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The Highland Companies  
Box 377  
Shelburne, ON  
LON 1S0

Ministry of Natural Resources  
2284 Nursery Road  
Midhurst, ON  
L0L 1X0

Re: Proposed Quarry in Melancthon Township – The Highland Companies

We have both been residents of Dufferin County for over 30 years and are writing to both express our concerns and ask questions regarding the above mentioned quarry. Our concerns are many but our biggest concerns include ground water flows and transportation.

### **Ground Water Flows**

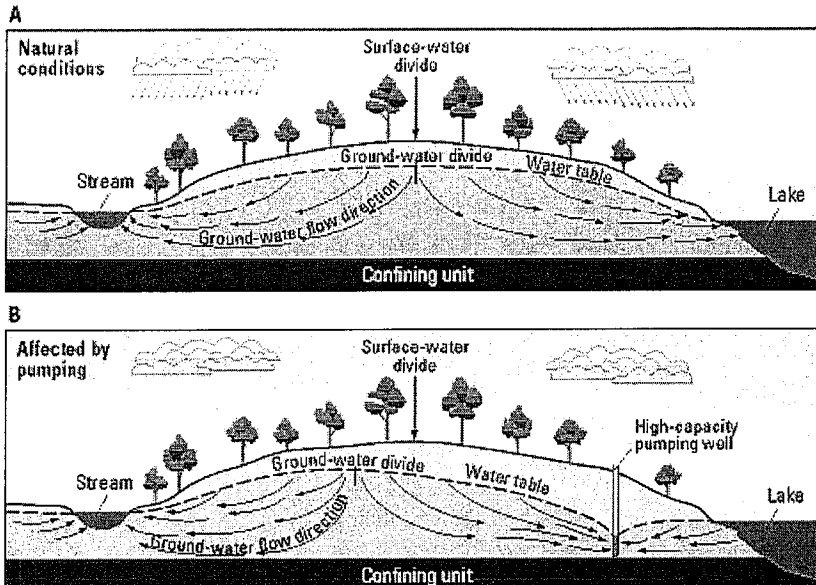
Quarry depth is apparently deeper than the water table. We are very concerned about the altering of natural ground water flows and the impact on the headwaters of Dufferin County and the hydrology of the Great Lakes.

- Pumping water results in lower ground-water levels (Figure 1) and creates a cone of depression around a well. Because water must converge on the well from all directions and because the cross-sectional area through which the flow occurs decreases toward the well, the hydraulic gradient must get steeper toward the well. Any water withdrawn from the ground-water system will divert part of the water that eventually would have discharged to a stream, lake, or wetland, or been transpired by vegetation. Even ground water withdrawn at some distance from the Great Lakes will reduce flow to the lakes depending on how much of that ground water is returned to streams as wastewater effluent. If the amount of water-level decline is sufficient, ground water that would normally discharge to the Great Lakes may cease and the ground-water divide may be altered. **Have any studies been conducted in relation to altering natural water flows and the long term effect on headwaters watersheds? (see Figure 1 illustration below).**
- Because the quantity of water in the lakes is so large, ground water in the Great Lakes Basin is often overlooked when evaluating the hydrology of the region. Ground water, however, is more important to the hydrology of the Great Lakes and to the health of ecosystems in the watershed than is generally recognized. **Have any studies been conducted on the impact of these ground water changes and the hydrology in the Great Lakes region?**
- Ground-water discharge to streams generally provides good quality water that, in turn, promotes habitat for aquatic animals and sustains aquatic plants during periods of low precipitation. Because of the slow movement of ground water, the effects of surface activities on ground-water flow and quality can take years to manifest themselves. As a result, issues relative to ground water are often seemingly less dire than issues related to

surface water alone. Have any studies been conducted on fish and wildlife based on alteration of natural flow of water? What long term studies have been done?

- Have the appropriate federal government agencies been engaged on the effects on fish and wildlife?

Figure 1:



URL: <http://water.usgs.gov/ogw/pubs/WRI004008/figure05.htm>

### Transportation

We have seen various figures for the estimates of incremental truck traffic on Dufferin county highways – all figures are staggering but need validation.

- **What highways will be used and have studies been completed on the impacts on the intersections on these roads?** The Highland DVD only made reference to the traffic impact to one intersection which was the intersection entering the proposed quarry.
- **How many trucks will be on the road on any given day?**
- **Will there be restrictions to time of day for trucks to travel given existing school bus and commuter traffic patterns?**
- **Have any studies been completed on the impacts of the incremental traffic and response times for emergency vehicles?**
- **Have any studies been completed on the safety issues for school buses that are already travelling on these roads?**

Please advise as to when we will receive a direct response to all of our questions that are highlighted above. Again, we strongly oppose the Highland plans to develop the quarry.

Regards,

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Matt Lindsay

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Gini Lindsay