



December 19, 2024

Hillstreet Developments Ltd.
2015 Altona Road
Pickering, ON
K1V 2B9

Attention: Larry MacDonell

**Re: Osaca Hillstreet Subdivision, Northumberland County, Ontario
Hydrogeological Study Report – Summary Letter
D.M. Wills Associates Project No. 22-11056**

PARTNERS IN
ENGINEERING, PLANNING &
ENVIRONMENTAL SERVICES

D.M. Wills Associates Limited (Wills) was retained by Hillstreet Developments Ltd. c/o Larry MacDonell (Client) to conduct a Hydrogeological Study (Study) for the property located at Pt Lot 27 Concession 5, in the village of Osaca, Ontario (Subject Property). The findings of Wills' Study were summarized in Wills' Hydrogeological Study Report (Wills' Report) submitted to the Client on April 2, 2024. Wills' Report was peer reviewed by BluMetric Environmental Inc. (BluMetric) on behalf of the Municipality of Port Hope. BluMetric's initial peer review comments are summarized in the following document:

- Additional Peer Review of Hydrogeology Study – Second Submission, Proposed Residential Development, 5868 County Road 65, Osaca, Project Number 230352, prepared by Ian Macdonald, M.Sc., P.Geo. for the Municipality of Port Hope c/o Ms. Merepeza, May 17, 2024.

To address Blumetric's peer review comments, Wills conducted additional field studies and groundwater modelling for the Subject Property, and prepared the following documents:

- Revised Final Hydrogeological Study Report_v2, Osaca Hillstreet Subdivision, County Road 65, Osaca, Ontario, D.M. Wills Project Number 22-11056, prepared for Hillstreet Developments Ltd. c/o Larry Macdonell, July 17, 2024, (Wills' Revised Report).
- Osaca Hillstreet Subdivision, Northumberland County, Ontario, Hydrogeological Study Report, Answer to BluMetric Environmental following 2nd submission, D.M. Wills Associates Project No. 22-11056, for Hillstreet Developments Ltd. c/o Larry Macdonell, July 17, 2024 (Wills' Response Memo).
- Osaca Hillstreet Subdivision, Northumberland County, Ontario, Hydrogeological Study Report, Addendum #1, D.M. Wills Associates Project No. 22-11056, for Hillstreet Developments Ltd. c/o Larry Macdonell, December 11, 2024 (Wills' Addendum #1)





In summary, concerns were raised during the peer review process with respect to the evolution of nitrate concentrations in both the shallow groundwater aquifer and the deeper aquifers that are anticipated to supply drinking water to the proposed development. Although the nitrate concentrations in groundwater were found to be well below the applicable Ontario Drinking Water Quality Standard (ODWQS), it is considered prudent to ensure that the addition of private on-site sewage systems will not increase the concentrations over time to an unacceptable level.

Following additional investigations completed by Wills (see Wills' Addendum #1), a consensus was reached with BluMetric to implement a groundwater monitoring program (Monitoring Program), which will commence prior to the proposed development's construction and continue for a period of 3 years thereafter.

The Monitoring Program will include bi-annual groundwater sample collection and analysis, as well as the preparation of annual technical memos. The memos will include an analysis of the evolution of groundwater quality on the Subject Property, as well as appropriate recommendations and any required mitigation measures as they relate to groundwater quality (nitrates). In addition, the memos will address the need for extending the 3-year monitoring period, if considered necessary.

Should an increasing trend in nitrate concentrations be observed during the construction of the proposed development, the following mitigation measures could be implemented to ensure the quality of the groundwater is maintained, and to ensure an acceptable groundwater quality is provided to the proposed residential dwellings:

- Equip the remaining lots with advanced sewage treatment systems, which would limit the input of nitrate from the development into groundwater.
 - Wills' Study considered the use of conventional sewage systems, however, advanced treatment technologies (e.g. Waterloo Biofilter) are readily available and have demonstrated ability to drastically reduce nitrate outputs.
- Provide point of use drinking water treatment systems for residential dwellings to ensure the potable water supply maintains nitrate concentrations below the applicable ODWQS.

Elevated concentrations of nitrates in groundwater are common on lands that were previously used for agricultural purposes and are generally found to subside over time following the cessation of fertilizer application. The nitrate concentrations on the Subject Property were determined to be lower than the applicable ODWQS, and Wills' proposed Monitoring Program has been



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developed as a safeguard to ensure that if concentrations increase over time, the appropriate controls can be put in place.

We trust that this information is suitable for your purposes at this time. Please contact our office if you have any questions or require clarification.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read 'R. Bolvin'.

Ralf Bolvin, P.Eng., QP_{ESA}
Project Engineer

A handwritten signature in blue ink, appearing to read 'I. Ames'.

Ian Ames, P.Geo.
Group Leader, Environmental Management and Monitoring

RB/IA/jh