

## Memorandum

**To:** Amanda Kosloski (Armstrong Planning and Project Management)  
**Subject:** St. George, Response to Areas Study Review Comments, Hydrogeology  
By Ainley & Associates Limited, Letter of May 15, 2013  
**Date:** August 15, 2013  
**File:** St George

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This memo is in response to Ainley & Associates Limited (Ainley) Peer Review Comments pertaining to hydrogeological issues for the St. George Area Study, May 15, 2013.

Ainley Comment 1.4a)

In the context of water treatment requirements Ainley commented that:

*'Further investigation will be required to determine and confirm groundwater levels, influence, and quality. We recommend that the investigation be done over a longer period of time to gather data on any seasonal variations that maybe present.'*

It is agreed that for purposes of a Class EA and/or detailed design of the water treatment system, an investigation of water quality over a longer period of time should be completed to confirm groundwater quality and treatment requirements. This should include an assessment of Groundwater Under the Direct Influence of Surface Water (GUDI) for Test Well TW 3.

Ainley Comment 1.4b)


*b) We note that the initial development, operation, and maintenance of a GUDI water supply system will be more onerous and costly for the County than one that is non-GUDI. We anticipate that as part of the Municipal Class EA process, other available options that are non-GUDI sources will be appropriately evaluated and considered.*

Alternatives to the use of groundwater as a source of supply for St. George will be included as part of Phase 2 of the Class EA. Subject to completion of the recommended GUDI assessment of Test Well TW3, alternatives to the use of a GUDI well should be completed as part of the Class EA process (Phase 2 and Phase 3).

Further testing is also recommended as part of a Class EA or detailed design at test wells TW3 and TW4 for purposes of establishing a maximum sustainable pumping rate and aquifer yield and associated well interference with adjacent wells. In the case of TW3, this testing should assist in determining whether TW3 and the aquifer at this location are subject to GUDI. The existing information from testing of TW4 has established that this well and the deep aquifer at this location are not under the direct influence of surface water. This testing should be completed for wells constructed as municipal wells at the location of TW3 and TW4.

To address the issue of seasonal fluctuations in water levels, it is recommended that data loggers be installed within TW3 and TW4 in both the deep and shallow wells at these locations and monitored continuously over at least one annual cycle as supporting information for detailed design and a Permit-To-Take-Water Application for municipal wells at these locations.

Comments By:



Norbert Woerns M.Sc. P.Geo.