



G R E E R
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August 31st, 2018

by email: harrowj@hastingscounty.com

Hastings County
235 Pinnacle Street
P.O. Bag 4400
Belleville, ON K8N 3A9

Attention: Mr. Justin Harrow, Director of Planning

Re: Technical Peer Review, Level 1 and Level 2 Hydrogeological Investigation Report, Proposed Freymond Quarry Review Response by MTE Consultants Inc. dated May 1, 2018 to Peer Review by Greer Galloway of August 4, 2017 GGG Project No. 17-3-8211

Dear Mr. Harrow,

Following our review of the Level 1 and Level 2 Hydrogeological Investigation Report prepared by MTE Consultants Inc. of Kitchener Ontario, December 2016, MTE provided clarification and additional supporting information on the Hydrogeological Investigation, in their report entitled: Response to Township Peer Review Comments, August 4, 2017, dated May 1, 2018. The Greer Galloway Group Inc. has reviewed this document, provided by the County of Hastings, and submits the following response. The Comment numeration follows that of the MTE document.

Comment #1: MTE has researched the question of weathering of sulphides following exposure in quarries, and presents evidence from other sites of limited impact. No further comment.

Comment #2: MTE presents the results of 24-hour pumping tests on MW7 and MW8. No further comment.

Comment #3: No further comment.

Comment #4: Additional work was performed by MTE to further characterize the South Stream. No further comment.

Comment #5: As for Comment #3. No further comment

Comment #6: Additional interpretation including groundwater flow maps were prepared. No further comment.

Comment #7: As for Comment #4

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Comment #8: Additional pumping tests were carried out by MTE in December 2017 to further clarify the potential interrelationship between MW7 and MW8 and PW2 and PW13. No further comment.

Comment #9: As for Comment #1. No further comment.

Comment #10: As for Comment #1. No further comment.

Comment #11: A Spills Contingency Program will be developed prior to site preparation. No further comment.

Comment #12: Concerns raised have been addressed in responses to Comments 1 through 4. No further comment.

Comment #13: A revised monitoring program has been presented. No further comment.

Comment #14: No further comment.

Comment #15: As for Comments #2 and 3. No further comment.

Comment #16: No further comment.

Comment #17: An additional section has been created and presented. Section C-C' Figure 5. No further comment.

Comment #18: No further comment.

Comment #19: As for Comment #17. No further comment.

Comment #20: No further comment.

Comment #21: This reviewer re-iterates that: "...flow generated through these confining conditions may be supported by the South Stream." No further comment.

Comment #22: Additional water level data from December 2017 were collected. As MTE indicates, MW7 aquifer intersection interval is not specific and interpretation of vertical hydraulic gradient from this well not possible. No further comment.

Comment #23: As for comments #2 and 3. No further comment.

Comment #24: No further comment.

Comment #25: MTE has indicated that an ECA will be applied for. No further comment.



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Comment #26: No further comment.

Comment #27: The phased development of this quarry should allow for modifications to the groundwater and surface water management plans if unanticipated conditions are encountered. No further comment.

Comment #28: No further comment.

Comment #29: As for Comment #24.

Comment #30: No further comment.

Comment #31: In the event of adverse impacts on neighbouring wells from changes to the groundwater gradient surrounding the proposed quarry are to be dealt with as outlined in the Well Interference Complaint procedure. No further comment.

Comment #32: No further comment.

Comment #33: No further comment.

Comment #34: No further comment.

Comment #35: MTE states that “Blasting will increase horizontal conductivity, ...but that fracturing or permanent deformation will be limited to the immediate area surrounding the blast hole.” This may result in a tighter blasting pattern requirement. MTE also states that: “Blasting performed in accordance with NPC-119 is intended to limit both noise and vibration, thereby limiting the potential to increase of horizontal conductivity.” I am not sure of the connection here, but I presume this issue will be monitored and issues dealt with as they arise. No further comment.

Comment #36: Information is provided on the Proposed Stormwater Management Facility. No further comment.

Comment #37: As for Comment #26. No further comment.

Comment #38: As for Comment #27. No further comment.

Comment #39: No further comment.

Comment #40: As for Comment #4. No further comment.

Comment #41: A Well Interference Complaints Procedure is provided. No further comment.

Comment #42: No further comment.



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Comment #43: As for Comment #14. No further comment.

Comment #44: As for Comment #25. No further comment.

Comment #45: As for Comment #1. No further comment.

Comment #46: MTE “maintains a PTTW for groundwater discharge is not necessary pending MOECC approval.” No further comment.

Comment #47: MTE has provided Attachment 3 for information regarding how on-Site water quantity and water quality will be managed. No further comment.

Comment #48: No further comment.

Comment #49: As for Comment #2. Challenges may be encountered with flow beyond what is anticipated from this study. These should be able to be dealt with during the extraction phases. No further comment.

Comment #50: The additional testing that has been carried out by MTE to quantify the impacts on groundwater and surface water from the proposed extraction have addressed the concerns raised. It is very difficult to predict with certainty the final impacts, especially with a phased extraction process contemplated over many years. However, the benefit of a multi-year development is that it allows adaptations to the plan to provide mitigation as the extraction proceeds. The proponent should ensure that impacts to neighbouring uses are minimized, to ensure continued operation. The planning and infrastructure proposed demonstrates a commitment to the long term.

I have no further comment or recommendations on the Level 1 and Level 2 Hydrogeological Investigation.

Sincerely,

THE GREER GALLOWAY GROUP INC.
CONSULTING ENGINEERS



John Porritt, P.Geo.
Senior Hydrogeologist
APGO Reg. 90266. September 2018