Technical Memo

To:	Michel Kearney – City of Ottawa
From:	Rob Kell, Brent Loney - Dillon
cc:	Heidi Scott – City of Ottawa Marc Beauregard – City of Ottawa
Date:	November 4, 2020
Subject:	Review of Paterson Memo - Hydrogeological Review - Municipal Services – Proposed Commercial Development, 3713 Borrisokane Road - Ottawa
Our File:	19-2920

Dillon Consulting Limited (Dillon) was provided a memo titled "Hydrogeological Review - Municipal Services Proposed Commercial Development, 3713 Borrisokane Road - Ottawa", dated October 2, 2020, prepared by Paterson Group Inc. The Paterson memo outlines the proposed development and evaluates potential impacts of the 3713 Borrisokane Road (ABIC) development on the groundwater regime. The purpose of the Paterson memo was to support a Lifting of Holding application for the property. The Holding condition states:

"The holding symbol may only be removed upon Site Plan approval for development on full municipal services (public water and public sanitary services), including the approval of a comprehensive servicing study demonstrating that full municipal services have no adverse impact on the Trail Road Landfill Facility's operational capacity, nor will municipal services pose a risk to human health and safety as they relate to the landfill leachate plume".

Summary of Paterson Memo

As detailed in the Paterson memo, municipal water supply as well as sanitary and storm sewers have been proposed for the subject site. The proposed watermain is anticipated to be installed south of the commercial structures, while the stormwater collected at the subject site will be directed east towards an infiltration system and/or temporary storage pond located on the east side of the property. The proposed sanitary service will be south of the commercial structures and extend along the south property boundary towards the southeast corner of the site. The proposed sanitary service is the deepest service installation on the property with invert elevations reported to range from 99.95 m at Building A to 96.99 m at the southeast corner.

The Paterson memo states that the proposed municipal services will be installed above the measured groundwater level (95.0 to 95.5 masl) observed within the Ottawa Valley Kars Esker (i.e., the glaciofluvial ridge underlying both the landfill and the ABIC development) and it is not expected that construction groundwater dewatering will be required throughout the subject site. For this reason, the Paterson memo states that the installation of municipal services within the subject site are considered to have limited hydrogeological effects. Overall, the Paterson memo concludes that, based on a review of the preliminary design drawings for municipal servicing for the ABIC site, the proposed municipal servicing will be above the groundwater elevations observed within the underlying Ottawa Valley Kars Esker.

Dillon Comments

Dillon was retained by the City of Ottawa to provide groundwater modeling and related services for the Trail Road Landfill. As part of this project a Conceptual Site Model was developed that defined the major hydrostratigraphical units and was subsequently incorporated in a Groundwater Flow Model which was calibrated to measured water levels in numerous monitoring wells and measured flow in surface water features. Note that information provided by the developer's consultant (Paterson) was used in the development of the Conceptual Site Model.

The groundwater flow model was used to simulate potential groundwater flow influences from the urban development planned for a large area east for the Trail Road Landfill. These influences included:

- Potential impacts from construction groundwater dewatering (i.e., finite duration, but higher flows) required for the installation of underground infrastructure (storm and sanitary sewers), and
- Long term impacts from urban development on the groundwater flow regime.

To complete this simulation Dillon included the underground infrastructure provided by the developer's consultant (David Schaeffer Engineering Ltd.) into the groundwater flow model. An iterative approach was used to evaluate the portions of sewer network to determine which sewers were deep enough to influence the groundwater flow regime.

Dillon has reviewed the information contained in the Paterson memo based on the groundwater flow modelling completed in the area of the ABIC development. For the ABIC property, the sewers were determined to not be deep enough to affect the groundwater flow regime and therefore groundwater flow from the landfill.

Further, the site-specific evaluation of the ABIC development completed by Paterson is generally consistent with the regional hydrogeological conditions determined for this area of the regional groundwater flow model. Overall, the Paterson conclusions of the low potential of the ABIC development to impact the groundwater regime is consistent with the overall groundwater flow model developed by Dillon. As such, and subject to the information and assumptions stated herein, Dillon agrees that the technical concerns that led to the imposition of the holding condition have been adequately addressed, and that lifting of the condition would therefore be appropriate.

Rob Kell, M.A.Sc., P.Eng., P.Geo.
Environmental Engineer /
Hydrogeologist

Brent Loney, M.Sc., P.Geo.
Project Manager