EVERGREEN COMMUNITY
(BURLINGTON) LTD.
Dundas Street and Tremaine Road
City of Burlington

AGGREGATE IMPACT STUDY

Fothergill Planning & Development Inc.

July 14, 2015

AGGREGATE IMPACT STUDY

Evergreen Community (Burlington) Ltd.

Dundas Street and Tremaine Road
City of Burlington



Prepared for
EVERGREEN COMMUNITY (BURLINGTON) LTD.

Prepared by
FOTHERGILL PLANNING & DEVELOPMENT INC.

July 14, 2015

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Dundas Street and Tremaine Road
City of Burlington

Aggregate Impact Study

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Schedules

1. Location Map and Proposed Evergreen Development Plan
2. Locational Context and Limit of Licensed Area - Tansley Quarry
3. - Hanson Brick Ltd. - Operational Plan prepared by Long Environmental Consultants Inc., December 13, 2007
   - Hanson Brick Ltd. - Final Rehabilitation Plan prepared by Long Environmental Consultants Inc., December 14, 2007
   - Hanson Brick Ltd. - Vegetation Management Plan prepared by G. O'Connor Consultants Inc., July 5, 2007

Note: Material in Schedules 2 and 3 provided by Hanson Brick Ltd.

1.0 INTRODUCTION

The Evergreen property is subject of an application for official plan amendment, rezoning and plan of subdivision to permit a Mixed Use development in the northwest corner of Dundas Street and Tremaine Road in the City of Burlington. As part of the documentation required to support the planning applications, it is necessary to produce an Aggregate Impact Study.

When the Evergreen project was initially brought forward, there were two sites of which triggered the need for an Aggregate Impact Study. The first was an ongoing extraction and brick manufacturing operation operated by Hanson Brick west of Bronte Creek, north of Dundas Street. Since that time, the extraction operation at the property has ceased. The site continues to be used for the manufacturing of bricks and stockpiling of material. Therefore, the operations on the property have not been assessed as part of this analysis. Potential impacts of this ongoing industrial use on the Hanson Brick site have been fully documented and assessed by others in a separate report prepared by Valcoustics Canada Ltd. in a Noise and Vibration Control Feasibility Study and in an Air Quality Assessment Report prepared by Novus Environmental Inc.

The second operation that was of interest when the Evergreen application was first brought forward was a then proposed extractive operation on the north side of Highway 407 identified as the Hanson Quarry. That quarry, now identified as Tansley Quarry, is operational, with activity beginning on the site in 2007. As a result, with respect to extractive operations, the examination of land use compatibility will be limited to the new Tansley Quarry operation at No. 1 Side Road and Tremaine Road.

The Evergreen Community is located within the Urban Area within the Region of Halton Official Plan and City of Burlington Official Plan. The new extraction operation north of Highway 407 is within a Rural designation in both the local and Regional planning documents. It is important to consider issues of land use compatibility between the aggregate operation and the residential elements of the proposed Evergreen Community. These include potential impacts from the extraction operation on the residential community itself in terms of noise and air quality.

2.0 TANSLEY QUARRY

Tansley Quarry includes a 38 hectare site located north of Highway 407, west of Tremaine Road, and south of No. 1 Sideroad. The quarry is bounded on the northwest by a rail line and on the southeast by a Hydro transmission corridor. Of the total site, an area of 28.9 hectares will be excavated. The location of the quarry and the limit of the area to be licensed and the limit of the area to be excavated are shown in Schedule 3.

The operational aspects of the quarry are shown in Schedule 4 of this report which includes a copy of the Operational Plan. This identifies the location of the access road to the quarry from Tremaine Road south of No. 1 Sideroad. The plan also shows the direction of excavation beginning in the southwest corner of the property, moving first in a northerly direction then easterly, circling back toward the initial area of excavation. A site visit of the quarry operation was undertaken Friday December 12, 2014 with Mr. Jack Hewitt, the environmental engineer from Hanson. At the time of the site visit, it was noted that excavation of the overburden was being undertaken on the site. This activity, which occurs approximately every 3-4 years, precedes the extraction of shale material. Once the overburden has been removed, shale is 'ripped' with machinery. There is no blasting on the site.

From the site visit, it was noted that the southwest corner of the site was excavated to the southerly and westerly limits of the property to the depth of the water table. Once the shale material is removed, it is loaded onto trucks which transport the raw material to the Hanson Brick factory at 5155 Dundas Street East.

Based on a licence capacity of 300,000 tons per year, the quarry operation has a lifespan of approximately 40 years. Truck activity includes 40-45 trucks per day in each direction. It was noted that given load capacity restrictions on the operation because of the condition of Tremaine Road, trucks are forced to carry half loads. Once improvements are made to Tremaine Road, trucks will be able to operate at full capacity. However, the number of trucks entering and leaving the site is anticipated to remain the same.

As noted on the operational plan, a berm has been constructed along the southeast edge of the property, directly north of the Hydro transmission corridor. With the exception of a small area left open to accommodate natural water channel, the berm extends from Tremaine Road to the southwest corner of the property.

3.0 PLANNING POLICY DOCUMENTS

3.1 Provincial Policy Statement - 2014

The extraction of aggregate resources has been given high priority in terms of land use considerations in the Province of Ontario. In Section 2.5.1, the 2014 Provincial Policy Statement notes:

> **" *Mineral aggregate resources* shall be protected for long term use and, where Provincial information is available, deposits of *aggregate resources* shall be identified."**

Given that the Tansley Quarry is operational and the aggregate resource on the site has not only been protected but is currently being excavated, this provision of the Provincial Policy Statement is fulfilled and will not be affected by the current application.

Once established, there is an obligation upon existing quarry operators to undertake extraction operations in a reasonable manner, in order to mitigate any potential impacts from their existing or their proposed aggregate operations on surrounding land uses:

> **"2.5.2.2 Extraction shall be undertaken in a manner which minimizes social, economic and environmental impacts."**

In addition, once the quarry has been established, the Provincial Policy Statement notes it is important to protect the ongoing viability of the quarry operation as well as potential opportunities for their expansion from sources of potential incompatibility. In this regard, the Provincial Policy Statement includes the following:

> **"2.5.2.4** ***Mineral aggregate operations*** **shall be protected from** ***development*** **and activities that would preclude or hinder the expansion or continued use or which would be incompatible for reasons for public health, public safety or environmental impact."**

3.2 Official Plan for the Region of Halton

An amendment to the Regional Plan (OPA No. 38) was adopted by Regional Council on December 16, 2009 and approved by Minister of Municipal Affairs and Housing on November 24, 2011. Certain sections of the plan have been appealed to the Board, including policies related to the aggregate industry. Since then, parts of OPA No. 38 have been approved by the Board, including many of the policies relating to mineral aggregate operations.

The policy themes from the Provincial Policy Statement are picked up in the Regional Official Plan which contains policies to protect aggregate operations from surrounding incompatible land uses by noting that it is the policy of the Region.

> **"107(2) To protect legally existing** ***mineral sggregate operations*** **from incompatible land uses." (Approved 2014-02-18)**
>
> **"107(3) To ensure that** ***mineral aggregate resource*** **extraction occur in a manner that minimizes social, environmental and human health impacts." (Approved 2012-02-18)**
>
> **"110(1) Require the Local Municipalities to adopt Zoning By-laws, where applicable, to permit the operation of legally existing** ***mineral aggregate operations*** **in accordance with the The Aggregate Resources Act and protect them from new land uses incompatible with such operations for reasons of public health, public safety, or environmental impact, or which would preclude or hinder the expansion or continued use of such operations."**

Similarly, the Regional Plan contains policies to mitigate potential impacts from aggregate operations on surrounding land uses:

> **"110(2) Require that all extraction and accessory operations be conducted in a manner which minimizes environmental impact in accordance with Provincial standards and requirements and Regional and local Official Plan policies." (Approved 2014-02-18)**

The Regional Official Plan also points to the need to protect existing Mineral Aggregate Operations from potential incompatibilities:

> "**111(1) To recognize existing *Mineral Aggregate Operations*, and protect them from activities that would preclude or hinder their continued use or expansion." (Approved 2014-11-28)**

3.3 Official Plan for the City of Burlington

Policies dealing with land use compatibility issues associated with mineral aggregate resources are found in Part II - Functional Policies of the City of Burlington Official Plan:

> **"2.12.1(a) To ensure that aggregate extraction is undertaken in a manner that is consistent with the principles and objectives of *Sustainable Development* and protects the quality of life of residents in the City."**

> **"2.12.1(d) To protect identified *mineral aggregate resources* from *incompatible* uses in accordance with the Provincial Policy Statement."**

Further policies dealing with aggregate resources are found in Part IV - Land Use Policies - Rural Planning Area:

> **"2.1.2(f) To recognize existing *pits and quarries* that are licensed under the applicable legislation, and to provide for the designation of new Mineral Aggregate Extraction Areas or a new license under The Aggregate Resources Act which can be accommodated in accordance with the policies in this Plan."**

The quarry property is designated as Mineral Resource Extraction Area in Schedule C - Comprehensive Land Use Plan - Rural Planning Area. Policies providing direction for this designation are found in Part IV, Section 2.8 of the Plan. Policies in the City of Burlington

Official Plan dealing with potential impacts on aggregate operations are found in Policy 2.8.1(a) in Part IV, Land Use Policies for the Rural Planning Area:

> **"2.8.1 a) To protect legally existing *pits and quarries* licensed under The Aggregate Resources Act from *incompatible* land uses."**

This policy does not make a distinction between urban and rural uses, however, further sub-sections specifically target potential impacts in the rural community:

> **"2.8.1 b) To minimize the potential for *incompatibilities* between impact of mineral resource extraction and the rural community."**

4.0 LAND USE COMPATIBILITY

The land use compatibility issues in the Urban and Rural Area are often only considered within their own context. That is, urban uses are examined in terms of compatibility with other urban uses, and similarly, uses in the Rural Area are examined within the context of their impact on surrounding rural lands. This is due in part to issues of proximity, i.e. the further uses are separated, the less chance for incompatibility. It is also the result of detailed studies that are normally undertaken to identify and minimize opportunities for incompatibility whenever urban boundary expansions are considered.

There are occasions where new development within an Urban Area must be examined with respect to land use compatibility issues affecting activities in the Rural Area. This exercise would have been undertaken, for example, with the establishment of the relatively new Alton community in Burlington to the west, and through the North Oakville Secondary Planning exercise for lands to the east in Oakville, both of which are adjacent to Rural Areas, in a manner similar to that of the Evergreen site.

With the introduction of a new mixed use community such as the proposed Evergreen Community, it is important to assess potential impacts of the residential portion of the new community on and from potentially incompatible uses. Other technical studies prepared by Evergreen to support the development proposal have examined other aspects of land

use compatibility. To assist in the assessment of land use compatibility, I have reviewed studies which have examined noise and vibration (Valcoustics) and air quality (Novus).

This report focuses on the new Tansley Quarry in the Rural Area north of Highway 407 which was approved after the Urban Area of Burlington, which includes the Evergreen site, was established. As a result, the planning exercise which previously established the Urban designation for the Evergreen lands would not have considered the potential impact of an extractive operation such as the new Tansley Quarry.

Prior to the quarry being established, an extensive impact analysis was undertaken by the proponent in 2003 to confirm that the proposed quarry operation would not have an adverse impact on land uses in the surrounding area, which include a number of residential properties.

This report will utilize findings from that earlier exercise. In addition, results from technical studies undertaken by Evergreen, which have examined potential impacts since the quarry use has been established, will be considered in this report.

There are two groupings of impacts to consider. The first set of impacts deal with the need to protect aggregate resources and operations from sensitive land uses pursuant to Section 2.5.1 and 2.5.2.4 of the Provincial Policy Statement, Policies 107(2), 110(1) and 111(1) of the Regional Official Plan, and Policies 2.12.1(d), Part II and 2.8.1(a), Part IV of the City of Burlington Official Plan. The second are potential impacts on the residential component of the proposed Evergreen Community from the quarry operation pursuant to Section 2.5.2.2 of the Provincial Policy Statement, Policies 107(3) and 110(2) of the Regional Official Plan, and Policies 2.12.1(a) Part II, and 2.8.1(b) Part IV of the City of Burlington Official Plan.

4.1 Impacts on Quarry

Given that the quarry use has been licenced and established on the site, there are no concerns with respect to policies in the Provincial Policy Statement, the Regional Official Plan, or the Official Plan for the City of Burlington regarding protection of resources for aggregate use. In terms of any potential for future expansion, given the presence of

Highway 407, the rail line to the west and two hydro corridors to the south of the quarry, any expansion of the quarry operation would have to take place in a location further removed from the Evergreen site.

The potential for any impacts generated by the ongoing operation of the quarry on the new Evergreen Community is reviewed in the next section of the report.

4.2 Impacts from Quarry

4.2.1 Historical Technical Review

Potential impacts from the quarry operation include noise, odour, and traffic. The new Tansley Quarry at 3488 Tremaine Road was subject to review by the City of Burlington, the Region, as well as a Regional Joint Aggregate Review Team (JART) through applications for a regional official plan amendment, a local official plan amendment, rezoning and an amendment to the Parkway Belt regulations. Prior to the establishment of the quarry, a number of technical studies were prepared to examine potential impact of the new quarry as part of justification for establishment of an aggregate operation. In the preparation of this report, consideration was given to those background studies which were completed a number of years ago for the quarry operation. They included the following:

- Report on Noise From Proposed Tremaine Quarry, February 2003, prepared for Canada Brick Ltd. by Rowland J. Andrews, Acoustical Engineering Ltd.

- Tremaine Quarry Planning Report prepared for Hanson Canada Brick by McKibbon Wakefield Inc. in association with Solutions, A Consultancy, February 28, 2002 (the “McKibbon Planning Report”)

- City of Burlington Staff Report PL-133/05 dated November 11, 2005 which recommended approval of an application for an Official Plan Amendment, Rezoning and Removal of Parkway Belt West Land Use Regulations to establish the new Hanson Quarry

- Planning Report PPW114/05 prepared by the Halton Planning Department dated October 12, 2005 dealing with Hanson Brick Tremaine Quarry, policies related to Rural Water Servicing

Based on the analysis undertaken in the McKibbon Planning Report, it was concluded that through the implementation of mitigation measures, the quarry would be compatible with surrounding farms and rural residences (page 46). Further, the site plan design and operation would address any adverse effects on local agriculture and residential uses (page 53).

In the McKibbon Planning Report, in Section 9.2, the proximity of the City of Burlington Urban Area was recognized. In considering this Urban designation, the report stated:

> **"The Tremaine Quarry Site Plan incorporates the recommendations of several technical reports including this Planning Report which address potential effects on planned and existing uses. Accordingly, we are of the opinion that the needs of existing and planned uses within the surrounding community have been appropriately addressed."**

These matters were considered in a City of Burlington Planning Report dated November 11, 2005 which recommended approval of the applications. Through that review, the applications were considered by a Joint Agency Review Team (JART), who reviewed all of the detailed submissions made by Hanson. Their report concluded:

> **"It is concluded that the proposed quarry is an appropriate land use for the subject lands provided the potential well water interference to properties in the immediate vicinity of this use is mitigated through the provision of a municipal water service."**

Given the proximity of existing rural residences and a horse operation, a Noise Study was undertaken and concluded that most people would find the noise from the quarry operation acceptable. In order to minimize potential impacts of noise on nearby abutting properties, the report made recommendations with respect to hours of operation, limitations on the operations at the quarry, the use of mufflers, and equipment maintenance, as well as acoustical barriers to minimize potential noise impacts.

Visual impacts were considered in the McKibbon Planning Report prepared for Hanson Canada Brick where, in Section 5.5.3 of the report, it was noted:

> "**Digital visual simulations created by Novation Design Group were used to help design landscaping during and after extraction so as to minimize the exposure of exposed slopes, site operations and berms to off site views. The landscape will change during excavation but the Site Plan attempts to ensure a naturalized open landscape view of the Quarry will be maintained from major local private and public viewpoints, as much as possible, during extraction. These viewpoints are from Tremaine Road (travelling northward over Highway 407 to the Quarry entrance) and adjoining residences north of the proposed entrance."**

In addition, it is noted from the Noise Study prepared by Aercoustics Engineering Ltd. for Canada Brick Limited that extraction will be screened by a berm of 6 metres in height. Given that the Evergreen site is lower than the quarry site, the activities within the quarry will not visible from the Evergreen site. The realization of this expectation was confirmed in a site visit to the quarry in December 2014.

From these two reviews, it would not appear that there are any visual impacts from other public or private locations, including the Evergreen site.

In considering traffic matters, the McKibbon study noted in Section 6.4.2 that:

> "**The shale transportation pattern to these plants will be simplified and associated impacts reduced significantly."**

The McKibbon Planning Report identified a number of measures to be undertaken with respect to the design and operation of the quarry to mitigate impacts on abutting properties. These include the following:

- the use of computerized simulations of views from various vantage points around the quarry in site design to minimize visual impacts

- incorporating recommended noise, dust and water management mitigation measures

- utilizing a mixture of standard and special setbacks and berms to separate the extraction operation from surrounding uses

- commencing extraction operations in the southwest portion of the property

- engaging in a site rehabilitation process in a progressive fashion to an open space use

- implementing a monitoring system for well water, dust and noise

- instituting a procedure for the timely resolution of complaints that may occur

4.2.2 Current Studies

Given that the extraction operation has been in place for a number of years, it is now possible to assess potential impacts arising from the extraction operation on the new Evergreen Community. To that end, a number of technical studies have been undertaken to assess specific potential impacts.

Potential noise impacts were examined in a Noise Study prepared by Valcoustics Canada Ltd. on behalf of Evergreen dated July 2015. In that report, noise from a number of sources was considered with respect to potential impact on the Evergreen Community, including the following:

- Road traffic (including Dundas Street, Tremaine Road and Highway 407)
- Future employment lands (Oakville)
- CNR Rail Line
- First Student Bus Facility
- Hanson Brick Manufacturing facility
- Tansley Quarry
- Car wash facility

The report recommends a number of mitigation measures of the Evergreen site to deal with all of the above noise sources.

In dealing specifically with the new Tansley Quarry, the report notes the following:

> **"A computerized model of the quarry operation was created using operational and sound source information obtained from Reference 27. The results of the modelling indicate that the sound exposure on the Evergreen site would be less than the daytime ambient sound levels, mainly due to Highway 407. Thus, compliance with the applicable sound level limits is concluded and mitigation measures for this facility are not required.**" **(page 17)**

The report concludes that the Hanson Brick Tansley Quarry together with other existing stationary sound sources are all expected to comply with applicable MOE sound level limits at all locations on the Evergreen site and therefore noise mitigation measures are not required for any of the stationary source facilities.

An Air Quality Study was undertaken by Novus Environmental Inc. That study examined the existing extraction operation and determined it to be a Class 2 to Class 3 facility which was located within 1000 metres of the proposed development. In their review, Novus found that potential for impacts on the subject lands from Tansley Quarry was previously assessed in the report by RWDI (2008) which found that the potential for impacts due to quarrying activities was low.

Tansley Quarry was subject to a site visit by a representative from Novus. That visit confirmed that the quarry activities are moving further away from Evergreen development and over time represent less of a potential source of impact.

At present, it is noted the significant distance separation from the Evergreen site, together with Highway 407, creates a significant buffer between the two uses. The entrance of the operation, which tends to be a significant source of dust, is more than 600 metres from the closest portion of the Evergreen Site. Novus considers this a substantial setback for particulate emissions.

The Novus report includes a review of the Environmental Management and Monitoring Plan that is part of the Operational Plan for the quarry which is filed with the Ministry of Natural Resources. This includes provisions for dust mitigation as well as the implementation of an ongoing monitoring program. Novus agrees with the findings of the previous study conducted by RWDI, and based on observations during the site visit, confirm their position that the existing quarry operation is not expected to have an adverse effect on the proposed Evergreen development.

4.2.3 Operational Performance

The quarry operation which was subject of the above studies has now been operational for 7 years. Since that time, from an interview with the quarry operator, it is understood that the operation has continued in a manner which has been compatible with the surrounding rural community. This includes the absence of any complaints or impacts on immediately abutting residential neighbours. In addition, the regular ongoing air monitoring program undertaken by the quarry operation as part of their licensing requirements has confirmed that the operation has met all of its performance standards with respect to air quality.

Given that there were no anticipated, or subsequently, no actual impacts on residential dwellings located closer to the quarry operation, it is not expected the quarry would have any impact on the residential component of the Evergreen Community which is a further distance away and separated from the quarry by the Highway 407 corridor.

In reviewing rehabilitation plans of Tansley Quarry, it was determined that the intent is to rehabilitate the lands in a manner which would create a 17.3 hectare lake which would include retaining the existing access road, establishing an access trail, as well as allowing an area for a constructed wetland and upland habitat restoration area (see Schedule 3). Maintaining this rehabilitation plan in a natural state as proposed would be compatible with the residential component of the Evergreen community.

5.0 SUMMARY

This report has identified a need to examine potential impacts both to and from the residential component of the Evergreen Community on the new aggregate extractive operation by Tansley Quarries north of 407, including noise and air quality. Given that the quarry operation has already been established, there are no concerns with meeting policies in the Provincial Policy Statement, Regional Official Plan, and City of Burlington Official Plan which prevent potential aggregate resources from being established due to proximity of incompatible uses as well as those which protect their continued use.

The main focus of this report has been on potential impacts of the extractive operation on the residential component of the Evergreen mixed use community. These impacts have been examined through completion of a number of technical studies undertaken a number of years ago on behalf of the owner of the Tansley Quarry as part of the approval process required to assess the quarry site. These studies were reviewed and accepted by staff at both the City of Burlington and Region of Halton during that review process.

While the technical reports prepared by Tremaine focussed primarily on surrounding uses in the Rural Area, it can be concluded that the mitigation measures designed to ensure compatibility with immediately surrounding uses would also be effective in mitigating potential impacts on the Evergreen site at a distance further away from those residential uses immediately surrounding the quarry site.

In addition to the Tansley Quarry studies and the review by the City and the Region with respect to their application, the Evergreen consultants also examined potential incompatibility between the Tansley Quarry development and the residential component of the Evergreen proposal. As noted, these studies had the benefit of being able to assess potential impacts from the actual operation of the site. Those studies, which examined matters related to noise and air quality, all concurred that there were no issues of land use incompatibility between the proposed Evergreen development and the Tansley Quarry. Based on these findings, there are no specific mitigation measures recommended to ensure compatibility between the ongoing operation of the Tansley Quarry and the Evergreen Community.

From a review of policy context, it is clear that the onus for compatibility is shared between both the quarry operation and the proponent for the Evergreen Community. Compatibility issues need to be addressed at the time a new quarry operation is established. This report has identified a history of review that was undertaken to establish the quarry. All of the studies and the comprehensive review undertaken by appropriate planning authorities supported the establishment of the quarry operation on the basis of a determination that the quarry could operate in a manner compatible with the context within which it is located.

Subsequent to the establishment of the quarry, the ongoing functioning of the quarry operation has confirmed that it can exist in a manner which is compatible with the surrounding area. This compatibility is ensured through ongoing monitoring programs.

Compatibility has also been assessed by the proponent of the Evergreen project through separate, independent professional studies with respect to road, air and noise, all of which confirmed that the Evergreen Community could be established and function in a manner which is compatible with the ongoing quarry operation.

Based on my review, it is my opinion that the development proposed within the mixed use Evergreen Community is consistent with policies in the Provincial Policy Statement, and conform to policies in Regional and Local planning documents with respect to compatibility with the aggregate extraction operation associated with the existing Tansley Quarry. From my review of all of the above matters, it is my opinion that the proposed Evergreen Community will be compatible with the ongoing operation of the Tansley Quarry.

Respectfully submitted,

FOTHERGILL PLANNING & DEVELOPMENT INC.

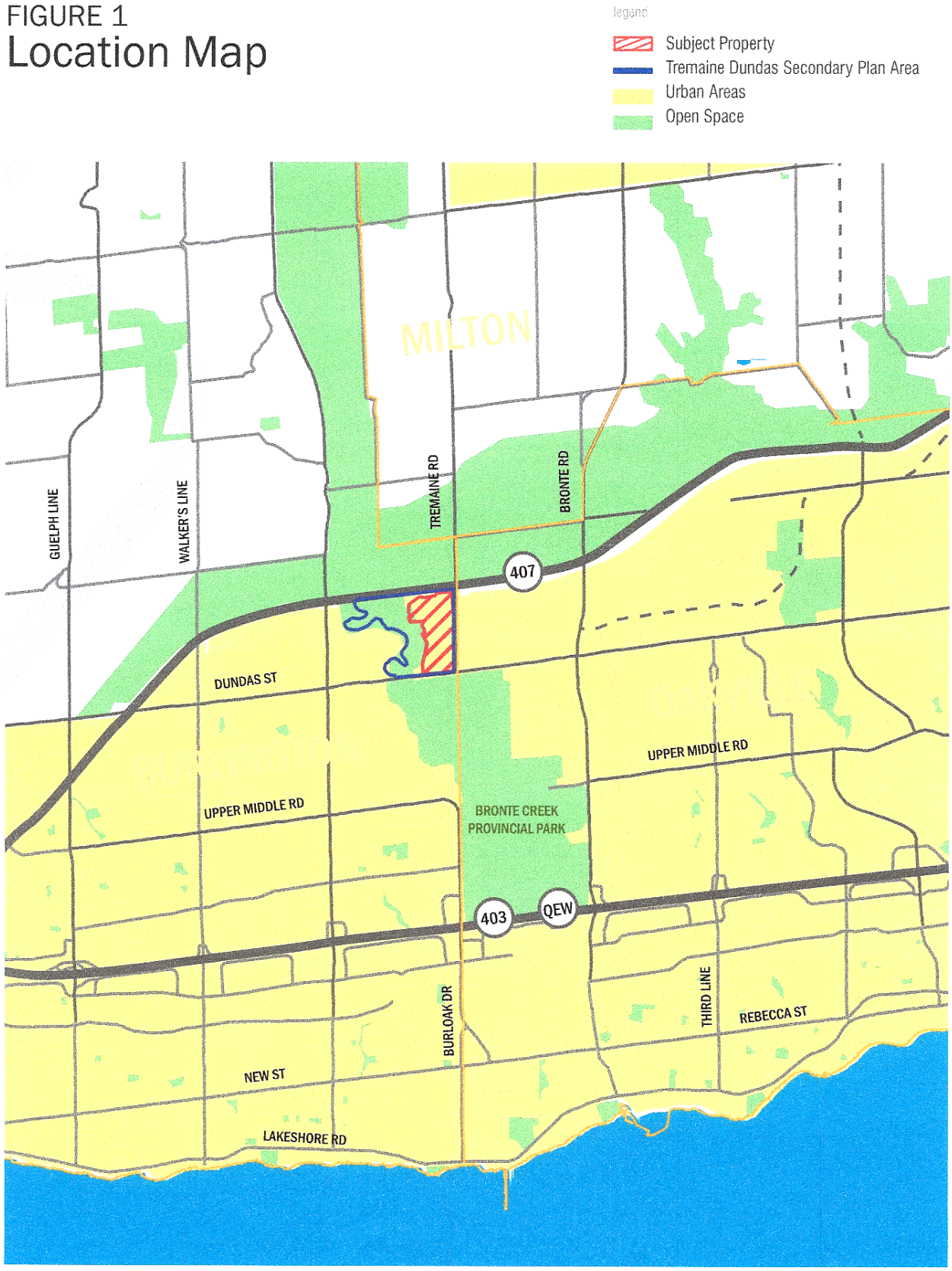
E.J. Fothergill, M.C.I.P., R.P.P.
President

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SCHEDULE 1

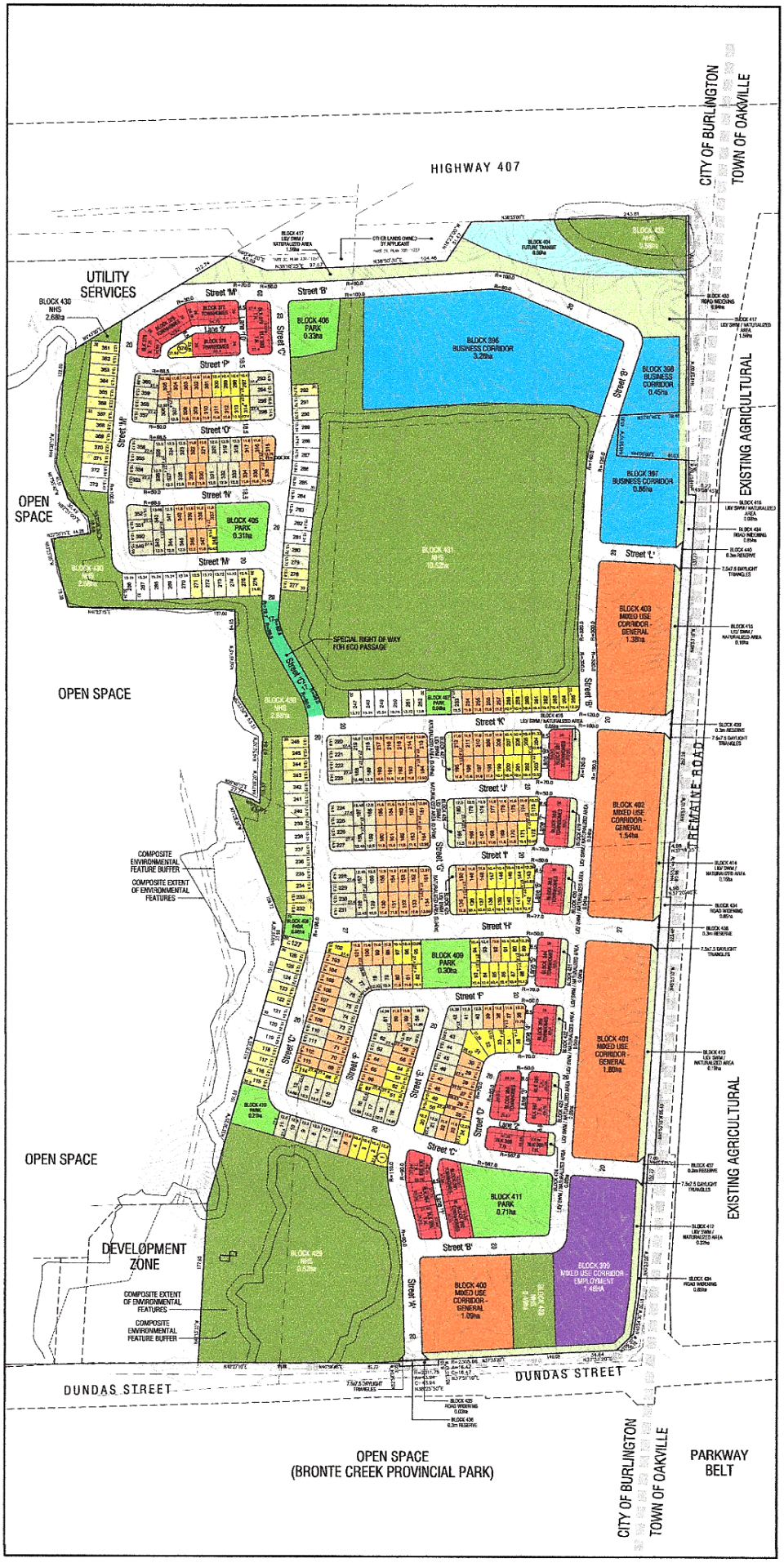
Location Map and Proposed Evergreen Development Plan

FIGURE 1
Location Map



SCHEDULE C
Land Use

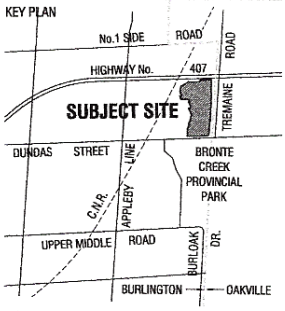




DRAFT PLAN OF SUBDIVISION

PARTS OF LOTS 1 AND 2
CONCESSION 1 NORTH OF DUNDAS STREET
GEOGRAPHIC TOWNSHIP OF NELSON NOW IN THE
CITY OF BURLINGTON
REGIONAL MUNICIPALITY OF HALTON

KEY PLAN



SUBJECT SITE — NOT TO SCALE

PLANNING APPROVAL

APPROVED UNDER SECTION 51 OF THE PLANNING ACT, RSO 1990, AS AMENDED, BY THE DIRECTOR OF PLANNING FOR THE CITY OF BURLINGTON.

SIGNED: _____ THIS ___ DAY OF _____, 2015
DIRECTOR OF PLANNING

OWNER'S AUTHORIZATION

I HEREBY AUTHORIZE URBAN STRATEGIES INC. AND GERRARD DESIGN ASSOCIATES INC. TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION TO THE CITY OF BURLINGTON FOR APPROVAL.

SIGNED: _____ DATE: June 4, 2015
FABIO A. MAZZOCCO
EVERGREEN COMMUNITY (BURLINGTON) LTD.

ACTING ON BEHALF OF:

ESTATE OF DAVID NORTON PIN 07201-0082 (LT) ALAN NORTON - EXECUTOR	3232 TREMAINE ROAD PIN 07201-0073 (LT) BRUCE M. STEVENSON - OWNER
5421 DUNDAS STREET PIN 07201-0061 (LT) BRIAN D. STEVENSON - OWNER BRUCE M. STEVENSON - OWNER GLEN W. STEVENSON - OWNER ALAN NORTON - P. O. A.	5463 DUNDAS STREET PIN 07201-0059 (LT) BRIAN D. STEVENSON - OWNER BRUCE M. STEVENSON - OWNER GLEN W. STEVENSON - OWNER

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARY OF THE LAND ON THIS PLAN AND THEIR RELATIONSHIP TO THE ADJACENT LAND ARE ACCURATELY AND CORRECTLY SHOWN.

SIGNED: _____ DATE: June 4, 2015
THOMAS J. SAUL B.Sc., OLIP
J.D. BARNES LTD.

ADDITIONAL INFORMATION

UNDER SECTION 51(17) OF THE PLANNING ACT

INFORMATION REQUIRED BY CLAUSES A, B, C, D, E, F, G, J ARE SHOWN ON THE DRAFT AND KEY PLAN

H - MUNICIPAL WATER
I - SILTY CLAY
K - MUNICIPAL SANITARY AND STORM SEWERS
L - SHOWN ON PLAN

LAND USE SCHEDULE

LAND USE / UNIT TYPE	LOTS / BLOCKS	AREA ha	AREA ac	UNITS
Business Corridor	396-398	4.57	11.29	
Mixed Use Corridor - Employment	399	1.48	3.66	
Mixed Use Corridor - General	400-403	5.81	14.36	410 *
Future Transit	404	0.66	1.63	
Parks	405-411	2.82	4.99	
LID / SWM / Naturalized Area	412-427	2.85	7.04	
NHS	428-432	19.81	48.46	
Road Widening	433-435	0.95	2.35	
0.3m Reserve	436-440	0.02	0.05	
Right of Way		13.36	33.00	
Special Right of Way (Eco Passage)		0.25	0.62	
Townhomes (6.10m / 20')	375-395	2.34	5.78	123
Single Detached WS (9.40m / 34')		2.25	5.56	75
Single Detached WS (11.60m / 38')		4.02	9.93	124
Single Detached WS (12.50m / 41')		3.69	9.12	101
Single Detached (12.50m / 41')		1.28	3.16	33
Single Detached (13.72m / 45')		0.74	1.83	18
Single Detached (15.24m / 50')		1.05	2.59	23
TOTAL		65.98	155.51	907

*First unit count to be determined at a later date.

R.O.W. SCHEDULE

	m (wide)	km
Collector Road	37	370.0
Local Road	20	3420.3
Special Local Road (Eco Passage)	17	141.0
Minor Local Road	16.5	470.2
Lane	8.5	666.6
TOTAL		7078.1

NOTES

- ALL UNITS IN METRES UNLESS OTHERWISE NOTED.
- LOT FRONTAGE MEASURED AT 4.5M FRONT YARD SETBACK ON STANDARD DEPTH LOTS.
- CORNER RADIUS: 5m
- CORNER CHAMFER AT INTERSECTIONS WITH LANES: 3m.
- DAYLIGHT TRIANGLES AS INDICATED ON PLAN.
- ROAD LENGTHS CALCULATED TO INTERSECTION EDGE.
- CONTOUR INTERVAL: 0.5m

PREPARED BY

GERRARD DESIGN ASSOCIATES INC
212-321 Cuslow Ave, Toronto, ON, M4M2S1 T.647.292.8750

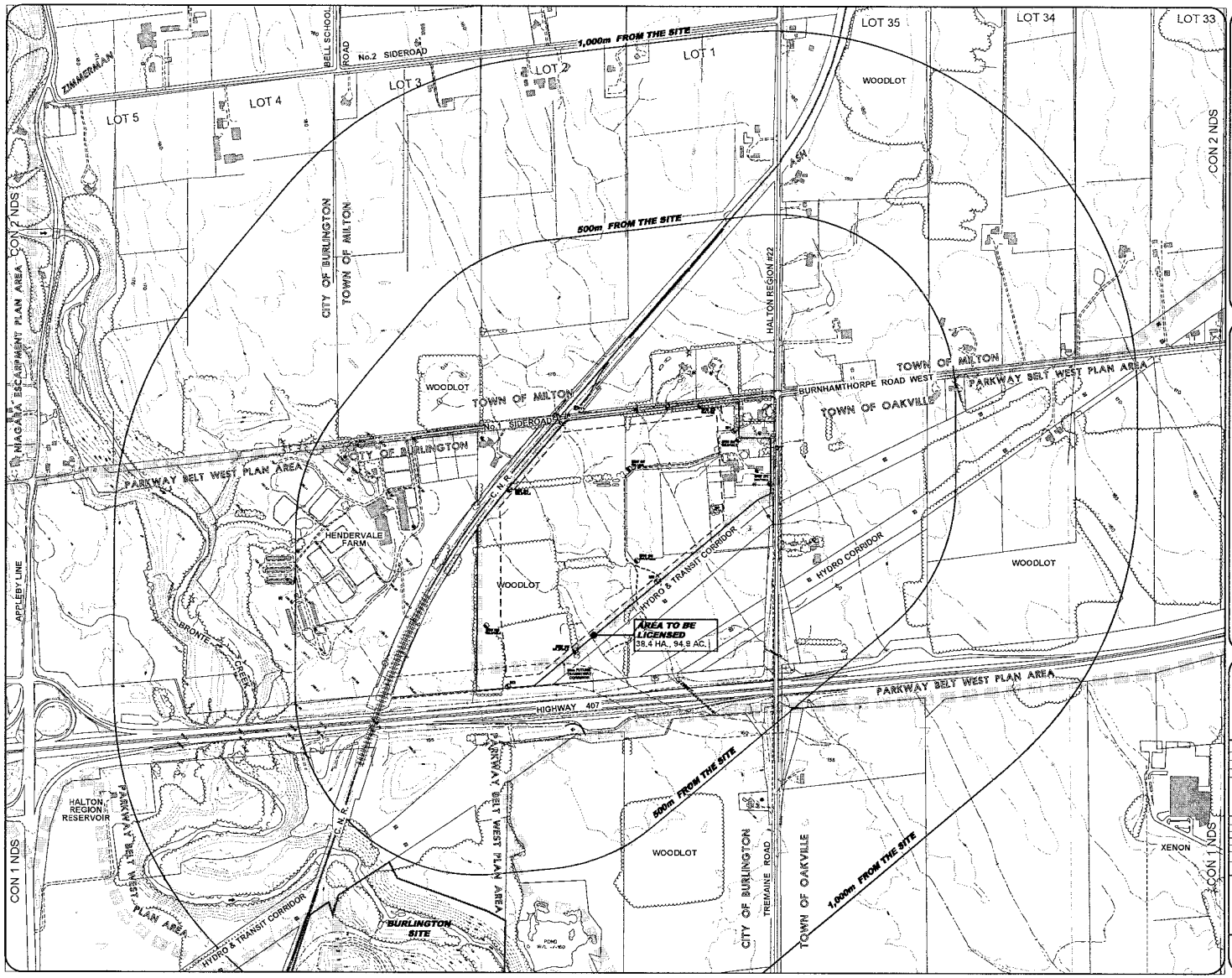
No.	Date	Issued
1	June 4-2015	Issued for Submission

SCALE: 1:2000

DWG DATE: June 4, 2015

SCHEDULE 2

Locational Context and Limit of Licensed Area - Tansley Quarry



Hanson

Hanson Brick Ltd.

5155 DUNDAS STREET, BURLINGTON, ONTARIO L7R 3Y2

TANSLEY QUARRY

PART OF LOTS 1 AND 2
CONCESSION 1, NORTH OF DUNDAS STREET
GEOGRAPHIC TOWNSHIP OF NELSON
CITY OF BURLINGTON
REGION OF HALTON

1 of 9

SITE ENVIRONS

LEGEND

- BOUNDARY OF AREA TO BE LICENSED
- BOUNDARY OF AREA TO BE EXCAVATED
- 5m CONTOURS
- FENCE LINE
- TREE LINE
- RAILWAY TRACKS
- INTERMITTENT WATERCOURSE
- BUILDING
- HYDRO TOWER
- WELLS
- MONITORS MW 01-08
- BOREHOLES, N1-N3
- PARKWAY BELT WEST PLAN AREA AMENDMENT No. 170

NOTES

1. CONTOUR BASE MAPPING CREATED FROM DIGITAL TERRAIN MODEL FROM NOVEMBER 2001 COLOUR ORTHOPHOTO, BY NORTHWAY PHOTOMAP INC. REMAINING CONTOUR DATA FROM DIGITAL ONTARIO BASIC MAPPING, PLANIMETRIC DATA UPDATED FROM 1999 & 2001 COLOUR ORTHOPHOTOS AND APRIL 2005 PHOTOGRAPHY.
2. ALL ELEVATIONS REFER TO GEODETIC SURVEY OF CANADA DATUM IN METRES ABOVE SEA LEVEL.

MINISTRY OF NATURAL RESOURCES
AURORA DISTRICT
SITE PLAN APPROVED

DATE Dec. 17 2007

PROJECT:	CBR
DRAWN:	T.M.L. (On Autocad)
CHECKED:	R.J.L.
PLOTTED:	25 JUNE 2007

AMENDMENT No. ○

R. J. LONG — REGISTERED PROFESSIONAL PLANNER — PROVINCE OF ONTARIO — R.P.P.

No.	DATE	DESCRIPTION	APP'D

AMENDMENT

NORTH

0 20 40 80 200m 400

1 : 5,000

1 : 10,000 @ 11x17"

LONGENVIRONMENTAL CONSULTANTS INC.
ENVIRONMENTAL ENGINEERS & PLANNERS
Orangeville, Ontario

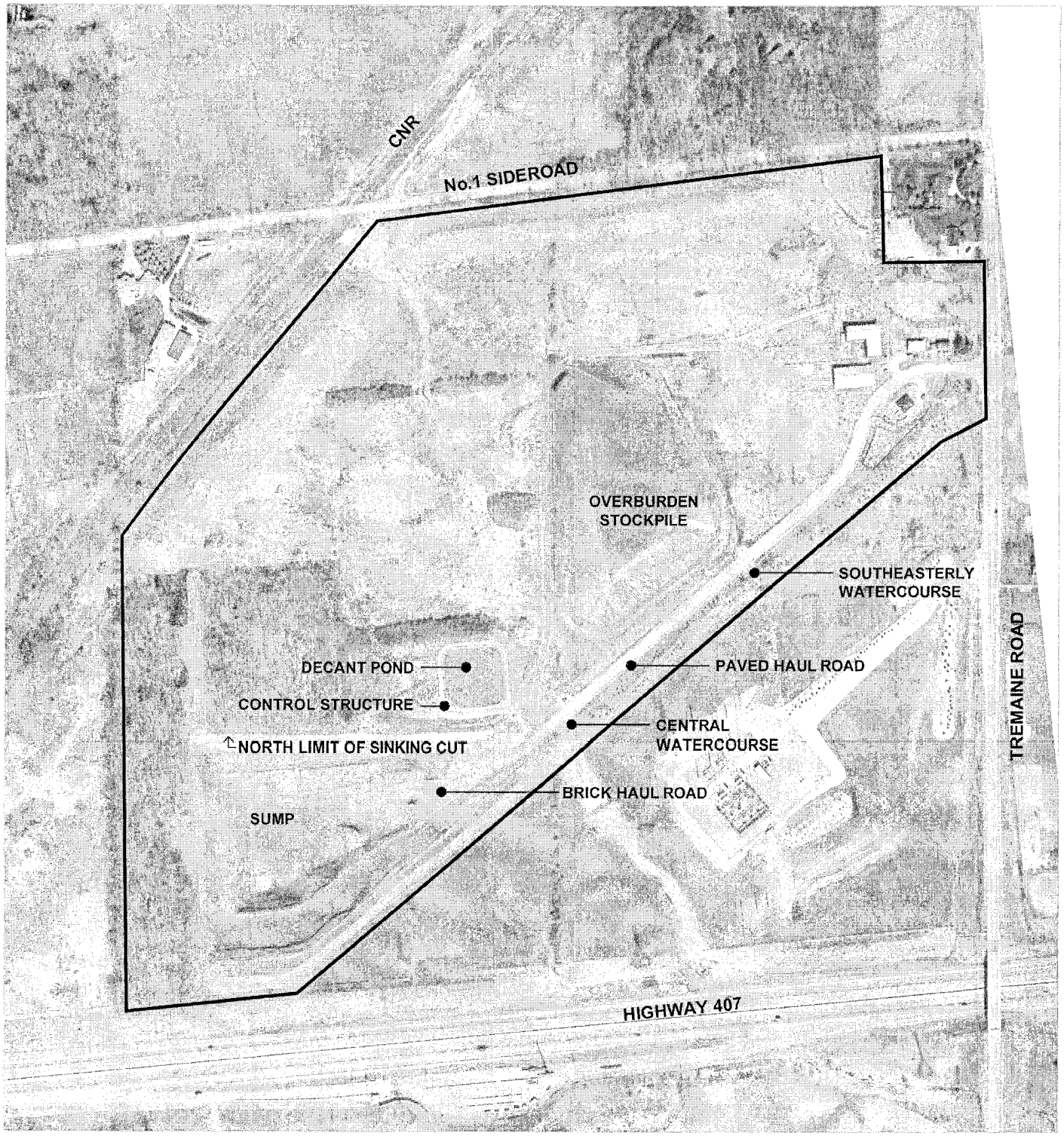


Figure 1
TANSLEY QUARRY

NORTH

Scale: 1:5,000

Source: First Base Solutions Inc., April 2013 Photography

SCHEDULE 3

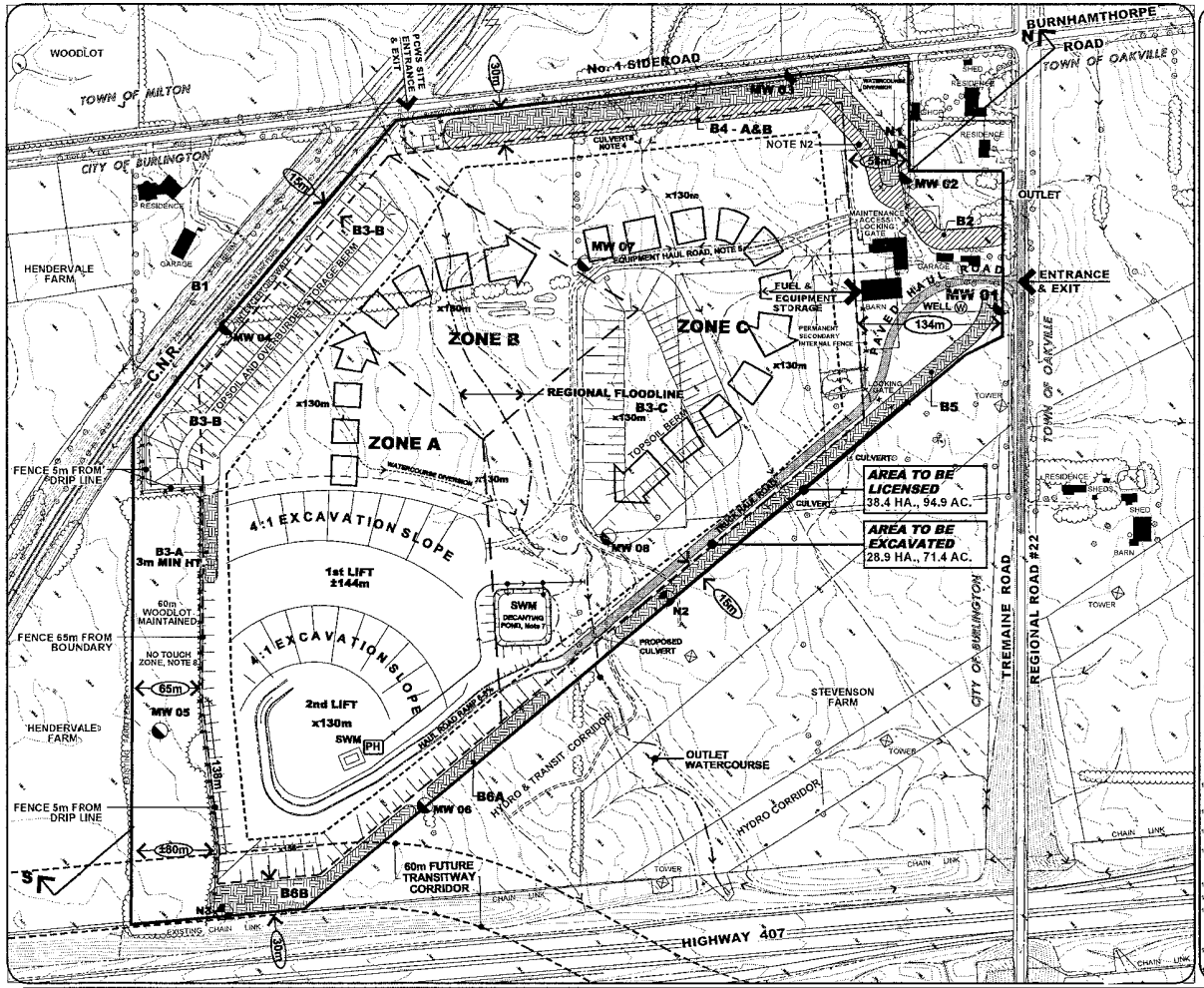
Hanson Brick Ltd.
Operational Plan prepared by
Long Environmental Consultants Inc.,
December 13, 2007

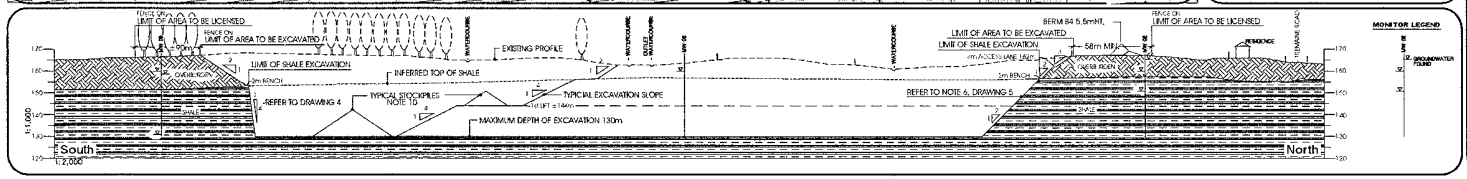
*

Hanson Brick Ltd.
Final Rehabilitation Plan prepared by
Long Environmental Consultants Inc.,
December 14, 2007

*

Hanson Brick Ltd.
Vegetation Management Plan prepared by
G. O'Connor Consultants Inc.,
July 5, 2007





LEGEND

- BOUNDARY OF AREA TO BE LICENSED, CONCIDENT BOUNDARY FENCE
- BOUNDARY OF AREA TO BE EXCAVATED
- BOUNDARY OF SHALE AREA TO BE EXCAVATED
- EXCAVATION SETBACK AND WIDTH
- 1m CONTOURS
- SPOT ELEVATIONS
- INTERNAL, SECONDARY FENCE, AS NOTED
- TREE LINE
- RAILWAY TRACKS
- REGIONAL FLOODLINE
- OUTLET WATERCOURSE
- INTERMITTENT WATERCOURSES
- WATERCOURSE DIVERSIONS
- BUILDING AND USE
- HYDRO TOWER
- MONITORE MW 01-08
- BOREHOLES, NS-N3
- EXISTING WELL, LOCATED
- CROSS SECTION LOCATION
- MAXIMUM DEPTH OF EXCAVATION
- NOISE CONTROL ZONES
- DIRECTION OF EXCAVATION
- LANDSCAPED BERMS, SEE DRAWING 6
- VEGETATED BERMS, SEE DRAWING 4
- STORAGE BERMS
- PUMPHOUSE - QUARRY DEWATERING
- STORMWATER MANAGEMENT PONDS
- CULVERTS

NOTES

1. THIS OPERATIONAL PLAN IS BASED UPON EXISTING SITE CONDITIONS AS DESCRIBED ON DRAWING 1.
2. AT EXCAVATION LIMITS, DEEP TOPSOIL & SUBSOIL ARE TO BE STRIPPED AND STOCKPILED IN BERM AREAS SCREENING BERMS AND/OR STOCKPILES AND PROGRESSIVELY OR USE DURING REHABILITATION. REFER TO REHABILITATION CERTIFICATION DRAWING 6.
3. THE OPERATION SEQUENCE MAY VARY DUE TO QUALITY OF MATERIAL SITE HYDROGEOMORPHOLOGY OR MARKET DEMAND, SUBJECT TO WRITTEN APPROVAL BY THE MINISTRY OF NATURAL RESOURCES.
4. EXISTING INTERMITTENT WATERCOURSES WILL BE EQUIPPED WITH CULVERTS AS REQUIRED AND DIVERTED DURING THE APPROPRIATE STAGE, AS SHOWN. THE FINAL EXIT WATERCOURSE OUTFALL IS SHOWN ON DRAWING 1. THE OUTLET WATERCOURSE REALIGNMENT SHOWN GENERALLY ON DRAWINGS 4 AND 5, WILL BE COMPLETED IN ACCORDANCE WITH THE PROCEDURE SET OUT ON DRAWING C.
5. HAUL ROAD RAMPS WILL BE DEVELOPED TO SUIT OPERATING CONDITIONS. THE HAUL ROAD WILL BE PAVED FROM THE ENTRANCE/EXIT CONTINUOUS TO THE DECANTING POND AS SHOWN WITHIN THE FIRST YEAR OF OPERATION. A TEMPORARY, LOW GRADE, EQUIPMENT HAUL ROAD WILL BE LOCATED BETWEEN THE PLANT AND SUPPORTIVE EXCAVATION AREA FOR QUARRY EQUIPMENT MOVES. THE LOCATION OF THE EQUIPMENT HAUL ROAD WILL CHANGE TO SUIT OPERATING STAGES.
6. THE WATER TABLE HAS BEEN ESTABLISHED FROM ONGOING MONITORING OF MULTI-LEVEL GROUND WATER WELLS. THE AVERAGE GROUNDWATER ELEVATION IN THE OVERBURDEN IS APPROXIMATELY 115m AND THE AVERAGE GROUND WATER ELEVATION IN THE SHALE IS APPROXIMATELY 95m, DRAWING 2 REFERENCE 7.
7. PUMPING WILL BE REQUIRED TO DEWATER THE QUARRY FLOOR. A DECANTING POND (ABILITY SWM WILL BE LOCATED ADJACENT TO THE EXISTING OUTLET WATERCOURSE FOR DISCHARGE OF QUARRY WATER TO THE SURFACE. (REFERENCE 11) REFER TO DRAWING 5 FOR RECYCLING POND AND MOISTURE DETAILS.
8. THE SITE WILL BE FENCED WITH 1.2m POST AND WIRE OR BETTER AND MAINTAINED FOR THE DURATION OF THE LICENCE WITH LOCKABLE GATES AT ENTRANCES. PERMANENT SECONDARY INTERNAL FENCES, AS SHOWN, ARE TO BE ERECTED TO SEPARATE THE EXCAVATION AREA FROM THE SHEDS AND OTHER PLANT BUILDINGS, WITH A LOCKED GATE ON THE HAUL ROAD. BERMS ARE TO BE ERECTED TO DELINEATE THE NO TOUCH ZONE ALONG THE WESTERLY BOUNDARY.
9. THE EXISTING HOUSE, GARAGE AND FARM BUILDINGS MAY REMAIN THERE WILL BE NO RESIDENTIAL OCCUPANCY ON SITE. THE SOUTHERLY BARN WILL BE USED FOR FUEL AND EQUIPMENT STORAGE, A STORAGE AREA OUTSIDE IS LABELLED "FS" WILL BE LOCATED OFF THE QUARRY FLOOR NEAR THE ACTIVE EXCAVATION SLOPE. SEE DRAWING 4 AND STAGE FINAL LOCATION. SHAPED SHALE WILL BE HEAD-FED BY LOADER SCRAPES. A SCALE AND SCALE HOUSE MAY BE INSTALLED IN THE FUTURE SUBJECT TO THE WRITTEN LOCATION APPROVAL.
10. SHALE STOCKPILES WILL BE LOCATED ON THE QUARRY FLOOR AND BENCHES, GENERALLY LOCATED NEAR THE TOE OF THE CURRENT EXCAVATION SLOPES. STOCKPILES WILL NOT EXCEED THE HEIGHT OF THE BERM.
11. SHALE CRUSHING AND PROCESSING IS WITHIN EXISTING BURLINGTON SITE MANUFACTURING PLANT.
12. BERMS ARE TO BE SEEDED AND MAINTAINED FOR THE DURATION OF THE LICENSE IN ACCORDANCE WITH DRAWING 4 GRADING AND VEGETATION MANAGEMENT PLAN.
13. EQUIPMENT NORMALLY USED ON SITE WILL INCLUDE BULLDOZER, LOADERS AND TRUCKS. PLANT TYPE AND SIZE (e.g. HEIGHT, TRANSPORT, BACKHOES, SCRAPERS, PLANERS etc.) MAY BE USED FOR EXCAVATION AND OVERBURDEN REMOVAL. BLASTING IS NOT PERMITTED.
14. REFER TO DRAWINGS 4 AND 5 FOR TREE SCREEN DETAILS.
15. HOURS OF OPERATION WILL BE 7:00-19:00 MONDAY TO FRIDAY, EXCLUDING HOLIDAYS.
16. THE MAXIMUM NUMBER OF TONNES OF AGGREGATE + SHALE TO BE REMOVED FROM THE SITE SHALL NOT EXCEED 3,000,000 TONNES PER YEAR. HOWEVER, ANNUAL PRODUCTION SHALL NOTED TO VARY BY MORE THAN 15% FROM THE AVERAGE. TRUCK TRAFFIC ON HAUL ROUTE IS RESTRICTED TO HALF LOADS, AND TO BE RESTRICTED WHEN TRUCKING ROUTE UPGRADED TO FULL LOAD STANDARD.
17. TREES AND SHRUBS TO BE RETAINED WILL BE UTILIZED TO PROVIDE BUFFER AND ORIENTATION AIDS, AND WHERE WILL BE SUPPLEMENTED WITH PLANTINGS.
18. REFER TO DRAWINGS 4 AND 6 FOR DETAILS OF PROGRESSIVE REHABILITATION AND EDGE STANDOFFS.

MONITOR LEGEND

- MW 01 GROUNDWATER FOUND
- MW 02 GROUNDWATER FOUND
- MW 03 GROUNDWATER FOUND

Hanson

Hanson Brick Ltd.

5155 DUNDAS STREET, BURLINGTON, ONTARIO L7R 3Y2

TANSLEY QUARRY

PART OF LOTS 1 AND 2
CONCESSION 1, NORTH OF DUNDAS STREET
GEOGRAPHIC TOWNSHIP OF NELSON
CITY OF BURLINGTON
REGION OF HALTON

3 of 9

OPERATIONAL PLAN

ENVIRONMENTAL MANAGEMENT & MONITORING

NOISE CONTROL - DRAWING 3, REFERENCE 1

N1. SHALE EXCAVATION AND LOADING EQUIPMENT SHOULD BE LIMITED TO 1 BULLDOZER OR BACKHOE AND 1 WHEEL LOADER WITH OEM MUFFLERS, WELL MAINTAINED TO MINIMIZE UNNECESSARY NOISE.

N2. ALL BERMS WILL BE DEVELOPED DURING THE sINKING CUT STAGE TO THE HEIGHTS INDICATED IN THE BERM TABLE, DRAWING 4, EXCEPT THE SOUTHERLY 75m OF BERM B4B WHICH WILL BE AT 3m HEIGHT UNTIL EXCAVATION ENTERS ZONE C.

ARCHAEOLOGY - DRAWING 2, REFERENCE 2

A1. IF DEEPLY BURIED ARCHAEOLOGICAL OR HUMAN REMAINS ARE ENCOUNTERED, IMMEDIATELY ADVISE DESIGNATED AGENCIES.

DUST CONTROL - DRAWING 2, REFERENCE 5

D1. DUST FROM QUARRY OPERATIONS WILL BE MITIGATED BY CLEANING / SWEEPING PAVED SURFACES, AND APPLICATION OF WATER OR APPROVED SUPPRESSANTS TO UNPAVED INTERNAL HAUL ROADS, ACTIVE QUARRY AREAS & STOCK PILES.

D2. ONSITE VEHICLE SPEED WILL BE LIMITED TO 25 KM/HR.

D3. A DUST CONTROL MONITORING PROGRAM WILL BE IMPLEMENTED WITHIN THE FIRST YEAR OF OPERATIONS. IT WILL INCLUDE PERIMETER DUSTFALL JARS AND HIVOL SAMPLING AND REPORT WITH RECOMMENDATIONS PREPARED BY A QUALIFIED DUST CONSULTANT. THE MONITORING PROGRAM MAY CHANGE, AS RECOMMENDED BY THE DUST CONSULTANT, IN CONSULTATION WITH MNR.

D4. REVISIONS TO THE DUST CONTROL PROGRAM WILL REQUIRE A SITE PLAN AMENDMENT.

TRAFFIC - DRAWING 2, REFERENCE 10

T1. THE TREMAINE ROAD ENTRANCE IMPROVEMENTS: SOUTHBOUND ACCELERATION LANE AND NORTHBOUND LEFT TURN LANE WILL BE COMPLETED TO REGION OF HALTON STANDARDS.

VEGETATION - DRAWING 7&8

V1. THE LICENSEE WILL IMPLEMENT DRAWINGS 8 AND 9 VEGETATION MANAGEMENT PLAN.

PRIVATE COMMUNAL WATER SYSTEM (PCWS)

P1. THE LICENSEE INTENDS TO DEVELOP A PCWS IN ACCORDANCE WITH THE OFFICIAL PLANS. THIS DEVELOPMENT MAY INCLUDE A BUILDING OR OTHER STRUCTURES WITHIN THE SETBACK ADJACENT TO No. 1 SIDEROAD AS SHOWN.

P2. THE CONFIGURATION AND SIZE OF THE PCWS & STRUCTURES TO BE CONFIRMED FOLLOWING THE LICENSEE'S COMPLETION OF A CLASS EA, AND HALTON REGION DESIGN APPROVAL. ANY SIGNIFICANT INCREASE IN THE SIZE OF THE SITE AND STRUCTURES WILL REQUIRE A SITE PLAN AMENDMENT.

SITE PLAN VARIATIONS

THE FOLLOWING CONDITIONS ILLUSTRATED ON THIS DRAWING VARY FROM THE OPERATIONAL STANDARDS, 1997.

SECTION	CONDITION
5.12.1	PCWS ACCESS, BUILDING(S) AND STRUCTURES TO BE CONSTRUCTED WITHIN 30m SETBACK AS SHOWN.

PROJECT: CBR
DRAWN: T.M.L. (On Autocad)
CHECKED: R.J.L.
PLOTTED: 13 DECEMBER 2007

R. J. LONG — REGISTERED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO

R.J. LONG — REGISTERED PROFESSIONAL PLANNER — R.P.P.

AMENDMENT No.

No.	DATE	DESCRIPTION	CHK'D
		AMENDMENT No.	

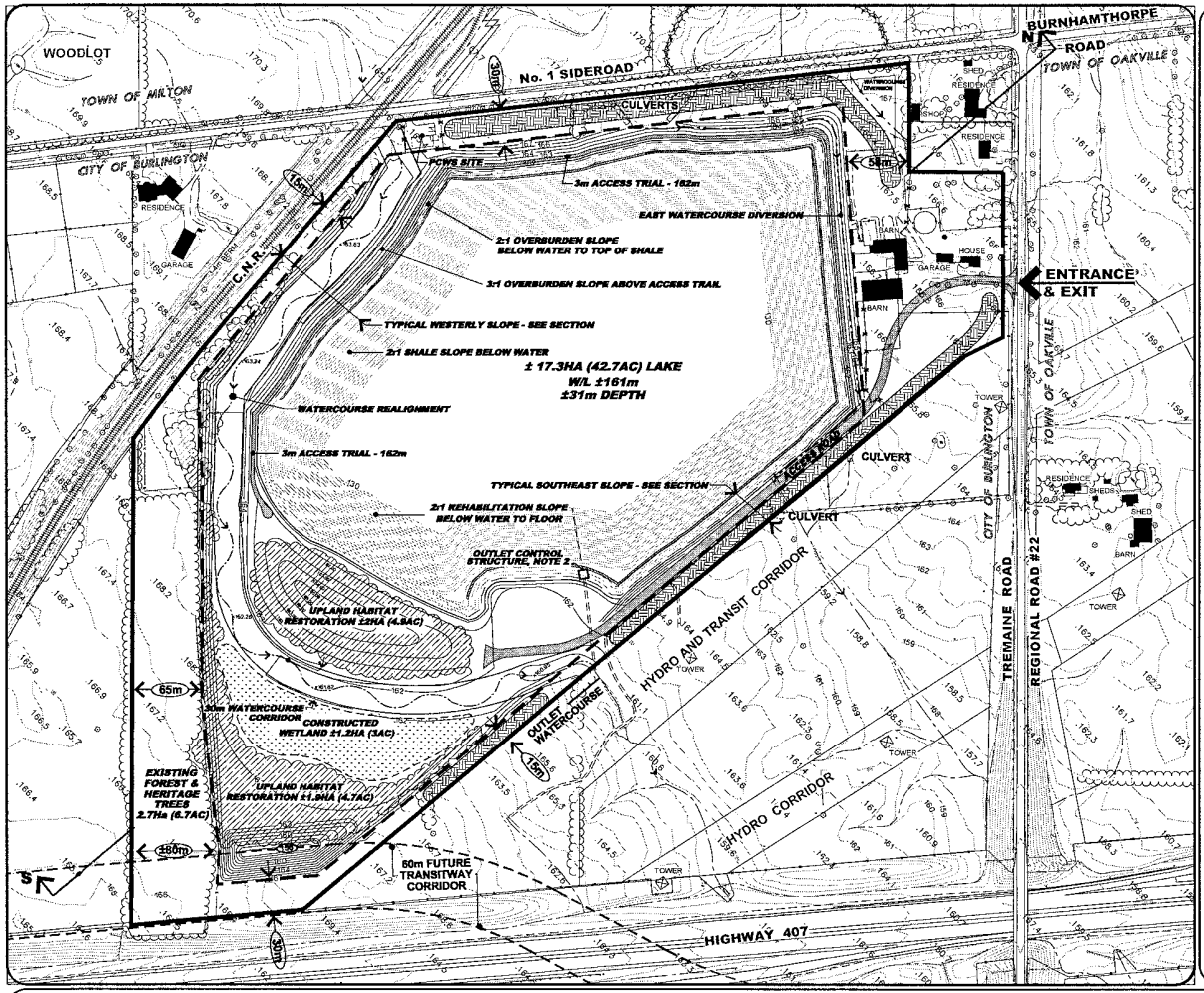
NORTH

0 10 20 40m 100m 200

1 : 2,000

1 : 4,000 @ 11x17"

LONGENVIRONMENTAL CONSULTANTS INC.
ENVIRONMENTAL ENGINEERS & PLANNERS
Orangeville, Ontario

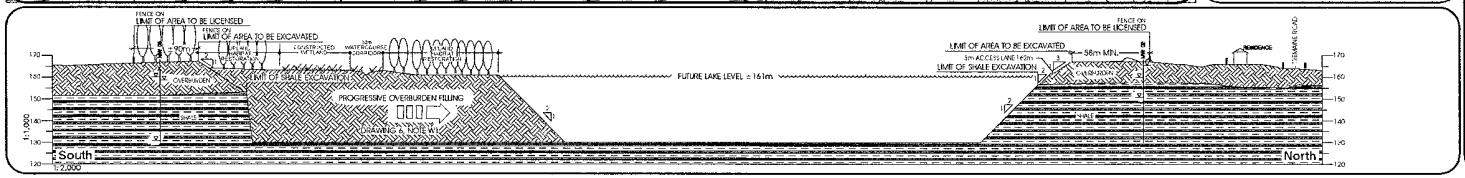


LEGEND

- BOUNDARY OF AREA TO BE LICENSED
- BOUNDARY OF AREA TO BE EXCAVATED
- EXCAVATION SETBACK AND WIDTH
- 1m CONTOURS
- FENCE LINE
- TREE LINE
- BUILDING AND USE
- INTERMITTENT WATERCOURSES
- WATERCOURSE DIVERSIONS AND REALIGNMENT
- CROSS SECTION LOCATION
- LANDSCAPED BERMS TO REMAIN
- PRIVATE COMMUNAL WATER SYSTEM
- CONSTRUCTED WETLAND
- UPLAND HABITAT
- BOUNDARY OF AREA TO BE EXCAVATED
- PROPOSED CONTOURS
- 3m ACCESS TRAIL
- LAKE SHORELINE @ 160m
- 2m BENCH @ TOP OF SHALE
- PROPOSED BELOW WATER CONTOURS

NOTES

1. THE REMOVAL OF 8 M OF OVERBURDEN AND 25 M OF SHALE CREATES A SUBSTANTIAL DEFICIT FOR REHABILITATION BACKFILLING. CONSEQUENTLY A LAKE WILL BE CREATED OVER APPROXIMATELY 17.3 HA AS SHOWN.
2. THE ANTICIPATED LAKE LEVEL IS 161 M, WHICH CORRESPONDS TO THE ELEVATION OF THE WATERCOURSE AT THE PROPOSED OUTLET. IT IS ALSO ANTICIPATED THAT THE WATER TABLE IN THE SURROUNDING OVERBURDEN WILL BE APPROXIMATELY 161 M, WHEN THE LAKE HAS BEEN FILLED. THE DESIGN OF THE OUTLET CONTROL STRUCTURE WILL BE PREPARED DURING FINAL REHABILITATION, IN CONSULTATION WITH THE MNR AND CONSERVATION HALTON.
3. THE LICENSEE MAY IMPORT INERT CLAY BRICK, TO THE SITE FOR HAUL ROAD BASE AND CHECK DAM CONSTRUCTION, TO BE INCORPORATED INTO THE REHABILITATION FILL.
4. OVERBURDEN ABOVE THE FUTURE LAKE LEVEL AT ELEVATION 161 M WILL BE EXCAVATED TO A 3:1 FINAL REHABILITATION SLOPE, TOPSOILED AND REVEGETATED WITHIN 12 MONTHS OF STRIPPING. A 3 M WIDE FUTURE ACCESS BENCH WILL BE CREATED AT THE TOE OF THE 3:1 SLOPE, AT ELEVATION 162 M.
5. OVERBURDEN BELOW THE FUTURE LAKE LEVEL AT ELEVATION 161 M WILL BE EXCAVATED TO A 2:1 FINAL REHABILITATION SLOPE, TOPSOILED AND REVEGETATED WITHIN 12 MONTHS OF STRIPPING. A 3 M WIDE SAFETY BENCH WILL BE CREATED ON THE BEDROCK SURFACE, AT THE TOE OF THIS 2:1 SLOPE, IN ACCORDANCE WITH REGULATIONS UNDER THE OCCUPATIONAL HEALTH AND SAFETY ACT.
6. SHALE EXCAVATION FACES WILL BE EXTRACTED AND MAINTAINED AT 2:1 OR FLATTER BELOW THE FUTURE LAKE LEVEL.
7. REFER TO NOTES 2 AND 3, DRAWING 4 FOR DETAILS OF TOPSOIL APPLICATION AND INTERIM SEEDING OF DISTURBED AREAS, BERMS AND SLOPES DURING PROGRESSIVE AND FINAL REHABILITATION.
8. REFER TO NOTES 5.1 TO 5.6 ON DRAWING 4 CONCERNING THE PROPOSED DISPOSITION OF HAUL ROADS, BUILDINGS, BERMS AND MONITORING DURING FINAL REHABILITATION.
9. REFER TO DRAWING 7, VEGETATION MANAGEMENT PLAN FOR THE PROPOSED LANDSCAPE AND NATURALIZATION PLANTINGS TO BE PROVIDED DURING PROGRESSIVE REHABILITATION.
10. MAINTAIN VEGETATION COVER ABOVE WATER LEVEL DURING LAKE FILLING STAGE.
11. THE AREA TO BE REHABILITATED IS EQUAL TO THE AREA TO BE EXCAVATED 26.9 HA. (71.4 AC.) PLUS ANY AREAS WITHIN THE SETBACKS WHICH HAVE BEEN DISTURBED AS A RESULT OF REMOVING BERMS.



Hanson

Hanson Brick Ltd.

5155 DUNDAS STREET, BURLINGTON, ONTARIO L7R 3Y2

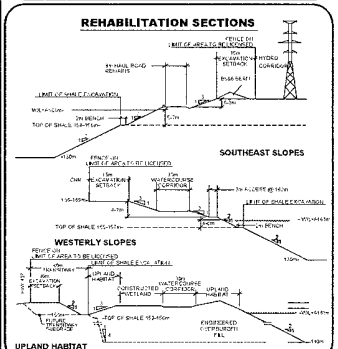
TANSLEY QUARRY

PART OF LOTS 1 AND 2
CONCESSION 1, NORTH OF DUNDAS STREET
GEOGRAPHIC TOWNSHIP OF NELSON
CITY OF BURLINGTON
REGION OF HALTON

5 of 9

FINAL REHABILITATION PLAN

REHABILITATION SECTIONS



PROJECT:	CBR
DRAWN:	T.M.L. (On Autocad)
CHECKED:	R.J.L.
PLOTTED:	14 DECEMBER 2007

AMENDMENT No.

R. J. LONG — REGISTERED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO

R.J. LONG — R.P.P. — REGISTERED PROFESSIONAL PLANNER

No.	DATE	DESCRIPTION	APP'D
		AMENDMENTS	

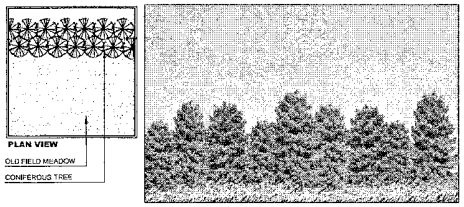
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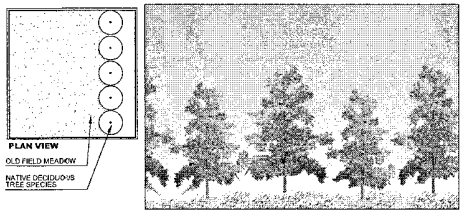
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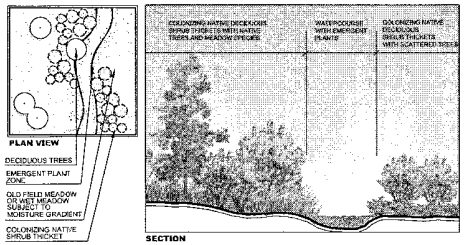
LONGENVIRONMENTAL CONSULTANTS INC.
ENVIRONMENTAL ENGINEERS & PLANNERS
Orangeville, Ontario



1 CONIFEROUS HEDGEROW

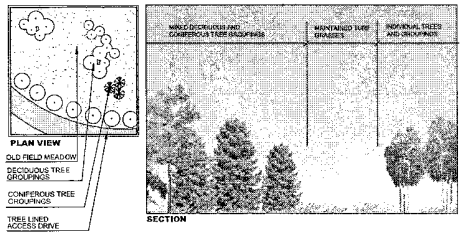


2 DECIDUOUS HEDGEROW



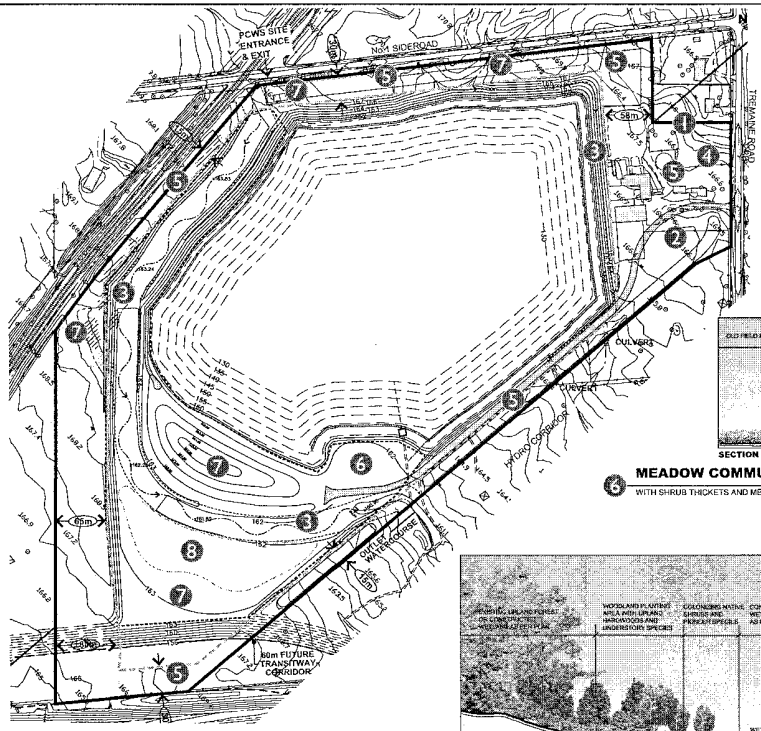
3 WATERCOURSE RESTORATION

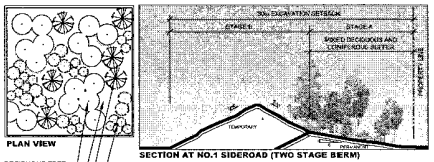
RIPARIAN HABITAT CORRIDOR 30m WIDE WITH LOWLAND SHRUB THICKETS, EMERGENTS AND TREES.

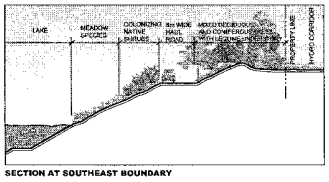


4 CULTURAL LANDSCAPE

WITH INDIVIDUAL DECIDUOUS AND CONIFEROUS TREES AND MEADOW GRASSES

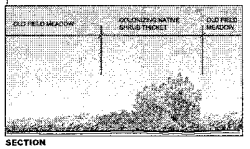






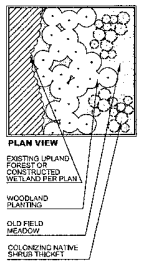
5 MIXED DECIDUOUS & CONIFEROUS BUFFER

WITH SHRUB THICKET AND UNDERSTORY SEEDING OF LEGUMES.



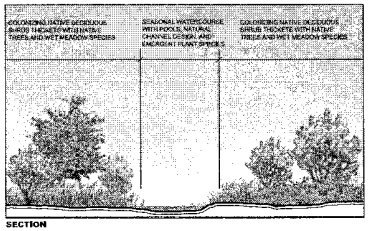
6 MEADOW COMMUNITIES

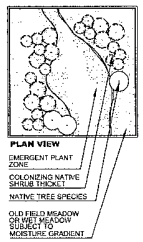
WITH SHRUB THICKETS AND MEADOW.



7 UPLAND HABITAT

UPLAND DECIDUOUS HARDWOODS WITH MIXED SHRUB UNDERSTORY AND TREE SPECIES USING A WOODLAND PLANTING TECHNIQUE.





8 CONSTRUCTED WETLAND

LOW FLOW CHANNEL, SHRUB THICKETS, RIPARIAN AND EMERGENT COMMUNITIES

Hanson

Hanson Brick Ltd.

5155 DUNDAS ST WEST, BURLINGTON, ONTARIO L7R 3Y2

TANSLEY QUARRY

PART OF LOTS 1 AND 2
CONCESSION 1, NORTH OF DUNDAS STREET
GEOGRAPHIC TOWNSHIP OF NELSON
CITY OF BURLINGTON
REGION OF HALTON

8 of 9
VEGETATION MANAGEMENT PLAN

LEGEND

- BOUNDARY OF AREA TO BE LICENSED
- BOUNDARY OF AREA TO BE EXCAVATED
- 15m EXCAVATION SETBACK AND WIDTH
- 164 1m CONTOURS
- INTERMITTENT WATERCOURSE
- BUILDING

NOTES

THIS PLAN ILLUSTRATES AN OVERALL STRATEGY FOR REVEGETATION WHICH STRESSES THE

1. ESTABLISHMENT OF NATURAL VEGETATION COMMUNITIES. THIS WILL PROVIDE NEW AREAS OF WOODY VEGETATION AND VARIED GROUNDCOVER TO REPLACE AND EXPAND UPON THE PRE-DEVELOPMENT CONDITION. IT IS TO BE READ IN CONJUCTION WITH SITE PLAN DRAWINGS 3,4,5 AND 6.

   THE VEGETATION MANAGEMENT PROGRAM WILL BE IMPLEMENTED PROGRESSIVELY OVER
2. THE LIFE OF THE QUARRY, WITHIN AREAS DISTURBED BY STRIPPING AND QUARRY OPERATIONS. THE GENERAL PRINCIPLES OF A NATURAL VEGETATION MANAGEMENT PROGRAM INCLUDE:

   UTILIZATION OF INDIGENOUS PLANT SPECIES (SEE DRAWING 9)

   UTILIZATION, TO THE EXTENT POSSIBLE, OF CONIFEROUS AND DECIDUOUS MATERIAL FROM THE SITE, BY TRANSPLANTING AND

   ADOPTION OF A STRATEGY THAT UTILIZES THE NATURAL, SUCCESSIONAL DEVELOPMENT PROCESSES COMBINED WITH THE UNDERPINNINGS OF NEW PLANT GROUPINGS. (SEE DRAWING 9 FOR PLANT SPECIES)
3. PLANT MATERIALS CAN BE SALVAGED FROM AREAS TO BE QUARRIED IN SIZES UP TO 150 MM CALIPER. NEW NURSERY STOCK WILL BE SMALL IN SIZE, TO ALLOW FOR ADAPTATION INCLUDING 1.25 TO 1.75 M WHIPS & SMALL DECIDUOUS & CONIFEROUS TREES, (SEE DRAWING 9 FOR SPECIES LISTS)
4. INITIAL SLOPE STABILIZATION AND ESTABLISHMENT OF A CLOVER/GRASS SEED GROUND COVER SHOULD BE COMPLETED AT LEAST ONE GROWING SEASON PRIOR TO INTRODUCING WOODY PLANTS AND SHRUBS, TO CONTROL EROSION.
5. ACTIVE PLANTING PERIODS WILL OCCUR IN THE SPRING AND FALL, EACH YEAR. NO INTRUSIVE PRUNING ON DRILOT MANAGEMENT SHOULD BE REQUIRED. NATURAL PROCESSES WILL GUIDE THE NATURAL SUCCESSION OF PLANT COMMUNITIES AND DISTRIBUTION OF COLONIZATION. SUBMIT PLANTING PLANS/DETAILS TO CONSERVATION HALTON AND THE MINISTRY OF NATURAL RESOURCES IN JANUARY OF EACH PLANTING YEAR.
6. VEGETATION MONITORING WILL BE REQUIRED TO IDENTIFY MORTALITY AND ITS CAUSES, SO THAT ANNUAL REPLACEMENT PLANTING CAN BE MODIFIED TO SELECT NATIVE PLANTS MOST SUITED TO SURVIVAL UNDER SITE CONDITIONS. AN ANNUAL MONITORING REPORT LISTING REPLANTING REQUIREMENTS AND RECOMMENDED REVISIONS TO THIS MANAGEMENT PLAN WILL BE SUBMITTED BY JUNE 30 EACH YEAR TO MNR AND CONSERVATION HALTON.
7. READ THIS DRAWING IN CONJUNCTION WITH DRAWING 9 - PLANT SPECIES LIST FOR A COMPLETE LIST OF PLANT SPECIES AND SEEDING SPECIES.
   NOTE: PLANT LISTS CORRESPOND TO NUMBERS AND COMMUNITY TYPES SHOWN ON PLAN.

FILE:	
DRAWN:	M.H., S.B.
CHECKED:	G.O.
PLOTTED:	05 JULY 2007

AMENDMENT NO.

No.	DATE	DESCRIPTION	APP'D

AMENDMENTS

0 15 30 60 150m 300

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JOB FILE #06 DRAWING Attachment 7 of 8, May 10, 2006