

# As a resident of Carlisle, you may be aware of the potential for the establishment of a large scale, open pit mining operation less than three kilometers north of the Carlisle water tower. If established, this quarry could have direct and serious adverse effects on the water supply of the village of Carlisle.

## How large is the proposed quarry?

Mr. David Lowndes, the quarry's proponent, said that he plans to extract 3,000,000 tonnes of aggregate per year from his site over the next twenty-five to thirty years. The proposed Carlisle Quarry would be immense in terms of its production—one of the eight largest quarries of any kind in Canada, and the seventh largest limestone quarry in the country<sup>1</sup>.

The quarry would initially cover 238 acres on the 11th Concession, north of Carlisle<sup>2</sup>. There is also the intention to expand the quarry onto an additional 154 acres of land adjacent to the initial site at some time<sup>2</sup>.

## How could the quarry affect Carlisle water?

Currently, two thirds of the households in Carlisle obtain their water from a municipal supply consisting of four communal wells, a pumping system and the water tower<sup>3</sup>. The remaining households draw water from private wells.

The four communal wells, and many of the private wells, tap an aquifer, or ground water source, in a geologic formation called the Amabel Dolostone formation<sup>3</sup>. All of Carlisle's water arises within the proposed Carlisle Quarry site or on a direct line of flow between that site and the communal wells<sup>3</sup>. If the quarry is approved, the Amabel Dolostone carrying Carlisle's water would be mined to a depth of 40 metres, or 130 feet.

Furthermore, the Carlisle Quarry

would divert huge quantities of ground water from the aquifer supplying the Carlisle communal water system because the operation of a large, below the water table, quarry requires what is termed "dewatering". Water pours from the aquifer into the open pit, and must be pumped out or a lake will form, bringing mining activity to a halt.

## How much water is at issue?

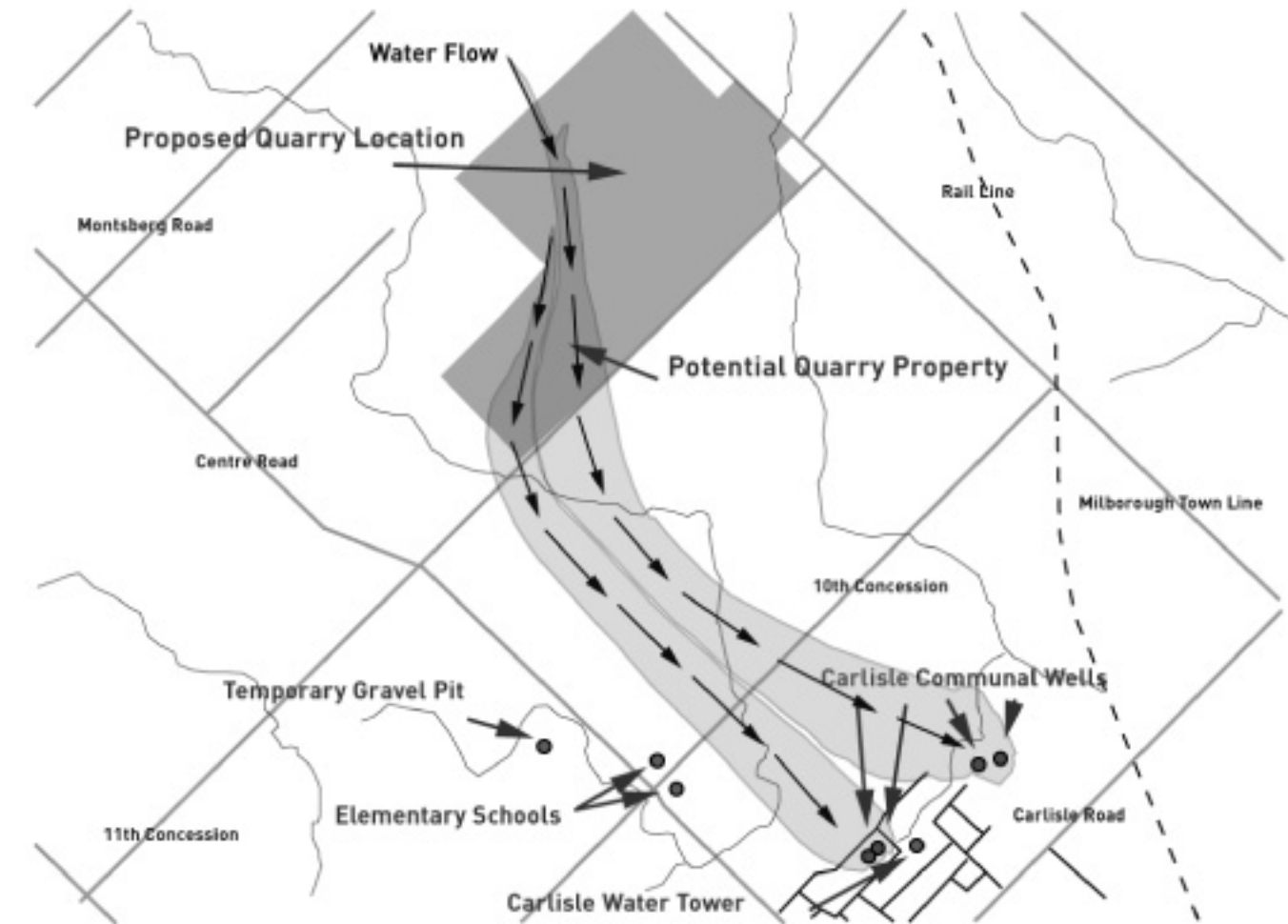
The maximum allowable pumping rate for the present Carlisle communal wells is 26.7 litres/second<sup>3</sup>, which equals just over 500,000 gallons/day. By contrast, a quarry of the size proposed for Carlisle may require the pumping of several million gallons of water per day out of the quarry. For example, Dufferin Aggregates estimates that its extension of the Milton Quarry will pump over 3,500,000 gallons of water per day from its operation<sup>4</sup>. As a resident of Carlisle, you are acutely aware that the village's water supply is already insufficient to meet peak period water demands. Watering restrictions have been imposed in Carlisle since the summer of 2001, with a ban implemented as recently as the summer of 2003. The Carlisle Quarry could remove seven times more water than the current maximum daily water demand by the residents of Carlisle.

## What are the implications of pumping this volume of water?

Ground water supplies can be adversely affected for an area of 10 square miles<sup>5</sup>, (approximately 26 square kilometers) around a quarrying site. Indeed, the Carlisle Quarry proponent, in his application to the City of Hamilton for rezoning and Official Plan Amendment, stated that "Water resources will be affected by the proposed excavation and dewatering"<sup>2</sup>. He also admits that "dewatering has some potential to affect ground water flow" and that "the influence of dewatering is expected to increase with the area and depth of development"<sup>2</sup>. Lowndes' application proposes managing water resources "in the context of an Adaptive Management Plan"<sup>2</sup>. In other words, as a problem presents itself, a solution will be sought.

The solutions proposed for challenges presented by massive mining far below the water table, known as "mitigation measures", could require the use of engineering works which are untried on such a scale and/or in similar circumstances. In fact, such mitigation measures are currently being debated before the Joint Board, with respect to Dufferin Aggregates Milton Quarry expansion (a similar large-scale industrial operation below the water table) and at the pre-hearing stage of the Ontario Municipal Board with respect to the Rockfort Quarry proposal.

For more information on mitigation measures, please visit [www.coalitioncaledon.com](http://www.coalitioncaledon.com) and [www.niagaraescarpment.org](http://www.niagaraescarpment.org).



## How will this affect you as a resident of Carlisle?

Many residents expect that the quarry proponent and the City of Hamilton will be required to ensure that the residents of the village have a safe and adequate supply of water for drinking, cooking and other household needs. This is true - in theory. However, the reality could be less than acceptable.

The present average water use in Carlisle is 1600 litres (352 gallons) per household per day<sup>3</sup>. This is an average figure - larger homes with larger lawns and gardens, or with pools, can use

much more. Peak use is considerably higher still. In the August 3, 2004 edition of the Hamilton Spectator, the quarry proponent, Mr. Lowndes, said that if water supply to the village were to be disrupted by his operation, he would supply bottled water and/or truck water into Carlisle.

Three hundred and fifty-two gallons of bottled water per household, per day, is of course ridiculous, so plastic cisterns on front lawns or driveways, accessed by a continuous parade of water trucks, would be the more likely solution. At the peak rate of consumption, this could require 63 semi-trailer water tanker trucks per day to enter the village

and either fill cisterns or refill the tower. If the peak rate could not be met, then water use restrictions would be inevitable. These numbers speak only to the municipal supply. Private well owners might find that their wells require deepening, or could even run entirely dry, as has happened in other jurisdictions. The same is true of the wells serving Balaclava and Our Lady of Mount Carmel Schools, which are only one concession south of the Carlisle Quarry site, and which cannot operate without a potable water supply. If all these wells are included, the problem could only be worse.