

May 21, 2009

Melanie Horton
St. Marys Cement Inc. (Canada)
55 Industrial Street
Toronto, ON M4G 3W9

Dear Ms. Horton:

**Re: St. Marys Cement Inc. (Canada), Flamborough Quarry
Aggregate Resources Act Category 2, Class A Licence Application
Part Lots 1, 2 & 3, Con 11 – Geographical Twp of East Flamborough, City of Hamilton**

The Ministry has completed a preliminary technical review of the information submitted in support of St. Marys Cement Inc.'s application for a Category 2, Class A licence under the *Aggregate Resources Act* for the proposed Flamborough Quarry. The following comments are offered for your consideration and as a basis for further discussion with Ministry staff.

Summary Statement

The subject property is 158 ha, of which approximately 66 ha (43%) is proposed for extraction. A significant portion of the property (92 ha, or 57%) is proposed to be licenced, but not extracted. The Ministry would appreciate clarification on the rationale for including such a large (non-extraction) area within the licence.

Section 2.5 of the Summary Statement recognizes that the subject property is within the Greenbelt Plan area. The entire site is within the Natural Heritage System. Section 2.5 reviews selected applicable Greenbelt Plan policies and provides some discussion concerning how the application is deemed to conform to these policies. The Ministry suggests further discussion on a number of policies and issues is required, as outlined below.

The discussion provided regarding policy 4.3.2.3 includes only very general statements about the protection of the Water Resource System and maintenance of connectivity between natural features. A more detailed summary discussion concerning each of these aspects should be provided, drawing on and referencing the technical reports as appropriate.

No discussion has been provided concerning how habitat lost from the site will be replaced, as per policy 4.3.2.3(c)(ii). 'Habitat' that will be removed must be replaced (i.e. equivalent area and types) as soon as reasonably practical after its removal; an assessment of the 'habitat' types that will be removed, and how, where and when they are to be replaced as part of operational phasing and on-going progressive rehabilitation should be provided.

Policy 4.3.2.3(b)(ii), which requires consideration of policies 4.3.2.5(c), (d) and 4.3.2.6(c), has not been addressed. The Ministry notes policies 4.3.2.5 and 4.3.2.6 concerning rehabilitation requirements are not discussed anywhere in Section 2.5. These policies apply to this licence application and should be addressed. Assessment and discussion should be provided to indicate how rehabilitation will maintain or improve *ecological value*, health, long-term integrity and

connectivity for the site. This should be discussed in the context of the region within which the site occurs, and should specifically address how the terrestrial and aquatic areas remaining after extraction will be designed to be representative of the natural ecosystem(s) of the region (i.e. watershed and/or ecodistrict).

Policy 4.3.2.3(a) prohibits new mineral aggregate operations, including ancillary and accessory uses, within significant wetlands, significant habitat of endangered and threatened species and significant woodlands unless the woodland is occupied by young plantation or early successional habitat (as defined by the Ministry of Natural Resources). Comments regarding the identification of these natural heritage features on the subject property are provided below which may have a bearing on the application's conformity to this policy of the Greenbelt Plan.

Under the discussion provided for policy 4.3.2.4, it is stated that progressive and final rehabilitation will contribute to the goals of the Greenbelt Plan through a number of measures, including rehabilitating the site to a state of equal or greater ecological value, maintaining or restoring long-term ecological integrity, etc. The Ministry suggests a description of how each of these 'measures' will be met through the proposed operation should be provided, rather than simply re-stating selected goals/policies/criteria from the Greenbelt Plan.

A maximum allowable disturbed area of 45 ha has been set for the site. The Ministry would appreciate clarification on how this was calculated, and the opportunity to discuss this further with the applicant to determine if the established maximum is reasonable.

Hydrogeological Report

The consultant has concluded that the conceptual model of the bedrock on site is a single hydrostratigraphic unit for the Amabel Formation. Ministry staff would like the consultant to provide further rationale for this. Staff would also like the opportunity to view the core sample(s) that were obtained.

A Groundwater Recirculation System (GRS) is proposed as part of the operating system in order to maintain the hydroperiod of the wetlands. Recognizing that the GRS is critical to the operation of the quarry and the ability to mitigate impacts, the Ministry suggests more information on the proposed system is needed. A pump test designed to demonstrate the ability of the GRS to function has not been conducted. Ministry staff suggests that such a demonstration is critical to licence approval, and recommends that testing be completed. Staff would like the opportunity to be in attendance when the test is carried out.

The proposed quantity of pumping is very large, and staff would like the consultant to provide more discussion on the viability of pumping this volume of water.

The consultant references a number of quarries where GRS-type systems have been developed, tested, and/or implemented, including three sites in Ontario – the Kirkfield Quarry, Milton Quarry and Rockfort Quarry. However, little discussion on their proven effectiveness and/or test results is provided, either in the report or Appendix J, nor is it clear if the environmental/geological conditions at these sites are similar to those at the proposed Flamborough Quarry such that it is reasonable to draw comparisons. Ministry staff would like further information in this regard, and the opportunity to discuss the use of GRS at other locations with the consultant further. Staff would also be interested in discussing potential opportunities to visit a facility such as the Kirkfield Quarry.

Staff suggests the water balance should be expanded. Values are not available for groundwater inflow into the quarry. The values stated are for re-circulating groundwater. The consultant should provide more discussion on rehabilitation and how the post-quarry water balance will be handled (i.e. pumping versus quarry filling).

Non-GRS drawdown impact has not been reported. Ministry staff would like to see this modeled.

The report identifies a triggering mechanism framework, including a number of 'conditions' (triggers) that would constitute an unexpected or unpredicted effect. It is not clear how these conditions/triggers were determined. Staff suggests that the determination of the trigger levels should be explicitly described; a clear mathematical description of trigger determination should be presented.

The karst report by Dr. Steven Worthington (Appendix E) indicates that karst is not a major concern for the site. Ministry staff would like the opportunity to discuss the reports findings further with Dr. Worthington directly.

The small seasonal wetland in the southwestern corner of the site associated with Tributary D is one area along the site perimeter where the GRS is not proposed to be installed. Figure 6.6 suggests a net water table drawdown of up to 20 m under this wetland. The apparent rationale for excluding this area from the GRS is that excess quarry dewatering will be discharged to this tributary and wetland. This approach seems to conflict somewhat with statements made elsewhere in the report that indicate discharge groundwater into streams as baseflow is usually viewed as more ecologically beneficial than direct discharge. Water discharged to this wetland as surface water from quarry dewatering will not necessarily mimic the hydrological regime of this wetland as well as if the water was directed to the wetland/stream as baseflow. Staff has concerns about the maintenance of the wetland feature in the southwest corner, and would like the consultant to provide further discussion and rationale on the proposed approach.

The Ministry suggests that a schematic diagram to illustrate the retaining berm that is proposed around the southern perimeter of the quarry would be helpful. Staff would also like clarification on the potential impact keying the berm into the bedrock surface will have on the contribution of groundwater to the southern wetland. Staff also note that 'the existing drainage channel into tributary D' referenced in the retaining berm discussion (p. 47) does not seem to be shown on any figure.

Section 6.6 discusses the Adaptive Management Plan, including verification monitoring and evaluation. Staff suggests that active monitoring of the periodicity of the wetlands must also occur (in association with verification monitoring for the GRS; Section 6.6.1). The annual cycles of high water and low water should be mimicked.

Monitoring is also addressed in Section 7. As a general observation, staff notes that a significant level of monitoring is proposed/required. Staff would like confirmation that monitoring of the following have been adequately incorporated into the planned monitoring efforts:

- GRS;
- the retaining wall along the future south side of the pit;
- the passive barrier wall along the north side of the pit;
- the impact of surplus discharge water on the receiving watercourses; and

- monitoring of created wetland features designed to deliver water to wetlands.

Natural Environment Report

The evaluated wetland in the southwest corner of the property as well as several unevaluated wetlands are not discussed in Section 3.2.1, nor are they shown in Figures 6 and 7. The wetland in the southwest corner of the property is part of the Lower Mountsberg Creek Complex. There are five additional wetland in the study area, four that were identified by the consultant and one identified by staff from 2005 ortho-photos. Two of these wetlands are located within the 120 m adjacent lands area, and three are within the proposed extraction area. This includes a 1 ha wetland that is associated with Tributary D, upgradient from the wetland in the southwest corner of the site, within the proposed extraction area (adjacent to/coincident with the proposed driveway access). This feature meets the criteria to be added to the provincially significant Lower Mountsberg Creek wetland complex. The identification of wetland features on the subject property requires further discussion and consideration.

Under Section 4.4.1 and on Figure 14, seven 'core' deer wintering areas are identified. The Ministry had previously recommended the consultant complete survey work to determine the quality of various habitats on the property as deer wintering areas and to verify the Ministry's identified/mapped deer wintering areas. In addition to the identified core areas, staff would like clarification on whether additional areas, beyond the Ministry's general deer wintering area mapping, were identified that should potentially be considered for inclusion in deer wintering area mapping.

Under Section 4.4.2 it is noted that drift fencing was used in 2007 to determine if salamanders were moving between on-site habitat and the identified breeding pool in the northeast corner of the site. The report indicates no salamanders were captured. While staff are generally in agreement with the consultant's conclusions that habitat/conditions on the site are likely unsuitable for Jefferson salamander (Section 5.1.2.3), staff would like the consultant to provide information on the timing of the drift fencing surveys in relation to weather conditions and the results of drift fencing surveys in other parts of Southern Ontario to confirm that the work was conducted at the appropriate time of the year.

Under Section 4.5.2, it is not clear where the pair of northern pike were seen in Tributary D in 2006. The location of these spawning pike is important for staff to be able to assess impacts on fish populations. Staff would like the consultant to provide further information on this observation.

The consultant's approach to defining significant woodlands is described in Section 5.1.5. A technical study completed by Stantec Consulting and EnviroScape Consulting Services (ECS) in 2005 entitled *Woodlands Over Dolostone Policy Paper* was used as the basis for identifying significant woodlands on the subject property. Within the Natural Heritage System of the Greenbelt Plan, the Ministry of Natural Resources is responsible for identifying criteria to determine woodland significance. The Ministry recently released a draft technical paper outlining the proposed approach to defining woodland significance in the Greenbelt Plan Natural Heritage System. The consultant does not seem to have considered this direction, and the Ministry suggests further discussion is required on the approach to be used for identifying significant woodlands on the property. Ministry staff will also want the opportunity to visit the site.

The consultant's assessment of Significant Wildlife Habitat (SWH) on the property is provided in Section 5.1.7. Staff notes that the consultant's conclusions regarding some of the potential SWH feature types (e.g. migration corridors, specialized habitat, etc.) are unclear or may require further

assessment. For example, while seeps are identified as SWH for the site under Section 5.1.7.3 (specialized habitat), the summary discussion (Section 5.1.7.5) describes the extent of SWH as the wooded area occupying the northern part of the property. This description excludes the seeps located at the southern end of the property in association with the wetland.

Staff notes that Whip-poor-will was recorded on the property. This species was recently (April 2009) listed by COSEWIC as Threatened. Staff suggests that further field work may be required to define this species habitat on the property and assess its significance. Staff would also like the opportunity to discuss the consultant's assessment of habitat for West Virginia White (Special Concern) on the property.

Although the consultant's interpretation of SWH for the site has been generally described/summarized in Section 5.1.7.5, SWH has not been delineated on any of the figures.

Section 5.2 states that key natural heritage features and key hydrologic features under the Greenbelt Plan include all PPS natural heritage features (except earth science ANSI), 'with the addition of: significant habitat of Special Concern species, sand barrens, savannahs,...'. The Ministry notes that missing from this list are 'wetlands', which under the Greenbelt Plan are not limited to only provincially significant wetlands. This is an important distinction and has potential implications for the assessment of impacts (in Section 7) and of the operation's conformity to the Greenbelt Plan policies (e.g. 4.3.2.3(b)).

The discussion provided in Section 6.4 regarding the Greenbelt Plan's rehabilitation requirements is incomplete. As noted above in the comments provided on Section 2.5 of the Summary Statement, a more fulsome discussion and assessment of how the proposed operational and rehabilitation plan conforms to the requirements of the Greenbelt Plan is required. It may be appropriate to include some of this discussion in Section 8.

In Section 7.1.1 is stated that a minimum 30 m setback to the provincially significant wetland has been incorporated into the operation plan. In addition to the locations along the entrance road/access driveway, a review of the site plan suggests the extraction limit may be within 30 m of the wetland boundary at one location at the south end of the site. Staff also notes that the minimum 30 m setback does not seem to be shown/illustrated or noted on the site plans.

Under Section 7.1.1.1, it is stated that the wetland associated with Tributary A 'may rely more on groundwater contributions from the north of the site than from the site itself'. Staff suggests this seems to contradict the information shown in Figure 12 concerning seep locations and contributions to the wetland. The Ministry would appreciate clarification on this.

Also under Section 7.1.1.1, it is noted that a created wetland is to be established adjacent to the provincially significant wetland in the southwest corner of the site to mimic existing hydrological conditions by providing a point of discharge for surface water from quarrying operations into the adjacent wetland (see also Figure 16). However, it is known that this wetland is seasonally supported by groundwater not surface water, and staff therefore question whether or not the proposed approach can reasonably 'mimic' existing conditions. Staff also notes that the location of the proposed wetland feature shown on Figure 16 ('Enhancement Area 8') seems to conflict with the location of the 'proposed wetland' shown on the site plans.

Under Section 7.1.1.2, staff would like the consultant to clarify what percentage of catchment D will be removed by the quarry footprint, and where surface water from dewatering activities will be discharged to this catchment. Section 8.1 and Figure 16 suggest that surface water will be discharged only to the downstream region of the catchment. Staff suggests this may result in changes to the hydrological regime of watercourse D upstream of this discharge point, and would like the consultant to provide further discussion on this matter.

Staff would similarly like clarification on what percentage of catchment C will be removed, where surface water from dewatering activities will be discharged to this catchment, and what the impact on a pond feature identified along tributary C within the 120m adjacent lands area may be.

Section 7.4 provides an assessment of the predicted impacts to the identified significant woodlands. Notwithstanding the comments provided above under Section 5.1.5 regarding the need for further discussion on the overall approach to defining significance for the property, staff notes that Figure 15 shows that the proposed extraction area encroaches on the identified significant woodland in several locations. Larger areas identified by the consultant as young plantation and 'peripheral forest edge' are also proposed to be removed. The proposed entrance road will also require the removal of woodland (approximately 2.7 ha). Further discussion on the proposed removal of these areas is required.

The Ministry notes that an extraction limit setback from the woodland has not been identified in the report or shown on the site plan.

Staff suggest the site preparation measures to protect forest edges described in Section 7.4.1.4 are generally adequate, but that additional details concerning the number of years that site preparation will be carried out over prior to extraction commencing should also be included. Staff also notes that the proposed restoration planting (with the exception of Butternut) is not described here or in section 8.1.

With respect to the enhancement/management of plantation areas described in Section 8.1, staff recommended that a Registered Professional Forester be retained to manage the plantation and forest lands. The landowner may also wish to consider a Managed Forest Tax Incentive Plan to reduce land tax and guide forest management.

Butternut has been identified on the subject property. Of the 115 specimens identified, 15 have been assessed to be in good health. All but 2 of the trees occur within the proposed development envelope. The report suggests Butternut can be managed for the site through the exemption provisions provided under Ontario Regulation 242/08 of the *Endangered Species Act* (ESA), and the consideration of a stewardship agreement and/or permit under sections 16 and 17 of the ESA.

Staff notes that a stewardship agreement would not be considered in these circumstances. Further, the ESA establishes a number of conditions ('tests') that must be addressed before a permit would be considered, including consideration of alternatives that avoid impacts to the species and how overall benefit for the species will be achieved. The Ministry suggests it would be useful to meet to discuss the management of this species and the potential ESA requirements further.

The Ministry has requested further information and discussion with the consulting team on a number of issues. Staff would also like the opportunity to visit the proposed quarry site. The Ministry may offer further comments on the technical reports (work) that has been completed once these discussions and site inspections have occurred. However, based on staff's preliminary review of the

information provided in support of the licence application, and the comments offered above in this regard, the Ministry is not in a position to support the licence at this time.

Ministry staff will follow-up with the consulting team over the next several weeks to organize a site visit(s) and an initial meeting to discuss the above comments in more detail.

Sincerely,

Original signed by

Mike Stone
A\ Planning & Information Management Supervisor

Cc: Diane Schwier, MNR