25-028

May 9, 2025

Municipality of West Grey
402813 Grey Road 4
Durham, Ontario
N0G 1R0

Attention: David Smith
Manager of Planning

Re: **Peer Review Comments on**
Maximum Predicted Water Table and Hydrogeological Assessment Report
Proposed Class 'A' Pit Above Water (Watson Pit), Teeswater Concrete Ltd.
Municipality of West Grey, Grey County

Dear Sir,

As requested, this letter provides peer review comments by GSS Engineering Consultants Ltd. (GSS) on the 2023 maximum predicted water table and hydrogeological assessment report prepared by GM BluePlan Engineering Limited (GMBP) for Teeswater Concrete Ltd. for a proposed above the water table pit to be located at 311804 Highway 6, Mount Forest in the Municipality of West Grey.

A copy of the hydrogeological assessment report was provided to GSS by the Municipality of West Grey, together with copies of the April 19, 2024 site plans (revised March 19, 2025) and the February 25, 2025 summary statement for the proposed pit, both prepared by GMBP. GSS made reference to the latter two documents only for information that was considered relevant to the peer review of the hydrogeological assessment report.

Comments

The following comments are provided on the hydrogeological assessment report.

1. Section 2.2.1 of the report indicated that ten monitoring wells were installed to depths between 7.4 and 18.8 metres at six locations on March 9, 10, and 21, 2023 by London Soil Test Limited. The borehole logs were reportedly provided in Appendix B. In the report provided to GSS, Appendix B contained logs for eight test holes advanced at the site by

Choice Sonic Drilling on February 2 and 3, 2023, and logs for twenty-two (22) test holes excavated at the site on February 2 and 3, 2023. No associated monitoring well installations were shown on those logs. Borehole logs for the monitoring wells utilized for the hydrogeological assessment were not included. Copies of those logs should be provided to GSS for us to properly complete our review.

2. Groundwater levels at the site were reportedly measured on three occasions: March 22, July 18, and October 23, 2023. The report indicated that the high groundwater table elevation was expected to be consistent with the water levels measured on March 22, 2023, which were made following a period of significant snow melt and precipitation. The report recommended that the monitoring wells continue to be monitored during the pit application process so that direct measurement of the high water level could be made and the pit floor elevation updated accordingly. No additional water level data were provided. The high water table elevations shown on the April 2024 site plans (revised March 2025) were based on the March 2023 groundwater level data. For reference, the MNRF August 2020 Aggregate Resources of Ontario (ARO) standards for a maximum predicted water table report (updated in August 2023) indicated that the maximum predicted water table shall be determined by monitoring the groundwater table at the site for a minimum of one (1) year to account for seasonal variations and influences from precipitation, unless alternative information already exists (e.g., previous studies, existing well data) to support a determination of the maximum predicted water table by a qualified person. As no supporting alternative information was provided, the monitoring data presented were less than what was specified in the ARO standards. For the purpose of our peer review for the Municipality, we would not consider one year of data to be necessary provided that it could be demonstrated that the data obtained reasonably represented the typical high water conditions for the site.

3. Table 2 in the report indicated that the groundwater elevations measured on March 22, 2023 were considered to be the annual maximum groundwater table elevation for the site. However, the water level data presented in Table 2 indicated that the groundwater levels measured in MW-1S, MW-4S, and MW-5S on July 18, 2023 were approximately 0.5 m higher than the recorded water levels on March 22. Conversely, the recorded water level in MW-2 declined by 2.7 m over the same period. The recorded October 2023 water levels for MW-1S, MW-4S, and MW-5S were also higher than the March 2023 levels. The data indicated that the annual high water table elevation identified in the report and shown on the site plans was not consistent with the conditions at the site. Additional data should be provided as necessary to adequately demonstrate that the typical seasonal high water table for the site has been identified.

4. Available water level data for the Environment Canada gauge on the Beatty-Saugeen River at Holstein, approximately 3 km east-northeast of the site, suggested that the shallow groundwater levels on the Site on March 22, 2023 were less than average for that month and that the seasonal high levels for shallow groundwater likely occurred in the first week of April in 2023. Additional information should be provided to support the finding that the seasonal high water table identified for the site is reasonably representative of typical site

conditions. That information is commonly obtained from placement of data loggers in selected monitors to continuously record the water level and/or reference to relevant provincial or federal data for the vicinity of the site.

5. There was no comparison between available precipitation data for the period of monitoring and typical precipitation levels for the area of the site. The August 2020 ARO standards (updated in August 2023) defined the maximum predicted water table as the maximum groundwater elevation predicted by a qualified person who has considered conditions at the site and mean annual precipitation levels. Local Environment Canada precipitation data and available 30-year normals suggested that 2022 and the beginning of 2023 through March 22 were drier than normal. Conditions for the water level monitoring period should be compared to relevant precipitation data to support the finding that the identified seasonal high water table is reasonably representative of typical conditions.

6. Although it is seemingly subject to change, Drawings 2A and 2B Operations Plan showed an excavation elevation of 393.00 m at the location of MW-6S in the proposed extraction area, where the high water table was shown at elevation 391.69 m, indicating a separation distance of 1.3 m. GMBP should confirm that the design pit floor elevations are consistent with the ARO standard for an above water pit.

7. The report noted that the seasonal ponding areas in the central portion of the site were inferred to be associated with the shallow water table elevation. The report further noted that the estimated high water table on the site was consistent with the topography, water level elevations from the monitoring wells, and surface water elevations measured on the site. The surface water level data obtained for the site should be provided. It would be useful to also show that data with the groundwater elevation data on the figure(s) depicting the estimated water table contours for the site. It was not apparent that surface water levels were monitored in the provincially significant Letterbreen Bog in the south portion of the site, as the report noted that it was inferred that the surface water elevation in the bog was generally consistent with the water table elevation. Surface water and shallow groundwater level monitoring with piezometer(s) in the on-site bog for comparison to nearby groundwater level data would confirm that. If representative surface water level data for the bog were not collected, and can't be obtained within the timeframe of the application process, then a suitable recommendation should be included on the site plans for shallow piezometer(s) to be installed in the bog and monitored for a period of at least one year, with the data reviewed by GMBP for consistency with the conclusions presented in the report.

8. MNRF mapping showed an unevaluated wetland in the wooded area in the northwest corner of the proposed extraction area and MNRF and Grey County GIS mapping and imagery showed a small pond in the north-central portion of the extraction area. A comment should be provided on why those were not shown in the report as existing surface water features and were not considered to be indicative of the seasonal water table elevation at those locations. The summary statement indicated that the area of the property proposed for licensing was the elevated portion of the property set back from ponds/seasonally wet areas.

9. The report noted that since there are no proposed interactions with the water table or surface water features, the overall water budget, pre- to post-development, is expected to remain unchanged, and stated that equal infiltration to the subsurface will continue post-development. A water budget for the site was not presented. The main components of a water budget are precipitation, losses from evapotranspiration, runoff, and infiltration. The progressive rehabilitation plan (Drawing 3) indicated that the completed pit floor will slope towards the north and be 9 m below the existing ground at the north limit of extraction. The notes on that plan indicated that surface water drainage will be by percolation or evaporation. Under those conditions, the expected runoff from the completed area of extraction would be zero. From the information provided in the report and site plans, it was not apparent that there is currently no runoff from that area. A reduction in the existing runoff would change the water budget and result in a corresponding increase in infiltration. GMBP should provide additional information to support the conclusion that the water budget for the site will not be changed by the proposed development. If there is a potential for a change in the water budget, then the associated implications should be evaluated. It is not apparent that increased infiltration would negatively affect the on-site wetland to the south, but there would be a potential for an increase in the elevation of the seasonal high water table on the site.

10. The report and site plan notes indicated that to maintain surface water flows to the same low-lying locations, the restored grades shall be sloped to maintain similar pre- and post-development catchment areas. The pre-development catchment areas were not identified, and it was not apparent how similar post-development catchment areas would be maintained for the proposed area of extraction. Additional information should be provided to indicate how that recommendation would be implemented.

We trust that these comments adequately respond to the Municipality's request.

Yours truly,

GSS Engineering Consultants Ltd.

W. Brad Benson, P.Eng.
Senior Hydrogeologist

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