal sewage services and private communal water services are not available, individual on-site sewage services and individual on-site water services may be used provided that site conditions are suitable for the long-term provision of such services with no negative impacts. In settlement areas, these services may only be used for infilling and minor rounding out of existing development.

1.6.6.5 Partial services shall only be permitted in the following circumstances:

where they are necessary to address failed individual on-site sewage services and individual on-site water services in existing development; or

within settlement areas, to allow for infilling and minor rounding out of existing development on partial services provided that site conditions are suitable for the long-term provision of such services with no negative impacts.”

Section 2.2 of the 2014 PPS deals with the management of water resource systems. Noteworthy policy excerpts include:

“2.2.1 Planning authorities shall protect, improve or restore the quality and quantity of water by:

a) using the watershed as the ecologically meaningful scale for integrated and long-term planning, which can be a foundation for considering impacts of development;

b) minimizing potential negative impacts, including cross-jurisdictional and cross-watershed impacts; …

d) maintaining linkages and related functions among ground water features, hydrologic functions, natural heritage features and areas, and surface water features including shoreline areas;
e) implementing necessary restrictions on development and site alteration to:

1. protect all municipal drinking water supplies and designated vulnerable areas; and
2. protect, improve or restore vulnerable surface and ground water, sensitive surface water features and sensitive ground water features, and their hydrologic functions …”

2.2 Grey County Official Plan

The Grey County (County) Official Plan was adopted by County Council in 1997 and approved by the Ontario Ministry of Municipal Affairs & Housing in 1998 and by the Ontario Municipal Board in 1999 and 2000. A statutory review of the County Official Plan is currently underway, and a draft of the proposed update is under review by the public and provincial government agencies.

With the above context in mind, the following policy highlights and cross-references to the schedules (Appendix A) focus on those portions of the County Official Plan that are currently in full force and effect:

1. Section 2.6.1: The ‘Settlement Area’ designation applies to the County’s existing urban centres, towns, villages and most hamlets. It is further divided into three sub-types to distinguish between these centres. As shown on Figure 1 (Appendix A), the Community is part of the larger ‘Primary Settlement Area’ designation of Thornbury-Clarksburg. Primary Settlement Areas comprise the larger, fully serviced communities in the County. As such, they are intended to be the main target for residential and non-residential growth.

2. Section 2.6.2: 10 percent (%) of new residential dwelling units in the Town shall be accommodated through intensification in the ‘Primary Settlement Area’.

3. Section 2.6.3: The overall average development density in the ‘Primary Settlement Area’ is 20 units per net hectare (ha).

4. Section 2.8.2: As shown on Figure 1 (Appendix A), a portion of the Community is also designated as ‘Hazard Lands’, which identifies lands having inherent environmental hazards, such as flood and erosion susceptibility. Buildings and structures are generally not permitted, apart from those non-habitable buildings connected with the following permitted uses:

   a) Forestry and uses connected with the conservation of water, soil, wildlife and other natural resources.
b) Agriculture, passive recreation, public utilities and resource-based recreational uses, provided that site conditions are suitable and the hazard impacts are mitigated to acceptable levels.

5. Section 2.8.3: As shown on Figure 1 (Appendix A), a portion of the Community also contains ‘Significant Woodlands’. No development may occur on lands within or adjacent to Significant Woodlands unless an Environmental Impact Study demonstrates that there will be no negative impacts on the natural features or their ecological functions.

6. Section 5.3.2:
   a) The development of sewage and water service systems is the preferred method of servicing Settlement Areas, provided it is financially sustainable; accommodates planned urban growth; facilitates the conservation and protection of ground and surface water quality and quantity; and protects human health and the natural environment.
   b) Surface water management systems shall be incorporated into proposed developments as required in order to prevent on-or-off-site flooding or erosion, and to prevent deterioration of environmentally sensitive watercourses.

7. Section 5.4.2: As shown on Figure 1 (Appendix A), there is an abandoned municipal landfill site within the Community. As such, no development or site alteration is permitted within 500 metres (m) of the site, unless a D-4 Study has been reviewed and approved by the Ontario Ministry of Environment and Climate Change.

2.3 Town Official Plan

The Town Official Plan was adopted by Town Council in 2014 and approved with modifications by the County in 2016. In accordance with the County Official Plan and the Community Structure Plan in the Town Official Plan:

1. Thornbury-Clarksburg is designated as a ‘Settlement Area’, which is the focal point for planned urban growth in the Town. A range of greenfield, infill, intensification and redevelopment opportunities is supported, provided such developments are compatible with adjacent areas and the broader character of Thornbury-Clarksburg, and infrastructure is used or expanded in an efficient manner.

2. The main entrance to Thornbury-Clarksburg via Grey Road 13, located in the southwest portion of the Community, is shown as a ‘Community Gateway’. Its intent is to achieve a sense of arrival to Thornbury-Clarksburg through effective site, building and landscaping design.
3. As shown on Figure 2 (found in Appendix A), lands in the Community are more specifically designated as follows:

a) The ‘Community Living Area’ consists of existing and planned residential development and complementary uses on full municipal services. It also applies to lands wherein full municipal services are proposed, which includes the Community. Other noteworthy policy excerpts are as follows:

i. Section B3.1.4: Allowable density ranges and maximum heights for permitted residential dwellings are:

<table>
<thead>
<tr>
<th>Dwelling Type</th>
<th>Density Range (units / gross ha)</th>
<th>Maximum Height (storeys)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single detached</td>
<td>10 – 25</td>
<td>2.5</td>
</tr>
<tr>
<td>Semi-detached / duplex</td>
<td>15 – 35</td>
<td>2.5</td>
</tr>
<tr>
<td>Townhouse</td>
<td>25 – 40</td>
<td>3</td>
</tr>
<tr>
<td>Multiple / apartment</td>
<td>40 – 60</td>
<td>3</td>
</tr>
</tbody>
</table>

It is recognized that in some areas, such as in existing residential neighbourhoods, the maximum density allowance may not be appropriate in terms of the resulting height, bulk and massing of proposed developments, relative to the character and built form of adjacent areas.

b) The ‘Downtown Area’ focuses on commercial, institutional and residential uses within the downtown cores of Thornbury-Clarksburg. Other noteworthy policy excerpts are as follows:

i. Section B3.3.4: As the service centre for the Town, compatible mixed use developments are encouraged that optimize the use of existing building stock; are limited to 3 storeys in order to maintain consistent facades; and preserve and enhance the cultural heritage fabric of the area.

c) The ‘Hazard Lands’ designation identifies lands having inherent environmental hazards, such as flood and erosion susceptibility.

d) The ‘Former Landfill’ site is identified within the Community.

4. As shown on Figure 2 (Appendix A):

a) A ‘Significant Woodlands’ area is identified within the Community.

b) Beaver River extends through the Community and as per Section B5.5.8, all watercourses shall be protected from incompatible developments.
5. Section D1.2:
   a) The development of sewage and water service systems is the preferred method of servicing ‘Settlement Areas’.
   b) Limited development shall be permitted within the partially serviced areas of Clarksburg until such time as municipal sanitary services are provided in order to advance considerations regarding concentrated growth opportunities.

6. Section D1.4: Appropriate municipal services and sufficient servicing capacity shall be available to accommodate proposed developments. The following staging categories are in place to provide an order ranking for the commitment of available plant capacity:
   a) Stage 1: Designated and zoned to permit development, further to development agreement provisions.
   b) Stage 2: Designated and zoned under the Holding (‘H’) Zone category in the Town Zoning By-law, with the future reservation of design capacity committed.
   c) Stage 3: Designated with only partial development approvals in place, and the future design capacity is not committed.
   d) Stage 4: Designated lands with no development approvals in place, but the required design capacity is recognized based on potential development approvals.
   e) Stage 5: Lands designated ‘Future Secondary Plan Area’ in the Town Official Plan with no development approvals, and the required design capacity is similarly not reserved.

2.4 Town Zoning By-laws

As the Town was created through amalgamation with the former Town of Thornbury and the Township of Collingwood, it inherited the Zoning By-laws from these former municipalities. As such, the Town is in process of digitally consolidating these Zoning By-laws.

Given the extensive number of amendments that have been adopted over time within the Community, the Town has directed J.L. Richards & Associates Limited (JLR) to defer further discussion on zoning information within the Community at this time. The outcome and implications of the Zoning By-law consolidation work by the Town will be reviewed as the Master Plan process advances.
2.5 Saugeen, Grey Sauble, Northern Bruce Peninsula Source Protection Plan

Ontario’s Clean Water Act provides the mandate for a provincial drinking water source protection program in Ontario. Its focus is on the protection of sources of water for municipal drinking water systems, with additional attention on surface water and groundwater sources on the broader landscape.

One of the Town’s intakes is located in Thornbury-Clarksburg. Pursuant to the Saugeen, Grey Sauble, Northern Bruce Peninsula Source Protection (SP) Plan, Intake Protection Zones (IPZ’s) are identified around this intake. An IPZ serves to protect the source water for a municipal residential drinking water system. It is the vulnerable area where potential contaminants could pose a significant risk or threat to the source water. The IPZ’s typically include the water and the land that surrounds the intake, and accounts for land use and water activities. The IPZ’s also consider how long it could take any contaminant spilled in or near the waterbody to reach the intake. The IPZ’s reflect these different travel times.

Figure 1 (Appendix A) shows part of the IPZ-2 falls within the Community. The IPZ-2 is in three parts: in-water and along shore; upland; and up-tributary. It is also based on a 2-hour time of travel scenario for the contaminant to reach the intake. The intent of this 2-hour window is to allow time for the plant operator to shut down the intake to deal with a potential spill or threat to the source water.

3.0 GROWTH FORECASTS

JLR worked with the Town on the growth forecasts to support the Master Plan. This work included a review and evaluation of growth projections in other related Town and County documents, including:

1. Town Development Charges Background (DC) Study – 2014
2. County Growth Management Strategy (GMS) – 2015
4. County GMS Update – 2018
5. Town MP Projections – 2018

This review was undertaken within the following statutory framework:

1. The 2014 PPS, as highlighted above.
2. Section 17 of the Planning Act, which establishes the hierarchy of upper-tier and lower-tier municipalities, as follows:
   a) The County is the upper-tier and the Town is the lower-tier.
   b) The County Official Plan, which includes the Town, allocates future growth to the Town with associated land use and development policies.
   c) The Town Official Plan must conform to the County Official Plan.
d) The County is the approval authority of the Town Official Plan.

3. Section 24 of the Planning Act, which states that all public works must conform to the Official Plan (both the County Official Plan and Town Official Plan).

Table 1 summarizes the growth projection data in the Town and County documents cited above. Table 1 also includes JLR data interpolations (as highlighted in yellow with accompanying explanatory footnotes). The intent of the interpolations is to provide a degree of consistency across the data for comparative purposes.

The main observations from Table 1 include:

1. The permanent and seasonal residential growth projections cited in the ‘Town Official Plan’ are higher than those in the recent ‘Town MP Projections’ and ‘County GMS / GMS Update’ (i.e. by as much as 320% +/-).

2. The employment growth projections cited in the ‘Town DC Study’ are higher than those cited in the more recent ‘County GMS / GMS Update’ (i.e. by as much as 320% +/-).

3. The projected Town population cited in the recent ‘Town MP Projections’ is higher than the population projection cited in the recent ‘County GMS Update’ (i.e. by 10% +/-).

4. The projected Town permanent and seasonal residential growth projections in the recent ‘Town MP Projections’ are higher than those cited in the recent ‘County GMS Update’ (i.e. by 57% +/-).

Based on the above, Table 2 summarizes the growth projection data for the service areas within the Town, which includes the Community (as highlighted in yellow). Regarding the growth projection data relative to this Master Plan, it is acknowledged that the Town has directed JLR to use:

1. The permanent / seasonal residential growth projections in the recent ‘Town MP Projections’, relative to those in the recent ‘County GMS Update’. This direction is based on the Town’s need for the life cycle of its infrastructure services to meet projected needs well beyond a 20-year planning horizon.

2. The employment projections in the ‘County GMS Update’, particularly in light of trends showing more marginal employment growth outside major urban centres in Ontario. Furthermore, the proportional shares of future employment growth allocated to the service areas in the ‘Town DC Study’, including the Community, are to be used to allocate future employment growth in support of the Master Plan.
## Table 1: HISTORICAL GROWTH PROJECTIONS FOR THE TOWN (JLR DATA INTERPOLATIONS GREY)

<table>
<thead>
<tr>
<th>Study</th>
<th>Horizon Year</th>
<th>Projected Population</th>
<th>Persons / Household</th>
<th>New Residential</th>
<th>New Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Permanent Units</td>
<td>Seasonal Units</td>
</tr>
<tr>
<td>Town DC Study (2014)</td>
<td>2014-2023</td>
<td>N/A</td>
<td>N/A</td>
<td>1,688ⁱ</td>
<td>420¹²</td>
</tr>
<tr>
<td></td>
<td>Build-Out</td>
<td>N/A</td>
<td>N/A</td>
<td>9,272¹</td>
<td>2,280</td>
</tr>
<tr>
<td>County GMS (2015)</td>
<td>2011-2036</td>
<td>20,620²</td>
<td>2.19</td>
<td>1,000</td>
<td>330</td>
</tr>
<tr>
<td></td>
<td>2011-2041</td>
<td>21,310⁴</td>
<td>2.19</td>
<td>1,110</td>
<td>500</td>
</tr>
<tr>
<td>Town Official Plan (2016)</td>
<td>2006-2026</td>
<td>29,220⁵</td>
<td>2.08</td>
<td>1,370</td>
<td>N/A⁷</td>
</tr>
<tr>
<td></td>
<td>Build-Out</td>
<td>N/A</td>
<td>N/A</td>
<td>8,172</td>
<td>N/A</td>
</tr>
<tr>
<td>County GMS Update (2018)</td>
<td>2016-2038</td>
<td>21,940²</td>
<td>2.13</td>
<td>930</td>
<td>460</td>
</tr>
</tbody>
</table>

¹ Includes residential, commercial resort and hotel/motel units (or ‘equivalent residential dwelling units’).
² Based on the MOECC guideline of 40 square metres per employee, which is used in projecting future employment gross floor area requirements.
³ Based on projected total Town permanent population (8,460) + 2012 estimated total Town seasonal population (10,060 in Town Official Plan) + projected Town seasonal population growth (1,550 x 2.19 = 3,300).
⁴ Based on projected total Town permanent population (8,700) + 2012 estimated total Town seasonal population (10,060 in Town Official Plan) + projected Town seasonal population growth (1,166 x 2.19 = 2,550).
⁵ Presumes the 11% increase in projected permanent residential units in the Town to 2041 can also apply to the projected increase to Town seasonal residential units to 2041.
⁶ Based on projected total Town permanent population (9,300) + 2012 estimated total Town seasonal population (10,060 in Town Official Plan) + projected Town seasonal population growth (4,740 x 2.05 = 9,880).
⁷ Employment growth projections are not cited in the Town Official Plan.
⁸ Based on projected total Town permanent population (9,060) + 2015 estimated total Town seasonal population (10,800 based on 1.8% annual growth rate since 2012 which is the same as 2011-2016 census permanent population growth rate) + projected Town seasonal population growth (977 x 2.13 = 2,080).
⁹ Presumes the 7% reduction in projected permanent residential units in the Town from 2036-2036 in the County GMS work can also apply to the projected reduction to Town seasonal residential units from 2036-2038 (as noted).
¹⁰ Based on 2016 census permanent population (7,030) + 2016 estimated total Town seasonal population (10,800 based on 1.8% annual growth rate since 2012 which is the same as 2011-2016 census permanent population growth rate) + projected permanent / seasonal population growth (2,865 x 2.13 = 6,370).
¹¹ Taken from the County GMS Update.
¹² Based on annual average residential building starts from 2008 – 2017, with a 2.1% growth increase of building starts, compounded annually.
¹³ Presumes the annual average employment growth rate of 42 employees per year to 2023 in the DC Study extends to 2038.
Table 2: RECOMMENDED GROWTH PROJECTIONS FOR THE TOWN BY SERVICE AREA (INCLUDING COMMUNITY)

<table>
<thead>
<tr>
<th>Service Area</th>
<th>Horizon Year</th>
<th>New Population</th>
<th>Persons / Household</th>
<th>New Residential</th>
<th>New Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Permanent Units</td>
<td>Seasons Units</td>
</tr>
<tr>
<td>Lora Bay</td>
<td>2018-2038</td>
<td>1,255</td>
<td>2.13</td>
<td>589</td>
<td>15%</td>
</tr>
<tr>
<td>Thornbury-</td>
<td></td>
<td>795</td>
<td></td>
<td>373</td>
<td>14%</td>
</tr>
<tr>
<td>Clarksburg</td>
<td></td>
<td></td>
<td></td>
<td>250</td>
<td>7%</td>
</tr>
<tr>
<td>Camperdown</td>
<td></td>
<td>530</td>
<td></td>
<td>1,524</td>
<td>42%</td>
</tr>
<tr>
<td>Craighleith</td>
<td></td>
<td>3,250</td>
<td></td>
<td>21</td>
<td>NIL</td>
</tr>
<tr>
<td>Swiss Meadows</td>
<td></td>
<td>45</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Castle Glen</td>
<td></td>
<td>5</td>
<td></td>
<td>3</td>
<td>22%</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>5,880</td>
<td>2,760¹⁴</td>
<td>100%</td>
<td>460</td>
</tr>
</tbody>
</table>

¹⁴ Excludes 229 projected permanent and seasonal residential units in the Town’s rural area.
4.0 CONCLUSION

This report has been prepared to outline the land use planning context in support of the identification and assessment of the alternative solutions for the Master Plan. As the identification, assessment and refinement of the alternative solutions for the Master Plan continues to advance, JLR recommends the following:

1. That the Town continue to engage the County in confirming its permanent / seasonal residential and employment growth projections used for the Master Plan, particularly as the current update to the County Official Plan progresses, and in advance of the Town's DC Study Update (to be engaged later this year). This engagement, with associated updates to the projections as needed, will ensure that the preferred design solutions in the Master Plan: are consistent with the 2014 PPS; conform to the updated County Official Plan; and are consistent with the pending DC Study Update, which can enable the Town to ensure proper cost recovery for future infrastructure works.

2. That the Town Official Plan and Zoning By-law continue to be reviewed to assess whether the need for any amendments thereto should be considered during the finalization of the required updates to the County Official Plan, thus ensuring consistency with the implementation phase of the Master Planning process. This could include reviewing the need for establishing a planning framework to enable more detailed, secondary planning with affected residents and landowners in the Community, particularly if the provision of full water and wastewater servicing is recommended as the preferred design solution in the Master Plan. This could help effect an appropriate mix of future land uses, the efficient use of infrastructure services, and a livable and sustainable Community.

Prepared by: Wes Paetkau, MCIP, RPP

Reviewed by: Timothy F. Chadder, MCIP, RPP
Appendix A
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Appendix ‘B’
Well and Septic Assessment
Technical Memorandum No. 2 –
Septic System and Water Well Inventory Report

Community of Clarksburg Water and
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1.0 INTRODUCTION

1.1 Background

The Town of The Blue Mountains (Town) is undertaking a Master Plan Class Environmental Assessment (Master Plan) to evaluate opportunities to improve the water and wastewater services to all properties in the Clarksburg Service Area (Community). The Community area covers approximately 2 km² and is located just south of Thornbury, Ontario. The purpose of the Class EA is to evaluate servicing options to improve water and wastewater services in the Community.

The Community has a population of approximately 630, consisting of both year-round and seasonal residents. There is also a commercial area concentrated in the downtown of the Community. Vacant lots are present throughout the Community and many have the potential to be subdivided. Existing properties are primarily serviced by private wells and onsite septic systems with a smaller proportion of properties serviced by municipal water and/or sewer. Where provided, municipal water in the Community is supplied by the Thornbury Water Treatment Plant (rated capacity of 15,140 m³/day) and wastewater service is provided by the Thornbury Wastewater Treatment Plant (rated capacity of 3,580 m³/day).

The Master Plan is being carried out in accordance with Phases 1 and 2 of the Ontario Municipal Class EA framework. It will assess the quality of drinking water and the effectiveness of wastewater treatment in the Community, analyze the current well and septic system, identify alternative solutions and assess their impacts, including mitigation measures to either reduce or eliminate negative impacts, and determine a preferred long-term solution to the provision of water and wastewater servicing. The Class EA is being conducted by a consulting team led by J.L. Richards & Associates Limited in association with Golder Associates Ltd, Hemson Consulting Ltd, and Lura Consulting.

1.2 Class Environmental Assessment and Master Planning Process

The Ontario Environmental Assessment Act (Act) sets out a planning and decision-making process to consider potential environmental effects before a project begins. The purpose of the Act is to provide for the protection and conservation of the natural environment (R.S.O. 1990, c.E.18, s.2). The Municipal Class EA process is followed for common types of projects to streamline the review process while ensuring that the project meets the requirements of the Act. It involves detailed site-specific information gathering and studies, as well as consultation with the public and stakeholder agencies. In 1987, the first Class EA document prepared by the Municipal Engineers Association (MEA) on behalf of Ontario Municipalities was approved under the Act. Updates and amendments were subsequently made in 1993, 2000, 2007, 2011 and 2015.
This Master Plan is being conducted in accordance with Phases 1 and 2 of the Municipal Engineers Association (MEA) Municipal Class Environmental Assessment (updated November 2015), with a sufficient level of investigation, consultation, and documentation to fulfill the requirements for Schedule B projects (Approach 2).

Projects categorized as Schedule B undertakings have the potential for significant environmental effects and are required to follow Phase 1 and Phase 2 specified under the Municipal Class EA. This includes consultation with all parties that may potentially be affected by the project as well as the preparation of a Class EA Project File that documents the Class EA process for the project. The Class EA framework defines the process for each type of project (refer to Figure 1).

The study Project File will be made available for public and agency review at the completion of Phase 2 of the Class EA process for a mandatory 30-day period. If there are no requests to the Minister of the Environment and Climate Change (MOECC) for a ‘Part II Order’ within this 30-day review period, then the project may proceed to implementation (Phase 5).

It should be noted that although this Master Plan is being completed to fulfill the requirements of Schedule B projects, the schedule will be revisited at key milestones to confirm the schedule of proposed undertakings. If Schedule C projects are identified, they will be noted as such and Phases 3 and 4 of the Class EA process would then be required prior to implementation.
1.3 Objectives of the Master Plan

The objective of the Master Plan is to identify the preferred servicing option for the Community. The Phase 1 Report provides a summary of existing background information and identifies the problems/opportunities associated with the existing water and wastewater systems. The report serves as the basis for moving forward to Phase 2 of the Class EA which will involve identifying and evaluating solutions to the identified deficiencies.

Seven (7) technical memorandum will be developed throughout the course of this project at various milestones that will be used to identify specific issues or existing conditions that will allow decisions to be made to advance the project. The purpose of Technical Memorandum 2 is to document the findings of the door-to-door survey undertaken to better understand the current conditions and issues surrounding water and wastewater services in the study area.

The seven (7) Technical Memoranda will cover the following topics:

1. Planning and Policy Context Review and Growth Projections (TM1)
2. Septic and Well Inventory Report (TM2)
3. Hydrogeological Assessment (TM3)
4. Geotechnical Assessment (TM4)
5. Ecological Survey and Environmental Impact Study (TM5)
6. Stage 1 Archaeological Assessment (TM6)
7. Heritage Impact Assessment (TM7)
COMMUNITY OF CLARKSBURG WATER AND WASTEWATER SERVICING
MASTER PLAN
THE TOWN OF THE BLUE MOUNTAINS, ONTARIO

CLASS EA PROCESS

PHASE 1
Identify & Describe the Problem or Opportunity

PHASE 2
Evaluate Alternative Solutions & Establish the Preferred Solution. Review & Confirm Choice of Schedule.

PHASE 3

PHASE 4
Prepare Environmental Study Report (ESR) Documenting Phases 1-3 or Opportunity

PHASE 5
Complete Drawings & Documents - Proceed to Construction, Operate & Monitor Projects

PROJECT:

PHASE 1 COMPLETE
Draft Report and Consultation with Review Agencies and Project Stakeholders undertaken

PROJECT IS AT
THIS STAGE

Indicates Schedule 'C' mandatory events

Opportunity for Part II Order Request (formerly referred to as 'Bump-up')

File Project File Report

Discretionary Review Agency/Public Consultation

Mandatory Review Agency/Public Consultation

J.L. Richards
ENGINEERS・ARCHITECTS・PLANNERS
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DESIGN: JW
DRAWN: KTK
CHECKED: AG
JLR #: 27430

FIGURE 1
2.0 Study Overview

Door-to-door and telephone surveys of Clarksburg Service Area (Community) residents and business owners were taken to better understand the current conditions and issues surrounding water and wastewater services in the study area. The surveys asked respondents questions about their current water and wastewater systems and requested that they identify any of their questions or concerns. J.L. Richards and Associates (JLR) and Golder Associates (Golder) staff conducted the surveys in the fall and winter of 2017.

Between door-to-door and telephone surveys, 181 surveys were completed. There are approximately 317 developed lots in the Community. This represents a 57% response rate. The owners of five vacant lots were surveyed. The results of these surveys have been included in the overall analysis. Of the properties eligible for a water sample (e.g. municipal water or trucked water was not eligible), 88 provided a tap water sample for bacteriological analysis. The results of this study are presented in the Phase 1 Report.

3.0 Methodology

Door-to-door surveys were conducted in the study area on November 4 to 7, 13, 19, 26, and 27, 2017. This period included both weekdays and weekends during times when residents and business owners might be available. Surveyors attempted to survey each residence once and if no one was available a second attempt was made. If on the second time no one was available, a copy of the study notice and a request to contact a member of the study team to complete the survey was left in the door. A copy of the survey questions is provided in Appendix A.

Telephone surveys were completed on an as-requested basis until January 18, 2018. Surveys completed after that date were documented but not included in the analysis. The results were tabulated and summarized. Highlights of the key findings are provided below.

4.0 Results

4.1 Respondent Demographics

The following are key findings related to respondent demographics:

- Of the 181 surveys completed, 23 were done by telephone. As a result, approximately 56 percent of developed properties in the Community were surveyed. Given the total number of developed properties in the study area (317 properties), this provides a margin of error of plus or minus 5 percentage points at a 95% confidence level.

- Respondents to the survey represent full time residents (82%), seasonal residents (5%), and business owners (7%). The remaining respondents (6%) are vacant lot owners and home businesses.
• The majority of respondents owned the property (90%) with the remaining (10%) renting. The majority of rented properties were businesses.

The survey team was able to reach a broad cross section of developed property owners in the Community. Overall, the surveys represented a variety of stake holders (e.g. full time residents, seasonal residents, and business owners). This suggests that results of the survey are representative of the entire Community. Underrepresented groups may include renters in both single family and multi dwelling units and vacant lot owners. Consideration can be given to reaching these groups in subsequent phases of the Class EA.

4.2 Residence Size and Water/Sewer Location

The following are key findings related to property age, size and layout:

• According to reported dwelling ages, approximately one-quarter of the houses in the community are over 100 years old and were constructed prior to the 1920s (24%). Another large percentage of buildings were constructed in the 1970s or 80s (29%). A modest number of houses (16%) were constructed in more recent years, between 1990 and the present. A number of people in the study area were unsure of the building’s age (12%).

• The majority of houses in the Community were reported to be between 1000 and 2000 square feet (52%). Very few were smaller than 1000 square feet (4%), and even less were larger than 3000 square ft. (2%). A number of people in the study area were unsure about the building size (19%).

• When designed to current standards, the number of bedrooms and bathrooms in a dwelling is a key factor in determining the flow rate used to size and design a septic system. In the Community the majority of the dwellings have three (3) bedrooms (47%). The most common number of bathrooms is two (2) (45%).

• If present, wells in the Community are frequently located in either the back (40%) or front of the property (26%). There was a small but notable percentage of wells in the basement of dwellings (6%). Similarly, septic systems in the Community are generally located in the back (54%); however, septic systems at the front are also common (29%).

In general, house sizes are modest in the Community and three (3) bedrooms and two (2) bathrooms is typical. There doesn’t appear to be consistent arrangements of the well and septic on the properties surveyed, but more than half of homes have the septic in the back. This information will be used to develop “typical” residence sizes and lot arrangements for conceptual design and costing of water and wastewater servicing alternatives.
4.3 Water Supply

The following are key findings related to water supply, quality and quantity:

- The majority of survey respondents have either a drilled (44%) or dug well (19%). Some respondents were on the municipal water system (23%). A small percentage of respondents were unsure about their water source (6%). Other water systems in the Community (8%) included shared wells with neighbours, as well as cisterns and trucked water.

- Based on the reported data, the construction date of wells in the community ranges from pre-1820 to the present with many of wells being constructed between 1970 and the present (46%). We note that the oldest recorded construction date in the MOECC well records is 1964. Almost half (41%) of respondents were unsure of their well’s age. Additional information on well age in the study area is provided in the Hydrogeological Assessment Memorandum (Golder, 2018).

- Of the respondents that have well water, the majority have a water treatment system (63%). These systems included ultra violet light (UV), reverse osmosis, and iron/manganese removal systems. Water softeners were counted separately and are used by about half of all respondents (52%).

- Almost all respondents were aware of the water testing services provided by the local health unit and over one quarter (28%) reported testing their water every year or more often. Only a small percentage of people (6%) test their water three (3) or more times per year as recommended by the Grey Bruce Health Unit. Regardless of how often samples were taken, some people (15%) reported at least one positive test for bacteria from samples tested by the Health Unit.

- In general, respondents reported that the quantity of water in their home was good (84%) and that there were no issues with quality (71%). However, a quarter (25%) of participants reported that there were some, or many, issues with the water quality. This is approximately equal to the number that reported bottled water as their primary source of drinking water (26%).

- The top three (3) issues with water quality reported were hardness, issues with iron taste and/or rust stains, and sulfur (rotten eggs) smells.

Overall, water supply in the Community varies, with drilled wells being the most common. Well water is often treated using some combination of ultraviolet light, reverse osmosis, and iron/manganese removal systems.

Residents are generally satisfied with water quality and quantity, although issues are present. Issues with quality include hardness, iron taste and/or rust stains, and sulfur smell, and bottled water use is relatively common. Frequent well testing is uncommon in the community, but there were reports of adverse water quality test results.
4.4 **Wastewater Systems**

The following are key findings related to the type and age of sewage systems:

- Most of the respondents in the study area have an on-site wastewater treatment system (90%) and a small number are connected to the municipal sewer (7%). Of the respondents that have an on-site treatment system, almost all (90%) have a Class 4 septic system consisting of a septic tank and leaching bed.

- The age of septic systems was frequently unknown (34%). When known, many systems were constructed before the 1990s (37%); however, some were constructed in the 2000’s or more recently (25%). The typical lifespan of a septic system is considered to be 25 – 30 years. This suggests that at least 37% of systems in the Community have exceeded or are near the end of their useful life.

- Residents in the Community frequently reported servicing (i.e. pumping out their septic tank) at least once every 10 years (50%), and most reported no issues with their systems (87%).

In general, on-site sewage treatment systems in the Community are, or may be, nearing the end of their useful service life. Owners frequently report regular servicing of their septic system (at least once every 10 years), and most did not report issues related to their systems.

4.5 **Comments, Questions and Concerns**

Open ended questions were given at the end of the survey. Due to the varied nature of comments received, they have not been tabulated, but general trends include:

- **Financial Impacts**: The most common concern was related to the upfront cost and affordability of any change in the level of service. Concerns about ongoing (operation) costs were also expressed, though less often. People also mentioned change in property values as a concern. This was regarded as both a negative and a positive change by different residents.

  There are some people that have recently invested $10,000 - $20,000 in new water and/or septic systems, and are concerned about decommissioning their new private system. It was also noted by respondents that developers should be responsible for part/all of the costs, particularly if need for servicing is development driven.

- **Downtown/Commercial Development**: The second most frequent comment was support for improving downtown services, particularly those for commercial businesses. Comments frequently included interest in a new restaurant or cafe, although occasionally concern was expressed about the impact of too much downtown development. Business owners specifically mentioned concerns about the impacts to businesses during construction of a municipal water or sewer system.
It was also noted on several occasions that flooding close to downtown has historically been an issue and would need to be considered. For both water and wastewater, there were residents without issues that acknowledged that there were people with issues, particularly near downtown.

- **Water Systems**: People are generally satisfied with their current water systems, although the number of people in favour of municipal water was approximately the same as those not in favour. People often expressed concerns about the chlorine taste of municipal water and/or a preference for their well water. Other residents reported issues with water hardness, iron, or in a few cases, lack of water on their properties.

- **Wastewater Systems**: Similarly, people reported being generally satisfied with their current wastewater systems, although the number in favour of municipal sewers slightly outweighed the number against. The main objection to sewers was related to cost although concerns were also expressed about the location of pumping stations and/or a treatment plant. The inability to develop lots that could not accommodate a traditional septic system was also noted.

Other comments Included:

- Concerns about the cost/value of the Municipal Class EA study.
- Concerns about the impact of orchard runoff on local water quality.
- Concerns about the impact of new commercial and residential development on community character.

### 5.0 Conclusion

In summary key findings from the survey are as follows:

- Overall, based on the number of surveys completed by variety of stake holders (e.g. full time residents, seasonal residents, and business owners), the survey team was able to reach a broad cross section of developed property owners in the Community. This suggests that results of the survey can be extrapolated to the whole Community. Underrepresented groups may include renters in both single family and multi dwelling units and vacant lot owners. Consideration can be given to reaching these groups in subsequent phases of the Class EA.

- In general, house sizes are modest in the community and three (3) bedrooms and two (2) bathrooms is typical. There doesn’t appear to be consistent arrangements of the well and septic on the properties surveyed, but at least 50% of homes have the septic in the back. This information will be used to develop “typical” residence sizes and lot arrangements for conceptual design and costing of water and wastewater servicing alternatives.
Overall, water supply in the Community is varied, with drilled wells being the most common. Well water is often treated using some combination of ultraviolet light, reverse osmosis, and iron and manganese removal systems. In general residents are satisfied with water quality and quantity. However, quality issues mentioned include hardness, iron taste and/or rust stains, and sulfur smell. Bottled water use is relatively common. Frequent well testing is uncommon in the community; however there are reports of adverse water quality test results.

In general, on-site sewage treatment systems in the Community are, or may be, nearing the end of their useful service life. Owners frequently report regular servicing of their septic system (at least once every 10 years), and most did not report issues related to their systems.

Key comments from residents in the Community were related to the upfront cost and affordability of any change in the level of service; support for improving services for downtown, in particular those to the commercial business; both opposition to and support for municipal water and/or wastewater servicing.

6.0 LIMITATIONS

This report has been prepared for the exclusive use of Town of The Blue Mountains, for the stated purpose, for the named facility. Its discussions and conclusions are summary in nature and cannot be properly used, interpreted or extended to other purposes without a detailed understanding and discussions with the client as to its mandated purpose, scope and limitations. This report was prepared for the sole benefit and use of the Town of The Blue Mountains and may not be used or relied on by any other party without the express written consent of J.L. Richards & Associates Limited.

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J.L. RICHARDS & ASSOCIATES LIMITED

Environmental Engineer | Senior Environmental Engineer

EJW/KB
Appendix ‘A’
Well Survey Questions
Survey Questions

Q1: What is the address? Select from the drop down, or select “not listed” and manually input in next question.

Q2: Was the physical property address selected in the previous question? If not, please input below.
   A1: Yes, the physical address was selected from the list.
   A2: No, enter address code (160 Robertson = ROBE – 160)

Q3: Participant's First and Last Name.

Q4: The results of this survey will provide valuable information to help the Town of The Blue Mountains develop a long term plan for water and wastewater servicing in Clarksburg. Of course, this survey is optional and you are not required to participate.
   A1: I would like to proceed with the survey.
   A2: I do not wish to participate.

Q5: As part of the study we are testing water from wells for bacteria. Can our team take a sample from your tap? The results for your specific test will not be published, and you will be notified if bacteria is found.
   A1: Yes
   A2: Declined
   A3: Not applicable (on municipal water)
   A4: No but it may be completed at a later date (input date details) / Other

Q6: Participant's Phone Number (important if taking water sample).

Q7: Please confirm valid mailing address (important if taking water samples). If not in drop down, input in next question.

Q8: Was a valid mailing address selected in the last question?
   A1: Yes
   A2: No, type new address here (or make necessary corrections)
Section 1

The first set of questions are about your residence and property, these will help us to better understand the types of properties in the Community.

Q10: Do you own or rent this property?
   A1: Own
   A2: Rent/Lease
   A3: Other

Q11: Do you know what year the house was built?
   A1: 2010’s (< 8 years ago)
   A2: 2000’s (8-17 years ago)
   A3: 1990’s (18-27 years ago)
   A4: 1980’s (28-37 years ago)
   A5: 1970’s (38-47 years ago)
   A6: 1960’s (48-57 years ago)
   A7: 1950’s (58-67 years ago)
   A8: 1940’s (68-77 years ago)
   A9: 1930’s (78-87 years ago)
   A10: 1920’s (88-97 years ago)
   A11: Pre-1920’s (> 98 years old)
   A12: Pre-1820’s (> 198 years old)
   A13: Unsure
   A14: Other

Q12: Are you a seasonal, full time resident or a business?
   A1: Seasonal Resident
   A2: Full Time Resident
   A3: Business/Commercial
   A4: Other
Q13: Approximately how many weeks per year do you spend in the residence?
   A1: < 1 week
   A2: 1-2 weeks
   A3: 4-6 weeks
   A4: 6-12 weeks
   A5: > 12 weeks
   A6: Other

Q14: Is your property used for short term rental housing (e.g. Airbnb)?
   A1: Yes
   A2: No
   A3: Choose not to answer
   A4: Other

Q15: What is the approximate square footage of your residence?
   A1: Less than 1000 sq. ft.
   A4: > 3000 sq. ft.
   A5: Unsure

Q16: How many bedrooms does your residence have?
   A1: 1
   A2: 2
   A3: 3
   A4: 4
   A5: 5
   A6: N/A (It’s a business, no bedrooms)
   A7: Other
Q17: How many bathrooms are in the building?
   A1: 1
   A2: 2
   A3: 3
   A4: 4
   A5: 5
   A6: Other

Q18: What type of basement or foundation does your residence have?
   A1: Fully finished basement
   A2: Partially finished basement
   A3: Unfinished basement
   A4: Crawlspace
   A5: Concrete slab foundation (no basement)
   A6: Unsure
   A7: Other
Section 2

The next questions are about your drinking water system.

Q20: Where do you get your tap water from?
   A1: Municipal water
   A2: Drilled well (deep well)
   A3: Dugwell (Shallow well)
   A4: Sandpoint well (shallow well in sand)
   A5: Unsure
   A6: Other

Q21: What is the general location of your well?
   A1: Behind the house
   A2: At the front of the house
   A3: At the side of the house
   A4: Under the house in basement
   A5: Unsure
   A6: Other

Q22: Do you know what year the well was installed/drilled?
   A1: 2010’s (< 8 years ago)
   A2: 2000’s (8-17 years ago)
   A3: 1990’s (18-27 years ago)
   A4: 1980’s (28-37 years ago)
   A5: 1970’s (38-47 years ago)
   A6: 1960’s (48-57 years ago)
   A7: 1950’s (58-67 years ago)
   A8: 1940’s (68-77 years ago)
   A9: 1930’s (78-87 years ago)
   A10: 1920’s (88-97 years ago)
   A11: Pre-1920’s (> 98 years old)
A12: Pre-1820’s (> 198 years old)
A13: Unsure
A14: Other

Q23: Do you know the approximate drilled/dug depth of your well?
   A1: Sandpoint (no depth specified)
   A2: < 20 ft (6 m)
   A3: 20 – 40 ft (6 m – 12 m)
   A4: 41 – 60 ft (12.1 m – 18 m)
   A5: 61 – 80 ft (18.1 m – 24 m)
   A6: 81 – 100 ft (24.1 m – 30 m)
   A7: 101 – 120 ft (30.1 m – 36 m)
   A8: > 120 ft (> 36.1 m)
   A9: Unknown
   A10: Other

Q24: Where is the well pump located?
   A1: In house
   A2: In well
   A3: Unsure
   A4: Not applicable
   A5: Other

Q25: Do you have a water treatment or filter system in your house?
   A1: Yes
   A2: No
   A3: Unsure
   A4: Not applicable
   A5: Other
Q26: What kind do you have? Select all that apply.
   A1: Pitcher style (e.g. Brita filter)
   A2: Tap mounted filter system
   A3: Ultraviolet light
   A4: Reverse osmosis
   A5: Iron / manganese removal system
   A6: Boiling the water
   A7: Unsure
   A8: Not applicable
   A9: Other

Q27: When was the last time your treatment unit was serviced, or the filter was changed? (Don’t include Brita filter change)
   A1: < 6 months
   A2: < 1 year
   A3: within 1 – 5 years
   A4: within 5 – 10 years
   A5: > 10 years
   A6: Never
   A7: Unsure
   A8: Not applicable
   A9: UV bulb is changed every year
   A10: Other

Q28: Does your drinking water treatment system discharge any waste to your septic system?
   A1: Yes
   A2: No
   A3: Unsure
   A4: Not applicable
   A5: Other
Q29: Do you have a water softener?
   A1: Yes
   A2: No
   A3: Unsure
   A4: Other

Q30: Does the water softener discharge to the septic system?
   A1: Yes
   A2: No
   A3: Unsure
   A4: Other

Q31: Residents can get well water tested for free by taking a sample to the local Health Unit. Were you aware of this service?
   A1: Yes
   A2: No
   A3: Not applicable, on Town water
   A4: Other

Q32: If you use this service, how often do you typically submit samples for testing?
   A1: More than 10 years ago
   A2: Every 5 years
   A3: Every few years
   A4: Once per year
   A5: Just once on purchase of house or new filtration system.
   A6: Two times per year
   A7: 3 – 4 times per year
   A8: I am aware of this service, but do no use it
   A9: Not Applicable, on Town water
   A10: Used to test it, but have not done so in years
   A11: Other
Q33: Have you ever had a sample positive for bacteria?
   A1: Yes
   A2: Yes, but not since new treatment system installed / new well drilled
   A3: No
   A4: Unsure
   A5: Choose not to answer

Q34: Is there a well(s) on the property that is not being used?
   A1: Yes
   A2: No
   A3: Unsure
   A4: Other

Q35: What is the approximate location of the unused well?
   A1: Behind the house
   A2: In front of the house
   A3: Beside the house
   A4: In the basement, under the house
   A5: Unknown
   A6: Other

Q36: How would you describe the quality of your tap water? Include any concerns with Town tap water.
   A1: Good – no issues
   A2: Okay – some issues
   A3: Poor – many issues
   A4: Other

Q37: How would you describe the quantity (amount) of your available tap water? Include pressure concerns with Town tap water.
   A1: Good – lots of water
   A2: Okay – occasional low pressure/low supply
   A3: Poor – frequent low pressure/well runs dry
Q38: If there are issues with your tap water quality, what are they? Include concerns with Town tap water.

A1: No issues
A2: Hard water
A3: Cloudy water
A4: Discoloured water
A5: Smells like rotten eggs
A6: Leaves white deposits/stains
A7: Runs out/well dry
A8: Leaves blue-green rust
A9: Leaves brown, orange, or red stains
A10: Makes people sick (gastro illness)
A11: Tested positive for bacteria
A12: Strong chlorine taste
A13: Other

Q39: What is your primary source of drinking water?

A1: Municipal tap water
A2: Well water
A3: Bottled water (store bought)
A4: Municipal water point
A5: Unsure
A6: Other
Section 3

The following questions are regarding your sewage treatment systems. Please answer the questions as best as you can.

Q41: What type of sewage treatment system do you have?
   A1: Connected to Town sewer system
   A2: Onsite treatment system (septic, holding tank)
   A3: Unsure
   A4: Other

Q42: What type of onsite sewage treatment system(s) do you have? Select all that apply.
   A1: Below Ground Septic System (Class 4)
   A2: Raised Bed Septic System (Class 4)
   A3: Holding Tank (Class 5)
   A4: Outhouse (Class 1)
   A5: Greywater (e.g. reuses shower water for toilet flushing) (Class 2)
   A6: Cesspool (Open Pit) (Class 3)
   A7: Unknown
   A8: Other

Q43: What is the approximate location of your septic system/holding tank?
   A1: Behind the house
   A2: In front of the house
   A3: Beside the house
   A4: Unsure
   A5: Other

Q44: Do you know what year the septic system/holding tank was installed?
   A1: 2010’s (< 8 years ago)
   A2: 2000’s (8-17 years ago)
   A3: 1990’s (18-27 years ago)
Q45: What is the approximate size of the septic tank/holding tank (if known)? [Note: 800 imp. Gallons = 1000 US Gal. Minimum size for septic]

A1: < 3600 L (< 1000 USG)
A2: 3600 L (1000 USG)
A3: 4800 L (1250 USG)
A4: 5700 L (1500 USG)
A5: > 5700 L (> 1500 USG)
A6: Unsure
A7: Other

Q46: How often do you have your septic tank (or holding) pumped out?

A1: Once a year
A2: Every 2 – 3 years
A3: Every 3 – 5 years
A4: Every 5 – 10 years
A5: Never
A6: Unsure
A7: Not applicable
A8: Recently moved in, have not pumped it out yet
Q47: Have you every experienced a sewage system issue or failure (examples: wet areas in the yard, back-up to basement, discharge from septic tank lid, odours, etc)?

A1: Yes
A2: No
A3: Unsure
A4: Other

Q48: Can you describe the failure?

A1: Wet areas in yard
A2: Back-up to basement
A3: Trouble flushing/draining sinks
A4: Discharge from tank lid
A5: Odours
A6: Other

Q49: Was the issue resolved?

A1: Yes
A2: No
A3: Unsure
A4: Other

Q50: Are there any additional comments related to water and wastewater on your property or in Clarksburg generally that you would like to provide the study team? Check those that apply.

A1: No
A2: Concerned about upfront cost/affordability of Town system
A3: Concerned about ongoing operation cost of Town system
A4: Satisfied with well water
A5: Dissatisfied with well water
A6: Want municipal water for property
A7: Do not want municipal water for property
A8: Satisfied with sewage system
A9: Want municipal sewer for property
A10: Do not want municipal sewer for property
A11: Dissatisfied with sewage system
A12: In favour of new commercial development (restaurants, etc)
A13: In favour of new residential development
A14: Have invested significant money in septic system
A15: Have invested significant money in well / drinking water filtration system
A16: Other – detail

Q51: Do you have any additional questions about the study or the Class EA process? 
(Inform them that there is an open house (Public Information Center #2) planned for early April 2018 at the Marsh St. Center, where preferred options will be presented to the public).

A1: No
A2: Yes - type questions here if surveyor cannot answer them directly.

Q52: Would you like to receive study updates by email?

A1: Yes
A2: No

Q53: Please provide your e-mail address.

Q54: Thank you for completing the questionnaire. Surveyor (if applicable): ask if you can map the well / septic bed information.
Section 4 – Surveyor Information

Q55: Surveyor – was water sample taken?
   A1: Yes
   A2: No
   A3: Other

Q56: Where was the water sample taken from?
   A1: Kitchen tap
   A2: Bathroom tap
   A3: Outdoor tap
   A4: Laundry sink tap
   A5: Not applicable, sample not taken
   A6: Other

Q57: Were any aerators or filters removed from the tap or somehow by-passed before the sample was taken?
   A1: An aerator or tap mounted filter was removed before sampling.
   A2: Aerators or tap mounted filters remained installed
   A3: There was no aerator or filter to remove
   A4: Unsure
   A5: Not applicable, sample not taken
   A6: Other

Q58: Did the water sample still pass through a treatment system?
   A1: Yes, all treatment systems in home (no water softener)
   A2: Yes, all treatment systems in home (including water softener)
   A3: No
   A4: Unsure
   A5: Not applicable
   A6: Only some treatment systems in home (specify)
Q59: Type of well casing measured.
   A1: Drilled well – casing visible above grade
   A2: Drilled well – inside of old dug well concrete casing (not visible)
   A3: Dug well – outdoors in concrete casing
   A4: Dug well – basement
   A5: Not observed
   A6: Not applicable
   A7: Other

Q60: What is the height of the well cap above finished grade?
   A1: Below grade
   A2: At grade
   A3: Not applicable, no well
   A4: Height above grade (enter inches)
Appendix ‘C’
Hydrogeological Assessment
HYDROGEOLOGICAL ASSESSMENT

Clarksburg Servicing
Town of The Blue Mountains
(Clarksburg), Ontario

Submitted to:
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107-450 Speedvale Ave. West
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Report Number: 1671088
Distribution:
1 pdf copy - J.L. Richards & Associates Limited
1 pdf copy - Golder Associates Ltd.
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1.0 INTRODUCTION
The Town of The Blue Mountains is undertaking a Class Environmental Assessment (Class EA) to evaluate the water and wastewater servicing opportunities in the Clarksburg area (Figure 1). Golder Associates Ltd. (Golder) was retained by J.L. Richards & Associates Limited (JL Richards) to conduct an updated bacteriological water quality survey of private wells. In addition to bacteriological water quality testing work consisted of well inventories, interviews with the homeowners regarding the condition of their well and water supply system, and water quality testing of nitrate.

The presence of Total Coliform, E.Coli and background bacteria is a good indicator for the vulnerability of the aquifer to impacts from surface activities. Coliform bacteria are present in the digestive systems of animals and humans and their presence in drinking water indicates the potential for more harmful bacteria like E.Coli. The Ontario Drinking Water Standards (ODWS) therefore has established that Total Coliform bacteria and E.Coli are to not be detected in drinking water. Background bacteria formerly had an ODWS of 200 colony forming units (CFU)/100 ml of water. This standard has been removed from the ODWS; however elevated background bacteria are strongly associated with the presence of Total Coliform and E.Coli.

1.1 Scope of Work
The scope of work for the hydrogeological investigation consisted of the following components:

- Conducting a water quality survey to obtain water quality samples from residential properties within the study area.
- Conducting a visual inspection of the residential wells to evaluate compliance with Ontario Regulation (O.Reg.) 903
- Preparation of a conceptual sewage system design; and,
- Completing an aquifer vulnerability assessment.

2.0 BACKGROUND
2.1 Physiography and Drainage
The Clarksburg community is located in the Beaver River Valley and is in a physiographic region known as the Beaver Valley Physiographic Region as defined by Chapman and Putnam (1984). The Beaver Valley is characterized by its broad opening at Georgian Bay and steep-sided valley walls. The Beaver River valley extends approximately 20 kilometres inland toward Kimberley. Dolostone bedrock forms an escarpment on either side of the valley that afford spectacular views across the valley. In Clarksburg the elevation ranges from a high of approximately 215 metres above sea level (masl) on Matilda Street to approximately 190 mast in the Beaver Valley north of Forest Avenue. The Beaver River flows north into Georgian Bay and at Clarksburg the River drains an area of approximately 635 km².
2.2 Geological Setting

The study area is underlain by Palaeozoic-aged rocks of the Georgian Bay Formation (Telford, 1973). These rocks are found at an elevation of approximately 170 masl at Clarksburg and are seen to outcrop on the shores of Georgian Bay to the east and west of Thornbury. The bedrock surface in the Beaver River Valley has been over-deepened as a result of erosion from southerly moving glaciers and potentially from scouring by sub-glacial water flow.

Buried Quaternary aged deposits are known in the Clarksburg area from the descriptions contained in the water well records. The well records have been plotted on hydrogeological cross sections to illustrate the geology and hydrogeology of the area (Figures 2, 3, and, 4). The cross sections show till at elevations of approximately 180 to 190 masl on the cross sections. These materials outcrop near the Bay in Thornbury and have been described as sand rich facies of the Newmarket or Catfish Creek Till by the OGS (2017).

The Till is overlain by fine-grained basinal, lacustrine deposits primarily composed of silt and clay. These are interpreted to be deep water glacial Lake Algonquin deposits and are described in the driller’s records as clay or silt and clay. These materials are overlain by coarser grained littoral deposits of sand, silt, or clay that were deposited in the increasingly shallow water of the regressing glacial Lake Algonquin. In the northern part of the study area below elevations of approximately 190 masl, sandy deposits and beach ridges associated with glacial Lake Nipissing are present.

2.3 Hydrogeological Setting

The Clarksburg area has three potential water supply aquifers. The upper unconfined aquifer occurs to the north of the Beaver River as a thin discontinuous sand layer that is typically less than a few metres thick. To the south of the Beaver River, in the east end of Clarksburg, the thickness of the upper aquifer can reach 12 to 14 m (Figure 2). These granular deposits may be related to Lake Algonquin shoreline gravels found outside the study area to the south or be part of a sequence of older alluvium of the Beaver River. Unconfined sand aquifers are typically highly vulnerable to contamination from surface activities.

Many of the water well records do not identify sand at the surface and the first aquifer intersected in many wells occurs at in the overburden between 15 to 30 m below the ground surface (mbgs). This aquifer is under confined artesian conditions and is reported to be composed of sand and gravel. The aquifer is found at elevations between 175 to 190 masl (Figures 2, 3, and, 4).

The deepest aquifer present is found in the shale bedrock and typically only used as a water supply if the confined overburden aquifer is present. The bedrock aquifer is composed of shale and as such is not a prolific water supply aquifer; water supplies are typically obtained close to the bedrock – overburden contact. Bedrock is intersected in wells at an elevation of approximately 170 masl.
2.4 Existing Water Supplies

A study of the Ontario Water Well Database indicated a total of 188 wells have been completed within the study area. A printout of the well records is provided in Appendix A. Using the survey results the well records have been correlated to properties within the Clarksburg area where possible. The Ontario Water Resources Act was enacted in 1961 and, in part, provided a set of guidelines governing the use of water resources. Water well construction regulations were updated in 1984 (Ontario Regulation [O.Reg.] 612-84), in 1994 (O. Reg. 903), and again in 2003 (O. Reg. 128/03). Based on the MOECC well records the completion dates for the wells in the Clarksburg area range from 1964 to 2016, with the majority (148) completed prior to 1994. Well depths range from 4.6 m to 67.1 m (66 wells less than 20 m deep, 118 wells between 20 m and 67.1 m). The well records indicate 164 wells have a yield of 14 L/min or more, 9 wells have yields less than 14 L/min, with no records for 15 wells.

Prior to 1983 almost all wells in the study area were constructed with the cable tool drilling method. Rotary drilling method became more common after 1983; however cable tool drilling continues to be used to the present. One of the subsections in O. Reg. 903 is the requirement that the first six metres of a drilled well consist of waterproof casing that is grouted in place. The regulations are intended to provide protection from surface derived contamination contaminating wells. Poorly constructed wells could potentially result in contamination of the aquifer, which could impact neighbouring wells. Due to the fact that the wells in the area are completed within the overburden, or are drilled through the overburden to the bedrock, it is expected that only the shallowest (dug) wells would have been drilled without a surface casing in place.

3.0 METHODS

3.1 Well Survey

The tax roll for the community was used to identify property owners in conjunction with the published lot layout for Clarksburg. An in-person visit was conducted at each of the properties in the study area. A standard survey was completed with each resident who was willing to be part of the investigation to determine information on the well, water use, septic use, and to acquire personal information on the property owner. As part of the survey activities a visual inspection was conducted of the well head and septic bed area.

Water quality samples were collected for microbiological analysis (including *E. coli*, total coliforms, and background) at each residence where approval was provided by the property owner. The water quality sampling method generally followed the ‘Tips for Taking Water Samples’ provided by the Grey County Health Unit:

- Wash hands before taking the sample
  - new disposable nitrile gloves were worn to collect each sample;
- Remove screen, aerator or other attachments from tap;
  - Permission was requested from each owner prior to attempting to remove the aerator. If the aerator could not be removed, or if permission was not granted, it was requested...
that the water quality sample be collected from a tap within the house which did not have an aerator (i.e., bathtub tap). In the even that permission was not granted (or the aerator could not be removed) the water quality was sampled with the aerator in place.

- Run cold water for 2 to 3 minutes
- Disinfect the faucet with alcohol wipes
- Run cold water for 2 to 3 minutes again.
- Do not touch the inside of the bottle or lid do not put the lid down or rinse out the bottle (the bottle contains Sodium Thiosulphate to neutralize chlorine, it may cause a reaction if ingested or inhaled).
- Fill the sample bottle to the level marked on the bottle.

Water samples were collected from residents’ kitchen taps where possible; the intent being to sample water as it is used in the home. No effort was made to by-pass water treatment systems. The water quality samples were collected by trained hydrogeological technicians and the samples were transported on ice and received by an accredited water testing laboratory within 24 hours. Water samples were tested for comparison to the Ontario Drinking Water Standards for E-coli, total coliform, and background bacteria. During the interview with homeowners, the appropriate contact information (e-mail or phone) was obtained from the residents and adverse water quality results were communicated to both the resident and the Grey County Health Unit.

3.2 Intrinsic Susceptibility Index

The objective of the aquifer vulnerability assessment was to determine if currently un-serviced properties with private water wells are at a heightened risk for drinking water impacts as a result of intrinsic aquifer conditions supplying the wells. Notably, the proposed servicing for these properties would utilize treated surface water from Georgian Bay and thus avoid potential groundwater contamination issues. Vulnerability is defined herein as an aquifer’s intrinsic susceptibility to water quality contamination from both human and natural causes. The vulnerability of groundwater in the Clarksburg area is determined using the Intrinsic Susceptibility Index (ISI) approach as prescribed by the Ministry of Environment and Climate Change (MOECC) in the Technical Rules Under the Clean Water Act (MOECC, 2017) and Groundwater Studies 2001/2002 Technical Terms of Reference (MOE, 2001).

A detailed description of the ISI approach may be found in MOE (2001). In brief, the rationale for the ISI method is related to groundwater time of travel; in other words, vulnerability increases as the time for a surficial contaminant to reach the water table (or shallowest significant aquifer) decreases. Under the ISI approach, travel time is a function of the hydraulic conductivity and the thickness of the geologic material overlying the water table/aquifer. Geologic unit(s) with low permeability and large thickness will yield a relatively high ISI value; conversely, geologic unit(s) with high permeability and small thickness will yield a relatively low ISI value. Aquifer vulnerability is classed using the following thresholds:
- ISI value greater than 80 is “Low” vulnerability;
- ISI value between 30 and 80 is “Low to Moderate” vulnerability; and,
- ISI value less than 30 is “High” vulnerability.

The ISI approach utilizes well records in the MOECC Water Well Information System (WWIS) as the primary source of input data. A recent (2017) version of the database garnered from the MOECC’s website was used for this study.

The general ISI calculation approach calls for 1) calculating an ISI value at each individual well; and 2) inputting all the ISI values within a spatial interpolation routine to infer a seamless ISI map over the study area, as follows:

- The individual well ISI calculations requires a computer coding routine to evaluate the hydrogeological conditions at each well, including: 1) identifying the water table or aquifer position; 2) evaluating the type, thickness and “K-factor” for each unit overlying the water table or aquifer; and 3) summing the product of the thickness of each geologic layer corresponding K-factor for each unit above the water table / aquifer. K-factors for typical geologic materials are prescribed in MOE (2001), and, although dimensionless, are related to hydraulic conductivity. For this project, Golder has employed a Lisp coding routine that was first used in the North Simcoce Groundwater Study (Golder, 2005).

- The amalgamated ISI values, positioned in accordance with the well’s XY-coordinates, are then interpolated spatially over the study area to provide an ISI map. For this study, a natural neighbour interpolation method using a 50 m x 50 m grid spacing is employed.

The ISI approach provides for a “high-level” assessment of aquifer vulnerability and is useful for illustrating trends on a regional (as opposed to local) scale. It should be recognized that the behaviour of a specific contaminant released at a particular location will be influenced by local factors that may not be considered by the ISI, including, but not limited to: localized geologic anomalies, recharge rates, contaminant concentration, and contaminant physiochemical or biological properties.

In addition, the accuracy of ISI values and associated mapping is reliant on the accuracy and the spatial distribution of the data itself. In some areas, by virtue of erroneous data or sparse well records, ISI values may have a high degree of uncertainty. Nonetheless, when applied judiciously, the ISI method is typically a reasonable tool for assessing regional scale aquifer vulnerability.

### 3.3 Conceptual Sewer System Design

A conceptual sewage system design was prepared for three case study lots. The beds were designed based on typical bed construction criteria obtained through discussions with the Towns CBO. The reality that on-site sewage disposal systems have a limited life span and that their replacement is based on the current Ontario Building Code will be described. The aim is to identify the area required for a new septic disposal bed and the necessary off-sets to wells.
Several generic property sizes will be used as generic cased studies to determine if or how replacement septic systems could fit on the properties.

4.0 FIELD PROGRAM

The water quality survey was conducted over a period of five days (November 4 through 7, November 19, and November 26 and 27). Field staff visited each property within the study area and attempted to interview the residents at each location. Each resident who agreed to participate was interviewed, and following completion of the survey, and contingent on resident approval, a water quality sample was collected for microbial analysis according to the procedure outlined in Section 3.0.

Following completion of the sample collection, the field staff assessed the water well and septic bed location at the property (if possible). Properties where no one was home during the first visit were flagged for follow up. In the event that no contact could be made during the follow up visit a letter was left at the property detailing the nature of the survey and providing contact information the resident could use to complete the survey by phone. Several phone interviews were completed in this fashion.

5.0 RESULTS

5.1 Well Survey

The review of the tax roll indicated a total of 317 properties listed within the study area. A total of 187 residents were successfully contacted, with 18 residents declining to participate in the survey. Note that letters were delivered to a significant number of residents who could not be contacted in person, so responses to the letters may yet be received. The majority of the residents surveyed indicated that their wells provide an adequate water supply. Bacteriological samples were collected from a total of 88 properties for a 47% sampling success rate.

5.1.1 Sampling Guidelines and Results

With respect to guidelines, both the ODWS and the Grey-Bruce Regional Health unit indicate an acceptable detection limit of 0 cfu/100 mL for \textit{E. coli} (i.e., none should be detected in drinking water). The ODWS indicates a guideline threshold of 0 cfu/100 mL (i.e., 'non-detect') for total coliforms, and the Grey-Bruce Health Unit indicates that Total Coliform concentrations of 5 cfu/100 mL or lower are considered “safe”.

According to Health Canada, background bacteria are not necessarily harmful to human health, however the presence of background bacteria in the groundwater suggests the well may be vulnerable to impacts due to surface activities. Historically, the drinking water limit for these bacteria was 200 cfu/100 mL; however there is no current guideline for background bacteria in the ODWS. The results of the bacteriological sampling, relative to both the ODWS and the Grey County Health Unit Guidelines are summarized below. A copy of the laboratory analytical data reports are provided in Appendix B.

- Number of samples with some detectable bacteria (either background, Total Coliforms, or \textit{E. coli}): 45
HYDROGEOLOGICAL ASSESSMENT

- Number of samples with detectable background bacteria (less than 200 cfu/100 ml), but no Total Coliforms or E.coli: 16
- Number of samples with detectable background bacteria (more than 200 cfu/100 ml), but no Total Coliforms or E.coli: 4
- Number of samples with detectable Total Coliforms (less than 5 cfu/100 ml), but no E.coli: 13
- Number of samples with detectable Total Coliforms (more than 5 cfu/100 ml), but no E.coli: 11
- Number of samples with detectable E.coli: 1

5.1.2 Well Depth and Type Comparison

A comparison was made between well depth and presence of bacteria to evaluate whether the well depth has an impact on the susceptibility of a well to bacteriological contamination at this Site. Information collected from the well owners provided limited information on the well depths, and in most instances the well depth was not provided. As exact depth of many of the wells remains uncertain, the bacteriological results were compared to the well type (dug or drilled) as a proxy for well depth (shallow or deep, respectively). Of the 88 wells sampled, 60 (68%) were identified as drilled, 22 (25%) were identified as dug (or bored (with one sandpoint), with the remaining 6 wells undefined.

The comparison indicated:

- Of the 43 wells with no detectable background bacteria, total coliforms or E.coli, 31 wells (72%) were identified as drilled wells, 9 wells (21%) were identified as dug (or bored) wells, and 3 wells either undetermined or part of a shared system.
- Of the 45 wells with any detectable bacteria (background, total coliforms, or E.coli): 29 wells (64%) were identified as drilled, 13 wells (29%) were identified as dug, with 3 wells unidentified;
  - Of the 20 wells with detectable background bacteria counts but no E.coli or total coliforms, 16 wells (80%) were identified as drilled, three wells (19%) were identified as dug, with one undetermined;
  - Of the 25 wells with detectable total coliforms or E.coli, 12 wells (52%) were identified as drilled wells, 10 wells (40%) were identified as dug wells, with the well type at two properties was undetermined.

The results indicate that both shallow (e.g. dug or bored) wells and deeper drilled wells are vulnerable to coliform contamination, with the occurrence of coliforms slightly more prevalent at shallow wells than expected based on the distribution of well types.
5.1.3 Treatment Systems

The survey included inquiries into the use of treatment systems at each location, including antibacterial treatment (i.e. ultraviolet [UV] lights). The breakdown of treatment system versus analytical results indicates:

- For the 43 samples with no detectable bacteria (background, total coliforms, E.coli): 23 locations (53%) reportedly had UV treatment;
- For the 20 samples with detectable background bacteria (but no total coliforms or E.coli): 10 locations (45%) reportedly had UV treatment;
- For the 25 samples with detectable total coliforms or E.coli: 3 locations (12%) reportedly had UV treatment.

The results indicate that of the 35 residents who indicated the use of UV treatment, samples from 13 (36%) showed the presence of bacteria (background or total coliforms). As would be expected, the use of UV treatment appears to reduce the likelihood that bacterial contamination would be present in the treated water, but does not eliminate the possibility.

5.2 1997 vs 2017 Sample Results

A comparison was made between the 25 wells that were sampled both in 1997 (Wilson, 1997) and 2017. It is noteworthy that the samples collected in Wilson (1997) were untreated, while in the current study samples were collected downstream of any treatment systems. Of the mutually sampled wells, 13 (52%) failed the ODWS either in 1997 or in 2017 or during both samplings. Conversely, 11 of the wells (36%) passed the bacteriological quality limit in the ODWS during the both samplings.

- 4 samples failed ODWS bacteriological standard in 1997 but passed in 2017;
- 6 samples failed ODWS bacteriological standard in 2017 but passed in 1997;
- 3 samples failed ODWS bacteriological standard in both 1997 and 2017; and,
- 11 samples met the ODWS bacteriological standard of the ODWS in both 1997 and 2017.

These results indicate suggest that water quality at individual wells varies over time, although a direct comparison of the results is complicated by the differences in the sampling methods between the two studies.

5.3 Intrinsic Susceptibility Index

An ISI map, the principle deliverable under this scope of work, identifies areas where groundwater contamination is more (or less) likely to occur as a result of surface contamination.

Figure 5 displays the ISI map of the Clarksburg area, including the regional susceptibility classes and individual ISI values for each well. The majority of Clarksburg is situated within a low vulnerability area, although there are discrete areas of moderate to high vulnerability, particularly within the central portion of the town. It is noteworthy that the ISI mapping completed as part of the current study is generally consistent with larger scale Grey-Bruce
aquifer vulnerability mapping conducted as part of prior county-wide groundwater study (WHI, 2003).

5.3.1 Relation to Water Quality Results

The low vulnerability classification over the majority of Clarksburg suggests that surficial contamination is unlikely over much of the area. Nonetheless, a significant number of bacteria and elevated nitrate detections were found during the well survey, even in drilled wells that would have displayed moderate to high ISI (low vulnerability) values. The presence of surficial contaminants in areas of supposed low vulnerability could indicate several possibilities, including:

- The discrete moderate to high vulnerability zones are “windows” for contaminant transport to the rest of the aquifer;
- The largest area of moderate vulnerability (and the only areas of high vulnerability) are situated in the downtown core, which is also an area of high water use and human activity; and,
- Although not considered in the ISI approach, improperly constructed or poorly maintained water wells may provide a direct pathway for surficial contaminants to reach groundwater. This mode of transport in effect “short-circuits” any protection afforded by the aquifer material or thickness.

5.4 On-Site Sewage Disposal

5.4.1 Conceptual Sewage System Design

As part of the conceptual sewage system design a review was conducted of the potential for residential lots to be able to meet Part 8 of the current Ontario Building Code (OBC) for sewage system construction. On-site sewage disposal systems have a limited life span and eventually need replacement. Replacement of septic disposal systems falls under the Ontario Building Code and as such, replacement beds would be subject to the current sewage disposal system guidelines. Home renovations also trigger an investigation of the sewage disposal system and in the case of old beds often will require that the bed be brought up to the current Building Code standard. In most cases a replacement sewage system would have a larger septic tank and larger disposal bed than that build for a home prior to the 1980s. It is expected that many of the older homes in Clarksburg have undersized septic tanks and in-ground septic effluent disposal beds compared with current OBC requirements. A review of the lot layout in Clarksburg indicates that relatively small lots are common in Clarksburg, which may be of concern when accommodating larger disposal systems as currently required under the OBC.

The main factors that govern the size of the effluent disposal beds are the nature of the receiving soils, effluent loading rate, and high water table conditions. In Clarksburg the surficial soils conditions are variable; most of the Clarksburg area is underlain by fine grained silt or clay soils, with some areas having sandy soils near the ground surface. The cut bank in the Beaver River shows a typical cross section with lacustrine silt and clay at the surface, overlying a cobble, silt till, which in turn overlies a shallow confined sand and gravel aquifer (Plate 1).
Where the soils are fine-grained a fully raised effluent disposal bed would be required that would rise approximately 1.2 m (4 feet) above the existing grade.

A sewage disposal system design for a detached, single family dwelling assumes an effluent loading rate of 1,600 to 2,400 L/day, which is equivalent to three or a four bedroom home. Effluent disposal beds suitable for these rates, which would be typical for the area, require a footprint of 310 to 400 m².
Table A: Design Criteria and Estimated Disposal Bed Footprint for Typical Residences in Clarksburg

<table>
<thead>
<tr>
<th>Septic Flow (L/day)</th>
<th>Primary Bed Footprint 1 (m²)</th>
<th>Approx. Side Length 2 (m)</th>
<th>Expanded QT/850 (m²)</th>
<th>Approx. Side Length 2 (m)</th>
<th>Bed and Mantle Footprint (m²)</th>
<th>L x W (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1600</td>
<td>32</td>
<td>5.7</td>
<td>123</td>
<td>11.1</td>
<td>310</td>
<td>21 x 15</td>
</tr>
<tr>
<td>2000</td>
<td>40</td>
<td>6.3</td>
<td>154</td>
<td>12.4</td>
<td>385</td>
<td>24 x 16</td>
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<tr>
<td>2400</td>
<td>48</td>
<td>6.9</td>
<td>185</td>
<td>13.6</td>
<td>400</td>
<td>25 x 16</td>
</tr>
</tbody>
</table>

Notes:  
1 assumes effluent loading rate of 50 L/m²  
2 based on square layout  
* OBC 8.7.4.1

Table A Alternate Text – A table listing the design criteria and estimated disposal bed footprints for typical residences in Clarksburg. The table provides the estimated area and length dimensions for three different septic bed flow rates. The required footprints range in size from 310 to 400 square meters.

In addition to the placement considerations noted above, bed replacement must also consider the offset from septic tanks, septic bed tiles must have a minimum distance to on-site or neighbouring wells (15 m from a drilled well or 30 m from a dug well), and at existing homes there are often mature trees or shrubs, out-buildings, decks, garages, driveways, or pools occupying open spaces that may be required for bed construction. Construction of a new septic system is a major change to what is often the only open space on a building lot. The replacement of a failed conventional in-ground effluent disposal bed can be done with the smaller raised or in-ground filter beds (bed sizes indicated above), and while these beds are more costly than in-ground beds they are often required because of space limitations.

Based on an aerial photograph review of properties in Clarksburg, and considering the general placement of dwellings, private wells, etc., it is expected that at most properties the septic bed footprints indicated in Table A could not be accommodated as part of the replacement of the existing on-site sewage disposal systems.

5.4.2 Density of Development

The Ministry of the Environment and Climate Change has prepared guidelines for the development of rural homes using private on-site wells and private on-site sewage disposal systems. These guidelines have become increasingly restrictive and the density of rural developments that were approved in the 1980s would not meet the current lot density guidelines. The increase in lot size through successive Ministry of the Environment subdivision approval guidelines has allowed for: the placement of wells and sewage disposal systems with
adequate setbacks to assure safe water supplies; the use of open space on lots for out buildings
such as garages or sheds; and the placement of decks and swimming pools.

The overall density of development of Clarksburg is approximately 200% of what the Ministry
of the Environment and Climate Change guidelines would permit today.

6.0 CONCLUSIONS

The conclusions from the hydrogeological assessment and well survey activities include:

- The water supplies in the Clarksburg area are primarily obtained from overburden deposits,
generally sand and gravel deposits. A small subset of the wells in the area draw water
from the bedrock;
- The wells completed in the area are generally reported to provide an adequate water supply
for individual homes;
- A total of 88 treated water samples were collected, and 28% (25 samples) failed the Ontario
Drinking Water Standard (ODWS) for bacterial water quality;
- Sampling results showed the presence of bacteriological contamination at both dug and
drilled wells in Clarksburg. The presence of coliforms (total or *E.coli*) was noted at shallow
wells with greater frequency than expected based on the prevalence of shallow wells in the
area.
- A comparison of 25 wells that were sampled in both 1997 and 2017 indicates that 52%
failed the ODWS bacteriological water quality standard either in 1997 or 2017, or during
both samplings;
- The distribution of bacteriological impacts was relatively even across the survey area, and
intermingled with properties with no impacts. This suggests that the source of bacterial
impacts is likely associated with individual wells and properties, rather than continuous,
wide-spread contamination.
- The groundwater supplies in the Clarksburg community are vulnerable to bacteriological
contamination, and it appears there are no portions of the study area that are immune to
poor water quality.

The Clarksburg area aquifer vulnerability analysis, combined with the water quality data
amassed as part of the broader Clarksburg Environmental Study Report, allowed for the
following conclusions:

- The aquifer underlying Clarksburg is largely classed as low vulnerability as a result of the
thickness and relatively low permeability of materials overlying it, although there are
discrete areas of moderate to high vulnerability located within Clarksburg, particularly within
the downtown.
- The broad presence of bacteria in Clarksburg private wells suggest that, despite the
majority of the area being classed as low vulnerability, there are still pathways for surficial
contaminants to enter the aquifer system. These pathways include the potential that the
relatively limited moderate to high vulnerability areas are acting as discrete transport “windows” for contaminants to access the broader aquifer, and that improperly constructed or poorly maintained water wells may be providing a direct pathway for surficial contaminants to reach the aquifer.

- Given that the mechanism for surficial contamination to reach the aquifer remains unclear and potentially multi-faceted, Golder would suggest that maintaining a private well supply in the Clarksburg area, irrespective of its local geology, depth, construction, or maintenance, may always be at an elevated risk of contamination. From a water quality perspective, a municipal water supply would appear to be the safer alternative.

Clarksburg is a community that has many homes that were constructed prior to the septic system design and approval being under the Ontario Building Code. There is potential for some homes to not have adequate room to accommodate a new on-site sewage disposal system because of space constraints or offset to neighbours wells. A review of individual properties has not been conducted, however the following conclusions can be made:

- A relatively level, open area of 310 to 400 m² would be required by homes in Clarksburg to accommodate a replacement sewage disposal system, this corresponds to an area of 15 m by 21 m to 16 m by 25 m. For many homes with this area in the yard it would require the removal of trees, or outbuildings, or decks.

- Most replacement sewage disposal systems would be raised filter beds, a raised bed typically rises above the adjacent ground by approximately 1.2 m.

The Ministry of Environment guidelines for lot sizes in rural subdivisions has changed and if the current development guidelines were applied to Clarksburg the number of homes would be approximately half of the current number.
Report Signature Page

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Hydrogeologist

Associate - Senior Hydrogeologist

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7.0 REFERENCES


OGS, 2017. Quaternary Geology of the Collingwood Area. Scale 1:50,000, Map P. 3815.


Figure 1 – Site Location Map

Alternative Text

Figure 1: A figure showing the an outline of the assessment area, which is approximately coincident with the developed portion of Clarksburg.
Figure 2 – Cross Section A-A

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Figure 2: A figure showing a cross-section of the geology and groundwater levels in Clarksburg. The cross-section is oriented approximately east to west, and crosses the downtown area.
Figure 3: A figure showing a cross-section of the geology and groundwater levels in Clarksburg. The cross-section is oriented approximately east to west, and is aligned with Clark Street, in the northeast part of Clarksburg.
Figure 4 – Cross Section C-C

Alternative Text

Figure 4: A figure showing a cross-section of the geology and groundwater levels in Clarksburg. The cross-section is oriented approximately north to south, and is aligned with Hill Street, in the northwest part of Clarksburg.
Figure 5 – ISI Index and Aquifer Vulnerability

Alternative Text

**Figure 5:** A figure showing the results of the Intrinsic Susceptibility Analysis. Most of the Clarksbug area is considered low vulnerability, with discrete areas of moderate to high vulnerability, particularly in the downtown area.
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**QUALITY:**
- **Fr** Fresh
- **Mn** Mineral
- **Sa** Salty
- **Su** Sulphur
- **--** Unrecorded

**TYPE:**
- **WS** Water Supply
- **AQ** Abandoned Quality
- **AS** Abandoned Supply
- **AB** Abandonment Record
- **TH** Test Hole or Observation

**USE:**
- **CO** Comercial
- **DO** Domestic
- **MU** Municipal
- **PU** Public
- **ST** Stock

**METHOD:**
- **CT** Cable Tool
- **DO** Drilling
- **IR** Irrigation
- **PU** Public
- **RC** Rotary Conventional
- **RA** Rotary Air
- **BR** Boring

Eastings and Northings UTM NAD 83 Zone 17, Translated from Recorded UTM NAD, subject to Field Verified Location or Improved Location Accuracy.

Records Copyright Ministry of Environment Queen's Printer. Selected information tabulated to metric with changes and corrections subject to Driller's Records.
APPENDIX B
Laboratory Data Reports
CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: DW78201

REPORT No. B17-33492

Cadleon Environmental Laboratories
112 Commerce Perk Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 06-Nov-17
DATE REPORTED: 10-Nov-17
SAMPLE MATRIX: Drinking Water

Parameter | Total Coliform | E coli | Background
----------|----------------|--------|-----------
Units     | cfu/100mL      | cfu/100mL | cfu/100mL |
R.L.      | 1              | 1      | 1         |
Reference Method | MOE E3407 | MOE E3407 | MOE E3407 |
Date Analyzed/Site | 06-Nov-17/B | 06-Nov-17/B | 06-Nov-17/B |

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1. Results Indicate Adverse Water Quality

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

Christine Burke
Lab Manager

Page 1 of 1.
## Certificate of Analysis

**Client:** Caduceon Environmental Laboratories  
**Address:** 112 Commerce Park Drive, Barrie ON L4N 8W8  
**Contact:** Tel: 705-252-5743, Fax: 705-252-5746

**Report To:**  
Golder Associates Ltd.  
121 Commerce Park Drive, Unit L,  
Barrie ON L4N 8X1 Canada  
**Attention:** David Dillon

**Date Received:** 06-Nov-17  
**Date Reported:** 10-Nov-17  
**Sample Matrix:** Drinking Water

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1. Results indicate adverse water quality

---

**R.L. = Reporting Limit**  
Test methods may be modified from specified reference method unless indicated by an *  
Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

---

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**CERTIFICATE OF ANALYSIS**

**Final Report**

C.O.C.: DW89551

REPORT No. B17-33741

---

**Report To:**
Golder Associates Ltd.
121 Commerce Park Drive, Unit L,
Barrie ON L4N 8X1 Canada

**Attention:** David Dillon

DATE RECEIVED: 07-Nov-17
DATE REPORTED: 10-Nov-17
SAMPLE MATRIX: Drinking Water

**Caduceon Environmental Laboratories**

112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

JOB/PROJECT NO.: P.O. NUMBER: WATERWORKS NO. 1671088

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1. Results indicate Adverse Water Quality

---

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an **
Site Analyzed= K-kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

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---

Christine Burke
Lab Manager

Page 1 of 1.
CERTIFICATE OF ANALYSIS
Final Report

C.O.C.: DW89552

REPORT No. B17-34105

Report To:
Golder Associates Ltd.
121 Commerce Park Drive, Unit L,
Barrie ON L4N 8X1 Canada
Attention: David Dillon

DATE RECEIVED: 08-Nov-17
DATE REPORTED: 10-Nov-17
SAMPLE MATRIX: Drinking Water

Caduceon Environmental Laboratories
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

JOB/PROJECT NO.: 1671088
P.O. NUMBER:
WATERWORKS NO.

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1. Results Indicate Adverse Water Quality

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

Christine Burke
Lab Manager

Page 1 of 1.
### Certificate of Analysis

**Final Report**

**C.O.C.:** DW89557-8

**REPORT No. B17-35027**

**Report To:**
Golder Associates Ltd.
121 Commerce Park Drive, Unit L,
Barrie ON L4N 8X1 Canada

**Attention:** David Dillon

**DATE RECEIVED:** 20-Nov-17

**DATE REPORTED:** 22-Nov-17

**SAMPLE MATRIX:** Drinking Water

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#### Parameter Results

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1. Results Indicate Adverse Water Quality

---

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an *

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

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---

Christine Burke
Lab Manager

Page 1 of 1.
## Certificate of Analysis

**Final Report**

**C.O.C.: DW89560**

**REPORT No. B17-35914**

### Report To:

**Golder Associates Ltd.**  
121 Commerce Park Drive, Unit L,  
Barrie ON L4N 8X1 Canada

**Attention:** David Dillon

**DATE RECEIVED:** 28-Nov-17  
**DATE REPORTED:** 01-Dec-17  
**SAMPLE MATRIX:** Drinking Water

### Caduceon Environmental Laboratories

**112 Commerce Park Drive**  
**Barrie ON L4N 8W8**  
**Tel:** 705-252-5743  
**Fax:** 705-252-5746

**JOB/PROJECT NO.:** 1671088  
**P.O. NUMBER:**  
**WATERWORKS NO.:**

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**R.L. = Reporting Limit**  
**Test methods may be modified from specified reference method unless indicated by an *  
**Site Analyzed=K-kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie**

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---

Christine Burke  
Lab Manager
## Certificated of Analysis

**Report To:**
Golder Associates Ltd.
121 Commerce Park Drive, Unit L,
Barrie ON L4N 8X1 Canada

**Attention:** David Dillon

**DATE RECEIVED:** 27-Nov-17
**DATE REPORTED:** 01-Dec-17
**SAMPLE MATRIX:** Drinking Water

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

**JOB/PROJECT NO.:** 1671088
**P.O. NUMBER:** WATERWORKS NO.

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**R.L. = Reporting Limit**

Test methods may be modified from specified reference method unless indicated by an *.

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**Page 1 of 1.**
## CERTIFICATE OF ANALYSIS

**Final Report**

**C.O.C.: DW89554**

**REPORT No. B17-36488**

### Report To:
**Golder Associates Ltd.**
121 Commerce Park Drive, Unit L,
Barrie ON L4N 8X1 Canada

**Attention:** David Dillon

**DATE RECEIVED:** 04-Dec-17

**DATE REPORTED:** 06-Dec-17

**SAMPLE MATRIX:** Drinking Water

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**Christine Burke**
Lab Manager

Page 1 of 1.
As a global, employee-owned organisation with over 50 years of experience, Golder Associates is driven by our purpose to engineer earth’s development while preserving earth’s integrity. We deliver solutions that help our clients achieve their sustainable development goals by providing a wide range of independent consulting, design and construction services in our specialist areas of earth, environment and energy.

For more information, visit golder.com
TOWN OF THE BLUE MOUNTAINS

COMMUNITY OF CLARKSBURG

SERVICING MASTER PLAN CLASS ENVIRONMENTAL ASSESSMENT

PUBLIC CONSULTATION PLAN

SEPTEMBER 1, 2017

Submitted by:

J.L. Richards
ENGINEERS · PLANNERS

107-450 Speedvale Ave W
Guelph, ON Canada
N1H 7Y6

JLR 27430
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1.0 INTRODUCTION

The Town of The Blue Mountains is undertaking a Master Plan Class Environmental Assessment (Class EA) to evaluate the need for and the feasibility of improving water and wastewater services for all properties in the Community of Clarksburg (Community).

The Class EA is proceeding in accordance with the requirements of the Ontario Municipal Class EA, October 2000, as amended in 2015.

Public consultation is a key element of the Class EA process. As a result, this public consultation plan has been developed to ensure that the public and other stakeholders have numerous opportunities to be involved in the process and provide comments throughout the Class EA.

2.0 KEY CONSIDERATIONS

After meeting with Town of The Blue Mountains staff and reviewing background material, a number of considerations emerged that are likely to impact the implementation of the public consultation plan. These are both opportunities and constraints for engagement and have influenced the way this public consultation plan is structured. These considerations include the following:

- Residents of Clarksburg live in the community, either on a permanent or seasonal basis, with approximately 70-80 percent permanently residing in the community.
- Undeveloped lots comprise a small overall percentage of the lot inventory in the Class EA study area.
- There is mixed support for both the ‘individual services’ alternative (i.e. wells and septic tanks) and the ‘communal services’ alternative (i.e. centralized water and wastewater treatment plants) in the Community of Clarksburg.
- Growth of the Community of Clarksburg and local business opportunities may be limited by the current private servicing.
3.0 CONSULTATION OBJECTIVES

The research and analysis conducted during the development of this public consultation plan led to the identification of the following objectives for the consultation process for the Class EA:

- Improving community understanding and involvement through effective communications and consultation with local residents and special interest groups concerning the Class EA.
- Providing methods for the public and other stakeholders to easily obtain information about the Class EA process and project member contact information through the Town’s website and other means.
- Carrying out effective consultation activities with the assistance of a Public Liaison Committee (PLC).
- Encouraging participation at Public Information Centres) and other consultation activities so that the consulting team understands local concerns and issues.
- Ensuring the feedback provided by the public and other stakeholders is reviewed and understood by the consulting team.

4.0 TARGET GROUPS FOR CONSULTATION

To satisfy the objectives of this public consultation plan, target groups need to be identified. The following list includes the audiences considered critical for the success of the public consultation plan. As the Class EA unfolds, additional target groups may be identified and included. Target groups include the following:

The general public, including:

- Permanent and seasonal residents of the Community of Clarksburg
- Owners of undeveloped property
- Town/County residents and business owners
- Affected Indigenous communities
Special interest groups, including:

- Local utilities (e.g. gas, electricity, and telecommunications providers)

Government organizations and agencies, including:

- Town Council and Department Staff (including Planning, Public Works, Fire Department and more as suggested by The Town)
- Grey Sauble Conservation Authority
- Grey Bruce Public Health Unit
- County of Grey
- Ontario Ministry of Environment and Climate Change
- Ontario Ministry of Natural Resources and Forestry
- Ontario Ministry of Indigenous Relations and Reconciliation

5.0 ACCESSIBILITY STANDARD FOR CUSTOMER SERVICE

Throughout the Class EA it will be critical that services are provided in accordance with the Accessibility for Ontarians with Disabilities Act. This includes having respect for persons with a disability and using all reasonable efforts to ensure they have equal opportunity to obtain and provide input.

Throughout the Class EA, the consulting team will:

- Ensure Public Information Centres and other consultation activities are held in buildings with barrier-free access.
- Work with the Town to provide accessible formats and communication supports upon request.

6.0 KEY MESSAGES

Messages with appropriate and consistent tone and content will improve understanding among target audiences. The message statements listed below are built on a current understanding of the existing audiences, constraints, opportunities, and environmental
concerns surrounding the Class EA. These messages should be communicated throughout the Class EA and refined, as required, as it unfolds.

- Concerns have been expressed in previous studies with respect to public health safety and environmental impacts from the unfiltered migration of contaminants into the groundwater, surface water, and local drinking-water supply wells. Finding alternatives that address issues related to public health safety and environmental concerns will be a critical objective of the Class EA.

- A 2002 Comprehensive Environmental Study Report for Lora Bay, Clarksburg, Thornbury and the Camperdown Service Area found full municipal servicing was the preferred solution for the Community of Clarksburg.

- The purpose of this Class EA is to develop a realistic and **implementable plan** for the Town and property owners to improve water and wastewater services in the Community. To accomplish this goal, means and methods will be carefully evaluated during the Class EA process.

- This is not simply a duplication of previous efforts. This Class EA will evaluate previously studied options and new options which will also include an analysis of their financial impacts and how the associated servicing costs can be shared, deferred and/or funded. Consideration will also be given to how effective the alternative solutions are likely to be.

- The Town and consulting team members are committed to this Class EA and are placing an emphasis on a **seamless, open, transparent, and traceable** Class EA process.

### 7.0 RECOMMENDED COMMUNITY CONSULTATION ACTIVITIES

To achieve the objectives of this public consultation plan, a variety of public consultation vehicles and mechanisms are recommended. Care has been taken in selecting activities that recognize the needs of the local community and government...
organizations along with their specific information requirements. A specialized communication sub-consultant has been retained for this project to ensure that elements are communicated effectively and that community members and property owners are consulted as required by the EA framework.

7.1 Establish a Public Liaison Committee

A Public Liaison Committee (PLC) should be established with a mandate to ensure that all members of the community are provided with opportunities to participate in the consultation process and that information is provided to interested parties in a clear, transparent, and inclusive manner. The PLC would meet periodically throughout the Class EA to provide feedback on consultation activities and ensure that community information needs are met.

Responsibilities:

Members would provide feedback on the consultation process, review and provide comments on the Public Information Center presentations and any reports developed after the Public information Centres. The PLC would act as a sounding board for consultation activities.

Qualifications:

Members should be active participants in the local community, be open-minded, and have a strong interest in the future of the community.

Recommended PLC Size and Membership:

Three to five representatives from Clarksburg, including seasonal residents, permanent residents, business owners, owners of undeveloped properties, and one or two representatives from the community-at-large.
7.2 Two Public Information Centres (Open Houses)

Two Public Information Centres (PIC’s) are recommended. PIC’s provide a good mechanism for the local community to be informed about the Class EA, and contribute comments.

The Public Information Centres should be designed to be welcoming and provide opportunities for residents to speak directly with the consulting team and Town of The Blue Mountains officials. The meetings can take a variety of forms (e.g. formal presentations with a question-and-answer session and/or display boards with informal one-on-one discussions).

The first PIC would be held to explain the purpose and methodology of the Class EA. The second PIC would present the technical assessments of the Class EA study area and the alternative solutions, as well as the preferred alternative, including potential impacts and mitigation measures.

Residents would be encouraged to fill out comment sheets (available in person or online) to provide feedback to the consulting team about the information discussed.

7.3 Door-to-Door Visits

At the beginning of the Class EA, the consulting team will conduct door-to-door visits with Clarksburg community residents to inform them about the Class EA and opportunities for involvement. Residents will also be asked to complete a short questionnaire (in person or online) and provide a water sample from the property.

7.4 Ongoing Promotion and Consultation

To engage the public and other stakeholders, Class EA updates and Public Information Centre notices will be placed in the information pages of local newspapers. The Notice of Study Commencement and the Notice of Completion will be mailed directly to property owners in the study area and published in the local newspaper. Class EA
updates could also be given to the Town Council so that Councillors will provide information to their constituents.

7.5 Website

To assist the public in obtaining information about the Class EA and to provide an ongoing mechanism for feedback to the consulting team, the Town of The Blue Mountains will provide space on their website for the Class EA. Information for the website should include notices for Commencement and Completion, Notices for Public Information Centres, frequently asked questions, minutes of meetings, reports, technical memos, and contact information. The Town will also set up a project specific email address, which will be included in all public notices.

7.6 Social Media

The Consultant Team will provide social media content such as project tweets to the Town for posting on the Town’s Twitter account. Social media will primarily be used to direct people to the project EA web site and will provide the same information as the website, including notices for Public Information Centres, frequently asked questions, minutes of meetings, reports, technical memos, and contact information. Visitors and subscribers to the social media accounts will be encouraged to connect with the Town and Consultant team using the contact information (web site, email and phone) issued as part of the EA, and not the social media instant message functionality itself. Social media accounts will also be monitored by the consultant team on a daily basis.

7.7 Opportunities to Comment

At all public meetings, the public and other stakeholders will be encouraged to leave comments following the meeting. Following each consultation activity, a report will be written that summarizes and records the comments and input received from the participants. At the beginning of the Class EA, project specific email and phone numbers will be promoted in all communications to provide the public and other stakeholders with numerous avenues to provide input and ask questions. Any phone
calls or voicemails received from stakeholders will be tracked through a special “record of call” sheet to ensure a formal record of all comments and questions are maintained. Additional informal meetings may be required, and could be considered if local residents or the business community appear disengaged or dissatisfied with the extent or frequency of consultation activities.

8.0 EVALUATION MECHANISMS

The following activities should be undertaken to evaluate the effectiveness of this public consultation plan.

- Reviewing attendance numbers at the Public Information Centres.
- Tracking the number of door-to-door visits and comments received during visits.
- Requesting formal and informal feedback on the consultation process at Public Information Centers (via feedback forms), Committee meetings and on the study website.
- Tracking the number of visits to the study website and evaluating changes in traffic that occur in response to particular consultation events (e.g. mailing or emailing out notices).
- Examining the number and content of emails received from the public and other stakeholders.

9.0 CONCLUSIONS

The Town of The Blue Mountains is undertaking an important Class EA with the goal of establishing a long-term solution to the provision of water and wastewater servicing for the Community of Clarksburg.

The activities contained in this public consultation plan reflect the need to have an enhanced outreach program for local residents throughout the Class EA process. As the process unfolds, especially with the first Public Information Centre, public interest will grow. The public consultation plan has been developed to focus this interest and ensure
that the public and other stakeholders are meaningful participants in the Class EA process.

The fact that a previous Class EA was conducted on this issue and evoked strongly mixed responses from the community and agencies presents a unique challenge. However, maintaining a clear, transparent, and inclusive consultation process will help ensure that meaningful dialogue takes place so that innovative and achievable servicing strategies can be realized.
Appendix ‘E’

Notice of Commencement
Notice of Study – Public Invitation

Community of Clarksburg
Town of The Blue Mountains
Master Plan Class Environmental Assessment

The Town of The Blue Mountains has initiated a Master Plan Class Environmental Assessment (Class EA) to investigate opportunities to improve the water and wastewater services to all properties in the Clarksburg Service Area.

Map of the Clarksburg Servicing Master Plan Class EA Study Area

How Will This Affect Me?

The study will assess the quality of drinking water and the effectiveness of wastewater treatment in the community, analyze the current well and septic system inventories, and identify a long-term solution to the provision of water and wastewater servicing.

Public and agency consultation is a key element of the process, and input will be sought throughout the study to identify options to address the study findings. Based on this input, alternative strategies will be evaluated to identify optimal community, environmental and economic opportunities.
How Do I Get More Information?
Door-to-door visits will be conducted in the fall of 2017. A mailing list for notification of study status and opportunities for public input is being compiled. If you wish to add your contact information to the study mailing list, or if you have any questions regarding the study, please visit our website at [www.thebluemountains.ca](http://www.thebluemountains.ca) or contact one of the people listed below.

**Public Information Centres** are planned for the evening of Thursday September 14th (5pm-8pm), and the morning of Saturday September 16th, 2017 (10am-12noon) at the Town of The Blue Mountains Council Chambers (32 Mill Street). Details will also be mailed to service area residents, and posted on the Town’s website.

**A Community Liaison Committee** will be finalized to assist in facilitating public consultation activities during this study. If you are interested in being part of the committee, watch for details to be posted on the Town of The Blue Mountains website at [www.thebluemountains.ca](http://www.thebluemountains.ca), or contact those listed below.

Michael Troop, P.Eng.
Manager, Senior Environmental Engineer
J.L. Richards & Associates Limited
107-450 Speedvale Ave W
Guelph, ON N1H 7Y6
[clarksburgea@thebluemountains.ca](mailto:clarksburgea@thebluemountains.ca)
Phone: 519-763-0713 ext. 6522

Steve Vokes, P.Eng.
Project Manager Retained by the Town
32 Mill St/ P.O. Box 310
Thornbury, ON N0H 2P0
[Clarksburgea@thebluemountains.ca](mailto:Clarksburgea@thebluemountains.ca)
Phone: 519-599-3131

This study is being conducted according to the requirements of Phases 1 and 2 of the Municipal Class Environmental Assessment which is an approved process under the Environmental Assessment Act. This notice originally issued August 25, 2017. Notice formatting has been modified to meet AODA accessibility requirements for posting on Town webpage.
Appendix ‘F’
PIC Boards and Summary
Community of Clarksburg
The Town of The Blue Mountains Master Plan
Class Environmental Assessment

Public Information Centre Round One Summary Report

Prepared by Lura & J.L Richards and Associates Limited for:
The Town of The Blue Mountains

October 2017
This report was prepared by Lura Consulting. Lura is providing independent community consultation services as part of the Community of Clarksburg, The Town of The Blue Mountains Master Plan Class Environmental Assessment. The report presents the key discussion points and outcomes from the September 14th and September 16th, 2017 Public Information Centres, and is not intended to provide a verbatim transcript. If you have any questions or comments regarding the report, please contact either:

**Michael Troop, P.Eng.**
Manager, Senior Environmental Engineer  
J.L. Richards & Associates Limited  
Phone: 519-763-0713 ext. 6522  
ClarksburgEA@thebluemountains.ca

Or

**Alex Lavasidis**
Consultant  
Lura Consulting  
416-536-0184  
alavasidis@lura.ca
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Appendix A – PIC Notice
Appendix B – Comment Form
Appendix C – Community Liaison Committee Application Package
1. Project Background

The Town of The Blue Mountains has engaged J.L. Richards and Associates Ltd. to complete a Master Plan Class Environmental Assessment (Class EA) for the Community of Clarksburg to establish a long-term solution to the provision of water and wastewater servicing.

This Class EA is being conducted as per the Ontario Municipal Class EA process and must satisfy Phases 1 and 2 of the Class EA process (Municipal Engineers Association, October 2000, as amended in 2007, 2011 and 2015), under Ontario’s Environmental Assessment Act. Phase one includes identification of a problem and opportunity statement and public consultation regarding the problem and opportunity statement. The Town is working with the community to develop a problem and opportunity statement to help guide the Class EA process. Based on previous studies and discussions, the two main issues that this Class EA is considering, and the main issues proposed at the round one Public Information Centres (PICs) are:

- The quality of drinking water and;
- The adequacy of wastewater treatment

The remaining phases of the Class EA will be completed at a later date. The preliminary preferred solution(s) will be presented in a second Public Information Centre in late March 2018.

The project team is being led by J.L Richards & Associates Limited, an engineering, architecture, and planning services firm. Lura Consulting is providing independent community consultation services for the study.

2. Public Information Centre Round One

These Public Information Centres (PIC) were the first PICs hosted by the Town of The Blue Mountains as part of the Master Plan Class Environmental Assessment. The PICs took place on Thursday, September 14th, 2017, from 5 pm to 8pm and Saturday, September 16th, 2017, from 10 am to 12 noon at The Town of The Blue Mountains Office and Council Chambers (32 Mill Street). The PICs were widely publicized through distribution of a notice to residents in the study area, promotion on the Town’s website, and in the local newspaper. A copy of the notice is included in Appendix A.

The PICs were designed to:

- Introduce the potential Problem and Opportunity statements to the community
- Receive community feedback on the potential Problem and Opportunity statements and any other additional feedback about the Class EA

The PIC format consisted of an open house where respondents had the opportunity to view display boards covering various aspects of the EA. These display boards provided information on the study area, and an overview of the Class EA process, next steps, how to get involved, and a project schedule. A copy
of the display boards can be found on The Town of The Blue Mountains website at www.thebluemountains.ca/clarksburg-master-plan.cfm

Members of the EA project team and Town staff were available at the PICs to answer questions informally and respond to feedback. A comment form (included in Appendix B) was distributed to attendees to either complete during the PICs or submit afterwards. The comment form was posted on the Town’s website along with a copy of the display boards. Members of the public were encouraged to email in their comments to the project team until September 30th, 2017. Seventy-five people attended the PIC on Thursday, September 14th, while sixty-five people attended the PIC on Saturday, September 16th (140 attendants in total for both round one PICs).

3. Summary of Respondent Feedback

During the PICs, many respondents took the opportunity to provide written input by completing a comment form. Following the PICs, the comment period remained open until September 30th, 2017. Fifty-four completed comment forms were received, either handed in at the PICs, submitted online, or delivered to staff or a member of the project team.

The feedback received from respondents is summarized below. Feedback is organised by each of the seven questions on the comment forms, and then by emergent themes.

Feedback on PIC Materials and Format

Q1) Was the information provided at today's Public Information Centre useful?

Of the forty-seven responses for this question, five stated that the information was not useful while forty-two respondents stated that the information was useful. Comments from those looking for an improved PIC included that there was too little information, including a lack of an estimated cost to each household for servicing, and that the chart format for many boards was too text-heavy and too small for some people to read. Positive feedback about the PICs and EA process included that the project website was excellent, that having staff answer questions at the PICs was helpful, and that respondents were happy with the timeline, early engagement plan, and multiple opportunities for engagement (including door-to-door visits).
Q2) Was the venue for today’s Public Information Centre appropriate?

Of the forty-nine responses for this question, two respondents stated the PIC venue was not appropriate, citing that it was not convenient. Conversely, forty-seven respondents stated the PIC venue was appropriate, citing that it was conveniently located, accessible, and central. One respondent suggested the Marsh St. Centre as an alternative venue.
Q3) Was the date and time of today's Public Information Centre convenient for you?

Of the fifty responses for this question, four stated the PIC they attended was not convenient while forty-six stated the PIC was convenient. Comments in favour of changing the PIC date and time include suggestions to have the PIC later in the day, to include time for public Q & A and speeches, and to host the event in the Damien Room. Comments in support of the PIC date and time include that respondents were pleased to have two options for attending the PICs, especially one option on a weekend.

![Pie chart showing the responses to the PIC convenience question.](chart1.png)

Q4) Were your questions answered by the consulting team members to your satisfaction?

Of the thirty-eight responses for this question, one respondent stated the answers provided were not satisfactory while thirty-seven respondents stated that answers provided were satisfactory. Of the comments received, one respondent noted that there were no answers provided regarding costs and timelines while another respondent stated that not enough information was known to answer all of their questions. One respondent suggested the Town consider alternative servicing and funding strategies. Two respondents noted that they did not speak to anyone at the PICs.
Q5) Are you satisfied with the public consultation activities planned for this Class EA?

Of the forty-one responses for this question, three respondents stated they were not satisfied with planned public consultation activities, while thirty-eight respondents stated they were satisfied with the plans. Some respondents left this question blank, citing that they were not yet certain of their levels of satisfaction. Other comments include approval of the door-to-door outreach method, interest in the results of that consultation method, and positive anticipation of future opportunities to provide public input. One respondent suggested the addition of a workshop on alternative solutions, with a focus on reliability and affordability. A number of participants completed applications for the Community Liaison Committee.
Feedback on the Draft Problem and Opportunity Statement and Environmental Assessment

Q6) Do you have any comments on the Draft Problem and Opportunity Statement?

Of the fifteen comments received, feedback included:

- Some respondents suggested more information be provided about the testing criteria and the results of testing for well and Town water
- There was discrepancy over the clarity of the Problem and Opportunity statement with one respondent stating the statement was clear and another stating that it was unclear
- There was discrepancy over the progression of the project; two respondents stated they do not think the project is needed, while two respondents noted that they support action on this project
- A respondent requested additional background information on what lead to the current situation
- A respondent requested the public to be able to provide input on the selection criteria used for the EA (e.g. impacts on public health, environmental protection, affordability)
- Respondents asked the following questions:
  - What studies have been undertaken by a third party and who can test water quality and septic systems in Clarksburg?
  - Is the collection of wastewater part of this study?
  - Is drinking water sourcing part of this study?

Q7) Do you have any additional questions or comments about this Class EA?

Thirty-three responses were provided for this question. Feedback from respondents is organised by theme and includes:

**Finances**

- Many respondents requested more information about the financial implications of potential service changes include costing for potential water treatment plants and wastewater treatment plants, watermain changes, lift stations, and sewer changes
- Many respondents are concerned about the financial impact service changes may have on the community, especially the senior population of Clarksburg
- Respondents requested information about payment options for any potential charges related to service changes
- Respondents requested information about whether the Town will apply for and receive funding to reduce local service changes from other levels of government
- Respondents requested information about how much the EA is costing and who is funding the study
Timelines

- Respondents requested clear timelines for the progression of this project, including clarity for any potential construction phasing

Water Quality

- Respondents requested clarity on the current quality and safety of drinking water

Service Area

- Respondents requested clarity about what areas of Clarksburg may receive new services
- Respondents suggested varying areas be considered for service improvements including both downtown, and side roads
  - One respondent inquired if the project will go under/over Beaver River rather than down Clarksburg Side Road
  - One respondent suggested a focus on the downtown, and the area around George St and Margaret St, possibly including Euclid Ave and Margaret St South
  - One respondent inquired why residences on the west side of concession 10 are not included in the study. They expressed concern that those residents will benefit from service upgrades by being able to connect to municipal systems in the future without the cost burden (barring the cost of any service extension)
- Respondents requested clarity on the development potential for different parts of the community, should services be extended or added; they would like development potential of lands outlined clearly on maps at future public meetings

Sewage Pumping station

- One respondent suggested a pumping station be installed in Clarksburg
- One respondent was concerned that a potential pumping station may be located on Mary Street, which would impact their home value

Door-to-Door Outreach

- Respondents would like door-to-door outreach workers to be easily identifiable

Moving the project forward

- Some respondents stated they do not want the project to move forward. Reasons for opposing service changes include:
  - High costs
  - Property owners assert that their water is already safe
  - Construction disruptions to local businesses
- Some respondents stated they are supportive of municipal water service expansion in Clarksburg
Some respondents stated they currently need to have water delivered to their home and would like service expansion as soon as possible

- Some respondents stated they are looking forward to door-to-door visits and to seeing alternatives proposed at future PICs

**Other**

- One respondent is uncertain about how the EA will define a “problem”
- Some respondents are concerned that service changes are meant to promote development in Clarksburg (asserting there are no problems with water quality or wastewater treatment) but that the burden of cost will only be paid by current residents
- One respondent is concerned that service changes will allow for future development in a floodplain

**4. Next Steps**

A Community Liaison Committee (CLC) will be established to ensure that all members of the community are provided with opportunities to participate in the consultation process and that information is provided to interested parties in a timely, clear, transparent and efficient manner. The Committee will meet throughout the Class EA process to provide feedback on consultation activities and study findings. The application package (Appendix C) was provided at each PIC and on the project webpage. Applications for the Community Liaison Committee were due September 30th, 2017.

The project team will consider all feedback received in order to refine the Problem and Opportunity Statement (including PIC feedback and CLC feedback). The next PIC is projected to take place in March 2018 and will inventory the natural, social, and economic environment of the study area, identify preliminary preferred solutions to the problem and opportunity statement, and identify the impact of the solutions on the environment, along with mitigating measures.
WELCOME
TO PUBLIC INFORMATION CENTRE NO. 1 FOR
THE COMMUNITY OF CLARKSBURG SERVICING
MASTER PLAN CLASS ENVIRONMENTAL
ASSESSMENT (CLASS EA)

<table>
<thead>
<tr>
<th>Session 1</th>
<th>Session 2</th>
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<tbody>
<tr>
<td>Thursday, September 14, 2017</td>
<td>Saturday September 16, 2017</td>
</tr>
<tr>
<td>5 pm – 8 pm</td>
<td>10 am – 12 noon</td>
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<tr>
<td>Town of The Blue Mountains Council Chamber (32 Mill St)</td>
<td>Town of The Blue Mountains Council Chamber (32 Mill St)</td>
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Name tags have been colour coded for your convenience:

Consulting Team
Town Staff and Council

Please look for one of us to answer any questions that you may have regarding the Class EA.

Please fill out the comment sheet provided at today’s Public Information Centre and leave it in one of the boxes provided.

This Class EA Study is funded in part by Infrastructure Canada’s Clean Water and Wastewater Fund (CWWF) and the Government of Ontario.
CLASS EA STUDY AREA

The Town of The Blue Mountains has engaged J.L. Richards and Associates Ltd. to complete a Master Plan Municipal Class Environmental Assessment (Class EA) for the Community of Clarksburg to establish a long-term solution to the provision of water and wastewater servicing.
THE MUNICIPAL CLASS EA PROCESS

Municipal Class EA Requirements

- The EA is proceeding as a Master Plan EA as per the Ontario Municipal Class EA process.
- The flow chart below shows the Class EA process. Master Plans must satisfy Phases 1 and 2 of the Class EA process.
- Remaining phases of the Class EA will be completed if required at a later date.
- The preliminary preferred solution(s) will be presented in a second Public Information Centre (open house) in late March 2018 (tentatively March 28 and 31, 2018).

![Diagram of the Municipal Class EA Process](image-url)
CLASS EA STUDY OVERVIEW

Draft Problem and Opportunity Statement

- The Town is working with the community to develop a Problem and Opportunity statement to help guide this Class EA process.
- Based on previous studies and discussions, the two main issues that this Class EA will be considering are:

  - The quality and quantity of drinking water.
  - The adequacy of wastewater treatment.

- What do you believe are the main concerns that this Class EA should be considering?

- Please fill out the comment sheet provided at today’s Public Information Centre and leave it in one of the boxes provided.
HOW WILL I BE CONSULTED?

Finalize a Problem and Opportunity Statement
- Based on community feedback from this meeting, the problem and opportunity statement will be finalized.

Community Liaison Committee
- A Community Liaison Committee of interested community members will be created to assist in facilitating public consultation activities during the study. To get involved visit The Town of the Blue Mountains Project Webpage or ask a project team member for an application.

Door to Door Visits
- Members of the Consultant team will begin door to door visits in Clarksburg to learn more about residents' current water and wastewater servicing needs.
- Consultants will be asking residents to complete an optional survey about their water and septic systems.
- Consultants may ask residents to volunteer a water sample for analysis.

Public Information Centres (Open Houses)
- Community members and stakeholders are invited to attend project open houses to learn more about the study and provide feedback to the study team.

Contact Study Team by Phone, Email and by Mail
- Community members and stakeholders are invited to contact members of the study team directly. Contact information is posted online, on mailed notices, and on open house display boards.
WHAT ADDITIONAL STUDIES WILL BE CONDUCTED?

Ecological Assessment
• Members of the Consultant team will be completing an ecological assessment of the community's ecology to determine if there are any species at risk or ecologically sensitive areas.

Hydrogeological Assessment
• A hydrogeological assessment will confirm the type of local soils and rock to help understand how that might impact future servicing options and construction costs.

Heritage and Archeological Assessment
• Members of the Consultant team will be completing a Heritage and Archaeological assessment to determine if there are any heritage aspects and the likelihood of significant archaeological findings that could impact future water and wastewater servicing options.

Planning Assessment
• Members of the Consultant team will be completing a review of existing provincial, regional (e.g. conservation authorities), and municipal planning documents and regulations to determine if there are any factors that could impact future water and wastewater servicing options.
HOW WILL DECISIONS BE MADE?

- Criteria identified by the study team and project stakeholders will be used to guide the evaluation of different servicing options later on in the study.
- Some possible criteria are listed below.

### Impact on the Natural Environment
- Additional Nutrients to Local Waterways and Soil
- Habitat of Endangered / Threatened Species
- Wetlands, Woodlands, and Wildlife Habitat

### Impact on Social/Community Well Being & Health
- Community Character (Built Form)
- Archeological and Heritage Resources
- Indigenous Communities
- Economic Development
- Public Health and Safety
- Construction Noise, Dust, Vibration, Traffic
- Risk of Service System Failure

### Economic Impacts
- Capital Cost
- Lifecycle Costs
- Effect on Property Values
- Affordability

- Are we missing any criteria?
- What criteria would you use?
- Please fill out a feedback form, and let us know.
WHO ELSE WILL BE CONSULTED?

In addition to Clarksburg community members and business owners, JL Richards & Associates Ltd. will be reaching out to the following agencies and groups for consultation:

- Town of The Blue Mountains Departments and Council
- Local Indigenous Communities
- Grey Sauble Conservation Authority
- Grey Bruce Public Health Unit
- County of Grey
- Ontario Ministry of The Environment and Climate Change
- Ontario Ministry of Natural Resources and Forestry
- Ontario Ministry of Indigenous Relations and Reconciliation
- Local Utilities

- Are there any groups we are currently missing on our list?
- Please let us know by filling out a feedback form!
# PROJECT SCHEDULE

<table>
<thead>
<tr>
<th>TASK</th>
<th>DATE</th>
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<tbody>
<tr>
<td>Finalize Community Liaison Committee</td>
<td>September 2017</td>
</tr>
<tr>
<td>Complete Door to door visits</td>
<td>Fall 2017</td>
</tr>
<tr>
<td>Complete Heritage, Geotechnical, Ecological and Archeological assessments</td>
<td>Fall 2017</td>
</tr>
<tr>
<td>Development of Possible Solutions</td>
<td>October 2017 to January 2018</td>
</tr>
<tr>
<td>Public Open House #2 (Presentation of preferred solutions to the public.)</td>
<td>Tentative March 29 &amp; 31 (Save the dates!)</td>
</tr>
<tr>
<td>Study available for 30 day public and agency review; Notice of Completion issued</td>
<td>May – June 2018</td>
</tr>
</tbody>
</table>
HOW TO GET INVOLVED

If you would like to learn more about the Environmental Assessment or Community Liaison Committee, or if you would like to provide any feedback on this study please contact the individuals listed below:

Michael Troop, P.Eng.
Associate, Senior Environmental Engineer
Manager, Guelph Office
J.L. Richards & Associates Limited
107-450 Speedvale Ave W
Guelph, ON N1H 7Y6
clarksburgea@thebluemountains.ca
Phone: 519-763-0713 ext. 6522

Steve Vokes, P.Eng.
Project Manager Retained by the Town
32 Mill St., P.O. Box 310
Thornbury, ON N0H 2P0
clarksburgea@thebluemountains.ca
Phone: 519-599-3131

Also visit: The Town of The Blue Mountains Project Webpage for the latest updates on the study.
Appendix ‘G’
Agency List and Correspondence
<table>
<thead>
<tr>
<th>Mea Review Agencies</th>
<th>First Name</th>
<th>Last Name</th>
<th>Title</th>
<th>Address</th>
<th>Phone / Fax</th>
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<tbody>
<tr>
<td>Ministry of the Environment and Climate Change</td>
<td>John</td>
<td>Ritchie</td>
<td>Supervisor, Owen Sound Office</td>
<td>3rd Floor, 101 17th Street E, Owen Sound, ON N4K 0A5</td>
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<tr>
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<td>Newton</td>
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<td>519 873-5014</td>
<td><a href="mailto:craig.newton@ontario.ca">craig.newton@ontario.ca</a></td>
</tr>
<tr>
<td>Ministry of Indigenous Relations and Reconciliation</td>
<td>Emma</td>
<td>Jarvis</td>
<td>Special Policy Advisor</td>
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<td>416-326-4742</td>
<td><a href="mailto:emma.jarvis@ontario.ca">emma.jarvis@ontario.ca</a></td>
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<tr>
<td>Ministry of Agriculture, Food and Rural Affairs</td>
<td>Carol</td>
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<td>Rural Planner, Environmental &amp; Land Use Policy</td>
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<tr>
<td>Ministry of Tourism, Culture and Sport</td>
<td>Laura</td>
<td>Hathcher</td>
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<td>416-314-3108</td>
<td><a href="mailto:laura.e.hatcher@ontario.ca">laura.e.hatcher@ontario.ca</a></td>
</tr>
<tr>
<td>Ministry of Tourism, Culture and Sport</td>
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<tr>
<td>Ministry of Tourism, Culture and Sport</td>
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<td>Stack</td>
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<td>519-650-3421</td>
<td><a href="mailto:Chris.Stack@ontario.ca">Chris.Stack@ontario.ca</a></td>
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<tr>
<td>Ministry of Health and Long-Term Care</td>
<td>First Name</td>
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<tr>
<td>Tony Amalfi</td>
<td>Tony</td>
<td>Amalfi</td>
<td>Manager, Environmental Health Policy &amp; Programs</td>
<td>393 University Ave, 21st Floor, Toronto, ON M7A 2E5</td>
<td>416-327-0984</td>
<td><a href="mailto:tony.amalfi@ontario.ca">tony.amalfi@ontario.ca</a></td>
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<table>
<thead>
<tr>
<th>Ministry of Municipal Affairs</th>
<th>First Name</th>
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<th>Address</th>
<th>Phone / Fax</th>
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<tbody>
<tr>
<td>Victor Doyle</td>
<td>Victor</td>
<td>Doyle</td>
<td>Manager, Planning Innovation Section</td>
<td>777 Bay Street, 13th Floor, Toronto, ON M5G 2E5</td>
<td>416-585-6109</td>
<td><a href="mailto:victor.doyle@ontario.ca">victor.doyle@ontario.ca</a></td>
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<tr>
<th>Ministry of Natural Resources and Forestry (Midhurst)</th>
<th>First Name</th>
<th>Last Name</th>
<th>Title</th>
<th>Address</th>
<th>Phone / Fax</th>
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<tbody>
<tr>
<td>Kim Benner</td>
<td>Kim</td>
<td>Benner</td>
<td>District Planner</td>
<td>2284 Nursery Road, Midhurst, ON L0L 1X0</td>
<td>705-725-7534</td>
<td><a href="mailto:kim.benner@ontario.ca">kim.benner@ontario.ca</a></td>
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<tr>
<th>Infrastructure Ontario</th>
<th>First Name</th>
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<tbody>
<tr>
<td>Lisa Myslicki</td>
<td>Lisa</td>
<td>Myslicki</td>
<td>Environmental Specialist</td>
<td>1 Dundas Street W, Suite 2000, Toronto, ON M5G 2L5</td>
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<td><a href="mailto:lisa.myslicki@infrastructureontario.ca">lisa.myslicki@infrastructureontario.ca</a></td>
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<th>Ministry of Transportation</th>
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<tbody>
<tr>
<td>Michael Nadeau</td>
<td>Michael</td>
<td>Nadeau</td>
<td>Manager, West Region</td>
<td>659 Exeter Road, London, ON N6E 1L3</td>
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<td><a href="mailto:michael.nadeau@ontario.ca">michael.nadeau@ontario.ca</a></td>
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<tr>
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<th>First Name</th>
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<tr>
<td>Rachael Manson-Smith</td>
<td>Rachael</td>
<td>Manson-Smith</td>
<td>Manager, Ministry Partnerships Unit</td>
<td>4th floor, 160 Bloor Street E, Toronto, ON M7A 2E6</td>
<td>416-325-7032</td>
<td><a href="mailto:mea.ea.review@ontario.ca">mea.ea.review@ontario.ca</a></td>
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<tr>
<th>Grey - Sauble Conservation Authority</th>
<th>First Name</th>
<th>Last Name</th>
<th>Title</th>
<th>Address</th>
<th>Phone / Fax</th>
<th>Email</th>
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<tbody>
<tr>
<td>Andrew Sorensen</td>
<td>Andrew</td>
<td>Sorensen</td>
<td>Environmental Planner</td>
<td>237897 Inglis Falls Road, Owen Sound, ON N4K 5N6</td>
<td>519-376-3076</td>
<td><a href="mailto:a.sorensen@greysauble.on.ca">a.sorensen@greysauble.on.ca</a></td>
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<tr>
<td>Tim Lanthier</td>
<td>Tim</td>
<td>Lanthier</td>
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<td>237897 Inglis Falls Road, Owen Sound, ON N4K 5N6</td>
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<td><a href="mailto:t.lanthier@greysauble.on.ca">t.lanthier@greysauble.on.ca</a></td>
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<td>Mea Review Agencies</td>
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<tr>
<td>Grey - Sauble Conservaton Authority CAO</td>
<td>Sonya</td>
<td>Skinner</td>
<td>CAO</td>
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<td><a href="mailto:s.skinner@greysauble.on.ca">s.skinner@greysauble.on.ca</a></td>
</tr>
<tr>
<td>Nottawasag a Valley Conservaton Authority CAO</td>
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<td>8195 8th Line, Utopia, ON L0M 1T0</td>
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<td><a href="mailto:dhevenor@nvca.on.ca">dhevenor@nvca.on.ca</a></td>
</tr>
<tr>
<td>Nottawasag a Valley Conservaton Authority</td>
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<td>Hibberd</td>
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