



June 15, 2016

Via: Email

Ms. Christine Gervais, MCIP, RPP
Township Planner
Township of East Garafraxa
191282 13th Line
East Garafraxa ON L9W 7B4

Dear Christine:

**Re: Marsville Heritage Estates Development
Township of East Garafraxa, Marsville
Application for Amendment to Zoning By-Law and Draft Plan of Subdivision
WSP Submission of April 28, 2016
Project No.: MSO020868.0000**

R.J. Burnside & Associates Limited (Burnside) has reviewed the WSP Canada Inc. (WSP) letter dated April 28, 2016 which documents the installation of three wells and additional water quality sampling. The WSP letter is intended to address comments in a Burnside letter dated April 27, 2015.

Burnside Comments on April 28, 2016 WSP Letter

The installation of additional wells and the water quality sampling completed by WSP has confirmed that the shallow groundwater has elevated concentrations of nitrate above the Ontario Drinking Water Quality Standards of 10 mg/L.

WSP indicates that the elevated nitrate is due to historical agricultural practices. WSP also suggests that nitrate concentrations of less than 1 mg/L at BH8 and BH12 are confirmation that the Thunderbird Phase One Subdivision has resulted in a negligible impact to the shallow groundwater. However, both of these wells are screened below the clayey silt confining layer and therefore we do not have enough information to confirm that Thunderbird Phase One Subdivision is not contributing to the background nitrate concentrations on the property.

The site is in a predominantly agricultural area and there is insufficient information to quantify how much nitrate is from activities on the subject site, from the surrounding agricultural area, or from the Thunderbird Phase One Subdivision.

In the May 30, 2014 report, WSP calculates that 46 lots will result in a nitrate loading of 14.6 to 18.5 mg/L which is above the Ontario Drinking Water Quality Standard of 10 mg/L and does not conform to MOECC Policy D-5-4. Calculations by Burnside indicate that 20 lots will result in a nitrate concentration of 9.3 mg/L if an infiltration value of 250 mm/year is used. A reduction

down to 20 lots does not consider the existing background levels of nitrate. MOECC Policy D-5-4 indicates the Ministry will typically not support development in areas where background nitrate-nitrogen concentrations exceed 10 mg/L. Since background concentrations are an issue on this site, it needs to be quantified that ceasing agricultural activities will reduce the background nitrate levels.

Based on the review of the revised material, the following is to be completed:

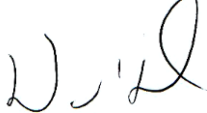
- Demonstrate what associated reduction in nitrate concentration will occur when agricultural activity ceases. One option may be to stop any agricultural practices on the subject property and monitor the nitrate in the shallow water. It may take several years before there are enough water quality results to establish water quality trends.
- Provide records of manure/fertilizer application on the site. If there have been no application on the site, then background concentrations will remain high even after on-site agricultural activities cease.
- With consideration of the background nitrate level, the number of lots is to be reduced so that the predicted nitrate impact (using the procedure in D-5-4) is less than 10 mg/L.

Summary

The April 28, 2016 WSP letter does not fully address the April 27, 2015 Burnside comments. Currently there is insufficient information to allow for a prediction to be made of the on-site nitrate concentrations that will exist when the land is removed from agricultural use. As a result, it is not clear how many lots can be developed on the site to be in compliance with Policy D-5-4.

Yours truly,

R.J. Burnside & Associates Limited



David Hopkins, P.Ge.
DH/CD:sd



Carley Dixon, P.Eng.

cc: Susan M. Stone, CAO/Clerk-Treasurer, Township of Amaranth (Via: Email)
Glenn Wellings, Wellings Planning Consultants Inc. (Via: Email)
Jeffrey J. Wilker, Thomson, Rogers (Via: Email)