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September 23, 2007

021-1655

Walker Aggregates Inc.  
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Attention: Mr. Ken Lucyshyn  
Vice President and General Manager

**SUBJECT: ADDENDUM TO BLASTING IMPACT ASSESSMENT  
PROPOSED EXPANSION OF DUNTROON QUARRY REPORT  
DATED SEPTEMBER, 2005**

Dear Sir,

As requested, we have prepared the following letter/report as an Addendum to our report entitled "Blasting Impact Assessment Proposed Expansion of Duntroon Quarry" dated September, 2005. This first section of this letter/report addresses questions raised by the Clearview Township in their letter to Mr. Brent Clarkson of MHBC Planning dated April 23, 2007. The second section discusses the cumulative effects of blasting within the proposed expansion area of the Duntroon quarry as well as blasting within the proposed M.A.Q. Aggregates Highlands quarry on adjacent residential structures.

The following responses are confined to questions raised by Clearview Township about the Blasting Impact Assessment prepared by Golder Associates for the proposed expansion of the Duntroon Quarry.

1. Monitoring of ground and air vibration effects at the Duntroon quarry occurs at the closest residence or residences to the blasting operations. These have typically been the former Millar residence (now located within the proposed expansion) and the Kekanovich residence, which is shown on Figure 2 of the Golder Associates report. Monitoring at other locations, such as the Headon and Dempsey residences, has been carried out to address concerns expressed by specific residents. The two closest residences to the proposed expansion have been identified in the Golder report as being the Kekanovich and Brown residences, the locations of both of which are shown on Figure 2 of the Golder report.



2. Section 2.2 of the Golder report identifies the three locations where monitoring has been or is currently being carried out. The monitoring results from these locations have consistently remained within the guideline limits as contained in NPC 119 and are submitted to quarry personnel on a monthly basis. The purpose of the monitoring is to not only confirm compliance with the requirements of NPC 119, but demonstrates that the existing blast procedures being used at the Duntroon quarry are suitable for controlling vibration levels.
3. NPC 103 which describes the measurement procedure for sound and vibration from blasting operations states in Section 5.2c that "the measuring device shall be set to read the peak pressure level using linear response...". The purpose of measuring sound using the linear response is explained in the Golder report.
4. All monitoring at the Duntroon quarry has and continues to be carried out by Golder Associates, including the seven blasts described in the blasting impact assessment report.
5. Instrumentation consists of Instantell DS-477 Series II Blastmates and Instantell DS-077 Series III Minimates. These instruments measure and record in digital format peak ground vibration levels in each of three orthogonal directions as well as air vibration levels. As stated in the report, the seven blasts identified in the Golder Associates blasting impact assessment were routine production blasts at the quarry and did not vary in any way from other blasts completed at the quarry. Details of the blasting parameters are contained in Table 3 of the Golder report.
6. The blasting procedures have remained unchanged since the Golder report was prepared and the conclusions of the report remain valid.
7. Rainy days do not influence the intensity of the ground or air vibrations produced by a blast. As identified in the Golder report, variable weather conditions, including rain, can however influence the distribution of the air vibrations from a blast. While every attempt is made not to blast on rainy days, production requirements and changing weather conditions occasionally require blasts to be carried out in rainy conditions. The air vibration levels produced by a blast are not required to be reported during periods of rain, as stated in NPC 103 which states that "Measurements shall not be taken during precipitation." While not required, Golder does however typically report the air vibration level results on rainy days.
8. The monitoring results from the existing Duntroon quarry operation clearly demonstrate the ability to successfully carry out quarrying within the proposed development in accordance with the requirements of NPC 119.
9. The blasting parameters and procedures used at the Duntroon quarry are consistent with those used at other limestone quarries on the Niagara Escarpment. Blast hole diameters can range from 75 mm to in excess of 150 mm. Bench heights are dictated by the quality of the stone and can vary from less than 10 m to in excess of 25 m. Due to the subhorizontal dip of the limestone beds, blast holes are always drilled vertically. The use of ANFO and emulsion blends for blasting is also consistent with other limestone quarries on the Escarpment. The need for specific trial blasts to confirm the findings of the report would not be required since the blast parameters and procedures proposed for

the quarry development north of County Road 91 would not change from that currently being used at the Duntroon quarry south of County Road 91. One could therefore look upon the blasting currently being carried out at the existing quarry as being the trial blasts for the new development.

The following discussion addresses the cumulative ground and air vibration effects from the blasting operations within the proposed Duntroon quarry expansion area and the proposed M.A.Q. Aggregates Highlands quarry. Blasting information for the proposed M.A.Q. quarry was obtained from the Explotech report entitled "Blasting Impact Assessment for the Proposed M.A.Q. Aggregates Highlands Quarry Part Lots 20 and 21, Concession A Township of Grey Highlands, Grey County", dated April 24, 2006.

As stated in Section 6.2 of Golder Associates report entitled "Blasting Impact Assessment Proposed Expansion of Duntroon Quarry" dated September, 2005, by ensuring that blasting continues to remain within the provincial guideline limits, there would not be any noticeable cumulative effect associated with the blasting operations within the expansion area of the Duntroon quarry. This is based on the blasting procedures to be used in the proposed expansion area as they are currently being carried out within the existing Duntroon quarry.

With the addition of the MAQ quarry, the total potential annual tonnage that could be extracted from the two operations would increase by 25% from 3 M tonnes to 4 M tonnes. This is based on our understanding that the MAQ quarry could conceivably extract up to 1.0 M tonnes annually. The extraction of 4 M tonnes from a specific area or quarry is not considered excessive since there are existing operations currently extracting in excess of 5 M tonnes annually.

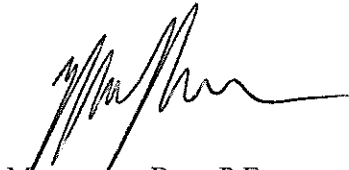
It is expected that with the addition of the MAQ quarry, the total number of blasts being detonated per year would also increase. This would be most noticeable to the residents north of the two operations where the distance between each quarry and the receptors are similar. Due to the presence of the existing Duntroon quarry south of Simcoe County Road 91, the ground and air vibration effects produced to the south and east can be expected to be less noticeable than the current existing situation. As identified in the Golder Associates report, the ground and air vibration effects from any particular blast, be it produced from the Duntroon operation or the proposed MAQ quarry, can produce temporary transient strains within adjacent structures that have durations of no more than one or two seconds as they pass the structure. These strains remain comparatively minor and infrequent when considering the strains produced by normal household activities as well as daily and seasonal environmental changes. In the highly unlikely event that both quarry operations should blast at precisely the same instant, the spatial separation of the blasts would prevent any noticeable additive effect to either the ground or air vibrations.

As stated above, by ensuring that the blasting from both quarries continues to remain within the provincial guideline limits, there would not be any noticeable cumulative effect on adjacent structures and services. It should also be recognised that the operation of two quarries adjacent to one another, such as the Duntroon quarry and proposed MAQ quarry, is certainly not unique in southern Ontario.

If you have any questions please do not hesitate to contact the undersigned.

Yours truly,

**GOLDER ASSOCIATES LTD.**



Marcus van Bers, P.Eng.  
Associate

MVVV/AC/ms