

ARL Groundwater Resources Ltd.
13 Douglas Drive
Ayr, ON N0B 1E0

June 25, 2024

Timberworx Custom Homes Inc.
c/o Stovel and Associates Inc.
651 Orangeville Road,
Fergus, ON N1M 1T9

Attention: Rob Stovel Sr.

Proposed Arkell Residential Development
Part Lots 7, 8 and 9, Concession 10
Township of Puslinch, County of Wellington

I have reviewed the comments provided by Harden Environmental Services Ltd. (Harden) regarding the proposed Arkell residential development noted above, in letters submitted to the Township of Puslinch, dated May 18, 2023, and April 2, 2024. The following provides a response to those comments that are related to (a) the proposed water supply for the development, (b) items in the Wellington County Official Plan (Paris Galt Moraine Policy Area), and (c) Source Water Protection. Other specialists assisting with the servicing and design of the development will be addressing the other comments provided by Harden.

Water Supply

In the May 2023 correspondence, Harden recommends that one or more water supply wells for lots adjacent to existing homes be constructed early in the development time line and used to monitor the aquifer between the proposed development and existing homes. This recommendation was made again in the April 2024 comments from Harden.

Response:

I concur with this recommendation and note that it could be considered as a condition of the subdivision agreement.

In the April 2024 comments, Harden requests that the proponent comment on whether there could be an overall impact on groundwater and surface water levels due to groundwater removal from the aquifer and infiltration at surface, taking into account long term effects at both the local and regional scale.

Response:

As noted in the groundwater supply assessment (ARL 2023), the maximum water demand for 50 residential lots at the site was estimated at 90,000 L/day (approximately 1 L/s). For context, this is a low flow rate in comparison with the typical permitted flow rates for municipal wells in the City of Guelph and elsewhere in Wellington County, which typically exceed 7.6 L/s and go as high as 50 L/s. Overall, the effects of water use at the proposed development on bedrock groundwater levels at the local scale (within 10 - 200 m of the development) could be a modest decline in the range of approximately 0 - 2 m. It is my opinion that the effects on surface water and groundwater levels at the regional scale will be negligible (no measurable effect).

In the April 2024 comments, Harden requests a "fulsome analysis of the aquifer water quality by analyzing all parameters in Tables 1 and 2 of Ontario Regulation 169/03".

Response:

Ontario Regulation 169/03 is titled "Ontario Drinking Water Quality Standards" and was made under the Safe Drinking Water Act, which applies to municipal and non-municipal drinking water systems in Ontario. Ontario Regulation 169/03 includes three schedules. The only reference to any tables is in Schedule 3 (Radionuclides), where there are 2 tables (Schedule 3 - Table 1 provides Standards for 14 natural radionuclides; Schedule 3 - Table 2 provides Standards for 24 artificial radionuclides). We spoke with Stan Denhoed at Harden Environmental and confirmed that Harden's intent with this comment was to have a more fulsome analysis of general drinking water quality, as opposed to radionuclide water quality. With this in mind, it is my opinion that additional drinking water quality testing can be performed when the first of the supply wells for the development are installed.

Supply Well Construction

We are in general agreement with the Harden comments related to supply well construction at the development property. However, we note that Ont. Regulation 903 does not explicitly prohibit wells connecting two potable water sources (aquifers) and many of the existing wells in the Arkell are constructed across both the Guelph Fm. and the Gasport Fm.

Wellington County Official Plan

Harden notes that only the southeast corner of the site is located within the Paris and Galt Moraine Policy Area and acknowledges that the portion within the Policy Area is mostly not proposed for development. We did not observe any surface water features or wetlands on or in the immediate vicinity of the property during our site visits. The area of the property proposed for residential development was observed to be relatively flat with no obvious evidence of the hummocky terrain that characterizes the Paris and Galt Moraines.

Land Use planning maps indicate that the nearest greenlands are about 200 - 400 m to the northeast of the site. The nearest surface/groundwater features are the springs at the Arkell Springs property, approximately 500 - 1000 m to the north of the site. The nearest continuous surface water feature is the Eramosa River beyond the Arkell Springs property. In my opinion, there is little to no opportunity for the development to have a measurable effect on any of these features given the separation distances involved.

Source Water Protection

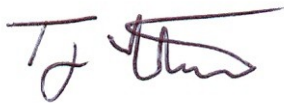
Mapping available on the County of Wellington website indicates that the site is part of a WHPA-B protection zone associated with the municipal wells serving the City of Guelph. Vulnerability is scored 8 across the site and the immediate surrounding areas. This means that waste disposal, conventional sewage disposal systems and DNAPLs are all considered significant threats. The proposed development does not include waste disposal facilities or DNAPL storage. On site sewage disposal systems with tertiary treatment is proposed to for wastewater disposal. It is understood that the tertiary treatment systems are not considered significant threats, provided that they receive regular inspections and maintenance. As a result, the need for application of source protection policies should be limited.

Well Decommissioning

We agree that unused wells on the property should be abandoned in accordance with Ont. Regulation 903.

We trust that the above comments are sufficient at this time. Please advise if there are any questions.

ARL Groundwater Resources Ltd.

A handwritten signature in dark ink, appearing to read 'Tj Lotimer', with a stylized flourish at the end.

A.R. (Tony) Lotimer, M.Sc., P.Geo., FGC
Principal Hydrogeologist