

MEMO

To:	Natalie Kotyck
From:	Garry T. Hunter, M.A.Sc., P.Eng.
Date:	October 4, 2024
File:	21-407
Subject	Strada Manual Stream Flow Monitoring August 15, 2024

Natalie,

This communication continues the iterative Peer Review of the proposed Strada Quarry pending application.

Strada is to be complimented for completing all 'dry weather' stream flow monitoring on a single day on August 15, 2024. This stream flow data provides a snapshot in time across the proposed Quarry project area.

A visual plot of the August 15 stream flow data is enclosed (Fig H.28). On this plot we have exchanged the flow values reported (error?) for SW14 and SW25 to present a more logical downstream progression of flow increases. We also note that the observed August 15, 2024 flow at SW15 seems unusually low.

Also, three additional stream flow monitoring locations are proposed at SW26, SW27 and SW 28 for observation in the near future (Fig H.27). At the same time we request repeating flow measurements at SW4, SW3 and SW15 for comparison purposes. Stream flow at these locations is interpreted to be supported by the underlying Goat Island Aquitard. This Aquitard appears to be forming an escarpment frontal platform or bench under 15th SR area from the 3rd Line to the Town Line as well as at the former Fish Hatchery site on Main St south of Horning's Mills.

The following August 15, 2004 face value flow observations are apparent:

1. **The stream flow at SW25 (Honeywood Line) at 450 L/s represents more than 50% of the Pine River base flow at the Everett Gauge.** No Model STR is available for comparison, however this STR is likely to indicate severe underestimates of dry weather flows from the Melancthon Pine River headwaters.
2. All stream tributaries in the vicinity of the proposed Quarry site are dry including those to the Boyne River.
3. Horning's Mills Lake downstream of the proposed Strada Quarry connected underground stream is the prime source area of the Pine River. Stream Flow at Main Street was 139.7 L/s.
4. The Strada August 15, 2024 stream flow observations are more or less consistent with those by Genivar in September 2009.

5. **The Strada Groundwater Model (Appendix E) is significantly underestimating stream flow at all Appendix E STR locations as available for comparison (see Table H.4). These include:**
- **SW5 Main Street - 56 vs 140 L/s (only 40 %)**
 - **SW24 Mill Pond River Road - 85 vs 211 L/s (only 40 %)**
 - **SW4 15 SR - 13 vs 62 L/s (only 21 %)**
 - **SW17 Newell/ Funston Fish Hatchery - 0 vs 39 L/s (infinity)**
 - **SW13 Shelburne Golf Course - 0 vs 28.2 L/s (infinity).**
6. **These Model results at face value are dismal and disappointing.**

Conclusions:

The August 2024 Strada Groundwater Model Calibration (Appendices CDE) is unacceptable and not fit for purpose including the preparation of Site Extraction Plans and development of Dewatering / Hydraulic Barrier Wall / Infiltration Scenarios.

Although there may be some value to having a dry model run, preparation of these 571 pages of CDE Appendices with the continuing interaction of the Strada Team and this Peer Review, all at significant effort and costs, is now proven to be very premature. These Reports must be replaced.

It is now also apparent that continuous stream flow monitoring is necessary at SW25 to support improved model calibration and cell resolution.

The NSRI Surveys, the TPA WELLness Survey, Improved Integration of Site Water level Monitoring is also likely still required to improve the Groundwater Model Calibration ‘fit for purpose’ and achieving satisfactory conclusions.

This one day dry weather stream survey has produced significant value to the application process.