



City of Brampton

**PEER REVIEW FOR TRANSPORTATION ASSESSMENT
ZONING APPLICATION REVIEW**

REPORT

MARCH 2013



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1. INTRODUCTION

The opinions expressed in this peer review (including appendices) may be supplemented, reconsidered or otherwise revised by the author(s) should new or previously unknown information become available.

In August 2010, in support of an application for rezoning, Brampton Brick submitted the Norval Quarry Site Plan Report to the City of Brampton. The Site Plan Report included a description of hauling operations for the proposed shale quarry, which was, in turn, supported by a Transportation Assessment Report (prepared by Paradigm Transportation Solutions, November 2008).

In March 2011, IBI Group produced a peer review of the transportation-related contents of the Site Plan Report and the Transportation Assessment Report, which identified several deficiencies in the applicant's assessment of impacts and proposed mitigation.

In response to the deficiencies identified in the IBI Group peer review, Brampton Brick has submitted the Norval Shale Quarry Haul Route Study (prepared by Paradigm Transportation Solutions, May 2012).

The City of Brampton has, once again, retained IBI Group to peer review the applicant's submission. Similar to the previous peer review, in assessing adherence to accepted transportation engineering standards/best-practices, policies of the Province, Region, and relevant area municipalities, and the Aggregate Resources Act (ARA), IBI Group's efforts have focused on the following:

- Comprehension of existing issues and deficiencies;
- Analysis assumptions and parameters;
- Assessment of operations along adjacent roadways with proposed access and in the context of existing access points;
- Background growth rate assumptions and horizon years;
- Trip generation, distribution and assignment assumptions;
- Safety assessment and impacts;
- Explicit consideration of all road users;
- Appropriateness of recommended improvements and remedial measures; and
- Implications relating to required jurisdiction and agency approvals including environmental assessments.

With respect to the above criteria, IBI Group has identified some gaps and/or omissions in the Haul Route Study, and the supporting analysis/studies, and assessed the appropriateness of the proposed mitigation measures (short term and long term).

The review process has been conducted in accordance with the Guideline Principles and Questions for Brampton Peer Reviewers - Brampton Brick Peer Review documents supplied by the City of Brampton.

2. SYNOPSIS OF APPLICANT'S ASSESSMENT

In the Haul Route Study, the authors state that the May 2012 study is meant to serve as an "update to the November 2008 Traffic impact Study" (i.e., the Norval Quarry Transportation Assessment

Report). No further reference to the November 2008 study nor the August 2010 Site Plan Report is made in the Haul Route Study report; therefore, the May 2012 Haul Route Study has been treated as a standalone document, the contents of which supersede any transportation-related information presented in the previous transportation assessment documents. A copy of the peer review report pertaining to the November 2008 Transportation Assessment Report and the August 2010 Site Plan Report is provided in **Appendix A**.

The following represents a brief synopsis of the contents of the Haul Route Study (May 2012):

1. **Introduction** – This section contains a brief description of the proposed quarry, statement of the study purpose, and identification of the proposed haul route (right out of site access, north on Winston Churchill Boulevard, east on Mayfield Road, south on Hurontario Street, right at Petworth Road/plant access, with returning trips via the same route), including a list of intersections that were assessed for the study:
 - Winston Churchill Boulevard at Mayfield Road;
 - Mayfield Road at Heritage Road;
 - Hurontario Street at Mayfield Road; and
 - Hurontario Street at Petworth Road.
2. **Existing Conditions** – This section includes a physical description of existing roadways being considered for inclusion in the proposed haul route, including identification of railway crossings, a five-year collision history, description of existing pedestrian, cyclist, and transit facilities, and analysis of existing traffic operations (i.e., signalized and unsignalized Level of Service (LOS)) for only the four (4) intersections identified in the introduction;
3. **Development Concept** – This section consists of a brief description of proposed quarry operations and the anticipated scope and timing of Winston Churchill Boulevard reconstruction, it also identifies the proposed site access location (i.e., on Winston Churchill Boulevard, approximately 200m north of Old Pine Crest Drive) and related auxiliary lane requirements;
4. **Future Conditions** – This section presents the forecast 2016 and 2021 future background traffic volumes and operational analysis, site traffic trip generation estimates, and future total traffic volumes and operational analysis (the future conditions analysis only addresses four (4) intersections along the proposed haul route and the site access);
5. **Assessment of Improvements** – This section provides a brief summary of anticipated future conditions intersection operations and presents the projected site traffic as a percentage of the overall horizon year traffic for each link in the proposed haul route. It also describes the proposed treatments for site access auxiliary lanes and sightlines, and presents the concept of a haul route enforcement strategy;
6. **Conclusions and Recommendations** – This section repeats the findings of the previous sections and presents a series of recommendations for mitigating the expected transportation-related impacts of the proposed quarry.

Exhibit 1 presents a summary of key assumptions and analysis parameters that were cited and employed throughout the Haul Route Study, along with the identified source of each value (where provided). The final recommendations presented in the Haul Route Study are listed in **Exhibit 2**.

Exhibit 1: Assumptions and Analysis Parameters

Assumption/Parameter	Values	Identified Source/Justification
Study Area Intersections	Winston Churchill Boulevard at Mayfield Road Mayfield Road at Heritage Road Hurontario Street at Mayfield Road Hurontario Street at Petworth Road	No justification was provided for including only these specific intersections in the analysis
Turning Movement Counts	Collected between March 2010 and October 2011	Various
Collisions Data	2006 through 2010, inclusive	Region of Peel and City of Brampton
Winston Churchill Boulevard Reconstruction	3.75m lanes 2.5m shoulders >35,000kg capacity (no load restrictions) 2014 completion date Improved vertical alignment	Not indicated
Site Access Auxiliary Lanes	3.75m lanes SB left-turn lane: 70m taper, 60m storage (SB left-turn storage reduced to 20m based on anticipated low volumes) NB acceleration lane: 70m taper, 60m parallel (65m parallel lane indicated in recommendations)	Preliminary design
Background Traffic Volume Growth Rate	5.0% per annum (includes traffic generated by specific local developments)	Region of Peel
Intersection Improvements: Winston Churchill Blvd at Mayfield Rd	EB and WB left-turn lanes on Mayfield Rd NB right-turn lane on Winston Churchill Blvd Construction before 2016	Not indicated
Traffic Control Improvements	Heritage Rd traffic control signals (installed 2021) Traffic signal timing optimization (all horizon years) Stop control at site access	MTO signal warrants Ontario Traffic Manual
Site Access Sightlines	Turning sight distance not satisfied (148m available, 200-250 required) Stopping sight distance satisfied in both directions	TAC Geometric Design Guide Measurements are based on the upgraded vertical alignment provided by the Region of Peel
Trip Generation	35,000kg truck 3 outbound truck trips per hour (9 PCEs) 3 inbound truck trips per hour (9 PCEs) 30-year estimated extraction period 30-year rehabilitation period (not analyzed)	Based on 200,000 tonnes per year, 200 operating days per year, and 10 operating hours per day

Exhibit 2: List of Haul Route Study Recommendations

#*	Recommendation
1	Due to the relative uncertainty of ten-year traffic forecasts using generalized growth rates, ongoing monitoring of the Heritage Road intersection with Mayfield Road is recommended to confirm the extent of delays at the unsignalized intersections and the ultimate timing for future signalization.
2	The site driveway connection should operate under stop control for the outbound approach. A stop sign (Ra-1) should be installed on the outbound approach in accordance with the Ontario Traffic Manual.
3	A southbound left-turn lane with 20 metres of storage (to accommodate the largest vehicle to be used at the site (16.2 m)) be constructed at the site driveway connection to Winston Churchill Boulevard. This turn lane is not warranted based on volume conditions but is recommended to reduce the hazard caused by vehicles that would be waiting on Winston Churchill Boulevard to enter the site. The taper lane length should be designed in accordance with the Geometric Design Manual for Ontario Highways and Peel Region practice.
4	A northbound acceleration lane with a total length of 65 metres of parallel lane be constructed at the site driveway connection to Winston Churchill Boulevard. The taper lane length should be designed in accordance with the Geometric Design Manual for Ontario Highways and Peel Region practice.
5	The site driveway intersection with Winston Churchill Boulevard be designed with a daylight triangle to provide increased visibility for site traffic entering the highway. The daylight triangle should be designed with a 13 metre by 5 metre triangle in accordance with Transportation Association of Canada Geometric Design Guide for Canadian Roads.
6	The site driveway be signed with Truck Entrance advanced warning signs in the northbound direction (Wc-108L) and in the southbound direction (Wc-108R) with supplementary Truck Entrance tabs in accordance with the Ontario Traffic Manual. To further improve safety at the intersection, the warning signs for the northbound direction should be fitted with flashing beacons that are operational during the planned hours of operation.
7	A haul route enforcement strategy be developed by the operator of the site to ensure compliance with the intended haul route.

3. PEER REVIEW FINDINGS

The following subsections provide a summary of the peer review findings organized under basically the same headings that were used to categorize the peer review guideline questions. The findings presented below follow exclusively from the May 2012 Haul Route Study. The peer review results summary table is provided in **Appendix B**.

3.1 Purpose

The purpose of the Norval Quarry Haul Route Study is "...to determine the impact of the additional traffic on the surrounding road network, and the roadway and traffic control improvements required to accommodate this future traffic." The stated purpose sets out the proper direction for undertaking the Haul Route Study; however, it does so under the assumption that the proposed haul route is the preferred routing. No justification is provided for the selection of the proposed haul route over other possible routes.

3.2 Methodology

The methodology used to assess the likely transportation impacts of the proposed quarry generally follows the Traffic Impact Study (TIS) requirements of Peel Region, and it uses industry standard

references and analysis tools. However, the Peel Region TIS requirements do not necessarily reflect the scope of review required for this type of development (e.g., access requirements, collision analysis, etc.), because the traffic generated by the proposed development would consist almost exclusively of heavy trucks. As such, additional considerations and unique analysis parameters are warranted to fully assess the magnitude and scope of potential impacts caused by the proposed development. The Haul Route Study does go beyond the requirements of a basic TIS, and it addresses many of the analysis gaps that were identified in IBI Group's previous peer review.

The Haul Route Study is generally objective; however, there is one major deficiency in the methodology. As mentioned in **Section 3.1**, the Haul Route Study was conducted based on a predetermined preferred haul route; additionally, all of the operational assessment of the haul route was limited to analysis of only four (4) intersections and the proposed site access. The intersections that were included for operational analysis are:

- Winston Churchill Boulevard at Mayfield Road;
- Mayfield Road at Heritage Road;
- Hurontario Street at Mayfield Road; and
- Hurontario Street at Petworth Road.

The proposed haul route passes through no fewer than ten (10) additional intersections, both signalized and unsignalized, that were not included in the operational analysis. As a result, the analysis does not represent a complete account of potential impacts, and the scope and/or magnitude of potential impacts at intersections that were not included in the analysis cannot be known. Furthermore, nowhere in the Haul Route Study report does it provide justification for the inclusion/exclusion of specific intersections in/from the analysis. Therefore, the failure to provide any form of justification for the selection of the proposed haul route and the omission of several intersections from the analysis represents a major flaw in the study methodology.

In addition to the above, the analysis hinges largely on a number of assumptions that were made about the scope and timing of the reconstruction of Winston Churchill Boulevard. Although the assume scope of improvements was mostly confirmed by the Region of Peel, the timing of the improvements is not assured. The Haul Route Study assumes that all of the work will be complete prior to the opening of the proposed quarry; therefore, the potential impacts without the anticipated improvements have not been assessed.

3.3 Information

The information presented in the Haul Route Study was reviewed with respect to consistency, analysis gaps, appropriateness of proposed mitigation/monitoring, and certainty. Related findings are presented in the following sections.

3.3.1 CONSISTENCY

Those data and facts that are presented in the Haul Route Study are generally clear and consistent. The only real inconsistency relates to the reported lengths of the proposed auxiliary lanes at the site access:

- The southbound left-turn lane is originally presented as having a 70m taper and a 60m storage length, which is reduced to 20m based on anticipated low volumes; and

- The northbound acceleration lane is originally presented as having a 70m taper and a 60m parallel lane; however, the dimensions presented in the recommendations indicate a 65m parallel lane.

The exact dimensions of the proposed auxiliary lanes and the standards or guidelines on which they are based should be confirmed.

3.3.2 ANALYSIS GAPS

Many of the analysis/information gaps that were identified in the previous peer review have been addressed, to varying degrees, in the Haul Route Study, and they included:

- Collision analysis;
- Sightline analysis;
- Final rehabilitation backfill operations;
- Consideration for other road users;
- At-grade railway crossings;
- Analysis horizons that reflect the full life cycle of the proposed quarry;
- Impacts of proposed quarry access operations;
- Roadway structural adequacy; and
- Identification of specific local traffic generators.

Several of the previously identified information gaps (e.g., other road users, railway crossings, and backfill operations) were addressed by providing a description of existing or anticipated conditions with no real assessment of interactions with haul traffic or potential impacts. It may be that no impacts are anticipated, but no such statements were included in the report.

Arguably, the single biggest information gap in the Haul Route Study relates to the exclusion of ten (10) intersections located along the proposed haul route from the operational analysis. (They were included in the collision analysis). There may be impacts, at intersections that were not assessed, that have not been identified.

If these gaps are not addressed through clarifying statements, additional analysis or some other form of justification, then potential impacts of the proposed quarry may not be identified.

3.3.3 PROPOSED MITIGATION/MONITORING

The recommended mitigation (**Exhibit 2**) should address the majority of issues identified through the analysis, provided that the reconstruction of Winston Churchill Boulevard includes the assumed mitigation of existing issues and that the work is completed before the proposed quarry is opened. Some minor omissions and/or oversights in the proposed mitigation are described below.

In several instances, throughout the report it is suggested that localized left-turn movement congestion is not considered to be critical, as the condition is common at major arterial intersections in built-out urban areas. Based on this assumption, no related mitigation is recommended, even for the 2021 AM peak, when site generated traffic causes the northbound left-turn movement at the Hurontario Street at Mayfield Road intersection to go from a v/c ratio of 0.87 to 0.93 and from LOS E to F, with an additional 17.3 seconds of delay per vehicle. This type of increase in delay might not be acceptable to the Region, and mitigation might be necessary.

Additionally, it does not appear that consideration has been given to the potential safety impacts related to haul trucks making permissive left-turns at the Mayfield Road at Winston Churchill Boulevard.

With respect to the long-term enforcement and monitoring of the haul route, the Haul Route Study recommends that an enforcement strategy be developed, but no specifics are provided as to how it would be conducted or what punishments would result from violations.

3.3.4 CERTAINTY

Most of the assumptions and information upon which the analysis was based were taken from reliable sources, and they have either been independently confirmed or appear to have been derived from reasonable engineering judgement.

The scope of the assumed road improvements along Winston Churchill Boulevard has more or less been confirmed through review of 60% design drawings furnished by the Region of Peel. There does, however, appear to be some uncertainty regarding the anticipated completion date for road improvements.

The Haul Route Study assumes that all work will be completed in 2014 (no reference for the assumed completion data was provided). Through discussions with Region of Peel staff, it has become clear that the Winston Churchill road improvements will likely not be completed until the spring of 2015, at the earliest.

3.4 Policy Implications

As discussed in the previous peer review report, the relevant policies are directed at too high a level to be particularly useful in assessing transportation impacts of individual developments. Although the Aggregate Resource Act specifically addresses haul routes, it is primarily focused on on-site operations and site accesses, and it provides little guidance on how external road network impacts should be addressed beyond designating haul routes.

The Haul Route Study acknowledges that there are several ongoing planning studies (e.g., HPBATS) that may result in the construction of higher-order transportation links (e.g., HPF and GTA West corridor) that could result in alternate haul route options within the anticipated life-cycle of the proposed quarry. However, given that no alignment decisions have been finalized, it is too soon to consider the links and their potential implications with respect to the haul route.

4. CONCLUSIONS

Based on the peer review findings presented above, the following conclusions have been reached:

- No direct, comparative evaluation of the alternative haul routes was presented; therefore, there is no clear justification for the selection of the preferred route;
- Only four (4) of fourteen (14) intersections along the proposed haul route were included in the operational analysis; therefore, potential impacts of site-generated traffic on study area traffic operations may have been missed or underestimated;
- Although it appears that all of the assumed road implements will be included in the reconstruction of Winston Churchill Boulevard, the work may not be completed within the assumed timeline (i.e., before 2015);

- There are issues that will result from the haul operations (e.g., left-turn movement delay and safety concerns related to permissive left-turns) that will not be addressed by the recommended mitigation;
- The dimensions of the proposed auxiliary lanes at the site access need to be confirmed and supporting standards/guidelines should be identified; and
- Details need to be provided regarding the proposed haul route enforcement strategy and monitoring plan.

In summary, the Haul Route Study, submitted by Brampton Brick, failed to achieve its stated purpose (i.e., "...to determine the impact of the additional traffic on the surrounding road network, and the roadway and traffic control improvements required to accommodate this future traffic), in that it did not identify all of the potential impacts associated with the proposed quarry. In particular, it did not consider the impacts at ten (10) intersections located along the proposed haul route, nor was any justification provided for the exclusion of those intersections, nor was any justification provided for the selection of the proposed haul route.

Additionally, the recommended improvements do not fully address all of the impacts that were identified (e.g., left-turn delay at Hurontario Street at Mayfield Road intersection), and the potential impacts of haul traffic under a do nothing scenario (i.e., no reconstruction of Winston Churchill Boulevard) were not assessed.

Therefore, further clarification, justification, analysis, and/or mitigation are required to fully understand the expected transportation-related impacts associated with the proposed quarry.

Additionally, since the analysis is based on the assumption that the Winston Churchill Boulevard reconstruction work will be completed, it is advised that the quarry not be opened before this work is finalized, unless it can be determined that there will be no impacts.

APPENDIX A

MARCH 2011 IBI GROUP PEER REVIEW REPORT



City of Brampton

**PEER REVIEW FOR TRANSPORTATION ASSESSMENT
ZONING APPLICATION REVIEW**

REPORT

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1. INTRODUCTION

The opinions expressed in this peer review (including appendices) may be supplemented, reconsidered or otherwise revised by the author(s) should new or previously unknown information become available.

In conducting this peer review of Brampton Brick's, August 2010, Norval Quarry Site Plan Report, IBI Group has primarily considered the applicant's Transportation Assessment Report (prepared by Paradigm Transportation Solutions, November 2008) and its supporting documentation when assessing adherence to accepted transportation engineering standards/best-practices, policies of the Province, Region, and relevant area municipalities, and the ARA, with a focus on the following:

- Comprehension of existing issues and deficiencies;
- Analysis assumptions and parameters (i.e., saturation flows, critical gaps);
- Assessment of operations along adjacent roadway with proposed access and in the context of existing access points;
- Background growth rate assumptions and horizon years;
- Trip generation, distribution and assignment assumptions;
- Safety assessment and impacts;
- Explicit consideration of all road users;
- Appropriateness of recommended improvements and remedial measures; and
- Implications relating to required jurisdiction and agency approvals including environmental assessments.

With respect to the above criteria, IBI Group has identified some gaps and/or omissions in the Transportation Assessment Report, and the supporting analysis/studies, and assessed the appropriateness of the proposed mitigation measures (short term and long term).

The review process has been conducted in accordance with the Guideline Principles and Questions for Brampton Peer Reviewers - Brampton Brick Peer Review documents supplied by the City of Brampton.

2. SYNOPSIS OF APPLICANT'S ASSESSMENT

The following subsections provide a brief synopsis of the Applicant's assessment of transportation-related issues, as presented in the Transportation Assessment Report (November 2008) and the Norval Quarry Site Plan Report (August 2010).

2.1 Transportation Assessment Report

The basic contents of the Transportation Assessment Report are as follows:

1. **Introduction** – a brief description of the proposed quarry, and statement of the study purpose;
2. **Existing Conditions** – a physical description of existing roadways being considered for inclusion in the proposed haul route, existing traffic conditions (e.g., volumes and traffic control), and existing traffic operations, signalized and unsignalized Level of

Service (LOS) analysis. The road way classifications noted in the Transportation Assessment Report (Section 2.1 - Existing Roadways) are not entirely consistent with the Schedule B – City Road Hierarchy;

3. **Development Concept** – a brief description of proposed quarry operations, and identification of the proposed access location (i.e., on Winston Churchill Boulevard, approximately 200m north of Old Pine Crest Drive);
4. **Future Conditions** – identification of “planned”/assumed road network improvements (assumed road improvements for each horizon year are summarized in **Exhibit 1**), forecast 2013 and 2018 future background traffic volumes, future site traffic trip generation estimates, and future total traffic LOS analysis;
5. **Need for Improvement** – a summary of identified issues and road network deficiencies for the links/intersections considered (including structural, cross-section, sight distance, and routing concerns), and turning lane warrants for the proposed site access. The report attributes all capacity-related issues to background traffic growth, absolving the proposed development of contributing to those issues;
6. **Conclusions and Recommendations** – a preferred haul route is not explicitly identified, but the recommended improvements (e.g., northbound deceleration lane on Winston Churchill Boulevard, at the site access) suggest that traffic from the proposed quarry would be routed south, through the Hamlet of Norval, to Highway 7; signage is also recommended to address sight distance deficiencies at the proposed site access.

Exhibit 1: Assumed Roadway Improvements

Assumed Horizon Year	Assumed Roadway Improvement	Brampton/Peel Planned Timing
2013	Widening of Wanless Drive to six lanes from Hurontario Street to Chinguacousy Road;	Widening to six lanes is not part of the Brampton TTMP (2004 or 2010).
2013	Urbanization of Wanless Drive from Creditview Road to Winston Churchill Boulevard;	Brampton 2010-2019 Roads Capital Program shows 2014 timing for reconstruction from Creditview Road to Mississauga Road.
2013	Widening of Mississauga Road to four lanes from south of Bovaird Drive to Wanless Drive;	2009 Peel Transportation Ten Year Capital Plan shows 2010-2013 timing.
2013	Intersection improvements at Mayfield Road and Winston Churchill Boulevard, which includes additions of EB and WB left-turn lanes and a NB right-turn lane;	Not identified in the Brampton TTMP (2004 or 2010) or the Peel Transportation Ten Year Capital Plan (2005 or 2009).
2013	Intersection improvements at Bovaird Drive and Winston Churchill Boulevard, which includes additions of NB and SB left-turn lanes and an EB right-turn lane;	Not identified in the Brampton TTMP (2004 or 2010) or the Peel Transportation Ten Year Capital Plan (2005 or 2009).
2013	Reconstruction of Winston Churchill Boulevard from Embleton Road to Mayfield Road.	2009 Peel Transportation Ten Year Capital Plan shows 2011-2012 timing.
2018	Widening of Wanless Drive to four lanes from Creditview Road to Mississauga Road;	Widening to four lanes is part of the Brampton TTMP (2010), after 2021.
2018	Widening of Chinguacousy Road to four lanes from Mayfield Road to Wanless Drive;	Widening to four lanes is part of the Brampton TTMP (2010), after 2016.

Assumed Horizon Year	Assumed Roadway Improvement	Brampton/Peel Planned Timing
2018	Widening of Mayfield Road to four lanes from Hurontario Street to Creditview Road; and	2009 Peel Transportation Ten Year Capital Plan shows widening from Hurontario Street to Chinguacousy Road with 2015-2019 timing. The Brampton TTMP (2010), shows widening from Chinguacousy Road to Creditview Road after 2021.
2018	Widening of Bovaird Drive to six lanes from Chinguacousy to Winston Churchill Boulevard.	2009 Peel Transportation Ten Year Capital Plan shows widening from Mississauga Road to Halton Boundary with 2011-2019 timing. The Brampton TTMP (2010), shows widening from west of Chinguacousy Road to Mississauga Road after 2016.

2.2 Site Plan Report

On the basis of off-site road network operations, transportation-related issues are covered in Section 6 – Traffic and Haul Route of the Site Plan Report. Therein, the November 2008 Transportation Assessment is mentioned, and forecast traffic volumes (2013 and 2018) for Winston Churchill Boulevard are noted; otherwise, very little from the 2008 Paradigm report is included. In fact, the described hours of operation and trip generation estimates do not match the information presented in the Transportation Assessment.

The Site Plan Report identifies the proposed haul route, from the site to the Wanless Drive brick plant, as “Winston Churchill Boulevard north to Mayfield Road, then easterly to Hurontario Street, then south to Wanless Drive, a distance of 13.5 km.” With respect to the proposed site access, the Site Plan Report indicates that in “May 2010, Brampton Brick Limited filed a Road Occupancy Permit application to enable the Peel Region to construct any required quarry entrance improvements during the 2013 reconstruction of Winston Churchill Boulevard.” The Report also notes that the increase in noise associated with haul traffic is expected to be “acoustically insignificant.”

In Section 12.5 – Final Rehabilitation of the Site Plan Report, it states that “Brampton Brick may elect to surrender its ARA Licence upon completion of this pond-centered rehabilitation. The Company could then import significant quantities of excess soil materials, from urban development areas, to backfill the excavation.” The traffic impacts associated with potential backfill activities are not discussed in the Site Plan Report or the Transportation Assessment Report.

3. PEER REVIEW FINDINGS

The following subsections provide a summary of the peer review findings organized under basically the same headings that were used to categorize the peer review guideline questions. Given the minimal transportation-related information in the Site Plan Report, the findings presented below follow almost exclusively from the Transportation Assessment Report. The preliminary review matrix, submitted to the City in November 2010, along with the policy matrix table, is provided in **Appendix A**.

3.1 Purpose

The purpose of the Applicant’s Transportation Assessment, as stated in the 2008 Paradigm report, was “...to ensure that any traffic impacts associated with the quarry are well understood and that

improvements required to support the application are clearly identified;” which generally sets out the proper direction to undertake the assessment, but falls short of identifying a preferred haul route. With no comprehensive comparison of the possible routes in the Applicant’s Transportation Assessment Report, a haul route could be selected arbitrarily with no consideration of other stakeholders and/or the relative impacts of the alternative routes.

3.2 Methodology

The methodology used to assess the likely transportation impacts of the proposed quarry generally follows the Traffic Impact Study (TIS) requirements of Peel Region, and it uses industry standard references and analysis tools. However, the Peel Region TIS requirements do not necessarily reflect the scope of review required for this type of development (e.g., horizon year, collision analysis, etc.), because the traffic generated by the proposed development would consist almost exclusively of heavy trucks. As such, additional considerations and unique analysis parameters are warranted to fully assess the magnitude and scope of potential impacts caused by the proposed development.

The Transportation Assessment Report is generally objective; however, some of the assumptions made to inform the methodology may compromise the analysis and/or conclusions of the report. Specifically, the traffic impacts attributable to the quarry have not been disaggregated from the impacts of background traffic, and the impacts on the network without the assumed road improvements have not been assessed. As a result, the incremental impacts of the quarry traffic cannot be differentiated from the impacts of background traffic, and the potential magnitude of impacts, if the assumed road improvements are not implemented, cannot be understood. Also, the assumptions made about road improvements could result in the selection of a preferred haul route that is not able to accommodate the expected traffic, if the assumed improvements do not happen.

Unlike most of the information presented in the Transportation Assessment Report, the identification of the proposed haul route in the Site Plan Report appears to be largely subjective, and it does not reflect the conclusions and recommendations presented in the Transportation Assessment. Furthermore, since no preferred haul route was explicitly identified in the Transportation Assessment and no methodology was described for conducting a comparative evaluation of the haul route alternatives, it is unclear how the preferred haul route, as outlined in the Site Plan Report, was selected from the candidate routes.

3.3 Information

The information presented in the Transportation Assessment Report was reviewed with respect to analysis gaps, appropriateness of proposed mitigation/monitoring, and certainty.

3.3.1 ANALYSIS GAPS

Those data and facts that are presented in the Transportation Assessment Report are generally clear and consistent; however, as previously noted, the described hours of operation and trip generation estimates from the Site Plan Report do not match the information presented and analyzed in the Transportation Assessment. Additionally, there are some gaps in the information presented. In particular, analysis gaps have been identified related to the following areas:

- Collision analysis;
- Sightline analysis along the haul route;
- Final rehabilitation backfill operations (trip generation and impacts);
- Consideration for other road users (e.g., farm equipment and cyclists);

- Assessment of traffic operations and safety for at-grade railway crossings;
- Traffic analysis horizons that reflect the full life cycle of the proposed quarry;
- Impacts of proposed quarry access operations on existing adjacent driveways;
- Verification of the “roadway structural adequacy” by a pavement engineer; and
- Identification of specific local traffic generators (i.e., new/planned development).

Omission of these data, and the associated analysis, basically limits the evaluation of potential impacts to traffic operations at intersections, and the scope of the review, with respect to future conditions analysis horizons, does not fully reflect the life cycle of the quarry and potential for traffic growth in the area. If these gaps are not addressed through additional analysis some potential impacts of the proposed quarry may not be identified.

3.3.2 PROPOSED MITIGATION/MONITORING

The Transportation Assessment Report provided three recommendations for mitigation:

- “In the short-term, until Winston Churchill Boulevard is reconstructed (currently planned for 2011), that the site driveway be signed as “Hidden Driveway: (Wa-13A with Wa-18 tab) and further that warning signs indicating “Truck Entrance” signs (Wc-8 or Wc-108) be posted in accordance with the TAC requirements;”
- “Consideration be given to adding flashing beacons to the “Truck Entrance” sign to the operational during the planned hours of the quarry;” and
- “Consideration be given to providing northbound deceleration and acceleration parallel lanes and tapers on Winston Churchill Boulevard at the proposed site access.”

The recommended mitigation measures are only intended to address sightline deficiencies and potential turning movement conflicts at the proposed site access, nothing else, and no details regarding sign placement or auxiliary lane/taper length are provided.

The recommended mitigation measures are not sufficient or appropriate to address all of the issues identified in the Transportation Assessment, particularly the sightline deficiencies at the proposed access. The recommended signs (i.e., Wa-13A) are not to be used at private driveways (OTM Book 6, page 43). The recommendation to provide only northbound auxiliary lanes at the proposed access is not consistent with the recommended haul route from the Site Plan Report.

The applicant has assumed that all of the identified structural and geometric deficiencies along the proposed haul route will be mitigated through reconstruction, conducted by Peel and Halton Regions.

The assumed road network improvements, combined with the omission of a “future background” LOS analysis scenario, make it impossible to determine if any other operational issues within the study road network are directly attributable to the proposed quarry. The report states that “future total traffic for both 2013 and 2018 scenarios are expected to be accommodated at a satisfactory level of service with the planned road network improvements with the exception of Bovaird Drive/Highway 7 intersections.” However, several other intersections, including some intersections along the proposed haul route, show level of service of E or F and V/C ratio greater than 1.0 in both horizon years. This does not represent a “satisfactory level of service,” and no mitigation has been recommended.

No monitoring programs (e.g., pavement conditions, haul route compliance) are proposed. Without a monitoring and maintenance agreement for the haul route, damage from heavy truck traffic could

go unchecked, resulting in significant structural damage to the roadway (particularly along Winston Churchill Boulevard). Additionally, the applicant has not discussed the issue of haul route enforcement, given that there are several potential routes between the proposed quarry site and the Wanless Drive processing plant, and given that the applicant is recommending the use of a designated haul route, enforcement measures for ensuring haul route compliance should have been discussed. The need for haul route enforcement strategies applies equally to trucks travelling in both directions between the plant and the proposed site.

3.3.3 CERTAINTY

Given that the Transportation Assessment was conducted in 2008, and based on even older information, there are concerns that it does not represent an accurate assessment of future background operating conditions. Background traffic growth was based simply on projected rates, and does not account for any specific development in the study area, particularly any that may have been initiated since 2008. Also, the planned timing for road network improvements has, in some cases, changed significantly from what was assumed in the assessment (see **Exhibit 1**).

The assumed road improvements along Winston Churchill Boulevard and other relevant roadways, as well as the assumed timing of those improvements, cannot be assured; therefore, a thorough analysis of the geometric deficiencies is required. If the assumed Winston Churchill Boulevard improvements, or any other assumed road network improvements, are not implemented or are delayed, related traffic operations and safety issues could be significantly worse than reported. Given that the applicant has no control over the implementation of the assumed improvements, it is not reasonable to take them as assured.

Assumptions about background traffic growth are stated in the Report, but, based on discussions with the City, the reasonableness of those assumptions has been brought into question (i.e., the estimated growth rates may be too low, and no specific local trip generators were identified). Therefore, the future conditions traffic analysis presented in the Transportation Assessment and the volumes quoted in the Site Plan Report might not reflect current expectations for traffic volume growth in the study area.

Although the Transportation Assessment identifies sightline deficiencies at proposed site access, no actual sightline measurements or minimum requirements are discussed in the report.

3.4 Policy Implications

Based on a review of the policy matrix, the relevant policies are directed at a too high a level to be particularly useful in assessing transportation impacts of individual developments. Although the Aggregate Resource Act specifically addresses haul routes, it is primarily focused on on-site operations and site accesses, and it provides little guidance on how external road network impact should be addressed beyond designating haul routes.

The applicant has assumed a number of road network improvements that would be subject to the Environmental Assessment process, but those process requirements have not been explicitly noted in the Reports. Given that many of the assumed improvements would be subject to approvals processes that could delay their implementation or result in their not being completed; which would have a profound impact on the analysis of the transportation assessment, a “do nothing” alternative should have been assessed to illustrate the potential “worst-case” traffic operations scenario.

In addition, it should be noted that since the Transportation Assessment Report was completed in 2008, there have been changes to the timing and definition of future road improvements in the study area as a result of the completion of the Halton-Peel Boundary Area Transportation Study (HPBATS). The HPBATS includes a number of new roadways within the vicinity of the proposed

quarry, including a proposed Halton-Peel Freeway Corridor and a future east-west connection. The potential future alignments of these facilities are conceptual only and subject to future Environmental Assessments.

4. CONCLUSIONS

Based on the peer review findings presented above, the following conclusions have been reached:

- The proposed haul route is not identified in or supported by the Transportation Assessment, and the Site Plan Report is otherwise inconsistent with the supporting technical documents;
- There may be significant impacts that have not been identified, based on the noted gaps in the analysis:
 - Collision analysis;
 - Sightline analysis along the haul route;
 - Final rehabilitation backfill operations (trip generation and impacts);
 - Consideration for other road users (e.g., farm equipment and cyclists);
 - Assessment of traffic operations and safety for at-grade railway crossings;
 - Traffic analysis horizons that reflect the full life cycle of the proposed quarry;
 - Impacts of proposed quarry access operations on existing adjacent driveways;
 - Verification of the “roadway structural adequacy” by a pavement engineer; and
 - Identification of specific local traffic generators (i.e., new/planned development);
- No direct, comparative evaluation of the alternative haul routes was presented; therefore, there is no clear justification for the selection of the preferred route;
- The incremental impacts of site traffic on future conditions traffic operations cannot be determined from the analysis presented, which does not represent a full disclosure of the potential impacts of the proposed quarry;
- The proposed mitigation for the sightline deficiencies at the proposed site access are not sufficient or appropriate, and there are structural and geometric issues associated with several potential haul route links and the proposed access that were not appropriately addressed;
- Assumptions about background traffic growth do not identify any specific developments, and they might be based on outdated information;
- It was premature to conduct all of the future conditions traffic analysis with the assumed road network improvements, given that the feasibility and timing of the assumed improvements has not been fully assessed and/or confirmed; and
- The assumptions made may have resulted in significant underestimations of potential impacts of site-generated traffic on study area traffic operations.

In summary, the Transportation Assessment Report, submitted by Brampton Brick, in support of its Site Plan Report, failed to achieve its stated purpose (“...to ensure that any traffic impacts

associated with the quarry are well understood and that improvements required to support the application are clearly identified;”), in that it did not identify all of the potential impacts associated with the proposed quarry. In particular, it did not consider the impacts that could result from the assumed road improvements not being completed. Additionally, the recommended improvements do not fully or adequately address the impacts that were identified. The peer review also identified significant inconsistencies between the information presented in the Transportation Assessment Report and what is stated in the Site Plan Report.

Therefore, the Site Plan Report does not warrant approval by the City of Brampton, as it does not represent a thorough and complete assessment of the transportation-related impacts associated with the proposed quarry.

APPENDIX A

PRELIMINARY PEER REVIEW MATIRX AND POLICY MATRIX TABLE

Guideline Question	Findings Regarding the Brampton Brick Report	Implications if this concern/issue is not addressed in the technical report
Purpose		
Is the purpose of the work clearly and understandably stated in the applicant's report?	Yes, the stated purpose is as follows "...to ensure that any traffic impacts associated with the quarry are well understood and that improvements required to support the application are clearly identified."	N/A
Does the purpose set out the proper direction to undertake the study?	Generally, yes, but the purpose falls short of identifying a preferred haul route.	With no comparative assessment of the possible routes, a haul route could be selected arbitrarily with no consideration of other stakeholders.
Methodology		
<p>Is the methodological approach technically sound?</p> <p>Is the review of issues, data, facts objective and appropriate?</p>	<p>The methodology generally follows the Traffic Impact Study requirements of Peel Region and uses industry standard references and analysis tools. However, the Peel requirements do not necessarily reflect the scope of review required for this type of development (e.g., horizon year, collision analysis, etc.).</p> <p>The Transportation Assessment (2008) is generally objective; however, the determination of an acceptable level of service may not be agreeable to the road authorities.</p> <p>Additionally, the identification of the proposed haul route in the Site Plan Report (2010) appears to be largely subjective and does not reflect the findings of the Transportation Assessment.</p>	<p>The full magnitude and scope of potential, relevant impacts caused by the proposed development may not have been identified through the assessment.</p>

Guideline Question	Findings Regarding the Brampton Brick Report	Implications if this concern/issue is not addressed in the technical report
<p>Does the peer review identify any technical concerns stemming from the methodology (and the assumptions made to inform the methodology) that may compromise the analysis and/or conclusions of the report?</p>	<p>The traffic impacts attributable to the quarry have not been disaggregated from the impacts of background traffic, and the impacts on the network without the assumed road improvements have not been assessed.</p> <p>Also, the assessment suggests that the presence of heavy trucks on Mayfield Road is confirmation that the road can accommodate quarry traffic.</p>	<p>The incremental impacts of the quarry traffic cannot be differentiated from the impacts of background traffic, and the potential magnitude of impacts, if the assumed road improvements are not implemented, cannot be understood.</p> <p>The assumptions made could result in the selection of a preferred haul route that is not able to accommodate the proposed traffic.</p>
<p>Information</p>		
<p>Are the relevant data and facts clearly and consistently presented in the technical report?</p>	<p>Those data and facts that are presented are clear and consistent; however, there are some gaps in the information presented (e.g., collision data, railway operations data, farm vehicle traffic, cycling activity).</p>	<p>Omission of these data basically limits the evaluation of potential impacts to traffic operations at intersections.</p> <p>Consideration of other potential areas of impact could lead to the identification of additional problems.</p>
<p>Is information gathered from appropriate sources? Is the information useful? Accurate? Are there concerns regarding their quality or validity?</p>	<p>Given that the Transportation Assessment was conducted in 2008, and based on even older information, there are concerns that it does not represent an accurate assessment of future background operating conditions. Background traffic growth was based simply on projected rates, and does not account for any specific development in the study area, particularly any that may have been initiated since 2008.</p> <p>Also, the assumed timing for road network improvements could have changed significantly from what was assumed in the assessment.</p>	<p>The report may not represent an accurate assessment of the potential transportation impacts of the proposed quarry.</p>
<p>Is the data used critical to the conclusions?</p>	<p>Yes.</p>	<p>The conclusions depend fully on the input data.</p>

Guideline Question	Findings Regarding the Brampton Brick Report	Implications if this concern/issue is not addressed in the technical report
<p>Is the Brampton Brick report thorough/comprehensive/complete?</p>	<p>As previously noted, there are some gaps in the assessment (e.g., collision data, railway operations, farm vehicle impacts), and the scope of the review, with respect to future conditions analysis horizons, does not reflect the full life cycle of the quarry and anticipated growth in the area.</p> <p>Traffic count dates and durations are not indicated in the report.</p>	<p>The full impacts of quarry traffic on the road network have not been accounted for with respect to their duration, magnitude, and areas of influence. In particular, collision history is a consideration that should factor into the selection of a preferred haul route.</p> <p>The timing of the traffic counts may impact their relevance to the planned operation of the quarry.</p>
<p>How comprehensive and complete are the recommended mitigation and monitoring measures proposed by Brampton Brick?</p>	<p>The recommended mitigation measures are not sufficient or appropriate to address the issues identified, particularly the sightline deficiencies at the proposed access.</p> <p>No monitoring (e.g., pavement conditions, haul route compliance) is proposed.</p> <p>The recommendation to provide only northbound auxiliary lanes at the proposed access is not consistent with the recommended haul route from the Site Plan Report.</p> <p>The assumed road improvements along Winston Churchill Blvd., as well as the assumed timing of those improvements, cannot be assured; therefore, a thorough analysis of the geometric deficiencies and associated mitigation is required.</p>	<p>Sightline issues and issues related to noise, dust, air quality along the haul routes may not be mitigated. Without a monitoring and maintenance agreement for the haul route, damage from heavy truck traffic could go unchecked, resulting in significant structural damage to the roadway (specifically along Winston Churchill Blvd.). Also, there is no discussion of enforcing haul route compliance.</p> <p>If the assumed Winston Churchill Blvd. improvements, or any other assumed road network improvements, are not implemented or are delayed, there will be related traffic operations and safety issues.</p>

Guideline Question	Findings Regarding the Brampton Brick Report	Implications if this concern/issue is not addressed in the technical report
<p>The gap analysis will assess the relative importance of the data gaps and limitations to the project and identify potential options for addressing them. As such, a recommendation from a peer reviewer could be that additional survey and baseline monitoring must be undertaken as the project proceeds, provided the necessary frameworks are in place to direct this data collection and any changes that are triggered.</p>	<p>See Issue Gaps below.</p>	
<p>Certainty</p>		
<p>Are certainties and uncertainties of the proposal's success openly and objectively stated in the applicant's report/study?</p>	<p>The report states that "future total traffic for both 2013 and 2018 scenarios are expected to be accommodated at a satisfactory level of service with the planned road network improvements with the exception of Bovaird Drive/Highway 7 intersections."</p>	<p>Several other intersections, including some intersections along the proposed haul route, show level of service of E or F and V/C ratio greater than 1.0 in both horizon years. This does not represent a "satisfactory level of service."</p>
<p>Are all assumptions clearly stated? Are the assumptions reasonable?</p>	<p>Assumptions about anticipated road network improvements and their timing are stated, but given that the proponent has no control over the implementation of those improvements, it is not reasonable to take them as assured.</p> <p>Assumptions regarding trip generation have been stated, and they appear to be reasonable.</p> <p>Assumptions about background traffic growth are stated, but, based on discussions with the City, the reasonableness of those assumptions has been brought into question (i.e., the estimated growth rates may be too low, and no specific local trip generators were identified).</p>	<p>The impacts of the proposed quarry might not be fully realized or addressed.</p>

Guideline Question	Findings Regarding the Brampton Brick Report	Implications if this concern/issue is not addressed in the technical report
Are the standards or thresholds commonly accepted in this type of technical area identified and appropriately utilized?	<p>The evaluation thresholds stated (e.g., LOS E is acceptable for left turns) may not be supported by the road authorities.</p> <p>No actual sightline measurements or requirements are discussed.</p>	The operations deemed to be “satisfactory” by the proponent may not be acceptable to the road authorities.
Issue Gaps		
Are there issue gaps arising from the review?	<p>Analysis gaps have been identified related to the following areas:</p> <ul style="list-style-type: none"> • Collision analysis; • Sightline analysis along the haul route; • Consideration for other road users; • A 20-year horizon; • Railway crossings; and • Identification of specific local traffic generators (i.e. new/planned development). 	If these gaps are not addressed through additional analysis some potential impacts of the proposed quarry may not be identified.
Were the identified issues addressed in the technical report?	The structural and geometric issues associated with several potential haul route links and the proposed access were not appropriately addressed.	The identified issues will not be mitigated.
Are there key issues, related to the specific technical report, that have not been addressed?	As noted above, collisions, sightlines, other road users, 20-year analysis horizon, and background traffic generators.	Potential impacts or magnitude of impacts could be missed.
Mitigation/Monitoring		
<p>Are realistic mitigation measures/ rehabilitation plan proposed in the applicant’s report?</p> <p>Is there sufficient detail?</p>	<p>The proposed mitigation of the sightline issues at the site access (i.e., signing, flashing beacon) are not appropriate. Some of the recommended signs (Wa-13A) are not to be used at private driveways (OTM Book 6 p. 43).</p> <p>No details about sign placement or auxiliary lane/ taper length are provided.</p>	The identified issues will not be mitigated, and the lack of detail may result in the proposed mitigation being infeasible when it comes time for implementation.

Guideline Question	Findings Regarding the Brampton Brick Report	Implications if this concern/issue is not addressed in the technical report
<p>Do the proposed measures mitigate the impacts?</p> <p>Is the end result desirable from a technical point of view?</p>	<p>No, as the proposed mitigation for the sightline issue is not appropriate or sufficient.</p>	<p>The identified issues will not be mitigated.</p>
<p>Will the proposed measures be adequate to address the outstanding concerns?</p>	<p>No, the sightline concerns go beyond the access, and no auxiliary lanes for southbound traffic entering the site have been proposed (irrespective of it not being fully warranted).</p> <p>Also, there are traffic operations issues (LOS of E and F) along the proposed haul route that will not be mitigated.</p>	<p>There are impacts of the proposed development that will not be mitigated.</p>
<p>Conclusion</p>		
<p>Do the conclusions satisfy the applicable policies of the relevant policy documents that need to be consulted as per the specific discipline?</p> <p>Have implications relating to required jurisdiction and agency approvals including environmental assessments been identified?</p>	<p>Based on a review of the policy matrix, the relevant policies are directed at too high a level to be particularly useful in assessing transportation impacts of individual developments.</p> <p>The proponent has assumed a number of road network improvements that would be subject to the EA process, but those process requirements have not been explicitly noted in the report. Additionally, the City has indicated that a copy of the referenced 2005 EA study for Winston Churchill Blvd. needs to be supplied for review.</p>	<p>Many of the assumed improvements may be subject to approvals processes that could delay their implementation or result in their not being completed; which would have a profound impact on the analysis of the transportation assessment.</p>
<p>Are the conclusions relevant to the purpose/objectives and supported by the work undertaken by the report authors?</p>	<p>No, the proposed haul route is not identified in or supported by the technical assessment, and there may be impacts that have not been identified, based on the gaps in the analysis.</p>	<p>All of the potential impacts may not have been identified, and the preferred haul route is not supported by the findings of the report.</p>

Guideline Question	Findings Regarding the Brampton Brick Report	Implications if this concern/issue is not addressed in the technical report
Based on the peer review, would the same conclusions be determined?	The conclusions reached in the Transportation Assessment are generally reasonable, and with the exception of the acceptability of the anticipated future conditions levels of service and the incremental impacts of site traffic on traffic operations, which can't be determined from the analysis presented, many of the same conclusions would have been reached. Unfortunately, the same cannot be said for the recommended mitigation. Additionally, the preferred haul route (not explicitly identified in the technical report) was never directly evaluated against the other options.	Identified issues will not be mitigated and/or a different haul route might have been selected.
Adequacy		
Does the applicant's report/study adequately address the stated purpose?	The report has not examined all of the potential impact of the proposed quarry.	There may be impacts of the proposed development that have not been identified.
Is there anything that should, in your opinion, have been done differently?	In addition to the previously-identified analysis gaps, the Transportation Assessment should have presented a comparative evaluation of the various haul route options and explicitly identified a preferred haul route.	There may be impacts of the proposed development that have not been identified, and there is no clear justification for the selected haul route.

POLICY OVERVIEW SUMMARY

<p>Planning Act</p>	<p>Municipal decision shall be consistent with Provincial Policy Statement 2005.</p> <p>Municipal comments, submissions or advice and decision shall conform with or shall not conflict with provincial plans.</p> <p>“The making, establishment or operation of a pit or quarry shall be deemed to be a use of land for the purpose of paragraph 1 of subsection (1)”. (s. 34)</p> <p>There are 17 matters of provincial interest (s. 2) including: protection of ecological systems; protection of agricultural resources; conservation and management of natural resources and the mineral resource base.</p>
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Provincial Policy Statement
2005

Provincial interest: "As much of the mineral aggregate resources as is realistically possible shall be made available as close to markets as possible."

Provincial Policy Statement shall be read in its entirety and all relevant policies are to be applied in each situation.

Provincial Plans shall take precedence over policies in this PPS to the extent of any conflict.

Development and site alteration in and adjacent to specific natural heritage features and areas shall not be permitted unless it has been demonstrated prior to a decision that there will be no negative impacts on the nature features or on their ecological functions.

Aggregate Resources Act

Licence required to operate quarry.

Application for licence must include a site plan according to regulation.

In considering whether to approve a licence, the Minister shall have regard to eleven matters such as: operational effects on the environment and on nearby communities; possible effects on ground and surface water resources and on agricultural resources; and suitability of progressive and final rehabilitation plans; among others. Licence applications shall be in accordance with regulated Provincial Standards under O.R. 244/97.

The municipal zoning by-law must permit the site to be used for the making, establishment or operation of the quarry.

The proposed quarry site may include zoning to prohibit extraction in areas that are significant natural features.

Section 66 overrides by-laws, official plans, development agreements to the extent that the same subject matter is dealt with in the licence, site plan, Act or regulations.

Greenbelt Plan, 2005

Entire site is located within the Protected Countryside.

Entire site is located within Natural Heritage System.

No new aggregate operations and ancillary uses are permitted in specific key natural heritage features and key hydrologic features: significant wetlands, habitats of endangered and threatened species, significant woodlands.

An aggregate application in other key features must demonstrate prior to a decision, how the water resource system will be protected or enhanced; the health, diversity and size of key features will be maintained or restored and to the extent possible improved to promote a net gain of ecological health; extraction in a feature will be completed and the area will be rehabilitated as early as possible in the life of the operation; aquatic areas remaining after extraction are to be rehabilitated to aquatic enhancement; rehabilitation will be implemented so that connectivity of key features on the site and adjacent lands will be maintained or restored, and to the extent possible, restored.

	<p>Application permitted only where applicant demonstrated that the quantity and quality of groundwater and surface water will be maintained as per Provincial Standards under the Aggregate Resources Act.</p> <p>Where there is underwater extraction, no less than 35% of the non-aquatic lands is to be rehabilitated to forest cover, which shall be representative of the natural ecosystem in that particular setting or ecodistrict.</p> <p>Rehabilitation in Natural Heritage System will maintain or restore or to the extent possible improve the connectivity of key features on the site and adjacent lands.</p>
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<p>Conservation Authorities Act</p>	<p>The Conservation Authority has the right to restrict and regulate the use of water in or from rivers, streams, inland lakes, ponds, wetlands and natural or artificially constructed depressions in rivers or streams.</p> <p>The Conservation Authority does not have the right to prohibit, regulate or require permission for straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream or watercourse, or for changing or interfering in any way with a wetland, fo development if the control of flooding, erosion, dynamic beaches or pollution or the conservation of land may be affected by the development.</p>
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<p>Region of Peel Official Plan</p>	<p>ROPA 15 was approved by the OMB on December 8, 2006 as it applied to the North West Brampton Urban Development Area.</p> <p>The relevant objective is “to provide for the protection of the provincially significant shale resource, in advance of urban development.” The subject site is located within the urban boundary. The subject site is identified on Schedule “C” as an HPMARA.</p> <p>The subject site is located within the “Conceptual North-South Corridor/Bramwest Parkway Study Area on Schedule “E”.</p> <p>The subject site is <u>not</u> in a Core Area of the Greenlands System in Peel on Schedule “A”.</p> <p>The subject site is <u>not</u> in a Prime Agricultural Area on Schedule “B”.</p> <p>The Regional Policies provide direction to Brampton regarding the protection and use of the shale resources in advance of urban development.</p>
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<p>City of Brampton Official Plan</p>	<p>Amendment No. OP93-245 was approved by the OMB on December 8, 2006 for the North West Brampton Urban Boundary.</p> <p>The amendment sets out policies to protect the shale resource west of Mississauga Road for a period of ten years to December 8, 2016. The official plan will be reviewed at that time.</p> <p>The subject site is located within the North West Brampton Development Area and it is subject to Special Study Area policies in section 4.13.4.</p> <p>The creek valleyland is designated on Schedule "A" as Open Space.</p> <p>Consideration of approval of the mineral aggregate operation is determined by the impact on the alternatives for the planning or construction of a North-South higher order transportation facility.</p> <p>An amendment to the official plan is not required. An amendment to the Brampton Zoning By-law and an aggregate licence is required.</p>
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	<p>Subsequent urban development requires an amendment to the official plan according to Regional Official Plan policies. All lands will be ultimately used for urban purposes.</p> <p>Development approval in the North West Brampton Urban Development Area must be preceded by subwatershed studies, terrestrial landscape analysis, determination of natural heritage system, secondary plan, environmental implementation report for block plan areas, block plans, other growth management considerations.</p>
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City of Brampton Zoning By-law 270 - 2004

On December 9, 2008, Brampton Brick submitted an application to amend the zoning by-law. A complete application was submitted to the City. Ten studies in support of the planning application were submitted and are subject to the City's peer review.

The application is to amend the zoning by-law for "Extractive Industrial", "Industrial", Open Space, and "Agricultural".

APPENDIX B

PEER REVIEW RESULTS SUMMARY TABLE

Guideline Question	Findings in the initial peer review	Findings in the second peer review	Implications if this concern/issue is not addressed
Purpose			
Is the purpose of the work clearly and understandably stated in the applicant's report?	Yes, the stated purpose is as follows "...to ensure that any traffic impacts associated with the quarry are well understood and that improvements required to support the application are clearly identified."	Yes, the stated purpose is "...to determine the impact of the additional traffic on the surrounding road network, and the roadway and traffic control improvements required to accommodate this future traffic." It is also noted that the "...study serves as an update to the November 2008 Traffic Impact Study..." which suggests that it is to be treated as a standalone document.	N/A
Does the purpose set out the proper direction to undertake the study?	Generally, yes, but the purpose falls short of identifying a preferred haul route.	Yes.	N/A
Methodology			
Is the methodological approach technically sound? Is the review of issues, data, facts objective and appropriate?	<p>The methodology generally follows the Traffic Impact Study requirements of Peel Region and uses industry standard references and analysis tools. However, the Peel requirements do not necessarily reflect the scope of review required for this type of development (e.g., horizon year, collision analysis, etc.).</p> <p>The Transportation Assessment (2008) is generally objective; however, the determination of an acceptable level of service may not be agreeable to the road authorities.</p> <p>Additionally, the identification of the proposed haul route in the Site Plan Report (2010) appears to be largely subjective and does not reflect the findings of the Transportation Assessment.</p>	<p>The methodology generally follows the Traffic Impact Study requirements of Peel Region and uses industry standard references and analysis tools.</p> <p>However, no rationale was provided to indicate how the proposed haul route was selected, and, with respect to the operational analysis, no justification was provided for the inclusion/exclusion of specific intersections along the proposed haul route.</p> <p>Overall, the analysis was conducted using an objective approach, but the conclusion that the forecast level of localized left-turn congestion is acceptable may not reflect the views of the responsible road authorities (i.e., Peel Region).</p>	<p>A more suitable haul route may have been ignored.</p> <p>Potential impacts at intersections not included in the analysis are not known.</p> <p>The full magnitude and scope of impacts caused by the proposed development may not have been identified through the assessment, and the need for mitigation related to left-turn capacity may have been overlooked.</p>
Does the peer review identify any technical concerns stemming from the methodology (and the assumptions made to inform the methodology) that may compromise the analysis and/or conclusions of the report?	<p>The traffic impacts attributable to the quarry have not been disaggregated from the impacts of background traffic, and the impacts on the network without the assumed road improvements have not been assessed.</p> <p>Also, the assessment suggests that the presence of heavy trucks on Mayfield Road is confirmation that the road can accommodate quarry traffic.</p>	<p>The analysis hinges largely on a number of assumptions that were made about the scope and timing of the reconstruction of Winston Churchill Boulevard.</p> <p>The decision to only assess select intersections as part of the operational analysis may compromise the analysis and/or conclusions.</p>	<p>If the ultimate scope and/or timing of the Winston Churchill Boulevard reconstructions do not follow the assumptions made for the analysis, then the results and conclusions could change significantly.</p> <p>There may be impacts, at intersections that were not assessed, that have not been identified.</p>
Information			
Are the relevant data and facts clearly and consistently presented in the technical report?	Those data and facts that are presented are clear and consistent; however, there are some gaps in the information presented (e.g., collision data, railway operations data, farm vehicle traffic, cycling activity).	Yes, with the exception of the storage length of the proposed southbound turn lane at the site access. Twice in the report it is noted that 60m of storage (parallel lane) is required; however, the report recommends only a 20m storage (parallel) length with no clear justification for the reduction.	The recommended storage (parallel lane) length may not be sufficient.

Guideline Question	Findings in the initial peer review	Findings in the second peer review	Implications if this concern/issue is not addressed
Is information gathered from appropriate sources? Is the information useful? Accurate? Are there concerns regarding their quality or validity?	<p>Given that the Transportation Assessment was conducted in 2008, and based on even older information, there are concerns that it does not represent and accurate assessment of future background operating conditions. Background traffic growth was based simply on projected rates, and does not account for any specific development in the study area, particularly any that may have been initiated since 2008.</p> <p>Also, the assumed timing for road network improvements could have changed significantly from what was assumed in the assessment.</p>	<p>Generally, the information presented in the report was gathered from appropriate sources; however, the sources of some information (i.e., Winston Churchill reconstruction details) are not provided.</p>	<p>The provenance and accuracy of information for which no source was provided cannot be verified.</p>
Is the data used critical to the conclusions?	Yes.	Yes.	The conclusions depend fully on the input data (and analysis assumptions).
Is the Brampton Brick report thorough/comprehensive/complete?	<p>As previously noted, there are some gaps in the assessment (e.g., collision data, railway operations, farm vehicle impacts), and the scope of the review, with respect to future conditions analysis horizons, does not reflect the full life cycle of the quarry and anticipated growth in the area.</p> <p>Traffic count dates and durations are not indicated in the report.</p>	<p>No alternative haul routes were assessed, and no rationale was provided for selecting the proposed haul route.</p> <p>Several study area intersections were omitted from the analysis with no justification provided for doing so.</p>	<p>A more suitable haul route may have been ignored.</p> <p>Potential impacts at intersections not included in the analysis are not known.</p>
How comprehensive and complete are the recommended mitigation and monitoring measures proposed by Brampton Brick?	<p>The recommended mitigation measures are not sufficient or appropriate to address the issues identified, particularly the sightline deficiencies at the proposed access.</p> <p>No monitoring (e.g., pavement conditions, haul route compliance) is proposed.</p> <p>The recommendation to provide only northbound auxiliary lanes at the proposed access is not consistent with the recommended haul route from the Site Plan Report.</p> <p>The assumed road improvements along Winston Churchill Blvd., as well as the assumed timing of those improvements, cannot be assured; therefore, a thorough analysis of the geometric deficiencies and associated mitigation is required.</p>	<p>The recommended mitigation should address the majority of issues identified through the analysis, provided that the reconstruction of Winston Churchill Blvd. includes the assumed mitigation of existing issues.</p> <p>Issues not addressed include northbound left-turn congestion at the Hurontario Street at Mayfield Road intersection (2021 AM peak), and potential safety issues related to permissive left-turns at signalized intersections by haul traffic (e.g., Winston Churchill Blvd. at Mayfield Rd. and Mayfield Rd. at Hurontario St.).</p>	<p>Additional mitigation may be required (particularly if the Winston Churchill Blvd. reconstruction does not include all of the assumed mitigation of existing geometric and structural issues).</p>
Certainty			
Are certainties and uncertainties of the proposal's success openly and objectively stated in the applicant's report/study?	<p>The report states that "future total traffic for both 2013 and 2018 scenarios are expected to be accommodated at a satisfactory level of service with the planned road network improvements with the exception of Bovaird Drive/Highway 7 intersections."</p>	<p>The assumed scope and timing of the Winston Churchill Blvd. reconstructions are stated as facts in the report, and no consideration is given to any other potential scenarios.</p>	<p>The potential impacts of delays or scope changes related to the reconstruction of Winston Churchill Blvd. are not identified.</p>

Guideline Question	Findings in the initial peer review	Findings in the second peer review	Implications if this concern/issue is not addressed
<p>Are all assumptions clearly stated?</p> <p>Are the assumptions reasonable?</p>	<p>Assumptions about anticipated road network improvements and their timing are stated, but given that the proponent has no control over the implementation of those improvements, it is not reasonable to take them as assured.</p> <p>Assumptions regarding trip generation have been stated, and they appear to be reasonable.</p> <p>Assumptions about background traffic growth are stated, but, based on discussions with the City, the reasonableness of those assumptions has been brought into question (i.e., the estimated growth rates may be too low, and no specific local trip generators were identified).</p>	<p>The report contains assumptions about anticipated road network improvements (Winston Churchill Blvd. reconstruction) and their timing are stated, but given that the proponent has no control over the implementation of those improvements, it is not reasonable to take them as assured.</p> <p>The report assumes that there will be no significant operational impacts to study area intersections that were not analyzed.</p> <p>Assumptions regarding trip generation and background traffic growth have been stated, and they appear to be reasonable.</p>	<p>The impacts of the proposed quarry might not be fully realized or addressed.</p>
<p>Are the standards or thresholds commonly accepted in this type of technical area identified and appropriately utilized?</p>	<p>The evaluation thresholds stated (e.g., LOS E is acceptable for left turns) may not be supported by the road authorities.</p> <p>No actual sightline measurements or requirements are discussed.</p>	<p>The conclusion that the forecast level of localized left-turn congestion is acceptable may not reflect the views of the responsible road authorities (i.e., Peel Region).</p>	<p>The operations deemed to be acceptable by the proponent may not be acceptable to the road authorities.</p>
Issue Gaps			
<p>Are there issue gaps arising from the review?</p>	<p>Analysis gaps have been identified related to the following areas:</p> <ul style="list-style-type: none"> • Collision analysis; • Sightline analysis along the haul route; • Consideration for other road users; • A 20-year horizon; • Railway crossings; and • Identification of specific local traffic generators (i.e. new/planned development). 	<p>The report makes mention of all of the items identified as issue gaps in the previous peer review; however, with respect to other road users, it does so in a purely descriptive way, and no critical assessment of conditions is provided.</p>	<p>Potential impacts of the proposed quarry may not be identified, as they relate to other road users.</p>
<p>Were the identified issues addressed in the technical report?</p>	<p>The structural and geometric issues associated with several potential haul route links and the proposed access were not appropriately addressed.</p>	<p>Most of the identified issues were addressed, either by recommended mitigation or by the assumed road network improvements.</p>	<p>N/A</p>
<p>Are there key issues, related to the specific technical report, that have not been addressed?</p>	<p>As noted above, collisions, sightlines, other road users, 20-year analysis horizon, and background traffic generators.</p>	<p>Issues not addressed include northbound left-turn congestion at the Hurontario Street at Mayfield Road intersection (2021 AM peak), and potential safety issues related to permissive left-turns at signalized intersections by haul traffic (e.g., Winston Churchill Blvd. at Mayfield Rd. and Mayfield Rd. at Hurontario St.).</p>	<p>Unacceptable delay and elevated collision potential.</p>
Mitigation/Monitoring			
<p>Are realistic mitigation measures/ rehabilitation plan proposed in the applicant's report?</p> <p>Is there sufficient detail?</p>	<p>The proposed mitigation of the sightline issues at the site access (i.e., signing, flashing beacon) are not appropriate. Some of the recommended signs (Wa-13A) are not to be used at private driveways (OTM Book 6 p. 43).</p> <p>No details about sign placement or auxiliary lane/ taper length are provided.</p>	<p>Few details were provided as to how the proposed haul route enforcement and monitoring programmes would be operated.</p>	<p>The lack of detail may result in the proposed mitigation being infeasible or insufficient when it comes time for implementation.</p>
<p>Do the proposed measures mitigate the impacts?</p> <p>Is the end result desirable from a technical point of view?</p>	<p>No, as the proposed mitigation for the sightline issue is not appropriate or sufficient.</p>	<p>The proposed mitigation should reduce the potential for collisions and delay associated with haul route traffic, but a level of risk will always exist.</p>	<p>The identified issues will not be (cannot be) completely mitigated.</p>

Guideline Question	Findings in the initial peer review	Findings in the second peer review	Implications if this concern/issue is not addressed
Will the proposed measures be adequate to address the outstanding concerns?	No, the sightline concerns go beyond the access, and no auxiliary lanes for southbound traffic entering the site have been proposed (irrespective of it not being fully warranted). Also, there are traffic operations issues (LOS of E and F) along the proposed haul route that will not be mitigated.	There are traffic operations issues (LOS of E and F) along the proposed haul route that will not be mitigated, and more could be done to address collision risks associated with permissive left-turns.	There are impacts of the proposed development that will not be mitigated.
Conclusion			
Do the conclusions satisfy the applicable policies of the relevant policy documents that need to be consulted as per the specific discipline? Have implications relating to required jurisdiction and agency approvals including environmental assessments been identified?	Based on a review of the policy matrix, the relevant policies are directed at too high a level to be particularly useful in assessing transportation impacts of individual developments. The proponent has assumed a number of road network improvements that would be subject to the EA process, but those process requirements have not been explicitly noted in the report. Additionally, the City has indicated that a copy of the referenced 2005 EA study for Winston Churchill Blvd. needs to be supplied for review.	Based on a review of the policy matrix, the relevant policies are directed at too high a level to be particularly useful in assessing transportation impacts of individual developments. The results of on-going studies (e.g., HPBATS, HPF/GTA West Corridor) could result in changes to the road network that could, in turn, impact the proposed haul route; however, the findings of those studies may not be known for some time yet.	N/A
Are the conclusions relevant to the purpose/objectives and supported by the work undertaken by the report authors?	No, the proposed haul route is not identified in or supported by the technical assessment, and there may be impacts that have not been identified, based on the gaps in the analysis.	Yes.	N/A
Based on the peer review, would the same conclusions be determined?	The conclusions reached in the Transportation Assessment are generally reasonable, and with the exception of the acceptability of the anticipated future conditions levels of service and the incremental impacts of site traffic on traffic operations, which can't be determined from the analysis presented, many of the same conclusions would have been reached. Unfortunately, the same cannot be said for the recommended mitigation. Additionally, the preferred haul route (not explicitly identified in the technical report) was never directly evaluated against the other options.	In general, yes.	N/A
Adequacy			
Does the applicant's report/study adequately address the stated purpose?	The report has not examined all of the potential impact of the proposed quarry.	No, in that it has omitted a significant number of study area intersections from the operational analysis.	There may be impacts of the proposed development that have not been identified.
Is there anything that should, in your opinion, have been done differently?	In addition to the previously-identified analysis gaps, the Transportation Assessment should have presented a comparative evaluation of the various haul route options and explicitly identified a preferred haul route.	At minimum, justification should have been provided for the selection of the proposed haul route and for omitting several study area intersections from the operational analysis.	There may be impacts of the proposed development that have not been identified, and there is no clear justification for the selected haul route.