

McINTOSH PERRY

August 2, 2023

Jasmin Ralph
99 Christie Lake Road
Perth, ON
K7H 3C6

Dear Ms. Ralph:

Re: Response to Agency Comments

Grizzly Homes 4th Line Franktown Subdivision - Lanark County File No. 09-T-22004

McIntosh Perry has reviewed the comments prepared by Keeper Co. dated February 13, 2023, the Rideau Valley Conservation Authority dated March 28, 2023, and GEMTEC dated January 27, 2023, and we are pleased to be providing you with a resubmission package that addresses Staff and Peer Review's comments. Below are responses to comments provided by Keeper and the RVCA, and attached is a separate letter addressing the comments provided by GEMTEC.

At this point in the approvals process, it is our hope that this resubmission will enable the above authorities to proceed with the preparation of draft conditions in support of Draft Plan of Subdivision approval.

RIDEAU VALLEY CONSERVATION AUTHORITY

Natural Hazards – Organic Soils

The subject lands are identified as having potential for organic soils. A geotechnical assessment was not submitted as part of the application. However, soils information was presented in both the terrain analysis and archeological assessments submitted with the application package. This along with the presence of local wetlands (noted below), support the presence of organic soils being present.

While the reports do not provide sufficient information or scope to determine the area of hazard, the terrain analysis indicates that organic material was present on site within topsoil ranging from 0.05 m to 0.6 metres in depth. It is recommended that geotechnical assessment be complete as a condition of draft approval that includes a remediation plan, where organic material is encountered prior to development.

MP Response: *Acknowledged.*

Environmental Impact Statement

In support of transition of review, the following are offered for information: The subject lands are identified as local wetlands and no other natural heritage features. The GEMTEC Environmental Impact Statement dated August 29, 2022, identifies two pockets of wetlands and recommends 15 metre setbacks from these features for property lines. It should be noted that the Township of Beckwith Zoning By-law requires greater setbacks from the wetland

boundary to both structures and private sewage systems. The 15-metre setback recommended by the report is applied to property lines and may be acceptable provided the zoning by-law setbacks remain in place.

MP Response: As shown in the revised Conceptual Lot Development Plan, more than 20 metres is provided between the wetland boundary and any structures, and more than 30 metres is provided between the wetland boundary and septic systems. It is noted that although the subject property does not contain lands zoned ‘Wetland,’ the proposal would satisfy these requirements if wetland zoning was applicable.

KEEPER CO. DEVELOPMENT APPROVALS

General Comments

1. *Whether noted in the planning rationale or incorporated into recommended conditions of draft plan approval, the applicant will be required to upgrade 4th Line Rd to Township standards with an asphalt surface (ie. 3.05m paved lane, 1.5m gravel shoulders, and adequate roadside ditching.).*

Given the unknown existing alignment of the travelled portion of the road, design drawings (plan and profile) for the upgrade are required. Depending on the proposed changes, a geotechnical investigation and partial realignment of the roadway may be needed.

MP Response: *It is acknowledged that a portion of 4th Line Road will need to be upgraded and that this will be addressed during the detailed design phase of approvals, following Draft Plan of Subdivision approval.*

2. *It is recommended that the application request an opportunity to present the Draft Plan of Subdivision to the Recreation Committee for discussion regarding Park Land Contribution and possible trail locations. Where possible, these features should be added to the Draft Plan prior to Draft Plan Approval.*

MP Response: A meeting with the Township’s Recreation Committee is scheduled to take place on September 5, 2023 to discuss potential trail block options.

Draft Plan

1. *A 0.30m reserve on Lot 1 along 4th Line Rd should be noted on the plan to restrict access and additional entrances.*

MP Response: A 30 cm reserve will be added to the MPlan following Draft Plan of Subdivision approval.

2. *Similarly, a 0.30m reserve on Lot 17 along County Road 10 should be noted on the plan to restrict access and additional entrances.*

MP Response: A 30 cm reserve will be added to the MPlan following Draft Plan of Subdivision approval.

3. *The applicant may want to consider offering Blocks 31 and 32 to neighbouring property owners, or discuss with the Public Works Manager and/or Public Works Committee regarding future ownership.*

MP Response: Acknowledged.

4. *It is recommended that discussions take place with municipal staff and a presentation at the Planning Committee regarding future ownership of Block 34 and 35.*

MP Response: Acknowledged.

Preliminary Stormwater Management Report

1. *Immediately downstream of the development along 4th Line Road, the roadside ditch is shallow and poorly defined. Prior to obtaining Draft Plan Approval, the applicant will need to demonstrate where the site will direct flows to a legal and sufficient outlet. It is possible that downstream drainage improvements may be required – if so, these should be noted in the Preliminary Stormwater Management Report.*

MP Response: Acknowledged. *The Stormwater Management Report has been updated accordingly. Please refer to Section 4 in particular.*

2. *Although the municipality will allow 0.1% slope in rear yard drainage features, it is only when a slope greater than 0.3% is not achievable. During the preliminary design of the development, a minimum of 0.3% should be utilized.*

MP Response: Acknowledged. *During preliminary design a minimum 0.3% slope has been utilized for rear yard drainage features.*

3. *Similarly, side slopes of both roadside ditches and drainage swales should be minimum 3:1.*

MP Response: Acknowledged. *During preliminary design a minimum side slope of 3:1 has been utilized.*

4. *Should LIDs be required by other commenting agencies, it is strongly recommended that any proposed LIDs be reviewed with municipal staff and council prior to providing them as solutions. Beckwith Township's ability to monitor and maintain LIDs a limited and their willingness and ability to undertake future maintenance should be discussed with the Public Works Committee.*

MP Response: Acknowledged.

CONCLUSION

We trust that the responses provided above, and the enclosed resubmission items adequately address the comments provided by Agency Staff and as stated within the preamble to this letter, it is our hope that this resubmission will enable the above authorities to proceed with the preparation of draft conditions in support of Draft Plan of Subdivision approval.

Sincerely,



Benjamin Clare, RPP MCIP

Practice Area Lead, Planning Services

Appendix A

Comment Response Letter – Third Party Review of Hydrogeological Assessment and Terrain Analysis

July 28, 2023

Gemtec Consulting Engineers and Scientists Limited
c/o Andrius Paznekas, M.Sc., P.Geo., and Jean-Philippe Gobeil, M.Sc., P.Geo.
32 Steacie Drive
Ottawa, ON
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Andrius and Jean-Philippe,

Re: Third Party Review of Hydrogeological Assessment and Terrain Analysis (Project No. CCO-22-0256) – Grizzly Subdivision, Beckwith, Ontario.

Please accept this letter in response to the peer review comments letter received from Gemtec dated January 27, 2023 for the report titled “Hydrogeological Assessment and Terrain Analysis, Grizzly Homes Subdivision, Beckwith, Ontario”, dated August 22, 2022.

MECP Procedure D-5-5: Water quality/quantity Assessment

1. *The McIntosh Perry report does not provide an assessment of the regional groundwater flow direction. This should be assessed through background reports such as wellhead protection areas reports, or from static water levels obtained from water well records, for example.*

Section 2.3 of the report has been updated to include regional groundwater flow.

2. *No information is presented from the upgradient or downgradient residential properties. Given that the shallow groundwater flow direction may be influenced by surface water bodies at the Site, GEMTEC suggests sampling a few houses to the north, east and south of the Site.*

Section 3.3 summarizes the additional samples collected from four (4) surrounding properties, located at 9477 Hwy 15, 9493 Hwy 15, 9578 Hwy 15, and 220 Perth Road, to characterize the groundwater surrounding the Site. The groundwater results are included in Table 7, appended to the report.

3. *Some discrepancies between the well construction described in Section 3.3.2 and the well records were noted (see comment response for all discrepancies).*

The well records have been reviewed and Section 3.3.2 has been updated accordingly.

4. *TW3 did not recover past 95% within 24 hours and the report mentions it is assumed that atmospheric pressure changes and further well development over the pumping and recovery period may have contributed to the failure to fully recover past 95%. McIntosh Perry should have monitored water levels in the pumping well and observation wells (this comment is applicable to all wells, not just TW3) and the atmospheric pressure during the pumping test and recovery period using water level loggers and a barologger. In the absence of pressure data it is not possible to support this affirmation.*

Water levels in each well should have been monitored with a barometric pressure logger in order to obtain synchronous pumping well and observation well data during the pumping tests and recovery periods. Given the easy access to pressure transducer technology, the distance or obstacles between observation wells should not be reason not to acquire the data throughout the tests.

Understood. For all future pumping tests, McIntosh Perry will utilize level loggers and a baro logger in the pumping well and observation wells.

- McIntosh Perry's report does not present a substantiated assessment of well interference based on distance-drawdown obtained from pumping test data or based on a simulation using conservative aquifer properties obtained during the completion of the pumping tests. The report should demonstrate that well interference will not be a problem for the subdivision or neighbouring well users if 30 wells are to be present in the subdivision. Potential effects of seasonal fluctuations should also be discussed.*

The Theis equation theory has been added to Section 3.4.6, which estimates the cumulative drawdown across the Site generated by all proposed wells (30 total). The theoretical drawdown across the Site, assuming all wells were pumping for 365 days, was calculated to be 0.369 m which is well within the available head for all test well locations.

Additionally, to assess the potential effects of seasonal fluctuations, McIntosh Perry installed a Solonist level logger®3001 and a Solonist baro logger®3001 in TW5 from April 18 to May 29, 2023 (42 days total). A fluctuation of 1.95 m was observed across the 42-day period. Please see Section 3.4.6.

- GEMTEC is in the opinion that McIntosh Perry does not provide sufficient justification that neighbouring water well users wont be affected, and it is recommended that McIntosh Perry comment on the potential impact on neighbouring water well owners of an approximate 2.2 metre drawdown that may potentially compound due to well interference.*

Please see answer 5 above and refer to section 3.4.6 of the updated report.

- A private well survey and private well water sampling program should be conducted in order to assess background conditions prior to construction of the proposed development. Given the hydrogeological sensitivity of the area, the private well survey and sampling program would provide key information pertaining to the well performance and water quality on properties where wells and septic systems have been present for a significant period of time.*

Section 3.3 summarizes the additional samples collected from four (4) surrounding properties, located at 9477 Hwy 15, 9493 Hwy 15, 9578 Hwy 15, and 220 Perth Road, to characterize the groundwater surrounding the Site. The groundwater results are included in Table 7, appended to the report.

- GEMTEC suggests testing using a colorimeter with a method capable of obtaining a detection limit for free chlorine and total chlorine in the order of 0.02 mg/L.*

Understood. A colorimeter will be used for all future groundwater samples. Additionally, all groundwater samples collected in April and May of 2023 utilized a Hach DR900 colorimeter for confirmation of zero chlorine residual following disinfection of the sampling tap. Section 3.2 of the report has been updated.

9. *Based on the elevated nitrate concentrations detected in TW3 and TW4, it is GEMTECs opinion that additional testing and discussion is warranted. Seasonal sampling should be carried out in the wells and a private well sampling program should be carried out on properties surrounding the site.*

Additional testing and sampling was completed in April and May of 2023. Section 3.3 of the report has been updated.

10. *Given the known presence of the Beckwith VOC plume it is GEMTEC’s opinion that proposed developments in the Beckwith Township should also include VOCs in the list of parameters analyzed as part of the groundwater quality assessment conducted in the test wells.*

As per the request outlined above, McIntosh Perry collected additional analysis of VOCs from two (2) on-site non-adjacent test wells (TW2 and TW5). As per Table 7 appended to the report, VOC concentrations were below the detection limit.

11. GEMTEC agrees that the hardness concentrations are within treatable limits. McIntosh Perry should inform future homeowners that the groundwater is considered to be hard and the health considerations with the use of conventional water softeners (ie. Increased sodium concentrations).

Section 5.4 of the report has been updated.

12. *The report must specify a minimum recommended casing length in order to isolate the water supply aquifer from the shallow bedrock and provide a rationale based on the distribution of nitrate concentrations, location of potential nitrate and other contaminant sources, water found depth, etc.*

McIntosh Perry has updated Section 6.1 to include a minimum casing length for all future wells constructed at the proposed subdivision.

Surface Water Impacts

13. *Surface water features are present within the proposed development. As per MECP Procedure D-5-4- section 5.3 (d), McIntosh Perry should comment on the potential impact of the on-site discharge of sewage effluent into surface water.*

Given that space was available, the Conceptual Lot Development Plan was updated to ensure a minimum 30m setback (instead of a minimum of 15m setback) for sewage systems from the unevaluated wetlands, which represents a doubling the minimum requirements of the Ontario Building Code from a surface water body. Given this, it is expected that sewage effluent sub-surface discharge from properly designed and constructed sewage systems will not negatively impact local surface water bodies.

Terrain Analysis and Septic Impact Assessment

14. *Grain size analysis should have been completed in order to provide additional information required for the soil classification for private sanitary servicing and to support the assessment of potential water quality impacts relative to private septic systems.*

McIntosh Perry has submitted samples TP6-SS1 (brown sand) and TP2-SS1 (gravelly sand/sandy gravel) to the lab for grain size analysis. Additionally, sample TP12-SS2 (clay, trace sand, trace gravel) for a hydrometer test. A review of the laboratory particle size analysis have resulted in an adjustment to the soil descriptions included in Hydrogeological Assessment and Terrain Analysis (Rev.1), namely:

- Soil previously described as Brown sand is now described as Gravelly Sand trace silt/clay;
- Soil previously described as gravelly sand/sandy gravel is now described as sandy gravel/gravelly sand some silt/clay
- Soil previously described as clay, trace sand, trace gravel is now described as silty gravelly sand trace clay

Laboratory results are included in Appendix H of Hydrogeological Assessment and Terrain Analysis (Rev.1)

15. *MP concludes that the property can accommodate a subdivision of up to 30 lots to proceed while ensuring the ODWO of 10 mg/L for nitrate-nitrogen is not exceeded, with a calculated concentration of 9.9 mg/L at the Site Boundary.*

In order for GEMTEC to agree with MP's conclusion, the following additional information should first be obtained:

16. *The background nitrate concentration of 2.5 mg/L should be confirmed through additional seasonal sampling and nearby private well water sampling*

- a. Two additional rounds of samples were collected in the Spring of 2023, with results generally in line with previous results when accounting for natural variations that may occur between years and seasons. The highest recorded background nitrate (2.8 mg/L for TW3 in April 2023) was used as part of the predictive nitrate assessment.

17. *Grain size analysis should be conducted in order to confirm the assumptions used in the soil parameters for the nitrate dilution calculations*

- a. McIntosh Perry has submitted samples TP6-SS1 (brown sand) and TP2-SS1 (gravelly sand/sandy gravel) to the lab for grain size analysis. The results were used to adjust the infiltration factor.

18. *Water surplus data used in the nitrate dilution calculation should be obtained from a station that is closer to the subject site, such as the Carleton-Place climate data station*

- a. The 1981-2010 Climate Normals available for Carleton Place do not meet the "3 and 5 rule" per the United Nation's World Meteorological Organization (WMO) 30 Year Standard Normals. The water surplus (Ws) value was based based on 1981-2010 Climate Normal data for Ottawa's MacDonald -Cartier Int'l A (YOW) station (Site Climate ID: 6106000), which represents the nearest

weather station to the site with data quality that meets the “3 and 5 rule” per the United Nation’s World Meteorological Organization (WMO) 30 Year Standard Normals. In addition, the weather station is at approximately the same latitude as the Site, which is relevant given that prevailing weather patterns in Eastern Ontario generally travel west to east.

19. *The MP report does not make recommendations pertaining to a minimum well casing depth that would be required to isolate the upper bedrock (receiving aquifer) from the bedrock supply aquifer. Given the hydrogeological sensitivity of the site, protective measures are required for septic systems and such measures should be presented in the report.*

Areas with less than 0.25m of soil under the topsoil have been identified as bedrock in the report; in these areas, it is recommended that an imported clay layer (minimum 0.1m in depth) be installed on the bedrock surface before placing leaching bed fill for sewage systems to prevent the possibility of short-circuiting of sewage effluent to the underlying bedrock aquifer.

McIntosh Perry has updated Section 6.1 to include a minimum casing length for all future wells constructed at the proposed subdivision.

Should you have any questions or concerns please do not hesitate to contact us.

Regards,

McIntosh Perry Consulting Engineers Ltd.



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