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January 10, 2025

Strada Proposed Quarry Major Issues List

1. Is the current Oct 2024 Groundwater Model Fit for Predictive Purposes?

The current model, despite the four cycles of Peer Review comments, have not incorporated any change in Model Layer Aquifer Parameters since the 2022 Shelburne Report or any change in Calibration statistics since my first cycle Peer Review.

The current model underestimates dry weather groundwater and stream flows by two to three times where direct comparison of Model STR virtual and actual dry weather stream flows are available.

No confirming on site pump tests have been provided.

My Dec 10 request to Strada sought to systematically compare the Strada Model dry weather STRs to observed dry weather flows at Mega Quarry (Genivar), NVCA and Strada stream gauging sites.

The current model underestimate of groundwater flows likely means that the Oct 2024 Site Plan Infiltration Capacity is undersized and the Impact Assessments compromised.

2. Is Quarry Diversion of Pine River groundwater headwater tributary stream flows to the Boyne River tributaries acceptable?

Strada's current Oct 2024 Groundwater Model (at face value) and Oct 2024 Site Plan infiltration Design reduces groundwater and stream flows at Hornings Mills Main Street by as much as 50 % for some extraction phases. This reduction has adverse implications for dilution of village effluents and for maintenance of Brook Trout Habitat. Corresponding measurable decreasing flow reductions may be anticipated as far downstream as the Pine River Provincial Fishing Area.

Corresponding flow increases and water table rises may be anticipated in the Boyne River headwater and tributaries and wetlands with adverse implications for residential lots, lots of record and contiguous agricultural fields and tile drainage outlets.

Strada may not have even modelled the critical groundwater and stream flow reduction scenario. My Dec 10 request for supplemental Model Runs included a contingency for Lift 2 Quarry floor rupture (analogy Woods Quarry west of Kingston) and for the period immediately following Quarry Closure when the Site Plans contemplate Strada's ill-advised complete, withdrawal from Infiltration compensation for Horning's Mills community and Pine River headwater streams.

Optimal Site Plan relocation of Infiltration infrastructure would significantly reduce the hydrogeological impacts and improve the acceptability of this Quarry Site Plan proposal.

3. Do the October 2024 Site Plans incorporate appropriate Water Quantity Management and Operational Performance Criteria?

The October 2024 Site Plans are based on ‘Run of the Quarry’ water management. Quarry sump contact water pumped to infiltration infrastructure facilities as required to keep the operating quarry floor dry and intercepted 4th line upper aquifer water as available passively by gravity flow to injection wells. No consideration in Site Plan notes to the 24/7/365 need for infiltration compensation as required to maintain existing groundwater flows to the Hornings Mills community and Pine River headwater streams for the life of the Quarry and beyond.

No operational quantity performance criteria and infraction penalties are proposed by the Oct 2024 Site Plan notes.

4. Do the October 2024 Site Plans incorporate appropriate Drinking Water Aquifer and Protection of Aquatic Life Water Quality Infiltration / Injection Operational Performance Criteria?

Strada’s October 2024 Level 1 and 2 Hydrogeological Assessment is devoid of water quality data and analysis despite the collection of considerable data during Pit Compliance Monitoring and in September 2024.

The October 2024 Site Plans do not include any Drinking Water Quality performance criteria for proposed infiltration / injection of Quarry contact and non contact agriculturally contaminated water into the community Drinking Water Aquifers via the 4th Line Interceptor Drain. No water treatment has been proposed.

Strada might also consider the alternative use of SCADA controlled extraction (Pressure Relief in Geotechnical vernacular) Wells to bypass the high quality Gasport Aquifer flows through the proposed Quarry. This would reduce the need for Vertical Hydraulic Barriers.

My Dec 10 request for additional deep aquifer water quality information was intended to further evaluate Strada’s single Sept 2024 water quality sample analyses on the 4th Line deep aquifer monitors as well as complete deep aquifer natural water quality analyses in the southeast corner of Melancthon Pit No 2 area.

5. Do the October 2024 Site Plan Notes Adequately incorporate the Geotechnical Consultant Contingencies?

The Site Plan notes do not incorporate the full range of Geotechnical Consultant contingencies with respect to the proposed vertical Hydraulic Barrier wedges and the potential for Lift 2 Quarry Floor rupture (analogy Woods Quarry west of Kingston).

The variable conditions described by the Geotechnical Consultant are unlikely to have been captured by Strada's groundwater model which contemplates uniform underground conditions not affected by blasting events.

6. Does the Quarry Groundwater Monitoring Network meet the requirements for Efficient Long Term water level (potentials) monitoring requirements?

The Site Plan groundwater monitoring network has not been rationalized to long term efficient Quarry needs. Many monitors are located in areas not protected from future quarry activities including a number of deep recently constructed expensive multi-level monitors. There are a number of redundant legacy pit monitors which may be eliminated.

Legacy pit monitor nomenclature is confusing and does not reflect the now accepted geological formation / model layer nomenclature.

There are significant monitor screen network gaps within the Model Aquifer Layers, especially in the underground stream area.

Monitor screen vertical and horizontal location needs to be rationalized by Model Layer to provide full site coverage while at the same time reducing Strada's monitoring and agency review efforts.