



Fact Sheet # 1: Water Supply

1) Hydrogeological Study Requirements

The Ministry of Environment and Climate Change (MOECC) has a requirement that a hydrogeological study must be completed in accordance with Ministry guidelines.

In particular, these guidelines outline that a hydrogeological study is required to develop a comprehensive picture and associated model to determine how any proposed development in the Province can be serviced with Municipal water, while accessing the existing aquifers and their interaction with the natural features that rely on groundwater throughout the area. The work associated with developing the study should include a detailed review of regional and local geology, the physical characteristics of the regional aquifers and adjacent units, groundwater flow direction, summary of existing and proposed groundwater withdrawals, estimates of groundwater recharge, and groundwater-surface water interaction (local streams and groundwater).

2) Midhurst Hydrogeological Study

A comprehensive hydrogeological study has been completed, in accordance with MOECC guidelines and requirements, in support of the Midhurst Secondary Plan. In particular, the Hydrogeological study identifies:

- a) There are four main Aquifers throughout the area (Aquifer A1, A2, A3 & A4). The majority of private wells are constructed in the shallow Aquifers A1 and A2, whereas the majority of existing and proposed municipal wells in Simcoe County are constructed in the deeper Aquifers A3 and A4.
- b) Water levels within Aquifers A1 and A2 are relatively sensitive to seasonal weather fluctuations as a result of the aquifers being shallow and unconfined (although in some areas A2 is relatively deep and confined). Conversely, water levels within Aquifers A3 and A4 are less sensitive to seasonal weather fluctuations as a result of the aquifers being deep and confined under lower permeability soils.
- c) The hydrogeological study considered the private and municipal wells throughout the area utilizing the MOECC water well database.
- d) The water supply potential of aquifers A3 and A4 was assessed through borehole drilling, observation well construction, test well construction and pumping tests and water quality sampling at multiple sites throughout Midhurst.



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In particular water quality samples were collected and analysed against the Ontario Drinking Water Quality Standards (ODWS). In addition, 72-hour pump tests were completed on a number of the test wells, while data was being recorded at a number of observation wells throughout the area.

A key component of the aforementioned hydrogeological study was the completion of groundwater modelling to assess the long-term sustainability of the proposed groundwater supply. The model is regional in scale and encompasses an area of 746km², stretching from the south end of Barrie to north of Craighurst and west to the Minesing Wetland. Significant refinements were made to the model as a result of extensive data collected as part of the field investigations to ensure that the model was appropriately calibrated.

- e) The hydrogeological study examines a worst case scenario for the aquifers, whereby the proposed new Municipal Wells are pumped at their required capacity while the existing Municipal wells in Midhurst are pumped at their maximum allowable rates and the wells in Barrie are pumped at the “Existing Plus Committed Plus Planned Demand” for the year 2031 as documented by the City of Barrie. Domestic wells are not considered in the modelling as their pumping volumes are extremely low, relative to the municipal water supply systems, which is a common approach when modelling regional aquifer systems in Ontario.
 - f) The hydrogeological study and associated modelling concluded that pumping of the municipal wells being proposed for the Midhurst Secondary Plan would not have an adverse effect on the existing municipal and/or private wells within the regional area and that the baseflows within the local streams would continue at sustainable rates.
- 3)** The Environmental Study Report (ESR) including all Technical Reports related to Water Supply will be reviewed by the Technical Experts within the Ministry of the Environment & Climate Change (MOECC) prior to the release and finalization of the of the ESR.