City of Hamilton

Terms of Reference

Mountsberg Quarry Haul Route Evaluation

April 2006

Dillon Consulting Limited

1.0 Introduction

The Lowndes Holdings Corp. has proposed to develop a Dolostone Quarry in the City of Hamilton at a location between Centre Rd and Milburough Line, north of Concession 11. **Figure 1** shows the location of the proposed quarry and the recommended study area for the haul route evaluation.

A concern associated with the project is the large volume of heavy truck traffic that would be generated by the quarry and the impact of traffic movement on traffic safety, social features and the natural environment along the haul route(s). In response to the Lowndes Holdings application for an amendment to the City of Hamilton Official Plan/Zoning By-law, the City is requesting that an evaluation be undertaken to select the preferred mode/routes to transport the aggregate material from the proposed quarry site.

The municipalities of Hamilton, Halton, Burlington and Milton are requesting that the evaluation to be completed be consistent with the requirements of the *Ontario Environmental Assessment Act* and its regulations (if applicable). Should there be a need to improve roadways to support the project (if the application receives *Planning Act* and *Aggregate Resource Act* approvals), a Class EA for these improvements will likely need to be undertaken (the MEA Municipal Class EA and/or the MTO Class EA for Provincial Highways). This haul route evaluation would serve to support the preferred alternative as part of possible future EAs to fulfill Ontario EA Act requirements and possibly the *Canadian Environmental Assessment Act.*

The activities that are to be undertaken in conducting the haul route assessment and comparative evaluation include:

- Define Study Parameter Assumptions;
- Identify and Evaluate Alternative Solutions;
- Identify Reasonable Alternative Routes within the study area giving consideration to applicable plans and policies including municipal official plans, the Greenbelt Plan and the Niagara Escarpment Plan;
- Identify and describe any needed improvements to the alternative routes to support projected truck volumes;
- Describe Baseline Environmental, Socio-cultural, Economic and Transportation Conditions;
- Develop the Evaluation Approach;
- Assess & Evaluate the Alternative Routes (considering the identified needed improvements);
- Select the Preferred Route(s);
- Describe Effects for the Preferred Route(s);
- Identify Potential Road Improvement Needs;

- Identify financial implications and proponent (Lowndes Holdings) and municipal responsibilities (short and long term);
- Prepare Draft and Final Evaluation Reports;
- Public Consultation (e.g. meetings/workshops (4)) and;
- Agency Consultation with but not limited to the following agencies (identified as the Agency Review Group):
    - The Municipalities of Hamilton, Halton, Burlington and Milton;
    - The Ministry of Transportation;
    - The Ministry of Natural Resources;
    - Halton Conservation;
    - The Niagara Escarpment Commission; and
    - Other agencies identified by the proponent

This Terms of Reference is to be considered as the minimum expectation for conducting this study and that the applicable municipalities reserve the right to request reasonable additions to the study should results warrant the need for additional or more detailed investigations.

2.0 Define Study Parameter Assumptions

Key assumptions regarding the project that are to be defined include but are not limited to:

- Assumed in-service date;
- Sizes of the trucks to be used;
- Volume of truck traffic to be generated;
- Location of truck queuing area(s);
- The distribution of truck traffic volumes among the potential haul routes (if more than one haul route is to be utilized);
- A description as to how truck volumes and truck tonnages might vary over the life of the project and by hours of the day, days of the week, and time of the year;
- Destinations of the material;
- Trucking base origins;
- Hours of facility operation, etc;
- How the use of routes would be regulated/enforced; and
- Horizon year and intervals required for analysis (20 yrs in 10 year increments).

The assessment should also identify Best Practices for both design/construction and operation activities with respect to aggregate transportation of similar operations in Ontario and other jurisdictions.

Should a Class EA be required for possible future road upgrades to the preferred haul route(s), these parameters would serve to support the rationale for the road improvements.

The selection of the proposed haul route is to consider potential quarry expansion plans.

3.0 Review of Alternative Solutions

To satisfy the Class EA requirement to consider "alternatives to" the undertaking, the proponent should identify and evaluate alternative solutions to transport the quarried material from the site. This may include road-based options; rail based options; or a combination thereof.

4.0 Identify Alternative Routes Within the Study Area

The reasonable alternative routes to be considered are to be identified and described. A map/air photo showing these routes is to be provided. As the future market area for aggregates is uncertain, the study area/alternative routes are to extend from the proposed quarry site to the entrance points of Ontario "400" series highways in all directions. If the proponent can rationalize/demonstrate why some travel directions from the quarry would not be used, or that the volume of truck traffic would be so low throughout the entire life of the facility so as to not result in any appreciable negative effects, then routes in these directions would not need to be assessed.

If more than one haul route is required for the quarry operation, or if return and exit trips are to be by separate routes then it is expected that several sets of alternatives routes would be generated (and evaluated) with each set having the same end point (i.e. a provincial "400" series Highway).

The identified alternative routes are to be presented to the agencies and public for review and comment prior to their assessment and evaluation. It is expected that agencies will be provided with the opportunity to review all materials in draft prior to public release.

5.0 Describe Baseline Conditions

A description of baseline conditions for all of the alternative routes is to be provided. As much of the information as possible should be presented on mapping/air photos using GIS or a reasonable alternative (ArcGIS preferred). A description of the following environmental components is to be provided:

- Aquatic Environment;
- Terrestrial environment including ESAs and other sensitive areas/features;
- Surface Water Features;
- Existing and Proposed Land Uses;
- Land use plans and designations including municipal official plans, the Green Belt Plan and the Niagara Escarpment Plan;

- Social Environment (residences, community features, recreation facilities, community function and character, school bus routes, emergency vehicle access, etc.);
- Air quality conditions;
- Noise levels;
- Economic Environment (location and type of business enterprises);
- Agriculture;
- Recreational uses (trail crossings, cycling uses, walking etc);
- Cultural resources (built heritage, cultural landscape, archaeology);
- Road characterization (roadway classification, right-of-way widths, level of service (current and projected), weight restrictions, number of lanes, pavement structure, intersection configuration, road alignment (vertical and horizontal), reduced load designations, posted speed, truck route designation, watercourse crossings, culvert types, rail crossings, steep grades, visibility etc.);
- Traffic Volumes; and
- 5 yr vehicle collision history by link/intersection including wildlife.

Baseline conditions need to be determined for the "future no build" scenario. The description of the baseline conditions will be used as the basis from which to assess the potential for change as a result of the use and possible improvement to the alternative options being considered.

6.0 Develop the Evaluation Approach

The evaluation of the identified alternative routes is to be conducted in a systematic, comprehensive and traceable manner consistent with the *Ontario Environmental Assessment Act*. The evaluation is to be based on a set of evaluation criteria and indicators. As an example, a basic list of assessment/ evaluation criteria is provided in ***Table 1***. It is noted that several of the example criteria may not apply, nevertheless they should be considered at the onset of the study. The data to be collected on the basis of the criteria is expected to be a mix on quantitative and qualitative data. The criteria and their relative importance are to be confirmed through agency and public consultation prior to their application.

The effects assessment is to consider the potential increase in truck volumes, as a result of quarry activity, over the anticipated future background traffic volumes for each alternative route. As well, the assessment of the alternative routes is to consider any needed improvements to the routes to support the projected increase in truck volumes.

Once developed, the assessment and comparative evaluation approach is to be submitted to the Agency Review Group for their review and comment.

7.0 Assess Effects of the Alternative Routes

Prior to the assessment of the alternatives, road improvements that are needed to support the existing uses and proposed use of each alternative route are to be identified (e.g. road widenings, resurfacing, turning lanes, new crossings/grade separations, paved shoulders, signals, etc.) and considered in the effects analysis/route comparison. There may be a need for additional supporting studies (e.g. geotechnical investigations, cost analysis) to establish road improvement needs.

For each set of alternative routes, the routes are to be assessed and a description of potential effects provided based on the selected assessment/ evaluation criteria. The data is to be presented in a matrix format that describes the potential for effect for each indicator/alternative.

8.0 Comparatively Evaluate and Recommend the Preferred Route(s)

On the basis of the collected data/assessment of effects for each of the alternative routes, the alternatives are to be comparatively evaluated. The preference would be to use qualitative evaluation method, to be supported by a quantitative evaluation method if the data type supports one. In comparing the alternatives, the relative importance of the criteria is to be considered.

For each set of alternatives, the advantages and disadvantages of the alternatives are to be compared and considered in the rationalization of the preferred route(s).

The recommended preferred route(s) and the method by which this preference is achieved is to be presented to the agencies and then the public prior to its confirmation.

Table 1 – Example Evaluation Criteria

Criteria	Indicators
Aquatic Environment/Surface Water	
Potential for disturbance to aquatic habitat	Number, character and sensitivity of watercourses crossed. Likelihood of increased runoff effects on these watercourses.
Potential for removal of aquatic habitat from road improvements (e.g. culvert extensions)	Number of watercourse culverts/structures that could require extension to accommodate road improvements. Magnitude of removal effects. Sensitivity of habitat affected.
Terrestrial Environment	
Potential for disturbance to natural habitat	Number/length and character of sensitive habitats that the haul routes pass by. Effects on vegetation from increased run-off from new road works, dust, emissions, etc..
Potential for removal of natural habitat from road improvements	Area, character and sensitivity of vegetation to be removed due to required road improvements. Potential effects on wildlife as a result of habitat removal.
Potential for increased wildlife kills	Presence of wildlife corridors that the routes pass through. Likelihood of increased wildlife kills as a result of increased truck traffic volumes.
Existing and Planned Land Uses	
Potential for disruption effects to sensitive planned land uses	Number, character of planned development areas. Sensitivity of planned development to increased truck traffic.
Potential for removal of planned land uses from road improvements	Area and importance of planned land use removed from road improvements.
Conformity with applicable plans and polices	Degree of conformity with official plans, the Greenbelt Plan and the Niagara Escarpment Plan.
Social Environment	
Potential for disruption to residents	Number and proximity of residences potentially affected by truck traffic.
	Effects on the character of communities.
	Effects on community function.
	Number of residences expected to experience a > 5 dbA increase in noise levels over future baseline conditions for any given hour and a description of the magnitude of change.
	Potential for health risks

Table 1 – Example Evaluation Criteria

Criteria	Indicators
Potential for disruption to users of recreation facilities, community features and institutions	Number, proximity, character/sensitivity and level of use of recreation facilities, community features and institutions potentially affected by truck traffic.
Potential for displacement/removal of residents & residential property from road improvements	Number and area of residences/residential property required (distinguish between partial and full removals).
Potential for removal of recreation, community features & institutions	Number, area and character of recreation, community features (including trails, bicycle routes, parks and open space) & institutional properties required (distinguish between partial and full removals).
Economic Environment	
Potential for disruption to business enterprises	Number, character/sensitivity, and proximity of businesses potentially affected by truck traffic.
Potential for removal of business enterprises and/ or property	Number, area, and character/sensitivity of businesses and business properties required (distinguish between partial and full removals)
Potential for affect on property values	Projected change in property values as a result of roadway use by quarry trucks.
Potential for effect on agricultural operations	Number of farms along the haul route potentially disrupted by truck traffic.
	Number, area and productivity/value of cropland removed for road improvements.
	Number and area of farm properties required for road improvements.
Cultural Resources	
Potential for disturbance to built heritage features	Number and character of built heritage features potentially affected by truck traffic
	Number of heritage properties removed from road improvements (distinguish between partial and full removals)
Potential for effects on archaeological resources	Potential for effects on archaeological resources as a result of road improvements (as reflected through archaeological potential)
Transportation	
Change in road service level	Change in road level of service/congestion
	Change in access levels for road users
	Effects on other roadways as a result of traffic diversion
Potential for change in road safety level	Potential for increase in collision frequency and severity
	Number of access points and intersections along the haul route
	Presence of other potential safety issues along the haul route (e.g. limited sight lines, steep grades, school bus routes, movement of agricultural vehicles and equipment)
Potential for impact on alternative transportation modes.	Potential for conflicts with other modes of transport along the haul route

Table 1 – Example Evaluation Criteria	
Criteria	**Indicators**
Cost	
Estimated infrastructure costs	Estimated cost for all required road and other infrastructure improvements.
	Potential for additional costs to the municipality(s) (e.g. impacts to municipal maintenance operations)

9.0 Describe Effects and Mitigation for the Preferred Route(s)

For the preferred haul route(s), provide a description of the potential effects that are expected to occur from the anticipated truck traffic volumes. This description of effects is to be based on the evaluation criteria plus other more detailed criteria if appropriate. Assess overall acceptability of the route and the effects of increased tuck traffic on the quality of life for the affected individuals/ communities. The proponent is to demonstrate that the effects of the preferred alternative (with the proposed truck volumes) can be considered as being "reasonable" and "acceptable".

Any property requirements to support the preferred haul route(s) are to be described.

Mitigation measures to avoid or minimize effects, as input to the design phase also need to be described. Also, the method to regulate/enforce the use of the prescribed route(s) by all trucks associated with the quarry is to be described.

10.0 Prepare Draft and Final Evaluation Reports

A table of contents of the report is to be prepared and circulated to the municipalities of Hamilton, Halton, Burlington and Milton.

A draft report is to be prepared that describes the evaluation process, which is to be circulated to the affected municipalities (Hamilton, Halton, Burlington & Milton), other agencies and the public for review and comment. The report is to be finalized considering the comments received on the draft report.

11.0 Public and Agency Consultation

It is expected that there will be several consultation opportunities with stakeholders throughout the evaluation process. At a minimum, the study is to involve the following consultation activities:

- Involve agencies through the CART agency advisory process. Applicable agencies that are not part of CART are also to be involved. (The full complement of reviewing agencies is to be known as the Agency Review Group.)
- Initial public notice in local newspapers announcing the initiation of the study and where more information can be obtained; Residents, business owners and property owners within 100 m of the alternative haul routes are to receive the notice directly through mail out/drop-off.
- A meeting with the Agency Review Group to review the study approach/process, evaluation criteria, level of study detail, etc.
- Public notifications in local newspapers announcing the PICs/workshops two weeks and one week in advance of the events. Stakeholders along the alternative haul routes are also to receive a drop-off notice of the events in advance.
- Four public consultation events (with presentations) are to be held:
    - #1 - to introduce the project, to identify how the public would like to be involved and to identify initial public concerns and issues;
    - #2 - to present the draft alternative routes and the evaluation approach
    - #3 - a public workshop that allows the opportunity to provide input on the evaluation criteria, the relative importance of the criteria and the evaluation approach;
    - #4 - to present the draft results of the comparative evaluation/ effects assessment;
- A meeting with the Agency Review Group to review the draft study findings; and
- The circulation of the draft report for public and agency review and comments (providing at least 30 days for the review of this report).

We expect that the proponent would consult with the Ministry of Transportation on issues relating to provincial highways. In addition to the agencies listed under section1, other agencies to be involved/consulted include the County of Wellington, Township of Puslinch and CP/CN Rail. It is requested that written acknowledgement be obtained from these agencies regarding their interest and/or concerns with the project.

It is expected that the proponent will be responsive to the issues and concerns of the agencies throughout the study period.

All consultation related materials including meeting minutes and comments received and responses are to be provided throughout the study process.

An initial fifty (50) hard copies and 50 CDs of the draft report are to be made available to the agencies as part of the 30-day review period. The same number of hard copies and CDs will be required of the Final Report.

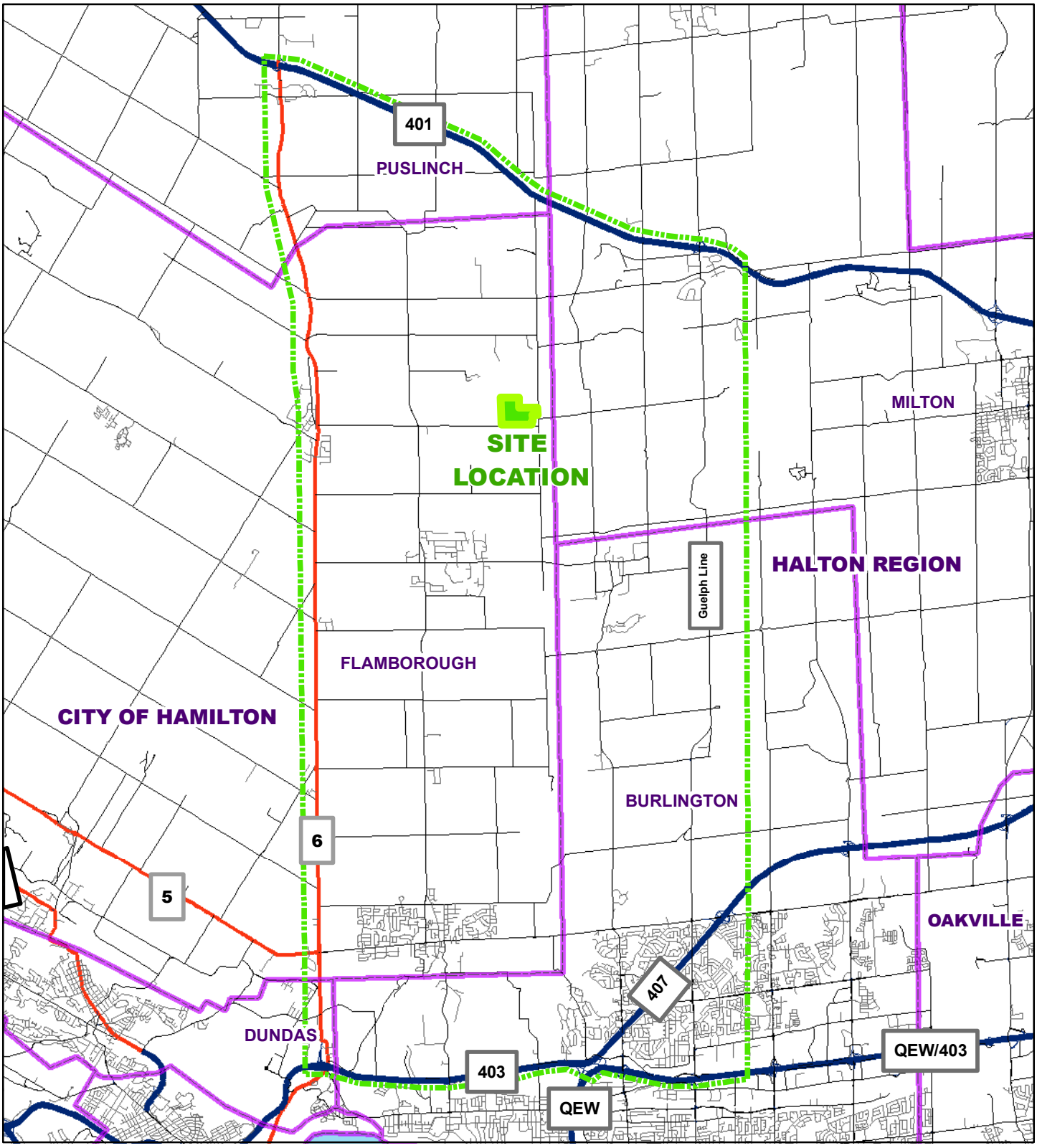

Figure 1

Mountsberg Quarry
Haul Route Evaluation
Terms of Reference-

Haul Route Evaluation
Study Area

Road Type

- Major Highway
- Ramp
- Highway
- Major Road
- Local Road

- Proposed Lowndes Quarry
- Study Area
- Municipal Boundary

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Kilometres