

***Submission By***  
***Coalition***  
***of***  
***Concerned Citizens***  
***to***  
***Caledon Council***

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***Public Information Meeting***

***December 10th, 2008***

***Rockfort Quarry Application***

## PEER REVIEW SUMMARY OF ROCKFORT QUARRY APPLICATION REPORTS

The following is an attempt to outline to members of Council in a clear and reasoned fashion the salient points as to why the Rockfort Quarry application should not be supported.

The major weaknesses in the proposal can be summarized in five significant areas of concern: mitigation measures regarding water and grout curtain, the Adaptive Management Plan, the Planning Justification and Social Impact. While there are other areas of concern these form the bulwark of weaknesses in the application put forward by the proponent.

Let's examine what the peer reviewers and consultants are saying about the various aspects of the proposal.

### WATER

"Our current position with respect to the technical documentation submitted by the applicant is that there is insufficient information presented on which we conclude, definitively, that the engineering mitigation measures, as proposed, will function as intended, such that the off-site fishery habitat, wetland features and residential water wells will be protected." *Jagger Hims Pg. 2*

"Since the groundwater flow in the bedrock actually occurs along interconnected fracture planes and bedding planes that may result in a layered and/or erratic and unpredictable flow pattern at the site scale, the simplified approach that has been adopted may not be sufficient to provide the necessary design parameters for the mitigation system, on which approval of the quarry is to be based." *Jagger Hims Pg. 3*

"The quantity of good quality hydrogeological data collected matters very little if this information is not translated into a sound conceptual understanding of the aquifer system. This understanding is called a "conceptual model" and is the foundation of reliable predictive analysis. The proponent's conceptual model for the study area aquifer is fundamentally flawed. It assumes that preferential flow via fractures, a well established hydrogeological attribute of carbonate systems, can be conveniently ignored, and that the aquifer can be adequately represented by an "equivalent porous medium." *Howard Pg. 1*

"The models are unreliable and simply incapable of providing direction on aquifer management for the type of project proposed. Based on the quality of the dataset and the types of model developed, I fail to understand how anyone

can even hope to predict how the aquifer (grossly modified by the injection of grout) will respond to the complex water management schemes proposed. CRA claim that adoption of an Adaptive Management Plan is the ideal way to proceed.

I would argue that this approach is only suitable when the aquifer is well understood and the existing management plan is well supported scientifically.”

*Howard Pg. 19*

“Suffice it to say, that the penultimate paragraph of our 2001 report (Ref.2) still remains applicable today, 7 years later...viz...”Desperate considerable extra information supplied by the Proponent’s consultant in the latest submitted reports, it is concluded that insufficient quantitative assessment has been made of structural geological and packer test hydrogeological data to allow adequate and appropriate replication of field conditions in the hydrogeological model used as the basis for all of the mitigation designs. This is a serious deficiency of the submittals because, without credible model replication of actual conditions, it is impractical to assess the technical viability of the proposed mitigating measures, irrespective of whether or not the Proponent has realistically considered the practicalities and expense of installing the proposed measures.” *Golder Pg. 10*

### **Grout Curtain**

All the research presented by the applicant refers to grouting under static conditions. In their operational plans contrary to what is outlined in the AMP they propose to install the grout curtain under flow conditions – a complete contradiction. In fact, their own test results show the grout curtain would fail to achieve the desired results but to attempt to execute it under flow conditions could cost hundreds of millions of dollars.

“In order for a technically viable mitigation measure to be considered a credible solution, it has to be also economically feasible. I have come to the conclusion that **no** economically viable barrier technologies exist to protect the water resources in the area adjacent to the proposed quarry. JDCL stands to lose in excess of \$150 million if he is serious about protecting the water resources while mining the Rockfort quarry.” *Naudts Pg.3*

“Our concerns relating to the practicability of successful implementation using staged construction however still remain, as no hydrogeological modeling or performance verification has been conducted to optimize the geometry in plan of the proposed grout curtains and recharge well layouts with respect to actual site specific conditions.

Our concerns relating to adherence to the long-term monitoring requirements and to the possible high costs associated with the complex nature of the mitigation measures also still remain, mainly from the context that these would not normally be a part of a typical quarry operation." *Golder Pg. 7*

### **Adaptive Management**

"The Adaptive Management Plan, which forms the cornerstone of the monitoring/mitigation plans for the site, is essentially a "try it and see" approach that is to be relied upon to protect the natural environment. Since the computer modeling does not incorporate any assessment of the fracture-flow nature of ground water movement in the layered bedrock aquifer, it is unable to predict specific impacts at specific locations, and the specific level of mitigation that will be required to manage those impacts in an appropriate manner. This is considered a significant weakness in the technical assessment, particularly since the nature of the ground water/surface water interaction and fishery habitat (that is, the vertical hydraulic gradient conditions) at the water courses adjacent to the site are not documented in any detailed manner. "*Jagger Hims Pg. 3*

"When there is uncertainty regarding how a proposed management action will affect the environment, it is sensible to reduce that uncertainty by undertaking a rigorous experimental (AM) approach to evaluating the consequences of the action. The context, in which this occurs, however, is critical to determining the appropriateness (acceptability) of how the management experiment is conducted. The reason for this is simply that due to the inherent uncertainty, experiments can and do fail. This is fundamental to scientific investigation.

Adaptive management practitioners are cognizant of this risk, and seek to design experiments that are **safe-fail** (not fail-safe, which cannot be assured). This means designing AM experiments in which failure is a safe and acceptable outcome. This context occurs when:

- *the scale and location of the experiment is such that adverse impacts can be tolerated (e.g. in small agricultural or forest management plots), and/or*
- *adverse impacts are reversible (e.g. fish harvest policy might result in reduced population numbers, but with timely monitoring and adaptation would be expected to recover once the policy was changed).*

In cases involving major development projects which can have adverse environmental effects it is the second of these criteria, reversibility of effect that is most critical.

In the case of the Rockfort Quarry application the key consideration in determining whether AM is an appropriate approach rests on whether a failure in the mitigation strategy could be reversed, or if detected early whether the effect could be limited to a level that would be acceptable. Since the AMP states that:

*“The potential changes in groundwater levels around the quarry that could arise from dewatering activities during the active quarrying stages, and the creation of lakes under rehabilitation conditions dictate the need for groundwater mitigation measures to prevent potential unacceptable effects to water resources in the vicinity of the Site.”*

we conclude that the consequences of mitigation failure, unless such effects could be reversed, would also be unacceptable.” Greig Pg. 6-7

“In our August 2003 review of the Adaptive Management Plan documents (August 2000, and April 2003 Modifications), we stated the following:

*“As a general comment, we consider that the basic philosophy of the AMP approach is sound provided that:*

- a. You understand the physical system that you are monitoring, including the groundwater/surface water/ecology interactions at off-site locations.*
- b. The initial impact predictions are reasonable.*
- c. The design mitigation measures are implemented at the outset.*
- d. The monitoring program monitors the correct parameters in the right locations at the right times of the year to identify and quantify any changes that occur. Such changes have to be evaluated in terms of being acceptable or unacceptable.*
- e. In the event that unacceptable changes do occur, the additional mitigation measures are successful in returning the physical conditions to acceptable levels.*

When implemented correctly, this type of approach is reasonable and supportable. If, however, this approach is done incorrectly, then unacceptable change can occur and remain un-noticed to the point where permanent and significant (unacceptable) impact may occur.” Jagger Hims Pg. 7

“Since the impacts of large-scale dewatering can’t be predicted with a reasonable degree of scientific certainty **prior** to the project, the **AMP** is destined to fail.” Howard Pg. 19

## **Planning**

The Town of Caledon Official Plan identified Resource Area 9A as Aggregate Reserve Lands as opposed to Aggregate Resource Lands. This designation has been appealed by JDCL to the OMB. The designation of Resource Area 9A as Aggregate Reserve Lands means under the terms of the Official Plan in order for the application to be considered JDCL would have to complete a sub watershed study or a CBSES. JDCL has completed the CBSES but it has been filed on a “without prejudice” basis (see letter from MHBC dated March 31<sup>st</sup>, 2008). The issue here is that the applicant is constantly referring to the findings in the CBSES and proceeding as if the report is official while claiming it is filed “without prejudice.” This seems inconsistent with the claims by the applicant that they are doing everything to meet the planning requirements of the Official Plans.

The Town of Caledon's aggregate resource policies refine the identified Regional High Potential Mineral Aggregate Resource Areas for protection at the local level and allow mineral aggregate resources to be made available for use, where this use can be balanced and integrated with the ecosystem, social and economic goals of the Town of Caledon. *Town of Caledon – Official Plan 5.11*

“The Board considers it appropriate and necessary that the application should satisfy the most recent available policies and the best standards of planning and environmental management. This approach maintains a proper regard for the Provincial Interest as expressed in Section 2 of the *Planning Act* and represents the best expression of the public's interest in good planning principles and sound planning practice.” *Ontario Municipal Board Decision issued Nov. 25<sup>th</sup>, 2003*

## **Social Impact**

“The Town of Caledon's policies in OPA 161 are approved. While OPA 161 does not require a stand-alone report, the deliberate assessment of social impacts is required. The assessment needs to be scientifically sound, complete and comprehensive. Social impact assessments have been completed in support of previous aggregate applications in Caledon so as to meet the requirement of OPA 161. I conclude that a specific social impact assessment has not been and should be, completed for the Rockfort Quarry application. *Hardy Pg. 4*

Taking into account the cumulative effect of all of the impacts, it is evident that this quarry development as proposed will significantly alter the environmental and social components that resident's value. The many qualities of the area that have attracted residents and visitors alike – and that have promoted the area as a unique or special place – will be diminished or lost. *DPRA Pg. 87*

## Summary

What is evident as you read all of these reviews and reports is an enduring theme of skepticism and doubt and that time and updates have only raised more questions and cynicism as opposed to answers and assurances.

Just selecting out some phrases used by the reviewers to describe the proposal "destined to fail" (*Howard*), "our questions remain unanswered" (*Jagger Hims*), "no economically viable barrier technologies exist to protect the water resources" (*Naudts*), "our concerns...still remain" (*Golder*) "has not been completed" (*Hardy*), "does not appear to be realistic" (*MMMG*), "have not been adequately addressed" (*CVC*) "AM approaches are not advisable when the consequences of failure are irreversible" (*Greig*), "many qualities of the area...will be diminished or lost" (*DPRA*). This phraseology gives no assurance to the residents and should in our estimation raise very large red flags to you the stewards of our community.

Clear unequivocal answers as to the effects on the ecosystem and the community are owed by this proponent to the residents and the Council before you should be asked to take a position on such an application. Sadly, this has not occurred and you are asked to put your faith in a flawed Adaptive Management Plan that cannot ensure achievement of desired outcomes and will only work out the answers as the development proceeds without any chance for you to review or comment on the critical target levels and the final degree of mitigation to be undertaken.

It is submitted that this proposal represents a risk of failure that is real, a cost of failure that will be too great and the results of failure that will be unacceptable. Caledon is a beautiful place to live, work and play – let's keep it that way.

*If ever there was an application that cried out for rejection – this is it!!*

Respectfully submitted,

Coalition of Concerned Citizens