

NOISE IMPACT ASSESSMENT

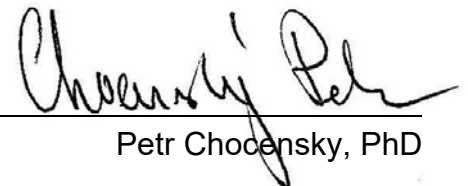
NELSON AGGREGATE QUARRY EXTENSION

BURLINGTON, ONTARIO

Prepared for

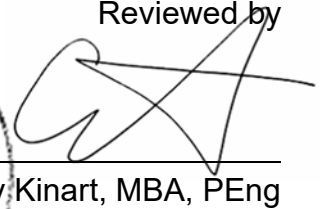
Nelson Aggregate Co.
2433 No. 2 Side Road
Burlington, Ontario
L7P 0G8

Prepared by



Petr Chocensky, PhD

Reviewed by



Corey Kinart, MBA, PEng

April 22, 2020

HGC Engineering Project No. 01800576

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1 INTRODUCTION AND SUMMARY

HGC Engineering was retained by Nelson Aggregate Co. to assess the noise impact from the proposed extension of their Nelson Aggregate Quarry in Burlington, Ontario. The study is required to support an application for a Class ‘A’ License (Category 2) to the Ministry of Natural Resources and Forestry, under the Aggregate Resources Act and its regulations.

The analysis was based on a review of the operational site plan of the proposed extension prepared by Nelson Aggregate Co., dated April 2020, a digital terrain model of the existing quarry and the surrounding area, equipment sound levels measured by HGC Engineering at the site, and additional information regarding the operation of the facility.

The assessment considers all operations of the quarry, including extraction activities in the proposed extension areas, and material processing and shipping within the existing quarry. Overall sound levels from the future activities following the extension were assessed against the noise limits stipulated in guideline NPC-300 of the Ontario Ministry of the Environment, Conservation and Parks (“MECP”). The results of the analysis indicate that, with the benefit of noise control measures integral to the site design, the sound emissions from the site will comply with the MECP noise limits. Details of the analysis are outlined below.

2 DESCRIPTION OF SITE AND SURROUNDING AREA

The Nelson Aggregate quarry is located at 2433 No. 2 Side Road, Burlington, immediately west of the village of Mt. Nemo. A key plan of the area is included as Figure 1.

The site is an open aggregate quarry employing various mobile equipment to extract and transport raw materials to stationary processing equipment. The processed aggregate products are shipped off-site via aggregate transport trucks. Nelson Aggregate currently proposes to open two new extraction areas referred to as the West Extension and the South Extension. Copies of site plans showing the existing quarry and the proposed extensions are included as Appendix A.

In addition, the quarry hosts a hot-mix asphalt plant owned by a third-party and its sound emissions have been included in this study.

Noise from blasting is subject to assessment under MECP guideline NPC-119, and is therefore excluded from this assessment.

The extraction activities and processing of aggregate from the proposed extension will occur from Monday to Friday, from 7:00 to 19:00.

The existing Burlington Quarry site plans do not have any restrictions for hours of operation. From May to December, the processing activities in the existing quarry generally occur from 7:00 to 17:00 on weekdays and from 7:00 to 12:00 on Saturdays, but could occasionally operate to 19:00. The shipping of aggregate products generally occurs from 6:00 to 19:00, but could occur on a 24-hour basis. From January to May, both processing activities and shipping of products generally occur from 7:00 to 17:00. However, on occasion, the processing could extend to 19:00 and the shipping activities could occur on a 24-hour basis.

The nearest noise-sensitive points of reception are residential homes surrounding the site, to the north, east, south and west, shown in Figure 2 as assessment locations R01 through R18. These locations represent the most-potentially impacted façades of the existing homes. Sound levels were also assessed at outdoor amenity areas within 30 metres of the respective dwellings but these locations were not explicitly included in the study, as locations R01 through R18 represent the potentially most-impacted locations at the dwellings. The assessment locations are all located within 200 metres of the quarry property line.

The background sound in the area is dominated by traffic noise on surrounding roadways, including Guelph Line, No. 2 Side Road, Cedar Springs Road, and Colling Road. The acoustical environment in the area is characterized as a Class 2 area, in accordance with the MECP guidelines.

3 CRITERIA FOR ACCEPTABLE SOUND LEVELS

The applicable sound level limits, for the purposes of this assessment, were established in accordance with MECP guideline NPC-300 [1]. The guideline draws a distinction between sound produced by

traffic sources and that produced by industrial or commercial activities, which are classified as *stationary sources*. According to NPC-300, sound level limits for stationary sources apply at noise sensitive points of reception, and are set as the greater of either the applicable exclusion limit, or the minimum background sound level that occurs during the time period corresponding to the operation of the source under assessment. Three evaluation periods have been considered in this assessment, to capture different extents of activities that occur at the site during different time periods of the day.

The exclusion limits applicable in Class 2 areas are 50 dBA during daytime hours (7:00 – 19:00) and 45 dBA during evening/nighttime hours (19:00 – 7:00).

The background sound levels can be determined through automated long-term measurement, or by predictive analysis based on road traffic volume counts, in cases where the background sound is dominated by road traffic.

Since the site operates continuously, automated measurements of background sound could not be conducted at the nearest receptors without the possibility of including some contribution from the site. Therefore, prediction methods for traffic noise were utilized in order to determine minimum hourly background sound levels. Hourly traffic data for No. 2 Side Road, Cedar Springs Road, and Colling Road were collected on behalf of HGC Engineering by Ontario Traffic Inc., between December 8 and 11, 2018. Hourly traffic data for Guelph Line were provided by Halton Region. The traffic data is included as Appendix D. Predictions were made using STAMSON version 5.04, a computer algorithm developed by the MECP. Sample STAMSON output is included in Appendix E.

The results of the traffic noise predictions indicate that background sound levels are greater than the exclusion limits during most hours of the daytime period (7:00 – 19:00) and during morning hours (6:00 – 7:00). Predicted background sound levels near points of reception along No. 2 Side Road, Cedar Springs Road, and Colling Road are included in Appendix E.

During quietest hours of the three evaluation periods, the background sound levels are generally less than the exclusion limits, but can be greater than the exclusion limits at several locations during daytime hours (7:00 – 19:00), and during morning hours (6:00 – 7:00).

The following table summarizes the sound level limits applicable at the assessment locations.

Table 1: Applicable Sound Level Limits at Points of Reception, L_{EQ} [dBA]

| Description | ID | Daytime | Evening /Night-time | |
|------------------|-----|--------------|---------------------|-------------|
| | | 7:00 – 19:00 | 19:00 – 6:00 | 6:00 – 7:00 |
| Residential Home | R01 | 50 | 45 | 45 |
| Residential Home | R02 | 50 | 45 | 45 |
| Residential Home | R03 | 58 | 45 | 57 |
| Residential Home | R04 | 50 | 45 | 50 |
| Residential Home | R05 | 52 | 45 | 53 |
| Residential Home | R06 | 51 | 45 | 51 |
| Residential Home | R07 | 50 | 45 | 51 |
| Residential Home | R08 | 50 | 45 | 47 |
| Residential Home | R09 | 50 | 45 | 45 |
| Residential Home | R10 | 50 | 45 | 46 |
| Residential Home | R11 | 50 | 45 | 45 |
| Residential Home | R12 | 50 | 45 | 48 |
| Residential Home | R13 | 50 | 45 | 49 |
| Residential Home | R14 | 50 | 45 | 47 |
| Residential Home | R15 | 50 | 45 | 45 |
| Residential Home | R16 | 50 | 45 | 45 |
| Residential Home | R17 | 50 | 45 | 45 |
| Residential Home | R18 | 50 | 45 | 45 |

4 DESCRIPTION OF QUARRY OPERATIONS

Nelson Aggregate proposes to open extraction in two new areas to the southeast and southwest of the main site. After initial stripping of the overburden, which will be used for construction of earth berms at the perimeter of the proposed extraction areas, the extraction will proceed in a total of six phases. The first two phases of extraction will occur in the South Extension, on the southeast side of No. 2 Side Road. Once this area is exhausted, the extraction will proceed from the existing quarry to the West Extension, in Phases 3 through 6. The progress of extraction is evident from the graphical presentation in the site plan, included as Appendix A. In Phase 1, raw materials will be extracted down to approximately 270 metres above the sea level. In Phases 2 to 6, the materials will be removed in a single lift, down to the floor of the quarry at 252.5 metres above the sea level.

A rock drill will operate at the top of the terrain and drill holes to prepare rock cuts for blasting. Following a blast, loosened rock will be loaded into haul trucks for transport to the processing area in the existing quarry, which includes a series of crushers and screeners, and an electrical power generator. The haul trucks will access the South Extension via an at-grade crossing over No. 2 Side

Road. The West Extension will be accessed by the haul trucks directly from the floor of the existing quarry. Products from the processing area will be loaded by a front-end loader into highway trucks, and shipped off-site, via the main entrance on No. 2 Side Road.

The asphalt plant produces hot-mix asphalt used in the construction industry. Raw materials and products are delivered to and shipped out via highway trucks.

Figure 2 shows the locations of the processing plant and the asphalt plant.

Details of the on-site operations considered for the purposes of this study are included as Appendix B.

5 NOISE CONTROL MEASURES

The site currently includes various berms on the perimeter of the quarry. Topographical data for the existing site, including the terrain features and existing earth berms, were provided by the proponent and included in the analysis. Additional perimeter berms will be raised at the property line of the proposed extension areas, as shown in the site plan (Appendix A). The beneficial acoustical shielding of the berms above has been included in the analysis.

In addition, localized noise control measures will be required for the hot-mix asphalt plant, which are described in detail in Appendix C. These noise control measures have been developed as part of an Acoustic Assessment prepared by HGC Engineering to support an application for an Environmental Compliance Approval to the MECP. The benefit of these measures was included in this assessment.

In order for the site to comply with the MECP noise limits, the sound emission levels from the equipment at the site must not exceed the assumed sound levels listed in Appendix B. The equipment at the site must also operate within the times detailed in Appendix B.

6 ASSESSMENT METHODOLOGY

The predictive model used for this study (*CadnaA, version 2020 MRI*) is based on the methods from ISO Standard 9613-2.2 “Acoustics – Attenuation of sound during propagation outdoors – Part 2: General Method of Calculation” [2] which accounts for reductions in sound levels due to geometrical

spreading, air absorption, ground attenuation and acoustical shielding by intervening structures and topography. The ISO method tends to be conservative, as it assumes a moderate downwind condition (favorable for the propagation of sound from the source to a receiver) in all directions, at all times.

7 ASSESSMENT RESULTS

The overall sound levels from the site following the extension were predicted to range from 36 dBA to 50 dBA during daytime hours (7:00 – 19:00), and from 27 to 47 dBA during evening/night-time hours (19:00 – 7:00). These sound levels are within the applicable MECP noise criteria. The results are summarized in Table 1, below.

**Table 2: Predicted “Worst-Case” Sound Levels of
 Nelson Aggregate Extension, L_{EQ} [dBA]**

| Location | Nelson Aggregate | | | Noise Limits | | | Within Limits? (Yes/No) |
|----------|------------------|----------------------|-------------|--------------|----------------------|-------------|----------------------------|
| | Daytime | Evening / Night-time | | Daytime | Evening / Night-time | | |
| | 7:00 – 19:00 | 19:00 – 6:00 | 6:00 – 7:00 | 7:00 – 19:00 | 19:00 – 6:00 | 6:00 – 7:00 | |
| R01 | 48 | 45 | 45 | 50 | 45 | 45 | Yes |
| R02 | 45 | 40 | 41 | 50 | 45 | 45 | Yes |
| R03 | 47 | 42 | 44 | 58 | 45 | 57 | Yes |
| R04 | 50 | 44 | 47 | 50 | 45 | 50 | Yes |
| R05 | 49 | 42 | 45 | 52 | 45 | 53 | Yes |
| R06 | 49 | 42 | 45 | 51 | 45 | 51 | Yes |
| R07 | 49 - 50 | 43 | 46 | 50 | 45 | 51 | Yes |
| R08 | 50 | 39 | 43 | 50 | 45 | 47 | Yes |
| R09 | 46 - 49 | 38 | 40 | 50 | 45 | 45 | Yes |
| R10 | 49 - 50 | 33 | 35 | 50 | 45 | 46 | Yes |
| R11 | 47 - 49 | 32 | 34 | 50 | 45 | 45 | Yes |
| R12 | 48 - 49 | 35 | 37 | 50 | 45 | 48 | Yes |
| R13 | 43 - 48 | 29 | 31 | 50 | 45 | 49 | Yes |
| R14 | 39 - 44 | 28 | 29 | 50 | 45 | 47 | Yes |
| R15 | 40 - 45 | 29 | 31 | 50 | 45 | 45 | Yes |
| R16 | 38 - 44 | 28 | 29 | 50 | 45 | 45 | Yes |
| R17 | 36 - 42 | 27 | 28 | 50 | 45 | 45 | Yes |
| R18 | 41 - 50 | 30 | 32 | 50 | 45 | 45 | Yes |

8 CONCLUSIONS

The results of the acoustical analysis indicate that, with the benefit of the noise control measures described in Section 5, sound levels from the Nelson Aggregate quarry following the extension will comply with the noise limits set out in MECP guideline NPC-300.



REFERENCES

1. Ontario Ministry of the Environment, Conservation and Parks Publication NPC-300, *Environmental Noise Guideline, Stationary and Transportation Sources - Approval and Planning*, August, 2013.
2. International Organization for Standardization, *Acoustics – Attenuation of Sound during Propagation Outdoors – Part 2: General Method of Calculation*, ISO-9613-2, Switzerland, 1996.
3. International Organization for Standardization, *Acoustics – Determination of sound power levels of noise sources using sound intensity – Part 2: Measurement by scanning*, ISO-9614-2, Switzerland, 1996.
4. Google Maps and Aerial Imagery, Internet application: maps.google.com



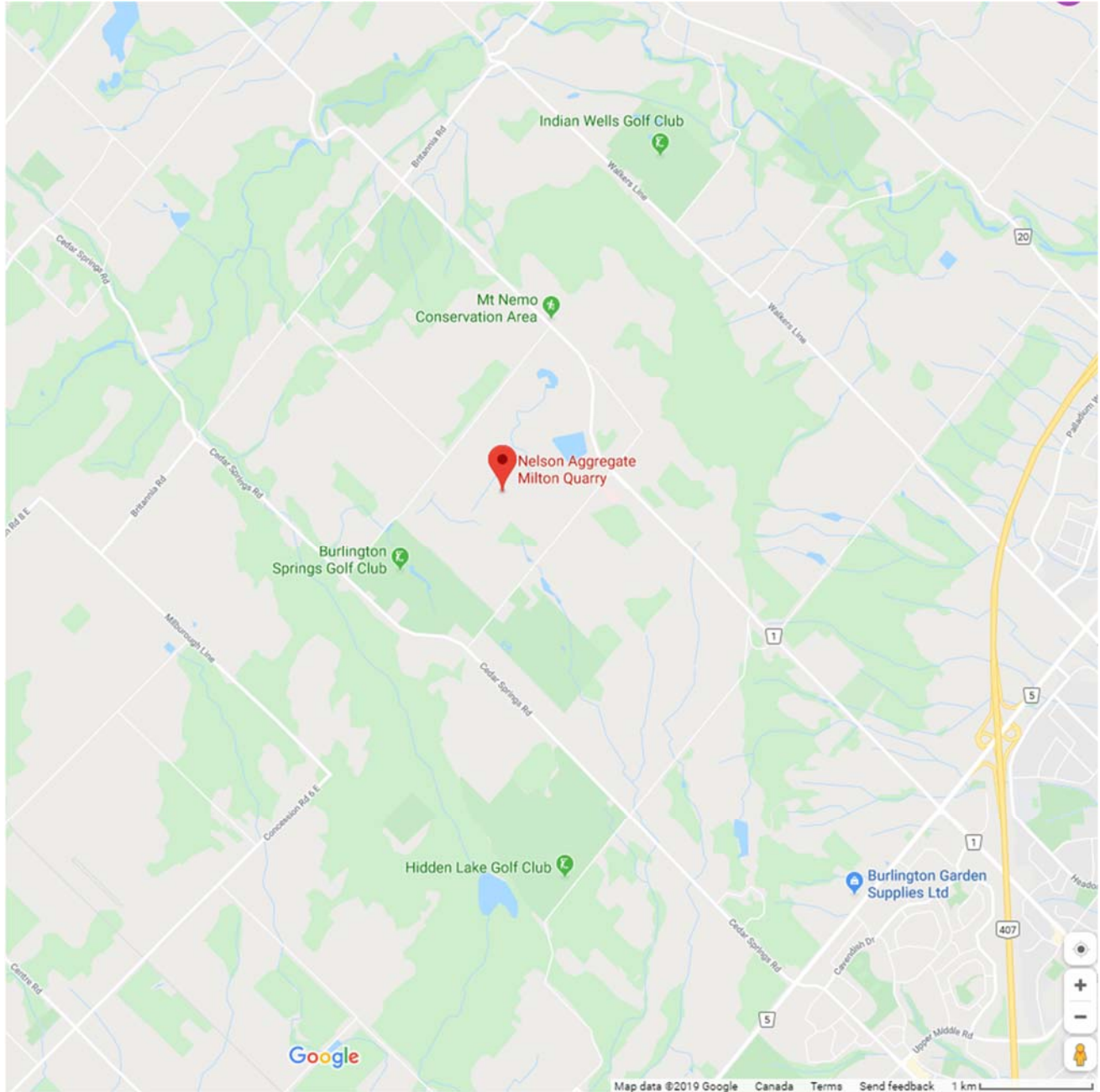


Figure 1: Location Map

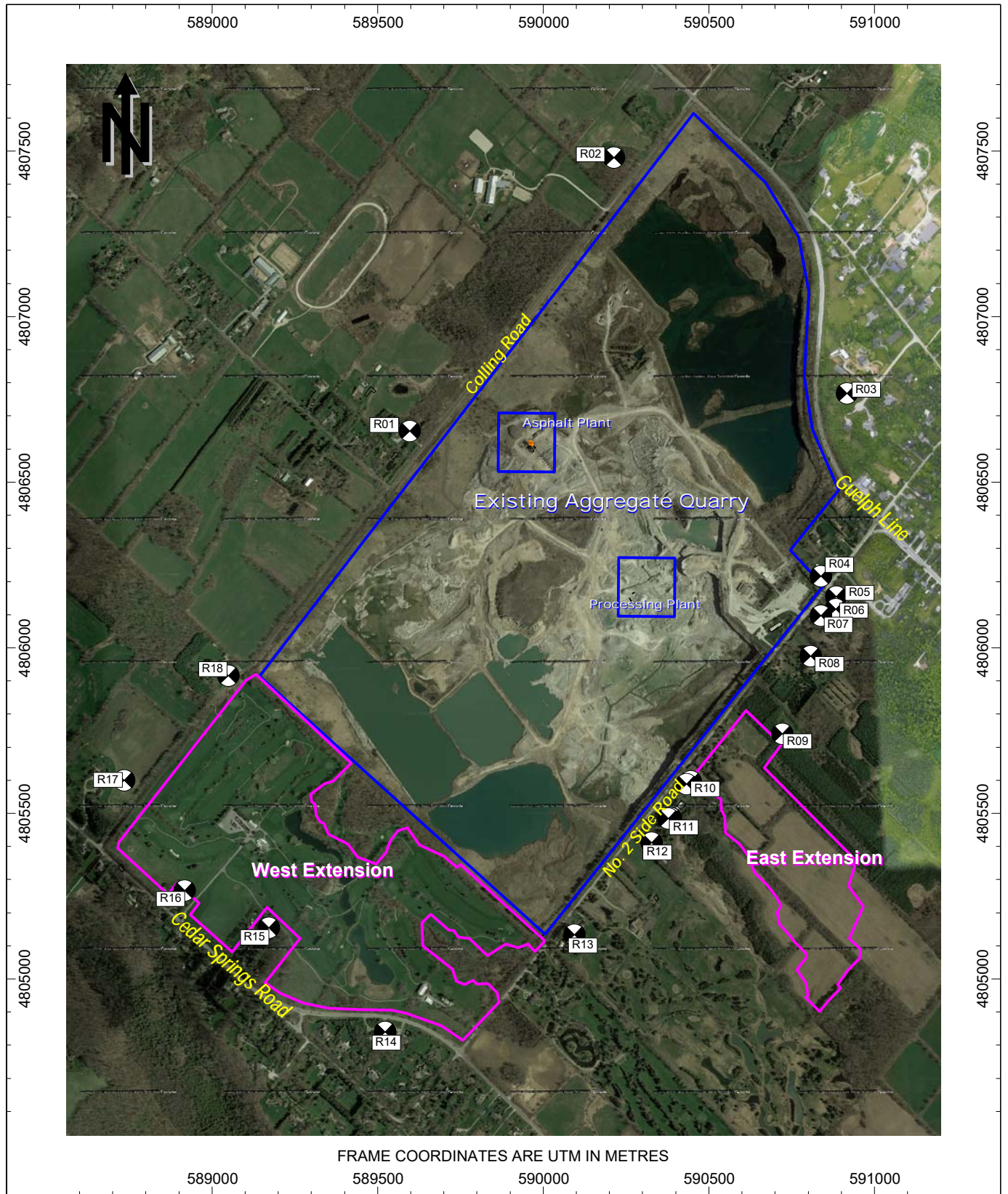


Figure 2: Points of Reception

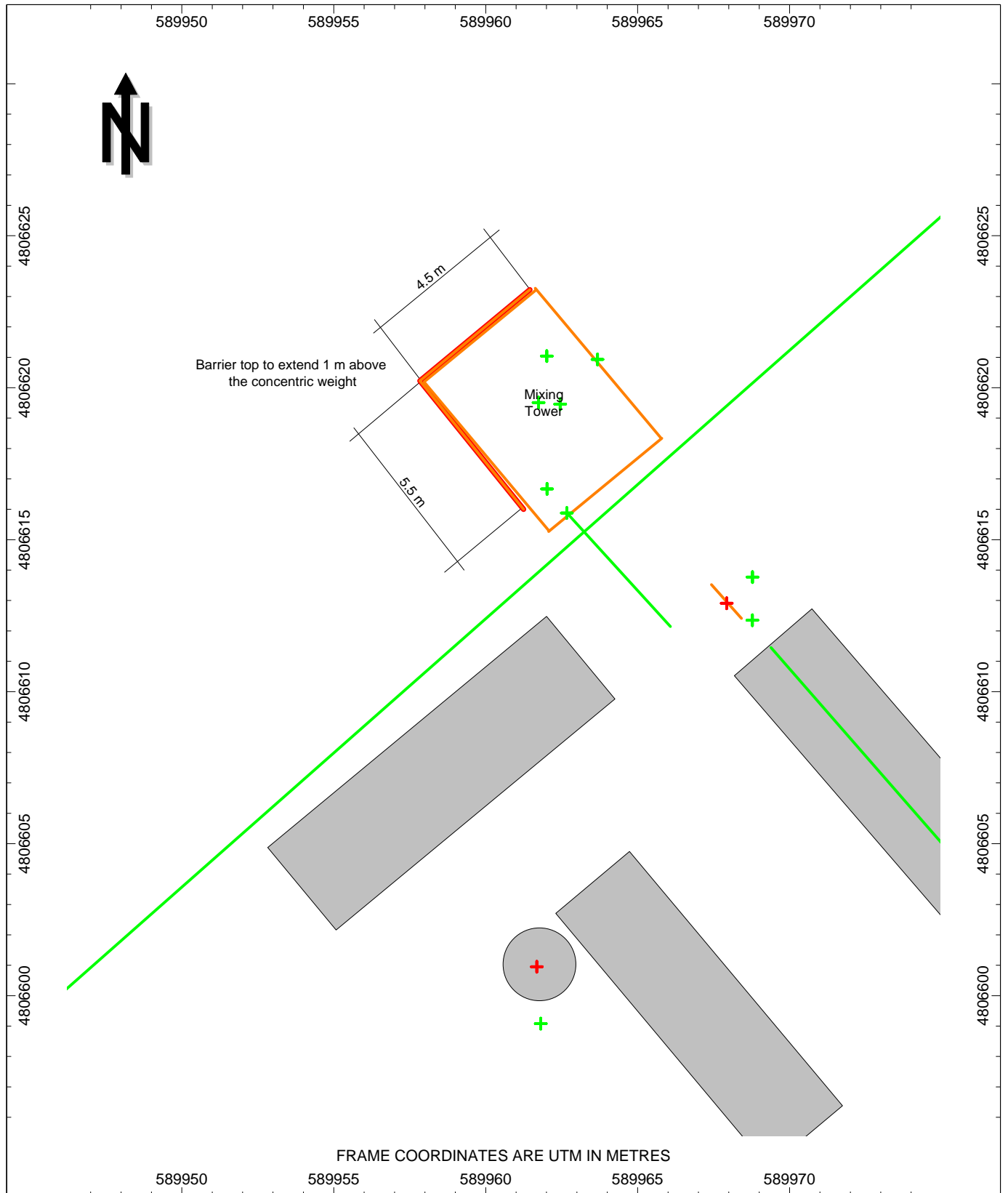


Figure 3: Barrier at Mixing Tower

APPENDIX A

Site Plan



ACOUSTICS

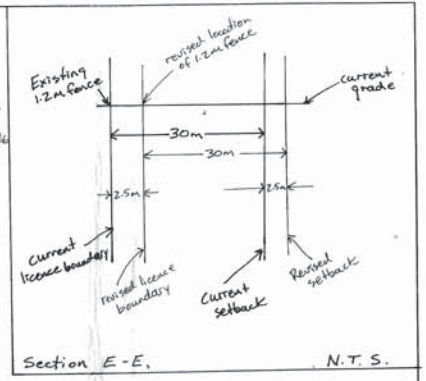


NOISE



VIBRATION

Nov 2, 2006
 -0.4 Ha removed from licence area in north east corner of licence #5499
 2.5m wide x 1470m long revised licence boundary to be fenced as per Aggregate Resources Act
 C. Douclet
 M. Elmhurst 11/2/06



CITY OF BURLINGTON

KEY MAP SCALE 1:75000

SITE DESCRIPTION AND STATISTICS
 PL. 1015 142 CONC. 283
 CITY OF BURLINGTON
 REGIONAL MUNICIPALITY OF HALTON

| LICENCE NO. | AREA (1) | AREA (2) | AREA (3) | AREA (4) |
|--------------------------------|-----------|----------|----------|----------|
| LICENCED No. 239 | 2022246.1 | 54.75 | | |
| LICENCED No. 250 | 2022246.1 | 54.75 | | |
| TOTAL | 2022246.1 | 54.75 | | |
| TOTAL AREA TO BE EXTRACTED | 210 Ha | | | |
| REMAINING AREA TO BE EXTRACTED | 67 Ha | | | |

LEGEND OF BUILDINGS WITHIN QUARRY BOUNDARY

| LETTER | DESCRIPTION | SIZE |
|--------|-------------------------------------|------------------|
| A | OFFICE | 40m x 15m x 5m |
| B | SCALE HOUSE | 7m x 7m x 4m |
| C | TRUCK SHACK | 5m x 5m x 4m |
| D | WELDING SHOP | 20m x 10m x 8m |
| E | GARDEN SHED | 10m x 5m x 4m |
| F | FUEL PUMPS | 30m x 10m x 4m |
| G | MAIN SHOP | 30m x 40m x 10m |
| H | 1" LUNCH ROOM | 5m x 5m x 3m |
| I | 1" CRUISER | 20m x 10m x 7m |
| J | ASPHALT PLANT (including stockpile) | 120m x 30m x 15m |
| K | ASPHALT CONTROL ROOM | 30m x 15m x 8m |
| L | EXPLOSIVE MAG. #1 | 5m x 10m x 3m |
| M | EXPLOSIVE MAG. #2 | 4m x 5m x 3m |
| N | EXPLOSIVE MAG. #3 | 7m x 5m x 3m |
| O | EXPLOSIVE MAG. #4 | 15m x 5m x 3m |
| P | EXPLOSIVE MAG. #5 | 5m x 5m x 3m |
| Q | EXPLOSIVE MAG. #6 | 5m x 7m x 3m |
| R | 2" #1 BUILDING | 20m x 20m x 15m |
| S | 2" TRANSFER BUILDING | 5m x 5m x 5m |
| T | 2" #2 BUILDING | 20m x 15m x 15m |
| U | 2" #3 BUILDING | 15m x 15m x 15m |
| V | 2" HLG PLANT | 10m x 10m x 5m |

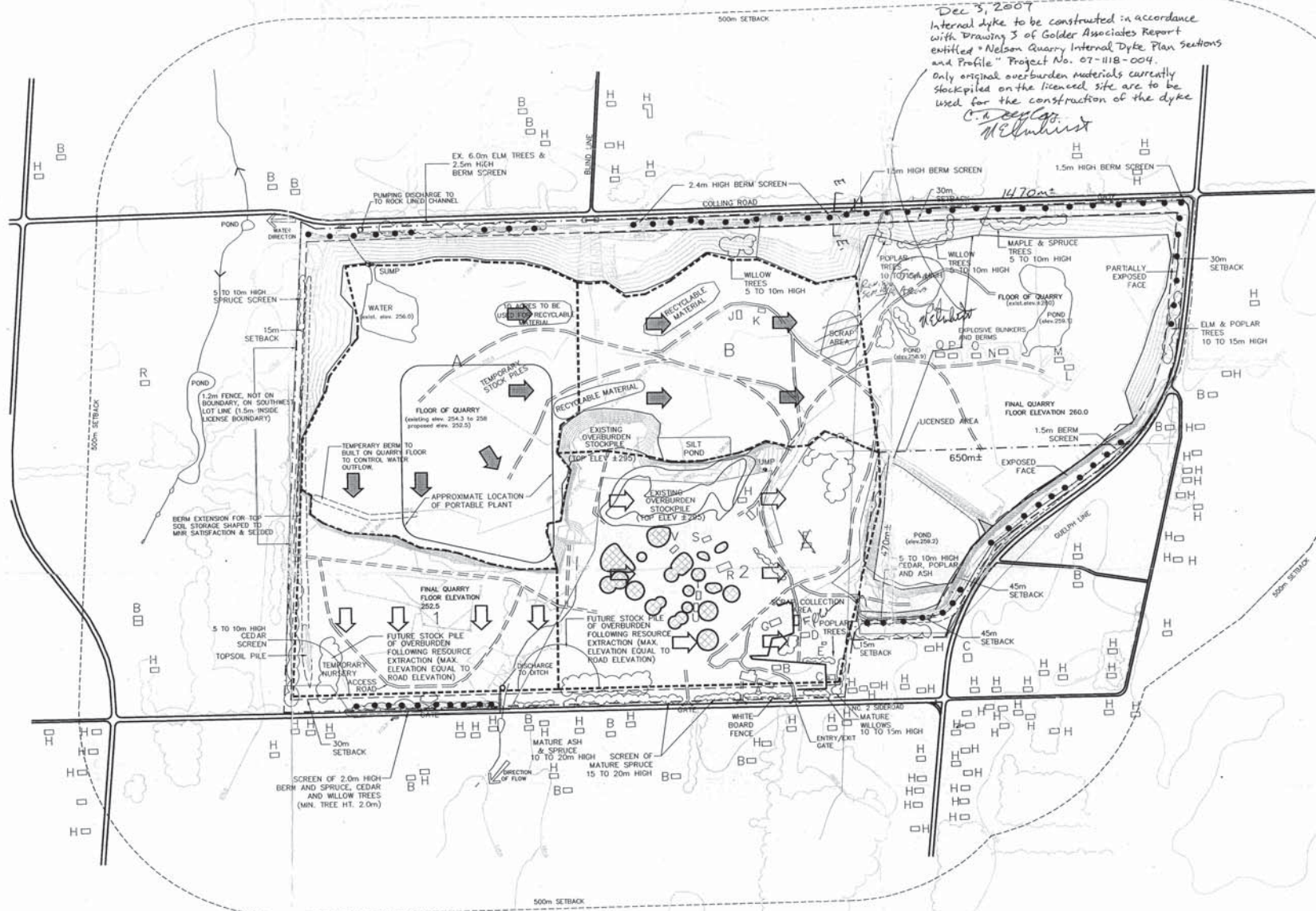
LEGEND OF BUILDINGS WITHIN 500M OF QUARRY BOUNDARY

H HOUSE
 B BARN
 C COMMERCIAL BUILDING i.e. GAS BAR
 R RECREATION BUILDING i.e. GOLF CLUBHOUSE

MINISTRY OF NATURAL RESOURCES
 AGRICULTURE
 SITE PLAN APPROVED
 Under the Aggregate Resources Act
 DATE: March 3/09

| REV. NO. | DESCRIPTION | BY | DATE |
|----------|--|------------|----------|
| 3 | ADDITIONAL RECYCLABLE MATERIAL STORAGE | P.C. | 06/24/06 |
| 4 | REVISED AS PER MINISTRY COMMENTS | P.C. | 07/03/06 |
| 5 | REVISED AS PER MINISTRY COMMENTS | P.C. | 07/06/06 |
| 6 | REVISED AS PER CLIENT COMMENTS | S.H. | 07/07/06 |
| 7 | REVISED PLANS PER MNR COMMENTS | L. JOHNSON | 07/10/06 |

Dec 3, 2007
 Internal dyke to be constructed in accordance with Drawing 3 of Golder Associates Report entitled "Nelson Quarry Internal Dyke Plan Sections and Profile" Project No. 07-118-004.
 Only original overburden materials currently stockpiled on the licensed site are to be used for the construction of the dyke.
 C. Douclet
 M. Elmhurst



LEGEND:

- EXISTING SPOT ELEVATIONS
- EXISTING CONTOURS
- BOUNDARY OF LICENSED AREA
- SETBACK LIMITS ON BOUNDARY
- EXISTING 1.2m FENCE ON BOUNDARY
- ENTRANCE GATES
- ACTIVE QUARRY FACE
- TREED AREAS/WOODLOTS/SCREENS
- HAUL ROUTES/INTERIOR ROADWAYS
- AREA STRIPPED OF TOPSOIL/OVERBURDEN
- EARTH BERM SCREEN
- AGGREGATE STOCKPILE MAXIMUM HT. 20.0m
- APPROXIMATE SEQUENCE OF EXTRACTION (UPPER LIFTS)
- APPROXIMATE SEQUENCE OF EXTRACTION (LOWER LIFTS)

- APPROXIMATE BOUNDARY BETWEEN STAGES
 - DIRECTION OF EXTRACTION AND LIFT
- GENERAL NOTES
- THIS SITE PLAN SPECIFIES THE ADDITIONAL STORAGE SIZE (10 ACRES) FOR RECYCLABLE MATERIALS.
 - THIS SITE PLAN SPECIFIES THAT THE STRIAGE ONLY INCLUDES ASPHALT AND CONCRETE FOR THE PURPOSE OF AGGREGATE EXTRACTION (FOR THIS TO BE CONSIDERED ACCESSORY TO THE AGGREGATE OPERATION, THE MATERIALS SHOULD BE RESTRICTED TO AGGREGATE BASED MATERIALS).
 - THIS SITE PLAN SPECIFIES THAT THIS USE ONLY CONTINUES SO LONG AS THE SITE IS LICENSED.

- AGGREGATE EXTRACTION
- THIS PLAN DEPICTS AN OPERATION PLAN FOR THIS PROPERTY BASED UPON THE BEST INFORMATION AVAILABLE AT THE TIME OF PREPARATION. PHASES ARE SCHEMATIC AND MAY VARY SLIGHTLY WITH DEMAND. PHASES DO NOT REPRESENT ANY SPECIFIC OR EQUAL TIME PERIOD. ANY MAJOR DEVIATIONS FROM THE OPERATIONAL SEQUENCE WILL REQUIRE APPROVAL OF THE MNR.
 - TOPSOIL AND OVERBURDEN WILL BE REMOVED APPROXIMATELY 100 TO 200 METRES IN ADVANCE OF AGGREGATE EXTRACTION.
 - PHASE 1 WILL BE EXCAVATED IN A SINGLE LIFT OF (20-25m) DOWN TO THE SHALE LAYER. A SLOT MAY BE ADVANCED SOUTHWARD IN THE CENTER OF PHASE 1. EXTRACTION WILL OCCUR SIMULTANEOUSLY FROM THE EAST, WEST AND SOUTH FACES WITHIN THE SLOT AND FROM THE SOUTH FACE ON EITHER SIDE OF THE SLOT OPENING.
 - PHASE 2 WILL BE EXTRACTED IN AN EASTERLY DIRECTION IN A SINGLE LIFT (20-25m) DOWN TO THE SHALE LAYER.
 - AS REQUIRED, THE EXISTING PROCESSING PLANT WILL BE REMOVED AND A NEW PORTABLE PLANT WILL BE ESTABLISHED ON THE QUARRY FLOOR (AS SHOWN).
 - A SECOND LIFT (1/2-3m) IN AREAS A AND B WILL BE EXTRACTED DOWN TO THE SHALE LAYER. EXTRACTION

8. Fuel storage tanks will be installed and maintained in accordance with the Liquid Fuels Handling Code under the Technical Standards and Safety Act.
 Sun 20/02/02 Manual Fuel pump BEECE

MAY BEGAIN IN THE NORTHWEST CORNER OF THE QUARRY FLOOR AND PROCEED SIMULTANEOUSLY SOUTH AND EASTWARD. THIS LIFT WILL BE UNDERTAKEN AT THE SAME TIME AS PHASES 1 AND 2.

7) PRIOR TO FINAL EXTRACTION AND FINAL REHABILITATION TAKING PLACE THE OWNER RESERVES THE RIGHT TO DISCUSS THE POSSIBILITY OF FUTURE UNDERGROUND MINING (UNDER THE RULES AND REGULATIONS OF THE MINING ACT) WITH THE MINISTRY OF NATURAL RESOURCES AND OTHER APPROPRIATE AGENCIES.

8) ALL FUEL STORAGE AND DISPENSING SHALL BE DONE IN CONFORMITY WITH MNR GUIDELINES AND OTHER APPLICABLE LEGISLATION.

AGGREGATE PROCESSING EQUIPMENT
 EXISTING EQUIPMENT INCLUDES:
 - PORTABLE CRUSHING PLANT
 - TRUCKS AND GRADERS
 - LOADERS
 - HYDRAULIC SHOVELS
 - AND GENERAL EQUIPMENT REQUIRED TO EXTRACT AND SHIP AGGREGATES.

EXISTING PROCESSING EQUIPMENT, INCLUDING CRUSHER, SCREENS, CONVEYORS ETC. WILL BE MAINTAINED. ALL EQUIPMENT IS PERMANENT EQUIPMENT. THIS MAY BE SUBJECT TO RELOCATION AS INDICATED IN PHASING.

OVERBURDEN AND TOPSOIL
 OVERBURDEN AND TOPSOIL WILL BE STRIPPED PRIOR TO EXTRACTION AND WILL BE USED FOR BACKFILLING OF SELECTED SLOPES TO AFFECT THE REHABILITATION MEASURES OUTLINED ON DWG No. 3 - PROGRESSIVE AND FINAL REHABILITATION PLANS. OVERBURDEN STOCKPILES ALONG NO. 2 SIDEROAD SHALL NOT BE ANY HIGHER THAN THE EXISTING ROAD GRADE.

BERMING AND PROGRESSIVE REHABILITATION
 IT IS NOT ANTICIPATED THAT ADDITIONAL BERMING OR TREE SCREENING WILL BE REQUIRED ALONG NO. 2 SIDEROAD. SHOULD CONDITIONS CHANGE THAT MAY REQUIRE BERMING OR TREE SCREENING, BERMS WILL BE CONSTRUCTED TO EXISTING SPECIFICATIONS (MAX. HEIGHT 2.0m WITH MIN. SIDE SLOPES OF 3:1. BERMS SHALL BE SEEDED WITH AN APPROPRIATE SEED MIXTURE).

WATER DISCHARGE
 WATER DISCHARGE POINTS ARE TO REMAIN AS SHOWN ON DWG No. 1. DEWATERING WILL OCCUR TO MAINTAIN A DRY QUARRY FLOOR WHILE THE QUARRY IS IN OPERATION. THE NORTHWEST DISCHARGE IS TO A ROOK LINED DITCH ADJACENT TO COLLING ROAD WHERE IT DRAINS WESTWARD. THE SOUTH DISCHARGE IS TO A DITCH WHICH CROSSES NO. 2 SIDEROAD AND PROCEEDS SOUTHWARD.

TREE PLANTING
 TREE PLANTING AND SEEDING OF BACKFILLED SLOPES WILL BE CONDUCTED PROGRESSIVELY AS DESCRIBED IN NOTE #6 ON DWG No. 3 PROGRESSIVE AND FINAL REHABILITATION PLANS. SHOULD ANY TREE PLANTING OR SEEDING FAIL TO BECOME ESTABLISHED, REPLACEMENT OF TREES OR SEEDING WILL BE CONDUCTED AND MAINTAINED TO ENSURE PROPER SUCCESS RATES.

FENCING
 THE LICENSED AREA IS ENCLOSED BY A 1.2m FENCE WITH THE EXCEPTION OF THE AREA AROUND THE OFFICE AND MAIN SITE ACCESS AREA WHICH HAS A THREE RAIL WOODEN FENCE.

AGGREGATE STOCKPILES
 EXISTING AGGREGATE STOCKPILES WILL REMAIN IN THE LOCATIONS AS SHOWN ON THIS PLAN DURING THE EXTRACTION OF AREAS 1, A AND B. THESE STOCKPILES WILL BE REMOVED AS REQUIRED AS THE OPERATION ENTERS INTO THESE AREAS. THE PROPOSED STOCKPILES ASSOCIATED WITH THE PORTABLE PROCESSING PLANT WILL BE LOCATED ON THE QUARRY FLOOR WITHIN THE PROCESSING AREA. (AS SHOWN ON THE PLAN).
 TEMPORARY AGGREGATE STOCKPILES MAY BE LOCATED ON THE QUARRY FLOOR AS REQUIRED.

THIS SITE PLAN HAS BEEN PREPARED TO COMPLY WITH THE PROVISIONS OF SECTION 69 (5) OF THE AGGREGATE RESOURCES ACT, AS REPLACEMENT SITE PLANS.

INFORMATION COMPILED FROM:

- 1990 AERIAL PHOTOGRAPHY AT 1:5000 SCALE
- 1988 OFFICIAL PLAN FOR THE HALTON PLANNING AREA, REGIONAL MUNICIPALITY OF HALTON
- 1985 NIAGARA ESCARPMENT PLAN - MINISTRY OF ENVIRONMENT WATER WELL RECORDS
- 1991 REINDERS FIELD SURVEY
- ONTARIO BASE MAPPING (AIR PHOTOGRAPHY 1982, PUBLISHED 1983)
- 1965 PLANS BY NELSON
- 1997 MARK-UPS PROVIDED BY NELSON

PROVISION
 INTERNAL ROADS ON QUARRY FLOOR ARE TEMPORARY AND CAN BE RELOCATED AS REQUIRED.

REINDERS

F.J. Reinders and Associates Canada Limited
 1000 Highway 10
 Burlington, Ontario L7R 4K8
 (905) 683-8888

DATE: MAR.05/99 PROJECT NO: 4792 DRAWN BY: C.G./S.B. CHECKED BY: T.M./J.

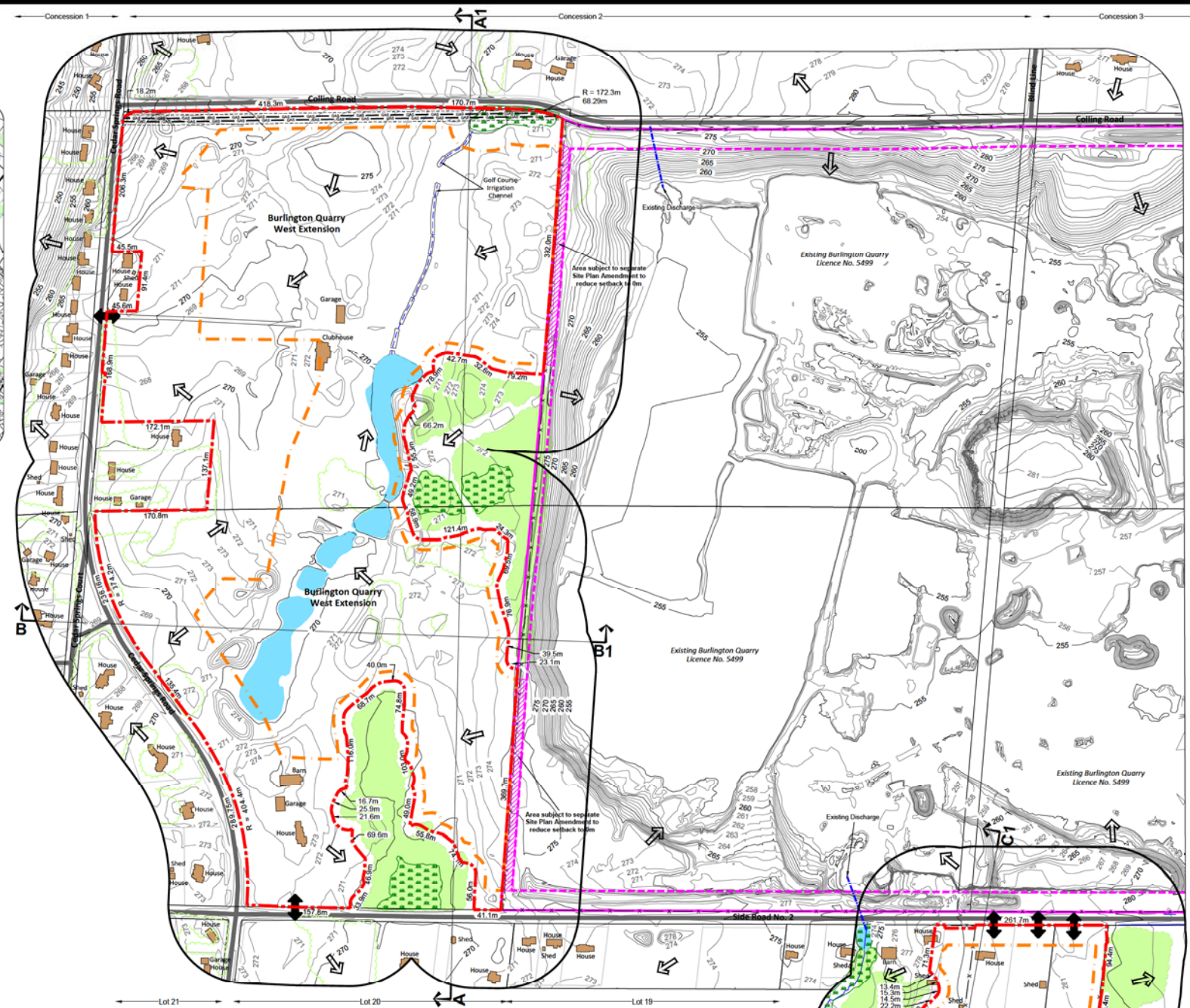
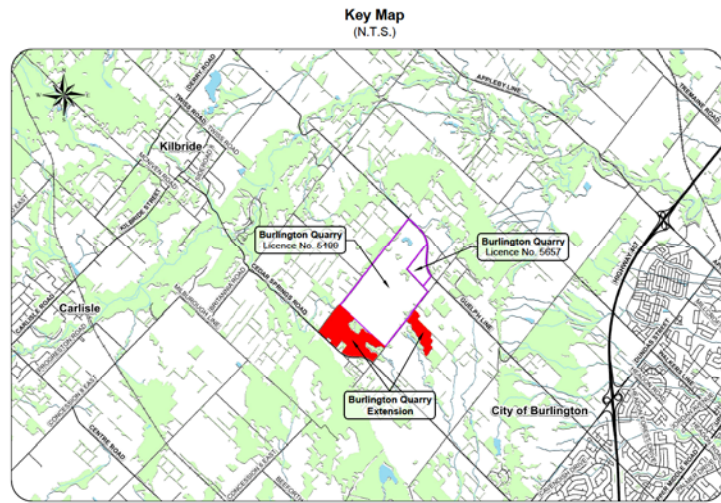
OWNER: NELSON AGGREGATE CO.
 P.O. BOX 1070, STN. B, BURLINGTON, ONTARIO L7P 3S9

NAME OF PIT/QUARRY: BURLINGTON QUARRY

TITLE: OPERATIONAL PLAN SHEET 2 OF 4

Legal Description
 Part Lot 1 & 2, Concession 2 and Part Lot 17 & 18, Concession 2 NDS
 (former geographic Township of Nelson)
 City of Burlington
 Region of Halton

- Legend**
- Licence Boundary
 - Limit of Extraction
 - Contours with Elevation
Metres above sea level (MASL)
 - Public Road
 - Fence
1.2m post & wire farm fence unless otherwise noted
 - Jefferson Salamander Regulatory Boundary
 - Water Feature
 - Woodlands
Significant
 - Woodlands
 - Wetland
 - 120m Offset From Licence Boundary
 - Existing Licence
Existing Licence Boundary (solid line)
Existing Limit of Extraction (dashed line)
 - Parcel Fabric
 - Diversion or Discharge Pipe
Existing - Single Dash
 - Sun-Canadian Pipe Line
Pipe line location and easement
 - Entrance / Exit
Existing
 - Direction of Surface Drainage
 - Building/Structure
Location and use for buildings on site & within 120m are shown
 - Cross Sections
A1



Site Plan Amendments

| No. | Date | Description | By |
|-----|------|-------------|----|
| | | | |
| | | | |
| | | | |

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE
 113 COLLIER STREET, BARRIE, ON, L4M 1H2 | P: 705.728.0045 F: 705.728.2010 | WWW.MHBCPLAN.COM

MNRF Approval Stamp:

MHBC Stamp:

Applicant: **NELSON AGGREGATE CO.**
 2433 No. 2 Sideroad
 P.O. Box 1070 Burlington Ont. L7R 4L8
 phone: (905) 335-5250

Project: **Burlington Quarry Extension**

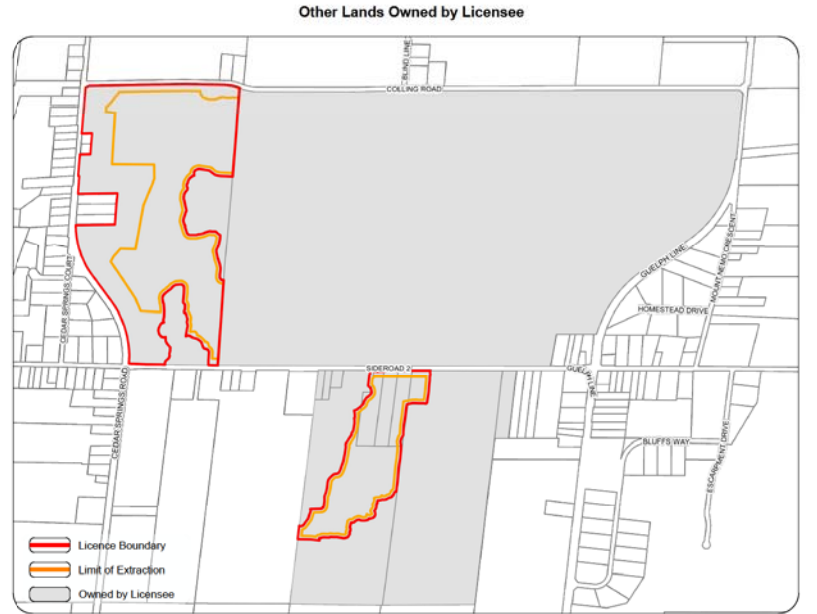
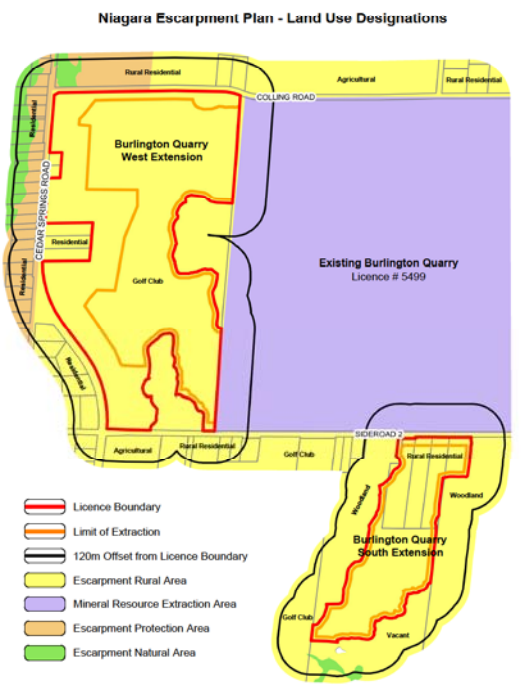
MNRF Licence Reference No. _____ Pre-approval review: _____

Plan Scale: 1:4000 (Arch D) Date: April 2020
 Drawn By: C.P. File No.: 9135D
 Checked By: ***

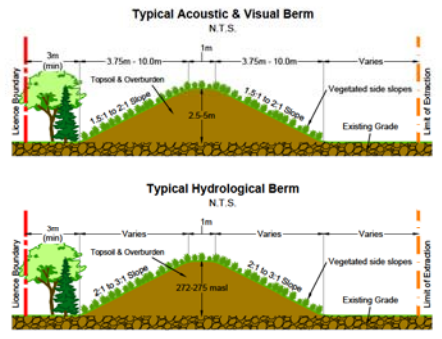
File Name: **Existing Features**

Drawing No.: **1 of 4**

File Path: N:\Brian\9135D - Nelson - Project Sideways\Drawings\ARA Site Plans\CAD\9135D - Site Plan.dwg



Concession 2 North of Dundas Street



Legal Description
 Part Lot 1 & 2, Concession 2 and Part Lot 17 & 18, Concession 2 NDS
 (former geographic Township of Nelson)
 City of Burlington
 Region of Halton

Legend

| | |
|---|--|
| Licence Boundary | 120m Offset From Licence Boundary |
| Limit of Extraction All setbacks are drawn to scale and show labeled distances | Existing Licence Existing Licence Boundary (solid line) Existing Limit of Extraction (dashed line) |
| Contours with Elevation Metres above sea level (MASL) | Parcel Fabric |
| Public Road | Diversion or Discharge Pipe Existing - Single Dash Proposed - Double Dash |
| Internal Haul Road | Sun-Canadian Pipe Line Pipe line location and easement |
| Fence / Silt Fence 1.2m post & wire fence unless otherwise noted (X) Silt Fencing (O) | Entrance / Exit Proposed |
| Jefferson Salamander Regulatory Boundary | Gate |
| Water Feature | General Direction of Excavation & Boundary |
| Woodlands Significant | Berm Proposed Acoustic (solid) & Hydrologic (dashed) Berms Proposed Visual Berms |
| Woodlands | Building/Structure Location and use for buildings on site & within 120m are shown |
| Wetland | Quarry Floor Metres above sea level (MASL) |
| Forested Setbacks | Cross Sections |

Site Plan Amendments

| No. | Date | Description | By |
|-----|------|-------------|----|
| | | | |
| | | | |
| | | | |
| | | | |

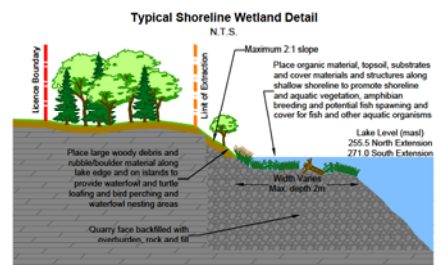
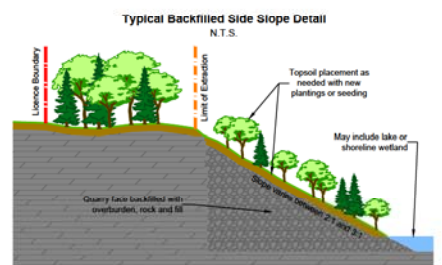
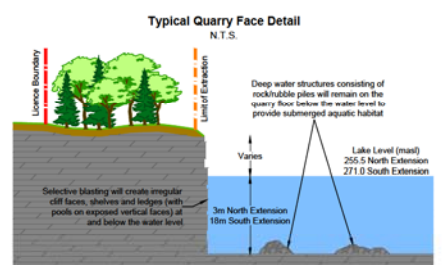
MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE
 113 COLLIER STREET, BARRE, ON, L4M 1H2 | P: 705.728.0045 F: 705.728.2010 | WWW.MHBCPLAN.COM

| | |
|---------------------|------------|
| MNRF Approval Stamp | MHBC Stamp |
|---------------------|------------|

NELSON AGGREGATE CO.
 2433 No. 2 Sideroad
 P.O. Box 1070 Burlington Ont. L7R 4L8
 phone: (905) 335-5250

Project Burlington Quarry Extension

| | |
|-----------------------------|---|
| MNRF Licence Reference No. | Pre-approval review: |
| Plan Scale: 1:4000 (Arch D) | Date: April 2020 |
| 0 120 240 Meters | Drawn By: C.P. File No.: 9135D |
| Checked By: *** | |
| File Name | Operational Plan |
| Drawing No. | 2 of 4 |
| File Path | N:\Briar\9135D- Nelson - Project Sideways\Drawings\ARA Site Plans\CAD\9135D - Site Plan.dwg |



- Setback - grassland and existing trees
- Setback - forested - planted during operations
- Setback - forested - planted once berms are removed
- Gradual grade (with trees and vernal pools) or islands
- Restored to existing grade (tree planting)
- 3:1 slope (tree planting)
- 2:1 slope (tree planting)
- Beach
- Pond
- Swim area
- Lake
- Shoreline wetland
- Vertical Face

Legal Description
Part Lot 1 & 2, Concession 2 and Part Lot 17 & 18, Concession 2 NDS (former geographic Township of Nelson)
City of Burlington
Region of Halton

Legend

- Licence Boundary
- Limit of Extraction
All setbacks are drawn to scale and show labelled distances
- Contours with Elevation
Metres above sea level (MASL)
- Public Road
- Fence
1.2m post & wire farm fence unless otherwise noted
- Water Feature
- Woodlands
Significant
- Woodlands
- Wetland
- 120m Offset From Licence Boundary
- Existing Licence
Existing Licence Boundary (solid line)
Existing Limit of Extraction (dashed line)
- Parcel Fabric
- Diversion or Discharge Pipe
Existing - Single Dash
Proposed - Double Dash
- Sun-Canadian Pipe Line
Pipe line location and easement
- Jefferson Salamander Regulatory Boundary
- Gate
- Building/Structure
Location and use for buildings on site & within 120m are shown
- Final Direction of Surface Drainage
- Final Elevation of Land and Lake (MASL)
- Cross Sections

Site Plan Amendments

| No. | Date | Description | By |
|-----|------|-------------|----|
| | | | |
| | | | |
| | | | |

MHBC
PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE
113 COLLIER STREET, BARRIE, ON, L4M 1H2 | P: 705.728.0045 F: 705.728.2010 | WWW.MHBCPLAN.COM

MNR Approval Stamp: _____ MHBC Stamp: _____

Applicant: **NELSON AGGREGATE CO.**

NELSON AGGREGATE CO.
2433 No. 2 Sideroad
P.O. Box 1070 Burlington Ont. L7R 4L8
phone: (905) 335-5250

Project
Burlington Quarry Extension

| | |
|-----------------------------|----------------------|
| MNR Licence Reference No. | Pre-approval review: |
| Plan Scale: 1:4000 (Arch D) | Date: April 2020 |
| | Drawn By: C.P. |
| Checked By: *** | File No.: 9135D |

File Name
Rehabilitation Plan

Drawing No.
3 of 4

File Path
N:\Bian\9135D - Nelson - Project Sideways\Drawings\ARA Site Plans\CAD\9135D - Site Plan.dwg

APPENDIX B

Summary of Assessed Operations



ACOUSTICS



NOISE



VIBRATION

The following on-site operations were considered for the purposes of this study, based on input from Nelson Aggregate personnel:

- The drilling, extraction activities, and processing of extracted materials may only occur during daytime hours only (7:00 – 19:00);
- Loading and shipping of products from the existing quarry may occur for 24 hours;
- The third-party asphalt plant can operate anytime during daytime (7:00 – 19:00) and evening/night-time (19:00 – 7:00) hours only;
- Drilling and material extraction were assumed to occur at the closest possible location to each of the surrounding receptors within the extraction area indicated in the site plan;
- Prior to commencement of quarrying activities in the two extensions, berms will be constructed at the perimeter of the site, as shown in the latest site plan, dated April 2020, and were assumed to remain in place throughout the operational life of each extension;
- The rock drill was assumed to be located on grade of the licensed area within the proposed quarry extension. The mobile equipment and the processing plant were modeled at an elevation representing the floor of the quarry, which will be approximately 270 metres above sea level in Phase 1 and 252.5 metres above sea level in Phases 2 through 6;
- The sound power levels assumed for the purposes of this assessment are summarized in the following table. The sound levels from the existing processing plant, front-end loaders for material extraction and loading of highway trucks, and all sources associated with the third-party asphalt plant were measured at the site on May 17, 2018 by HGC Engineering using methods in ISO standard 9614-2 [3]. Sound levels from highway trucks and haul trucks were based on measurements of similar equipment at other sites conducted by HGC Engineering of past projects. The sound power level of the rock drill in the extensions is based on information provided by Nelson Aggregate.



Table B1: Source Sound Power Levels [dBA re: 10⁻¹² W]

| Source | Sound Power Level |
|---|-------------------|
| Extraction at the Extension | |
| Drill | 110 |
| Front-end Loader – Working Face | 101 |
| Moving Haul Truck | 114 |
| Processing and Shipping from the Existing Quarry | |
| Front-end Loader – Processing Area | 101 |
| Jaw Crusher | 113 |
| Cone Crushers | 117 |
| Screen Plant | 123 |
| Power Generator | 109 |
| Moving Highway Truck | 101 |
| Asphalt Plant at the Existing Quarry | |
| Front-end Loader | 102 |
| Mixing Tower | 109 |
| Burner and Dryer | 111 |
| Baghouse | 104 |

- Three haul trucks will be used to transport material from the working face to the processing area. The frequency of haul truck movements was calculated based on the number of trucks in use, the round-trip distance traveled from the working face to the processing area and an average speed of 35 km/hr, based on observations at other sites. Consideration was also given to loading, acceleration/deceleration and unloading time, which were assumed to be two minutes, one minute and two minutes, respectively. The following table demonstrates the derivation of haul truck movements for typical operation within the quarry.

Table B2: Calculations of Haul Truck Movements

| | Phase 1 | Phase 2 | Phase 3 | Phase 4 | Phase 5 | Phase 6 |
|---------------------------------------|---------|---------|---------|---------|---------|---------|
| Round Trip Distance [km] | 2.1 | 3.5 | 2.7 | 3.2 | 3.2 | 3.3 |
| Average Speed [km/h]: | 35 | 35 | 35 | 35 | 35 | 35 |
| Time/Trip/Truck [min]: | 3.7 | 6.0 | 4.6 | 5.5 | 5.6 | 5.7 |
| Loading Time [min]: | 2 | 2 | 2 | 2 | 2 | 2 |
| Unloading Time [min]: | 2 | 2 | 2 | 2 | 2 | 2 |
| Acceleration/Deceleration [min]: | 1 | 1 | 1 | 1 | 1 | 1 |
| Total Time /Trip/Truck [min]: | 8.7 | 11.0 | 9.6 | 10.5 | 10.6 | 10.7 |
| No. of Trips/Truck/Hour: | 7 | 5 | 6 | 6 | 6 | 6 |
| No. of Trucks in Operation: | 3 | 3 | 3 | 3 | 3 | 3 |
| No. of Total Trips/Hour: | 21 | 16 | 19 | 17 | 17 | 17 |
| Unloading Time (10 s per Truck) [min] | 3.5 | 2.7 | 3.1 | 2.9 | 2.8 | 2.8 |

- Up to 30 and 20 highway trucks can visit the quarry and the asphalt plant, respectively, during the predictable worst-case hours of operation outlined above. The trucks were assumed to travel along the access route between the processing area, asphalt plant, and the site entrance on No. 2 Side Road. The trucks were assumed to move at an average speed of 20 km/hr, as that is the posted speed limit applicable to trucks visting the site.



ACOUSTICS



NOISE



VIBRATION

APPENDIX C

Noise Control Measures for Asphalt Plant



ACOUSTICS



NOISE



VIBRATION

The following noise control measures will be installed at the asphalt plant prior to commencement of extraction activities within the proposed quarry extension:

Acoustic Silencers

The fresh-air intake of the burner blower and the outlet of the baghouse stack will be equipped with acoustic silencers. The acoustical performance specifications for these silencers are included in the table below.

Table C1: Silencer Minimum Insertion Loss [dB]

| | Centre Octave Band Frequency | | | | | |
|---------------------|------------------------------|--------|--------|-------|-------|-------|
| | 125 Hz | 250 Hz | 500 Hz | 1 kHz | 2 kHz | 4 kHz |
| Burner Blower Inlet | 9 | 19 | 19 | 20 | 15 | 5 |
| Baghouse Outlet | 12 | 18 | 20 | 20 | 14 | -- |

Localized Barrier for Concentric Weight at Mixing Tower

A localized barrier will be constructed at the top of the mixing tower, to provide acoustic shielding for the concentric weight of the screening mechanism. The upper edge of the barrier will extend at least 1 metre above the concentric weight. The layout and dimensions of the barrier are depicted in Figure 3.

The barrier shall be vibration isolated from the supporting structure in order to minimize the transmission of vibration generated by the process equipment to the barrier itself.

APPENDIX D

Traffic Data



ACOUSTICS



NOISE



VIBRATION

Prepared For: Halton Region
 Prepared By: *PYRAMID Traffic Inc.*
 Location: REG. RD. #1 500m south of No 2 Side Road
 Start Date: Thursday Sep 28, 2017

Site ID: 100108
 Interval: 15 min.

| Period Ending | Channel 1 NB | Channel 2 SB | Hourly Summary |
|---------------|--------------|--------------|----------------|
| 0:15 | 5 | 5 | |
| 0:30 | 8 | 7 | |
| 0:45 | 2 | 10 | |
| 1:00 | 4 | 4 | 45 |
| 1:15 | 1 | 4 | 40 |
| 1:30 | 2 | 5 | 32 |
| 1:45 | 1 | 2 | 23 |
| 2:00 | 2 | 4 | 21 |
| 2:15 | 1 | 4 | 21 |
| 2:30 | 1 | 0 | 15 |
| 2:45 | 1 | 2 | 15 |
| 3:00 | 4 | 4 | 17 |
| 3:15 | 1 | 1 | 14 |
| 3:30 | 2 | 2 | 17 |
| 3:45 | 1 | 1 | 16 |
| 4:00 | 2 | 3 | 13 |
| 4:15 | 5 | 5 | 21 |
| 4:30 | 3 | 3 | 23 |
| 4:45 | 6 | 10 | 37 |
| 5:00 | 5 | 6 | 43 |
| 5:15 | 11 | 3 | 47 |
| 5:30 | 21 | 11 | 73 |
| 5:45 | 26 | 18 | 101 |
| 6:00 | 38 | 25 | 153 |
| 6:15 | 49 | 25 | 213 |
| 6:30 | 72 | 39 | 292 |
| 6:45 | 69 | 51 | 368 |
| 7:00 | 89 | 57 | 451 |
| 7:15 | 92 | 64 | 533 |
| 7:30 | 114 | 96 | 632 |
| 7:45 | 115 | 118 | 745 |
| 8:00 | 134 | 129 | 862 |
| 8:15 | 116 | 114 | 936 |
| 8:30 | 104 | 130 | 960 |
| 8:45 | 87 | 126 | 940 |
| 9:00 | 84 | 114 | 875 |
| 9:15 | 77 | 69 | 791 |
| 9:30 | 92 | 76 | 725 |
| 9:45 | 62 | 78 | 652 |
| 10:00 | 85 | 89 | 628 |
| 10:15 | 63 | 77 | 622 |
| 10:30 | 81 | 60 | 595 |
| 10:45 | 71 | 79 | 605 |
| 11:00 | 69 | 64 | 564 |
| 11:15 | 69 | 78 | 571 |
| 11:30 | 71 | 66 | 567 |
| 11:45 | 83 | 83 | 583 |
| 12:00 | 76 | 66 | 592 |

| Period Ending | Channel 1 NB | Channel 2 SB | Hourly Summary |
|---------------|--------------|--------------|----------------|
| 12:15 | 74 | 82 | 601 |
| 12:30 | 66 | 85 | 615 |
| 12:45 | 63 | 77 | 589 |
| 13:00 | 60 | 83 | 590 |
| 13:15 | 82 | 60 | 576 |
| 13:30 | 74 | 90 | 589 |
| 13:45 | 80 | 79 | 608 |
| 14:00 | 78 | 99 | 642 |
| 14:15 | 75 | 88 | 663 |
| 14:30 | 80 | 86 | 665 |
| 14:45 | 83 | 98 | 687 |
| 15:00 | 83 | 85 | 678 |
| 15:15 | 87 | 114 | 716 |
| 15:30 | 104 | 112 | 766 |
| 15:45 | 97 | 115 | 797 |
| 16:00 | 97 | 151 | 877 |
| 16:15 | 122 | 130 | 928 |
| 16:30 | 120 | 126 | 958 |
| 16:45 | 148 | 172 | 1066 |
| 17:00 | 116 | 144 | 1078 |
| 17:15 | 139 | 146 | 1111 |
| 17:30 | 153 | 162 | 1180 |
| 17:45 | 123 | 179 | 1162 |
| 18:00 | 141 | 142 | 1185 |
| 18:15 | 105 | 105 | 1110 |
| 18:30 | 98 | 114 | 1007 |
| 18:45 | 86 | 71 | 862 |
| 19:00 | 60 | 97 | 736 |
| 19:15 | 56 | 64 | 646 |
| 19:30 | 57 | 94 | 585 |
| 19:45 | 53 | 92 | 573 |
| 20:00 | 38 | 64 | 518 |
| 20:15 | 51 | 61 | 510 |
| 20:30 | 44 | 47 | 450 |
| 20:45 | 38 | 50 | 393 |
| 21:00 | 36 | 37 | 364 |
| 21:15 | 27 | 27 | 306 |
| 21:30 | 37 | 31 | 283 |
| 21:45 | 30 | 24 | 249 |
| 22:00 | 22 | 33 | 231 |
| 22:15 | 25 | 16 | 218 |
| 22:30 | 21 | 19 | 190 |
| 22:45 | 15 | 15 | 166 |
| 23:00 | 10 | 13 | 134 |
| 23:15 | 8 | 15 | 116 |
| 23:30 | 9 | 18 | 103 |
| 23:45 | 3 | 16 | 92 |
| 0:00 | 5 | 12 | 86 |

AM Peak: **960**

PM Peak: **1185**

24 HR VOLUME: **11383**

Ontario Traffic, Inc.
 17705 Leslie St., Unit 6
 Newmarket, Ontario L3Y 3E3
 Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 1
 Station ID: HI18
 2 Side Rd west of Guelph Line

Date Start: 08-Dec-18
 Date End: 11-Dec-18
 Date Start: 08-Dec-18

| NB, SB | | | | | | | | | | | | | | |
|------------|-------|-----------------|-------------|-------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|-------|
| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
| 12/08/18 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 01:00 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 02:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:00 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 05:00 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 06:00 | 0 | 22 | 3 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 28 |
| 07:00 | 0 | 34 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 |
| 08:00 | 1 | 27 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 35 |
| 09:00 | 0 | 48 | 7 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 58 |
| 10:00 | 0 | 50 | 6 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 59 |
| 11:00 | 2 | 57 | 10 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 73 |
| 12 PM | 0 | 42 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 54 |
| 13:00 | 0 | 45 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 56 |
| 14:00 | 0 | 36 | 9 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 46 |
| 15:00 | 0 | 49 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 59 |
| 16:00 | 1 | 32 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 37 |
| 17:00 | 1 | 36 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44 |
| 18:00 | 0 | 26 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| 19:00 | 0 | 28 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 |
| 20:00 | 0 | 11 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 21:00 | 0 | 7 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 22:00 | 0 | 14 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 23:00 | 0 | 12 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| Day Total | 5 | 591 | 106 | 0 | 1 | 4 | 0 | 3 | 3 | 2 | 1 | 0 | 3 | 719 |
| Percent | 0.7% | 82.2% | 14.7% | 0.0% | 0.1% | 0.6% | 0.0% | 0.4% | 0.4% | 0.3% | 0.1% | 0.0% | 0.4% | |
| AM Peak | 11:00 | 11:00 | 11:00 | | 10:00 | 11:00 | | 06:00 | 06:00 | 06:00 | 09:00 | | 08:00 | 11:00 |
| Vol. | 2 | 57 | 10 | | 1 | 2 | | 1 | 1 | 1 | 1 | | 1 | 73 |
| PM Peak | 16:00 | 15:00 | 12:00 | | | | | 14:00 | | | | | 16:00 | 15:00 |
| Vol. | 1 | 49 | 12 | | | | | 1 | | | | | 1 | 59 |

Ontario Traffic, Inc.
 17705 Leslie St., Unit 6
 Newmarket, Ontario L3Y 3E3
 Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 1
 Station ID: HI18
 2 Side Rd west of Guelph Line

Date Start: 08-Dec-18
 Date End: 11-Dec-18
 Date Start: 08-Dec-18

| NB, SB | | | | | | | | | | | | | | |
|------------|-------|-----------------|-------------|-------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|-------|
| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
| 12/09/18 | 0 | 13 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 01:00 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 02:00 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 03:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 05:00 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 06:00 | 1 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 07:00 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 08:00 | 1 | 13 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| 09:00 | 0 | 19 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 |
| 10:00 | 0 | 24 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| 11:00 | 0 | 36 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 |
| 12 PM | 0 | 49 | 6 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 56 |
| 13:00 | 0 | 40 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 |
| 14:00 | 1 | 50 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53 |
| 15:00 | 0 | 39 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 |
| 16:00 | 0 | 31 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 |
| 17:00 | 1 | 22 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |
| 18:00 | 0 | 23 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 |
| 19:00 | 0 | 14 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 20:00 | 1 | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 21:00 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 22:00 | 1 | 8 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 23:00 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Day Total | 6 | 433 | 74 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 514 |
| Percent | 1.2% | 84.2% | 14.4% | 0.0% | 0.0% | 0.0% | 0.0% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | |
| AM Peak | 06:00 | 11:00 | 11:00 | | | | | | | | | | | 11:00 |
| Vol. | 1 | 36 | 10 | | | | | | | | | | | 46 |
| PM Peak | 14:00 | 14:00 | 17:00 | | | | | 12:00 | | | | | | 12:00 |
| Vol. | 1 | 50 | 9 | | | | | 1 | | | | | | 56 |

Ontario Traffic, Inc.
 17705 Leslie St., Unit 6
 Newmarket, Ontario L3Y 3E3
 Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 1
 Station ID: HI18
 2 Side Rd west of Guelph Line

Date Start: 08-Dec-18
 Date End: 11-Dec-18
 Date Start: 08-Dec-18

| NB, SB | | | | | | | | | | | | | | |
|------------|----------|-----------------|-------------|----------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|------------|
| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
| 12/10/18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 01:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 02:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 03:00 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 04:00 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 05:00 | 0 | 15 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 06:00 | 0 | 32 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 |
| 07:00 | 0 | 99 | 18 | 0 | 0 | 4 | 1 | 1 | 2 | 1 | 1 | 0 | 0 | 127 |
| 08:00 | 1 | 171 | 27 | 0 | 1 | 5 | 0 | 4 | 3 | 1 | 0 | 0 | 1 | 214 |
| 09:00 | 0 | 129 | 40 | 0 | 0 | 3 | 0 | 4 | 0 | 3 | 0 | 0 | 2 | 181 |
| 10:00 | 1 | 111 | 19 | 1 | 0 | 3 | 0 | 3 | 1 | 3 | 0 | 0 | 4 | 146 |
| 11:00 | 3 | 115 | 16 | 0 | 1 | 8 | 0 | 4 | 1 | 3 | 0 | 0 | 2 | 153 |
| 12 PM | 0 | 113 | 20 | 0 | 0 | 2 | 0 | 2 | 1 | 1 | 0 | 0 | 1 | 140 |
| 13:00 | 0 | 117 | 25 | 0 | 1 | 3 | 1 | 3 | 0 | 1 | 0 | 0 | 2 | 153 |
| 14:00 | 1 | 123 | 28 | 0 | 0 | 3 | 0 | 3 | 0 | 3 | 0 | 1 | 0 | 162 |
| 15:00 | 0 | 118 | 26 | 0 | 0 | 3 | 0 | 3 | 2 | 0 | 1 | 0 | 1 | 154 |
| 16:00 | 2 | 93 | 25 | 0 | 3 | 1 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 130 |
| 17:00 | 1 | 82 | 20 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 107 |
| 18:00 | 1 | 31 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 |
| 19:00 | 0 | 27 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |
| 20:00 | 0 | 23 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 |
| 21:00 | 0 | 14 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| 22:00 | 0 | 12 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 23:00 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Day Total | 11 | 1431 | 308 | 1 | 6 | 36 | 2 | 29 | 10 | 16 | 6 | 1 | 16 | 1873 |
| Percent | 0.6% | 76.4% | 16.4% | 0.1% | 0.3% | 1.9% | 0.1% | 1.5% | 0.5% | 0.9% | 0.3% | 0.1% | 0.9% | |
| AM Peak | 11:00 | 08:00 | 09:00 | 10:00 | 08:00 | 11:00 | 07:00 | 08:00 | 08:00 | 09:00 | 07:00 | | 10:00 | 08:00 |
| Vol. | 3 | 171 | 40 | 1 | 1 | 8 | 1 | 4 | 3 | 3 | 1 | | 4 | 214 |
| PM Peak | 16:00 | 14:00 | 14:00 | | 16:00 | 13:00 | 13:00 | 13:00 | 15:00 | 14:00 | 16:00 | 14:00 | 13:00 | 14:00 |
| Vol. | 2 | 123 | 28 | | 3 | 3 | 1 | 3 | 2 | 3 | 2 | 1 | 2 | 162 |

Ontario Traffic, Inc.
 17705 Leslie St., Unit 6
 Newmarket, Ontario L3Y 3E3
 Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 1
 Station ID: HI18
 2 Side Rd west of Guelph Line

Date Start: 08-Dec-18
 Date End: 11-Dec-18
 Date Start: 08-Dec-18

| NB, SB | | | | | | | | | | | | | | |
|-------------|-------|-----------------|-------------|-------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|-------|
| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
| 12/11/18 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 01:00 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 02:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 03:00 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 04:00 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 05:00 | 0 | 13 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 06:00 | 0 | 30 | 5 | 0 | 0 | 5 | 0 | 2 | 1 | 0 | 2 | 0 | 0 | 45 |
| 07:00 | 1 | 133 | 20 | 0 | 1 | 4 | 1 | 2 | 1 | 2 | 0 | 0 | 2 | 167 |
| 08:00 | 2 | 136 | 29 | 0 | 1 | 7 | 1 | 3 | 1 | 2 | 1 | 0 | 4 | 187 |
| 09:00 | 0 | 130 | 35 | 0 | 0 | 3 | 0 | 2 | 2 | 1 | 1 | 0 | 1 | 175 |
| 10:00 | 0 | 99 | 31 | 0 | 2 | 7 | 1 | 4 | 2 | 3 | 2 | 0 | 2 | 153 |
| 11:00 | 0 | 119 | 30 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 1 | 0 | 1 | 155 |
| 12 PM | 1 | 105 | 12 | 0 | 0 | 6 | 2 | 5 | 2 | 4 | 2 | 0 | 4 | 143 |
| 13:00 | 0 | 94 | 24 | 0 | 1 | 2 | 1 | 7 | 0 | 2 | 0 | 0 | 2 | 133 |
| 14:00 | 0 | 135 | 23 | 0 | 0 | 7 | 0 | 5 | 2 | 2 | 1 | 0 | 0 | 175 |
| 15:00 | 0 | 100 | 24 | 0 | 0 | 5 | 1 | 4 | 4 | 3 | 0 | 1 | 1 | 143 |
| 16:00 | 3 | 81 | 34 | 0 | 3 | 3 | 1 | 2 | 0 | 2 | 0 | 0 | 1 | 130 |
| 17:00 | 2 | 98 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 118 |
| 18:00 | 0 | 47 | 12 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 63 |
| 19:00 | 0 | 21 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| 20:00 | 0 | 10 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 21:00 | 0 | 15 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 22:00 | 0 | 18 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 |
| 23:00 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| Day Total | 11 | 1395 | 325 | 0 | 8 | 52 | 8 | 40 | 15 | 22 | 13 | 1 | 19 | 1909 |
| Percent | 0.6% | 73.1% | 17.0% | 0.0% | 0.4% | 2.7% | 0.4% | 2.1% | 0.8% | 1.2% | 0.7% | 0.1% | 1.0% | |
| AM Peak | 08:00 | 08:00 | 09:00 | | 10:00 | 08:00 | 07:00 | 10:00 | 09:00 | 10:00 | 06:00 | | 08:00 | 08:00 |
| Vol. | 2 | 136 | 35 | | 2 | 7 | 1 | 4 | 2 | 3 | 2 | | 4 | 187 |
| PM Peak | 16:00 | 14:00 | 16:00 | | 16:00 | 14:00 | 12:00 | 13:00 | 15:00 | 12:00 | 12:00 | 15:00 | 12:00 | 14:00 |
| Vol. | 3 | 135 | 34 | | 3 | 7 | 2 | 7 | 4 | 4 | 2 | 1 | 4 | 175 |
| Grand Total | 33 | 3850 | 813 | 1 | 15 | 92 | 10 | 73 | 28 | 40 | 20 | 2 | 38 | 5015 |
| Percent | 0.7% | 76.8% | 16.2% | 0.0% | 0.3% | 1.8% | 0.2% | 1.5% | 0.6% | 0.8% | 0.4% | 0.0% | 0.8% | |

Ontario Traffic, Inc.
 17705 Leslie St., Unit 6
 Newmarket, Ontario L3Y 3E3
 Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 2
 Station ID: HI12
 2 Side Rd east of creek

Date Start: 08-Dec-18
 Date End: 11-Dec-18
 Date Start: 08-Dec-18

| NB, SB | | | | | | | | | | | | | | |
|------------|-------|-----------------|-------------|-------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|-------|
| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
| 12/09/18 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 01:00 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 02:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 03:00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 04:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 05:00 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 06:00 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 07:00 | 0 | 9 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 08:00 | 0 | 12 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| 09:00 | 0 | 15 | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |
| 10:00 | 0 | 27 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 34 |
| 11:00 | 0 | 38 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 |
| 12 PM | 0 | 46 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 56 |
| 13:00 | 0 | 38 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 |
| 14:00 | 0 | 43 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 47 |
| 15:00 | 0 | 27 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 |
| 16:00 | 1 | 28 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 39 |
| 17:00 | 0 | 20 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 |
| 18:00 | 2 | 23 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 |
| 19:00 | 0 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 20:00 | 0 | 8 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 21:00 | 0 | 11 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 22:00 | 0 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 23:00 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Day Total | 3 | 378 | 80 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 465 |
| Percent | 0.6% | 81.3% | 17.2% | 0.0% | 0.0% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.6% | 0.0% | 0.0% | |
| AM Peak | | 11:00 | 09:00 | | | 09:00 | | | | | 10:00 | | | 11:00 |
| Vol. | | 38 | 7 | | | 1 | | | | | 1 | | | 45 |
| PM Peak | 18:00 | 12:00 | 12:00 | | | | | | | | 14:00 | | | 12:00 |
| Vol. | 2 | 46 | 10 | | | | | | | | 1 | | | 56 |

Ontario Traffic, Inc.
 17705 Leslie St., Unit 6
 Newmarket, Ontario L3Y 3E3
 Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 2
 Station ID: HI12
 2 Side Rd east of creek

Date Start: 08-Dec-18
 Date End: 11-Dec-18
 Date Start: 08-Dec-18

| NB, SB | | | | | | | | | | | | | | |
|------------|-------|-----------------|-------------|-------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|------------|
| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
| 12/10/18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 01:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 02:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 03:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 04:00 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 05:00 | 0 | 17 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 |
| 06:00 | 0 | 19 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 |
| 07:00 | 0 | 67 | 14 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 83 |
| 08:00 | 0 | 58 | 14 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 76 |
| 09:00 | 0 | 15 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| 10:00 | 0 | 14 | 8 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 24 |
| 11:00 | 0 | 21 | 5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 27 |
| 12 PM | 0 | 19 | 8 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| 13:00 | 0 | 20 | 7 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 29 |
| 14:00 | 0 | 43 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 63 |
| 15:00 | 0 | 50 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 62 |
| 16:00 | 0 | 69 | 30 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 103 |
| 17:00 | 0 | 62 | 20 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 83 |
| 18:00 | 0 | 31 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 |
| 19:00 | 0 | 22 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 |
| 20:00 | 0 | 18 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 |
| 21:00 | 0 | 14 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| 22:00 | 0 | 6 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 23:00 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Day Total | 0 | 574 | 197 | 0 | 8 | 5 | 0 | 3 | 2 | 0 | 2 | 0 | 0 | 791 |
| Percent | 0.0% | 72.6% | 24.9% | 0.0% | 1.0% | 0.6% | 0.0% | 0.4% | 0.3% | 0.0% | 0.3% | 0.0% | 0.0% | |
| AM Peak | | 07:00 | 07:00 | | 08:00 | 07:00 | | 08:00 | 10:00 | | 07:00 | | | 07:00 |
| Vol. | | 67 | 14 | | 2 | 1 | | 1 | 1 | | 1 | | | 83 |
| PM Peak | | 16:00 | 16:00 | | 16:00 | 12:00 | | 13:00 | 17:00 | | 14:00 | | | 16:00 |
| Vol. | | 69 | 30 | | 4 | 2 | | 1 | 1 | | 1 | | | 103 |

Ontario Traffic, Inc.
 17705 Leslie St., Unit 6
 Newmarket, Ontario L3Y 3E3
 Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 2
 Station ID: HI12
 2 Side Rd east of creek

Date Start: 08-Dec-18
 Date End: 11-Dec-18
 Date Start: 08-Dec-18

| NB, SB | | | | | | | | | | | | | | |
|--------------|-------|-----------------|-------------|-------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|--------------|
| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
| 12/11/18 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 01:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 02:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 03:00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 04:00 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 05:00 | 0 | 16 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |
| 06:00 | 0 | 29 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| 07:00 | 0 | 73 | 22 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 98 |
| 08:00 | 0 | 71 | 17 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 92 |
| 09:00 | 0 | 30 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 |
| 10:00 | 0 | 25 | 15 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 42 |
| 11:00 | 0 | 24 | 10 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 39 |
| 12 PM | 0 | 27 | 6 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 |
| 13:00 | 0 | 29 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| 14:00 | 0 | 42 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 54 |
| 15:00 | 0 | 68 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 90 |
| 16:00 | 0 | 90 | 26 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 120 |
| 17:00 | 0 | 74 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 88 |
| 18:00 | 0 | 35 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 46 |
| 19:00 | 0 | 19 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 |
| 20:00 | 0 | 13 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| 21:00 | 0 | 10 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 22:00 | 0 | 15 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 23:00 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Day Total | 0 | 699 | 211 | 0 | 9 | 8 | 0 | 5 | 0 | 0 | 3 | 0 | 2 | 937 |
| Percent | 0.0% | 74.6% | 22.5% | 0.0% | 1.0% | 0.9% | 0.0% | 0.5% | 0.0% | 0.0% | 0.3% | 0.0% | 0.2% | |
| AM Peak Vol. | | 07:00 73 | 07:00 22 | | 08:00 2 | 11:00 3 | | 08:00 2 | | | 11:00 1 | | 10:00 1 | 07:00 98 |
| PM Peak Vol. | | 16:00 90 | 16:00 26 | | 16:00 4 | 12:00 2 | | | | | 17:00 2 | | 18:00 1 | 16:00 120 |
| Grand Total | 5 | 2102 | 602 | 0 | 19 | 14 | 0 | 8 | 2 | 0 | 9 | 0 | 3 | 2764 |
| Percent | 0.2% | 76.0% | 21.8% | 0.0% | 0.7% | 0.5% | 0.0% | 0.3% | 0.1% | 0.0% | 0.3% | 0.0% | 0.1% | |

Ontario Traffic, Inc.
 17705 Leslie St., Unit 6
 Newmarket, Ontario L3Y 3E3
 Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 3
 Station ID: HI19
 Cedar Springs Rd north of 2 Side Rd

Date Start: 08-Dec-18
 Date End: 11-Dec-18
 Date Start: 08-Dec-18

| NB, SB | | | | | | | | | | | | | | |
|------------|----------|-----------------|-------------|-------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|------------|
| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
| 12/08/18 | 0 | 9 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 01:00 | 0 | 8 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 02:00 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 03:00 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 04:00 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 05:00 | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 06:00 | 0 | 21 | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 26 |
| 07:00 | 0 | 35 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 |
| 08:00 | 3 | 71 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 88 |
| 09:00 | 0 | 133 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 163 |
| 10:00 | 1 | 159 | 39 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 203 |
| 11:00 | 1 | 180 | 51 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 235 |
| 12 PM | 0 | 230 | 42 | 0 | 2 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 279 |
| 13:00 | 0 | 181 | 38 | 0 | 0 | 0 | 0 | 5 | 1 | 0 | 2 | 0 | 0 | 227 |
| 14:00 | 0 | 194 | 40 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 241 |
| 15:00 | 2 | 186 | 33 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 225 |
| 16:00 | 0 | 181 | 44 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 227 |
| 17:00 | 2 | 149 | 42 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 196 |
| 18:00 | 1 | 137 | 35 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 1 | 177 |
| 19:00 | 1 | 99 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 113 |
| 20:00 | 0 | 80 | 21 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 104 |
| 21:00 | 0 | 68 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 83 |
| 22:00 | 0 | 55 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 63 |
| 23:00 | 0 | 53 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 64 |
| Day Total | 11 | 2246 | 499 | 0 | 7 | 2 | 0 | 21 | 2 | 0 | 18 | 0 | 1 | 2807 |
| Percent | 0.4% | 80.0% | 17.8% | 0.0% | 0.2% | 0.1% | 0.0% | 0.7% | 0.1% | 0.0% | 0.6% | 0.0% | 0.0% | |
| AM Peak | 08:00 | 11:00 | 11:00 | | 01:00 | 03:00 | | 06:00 | | | 09:00 | | | 11:00 |
| Vol. | 3 | 180 | 51 | | 2 | 1 | | 1 | | | 2 | | | 235 |
| PM Peak | 15:00 | 12:00 | 16:00 | | 12:00 | 14:00 | | 13:00 | 13:00 | | 14:00 | | 18:00 | 12:00 |
| Vol. | 2 | 230 | 44 | | 2 | 1 | | 5 | 1 | | 3 | | 1 | 279 |

Ontario Traffic, Inc.
 17705 Leslie St., Unit 6
 Newmarket, Ontario L3Y 3E3
 Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 3
 Station ID: HI19
 Cedar Springs Rd north of 2 Side Rd

Date Start: 08-Dec-18
 Date End: 11-Dec-18
 Date Start: 08-Dec-18

| NB, SB | | | | | | | | | | | | | | |
|------------|-------|-----------------|-------------|-------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|-------|
| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
| 12/09/18 | 0 | 39 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 |
| 01:00 | 0 | 22 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 |
| 02:00 | 0 | 17 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 03:00 | 0 | 3 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 04:00 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 05:00 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 06:00 | 0 | 4 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 07:00 | 0 | 22 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| 08:00 | 0 | 49 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 68 |
| 09:00 | 1 | 119 | 29 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 1 | 154 |
| 10:00 | 0 | 139 | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 175 |
| 11:00 | 1 | 167 | 27 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 196 |
| 12 PM | 1 | 207 | 63 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 1 | 0 | 277 |
| 13:00 | 1 | 193 | 44 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 241 |
| 14:00 | 3 | 205 | 42 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 3 | 0 | 0 | 256 |
| 15:00 | 3 | 186 | 40 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 232 |
| 16:00 | 1 | 171 | 37 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 210 |
| 17:00 | 3 | 136 | 27 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 167 |
| 18:00 | 1 | 96 | 17 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 116 |
| 19:00 | 1 | 62 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 77 |
| 20:00 | 0 | 54 | 18 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 74 |
| 21:00 | 0 | 70 | 7 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 79 |
| 22:00 | 0 | 26 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| 23:00 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| Day Total | 16 | 1997 | 457 | 1 | 4 | 1 | 1 | 15 | 1 | 0 | 9 | 1 | 1 | 2504 |
| Percent | 0.6% | 79.8% | 18.3% | 0.0% | 0.2% | 0.0% | 0.0% | 0.6% | 0.0% | 0.0% | 0.4% | 0.0% | 0.0% | |
| AM Peak | 09:00 | 11:00 | 10:00 | | 03:00 | | | 09:00 | | | 09:00 | | 09:00 | 11:00 |
| Vol. | 1 | 167 | 35 | | 1 | | | 2 | | | 2 | | 1 | 196 |
| PM Peak | 14:00 | 12:00 | 12:00 | 18:00 | 21:00 | 15:00 | 14:00 | 12:00 | 13:00 | | 14:00 | 12:00 | | 12:00 |
| Vol. | 3 | 207 | 63 | 1 | 2 | 1 | 1 | 5 | 1 | | 3 | 1 | | 277 |

Ontario Traffic, Inc.
 17705 Leslie St., Unit 6
 Newmarket, Ontario L3Y 3E3
 Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 3
 Station ID: HI19
 Cedar Springs Rd north of 2 Side Rd

Date Start: 08-Dec-18
 Date End: 11-Dec-18
 Date Start: 08-Dec-18

| NB, SB | | | | | | | | | | | | | | |
|------------|-------|-----------------|-------------|-------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|-------|
| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
| 12/10/18 | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 01:00 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 02:00 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 03:00 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 04:00 | 0 | 7 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 05:00 | 0 | 15 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 |
| 06:00 | 1 | 63 | 26 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 93 |
| 07:00 | 2 | 179 | 55 | 0 | 2 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 243 |
| 08:00 | 0 | 240 | 55 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 2 | 1 | 0 | 303 |
| 09:00 | 1 | 168 | 40 | 0 | 4 | 4 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 221 |
| 10:00 | 0 | 146 | 46 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 1 | 0 | 0 | 198 |
| 11:00 | 0 | 146 | 44 | 0 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 195 |
| 12 PM | 0 | 126 | 38 | 0 | 0 | 1 | 0 | 2 | 2 | 0 | 2 | 0 | 1 | 172 |
| 13:00 | 1 | 114 | 31 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 150 |
| 14:00 | 1 | 183 | 46 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 234 |
| 15:00 | 1 | 208 | 48 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 5 | 0 | 0 | 267 |
| 16:00 | 0 | 266 | 81 | 0 | 3 | 1 | 0 | 3 | 0 | 0 | 9 | 0 | 0 | 363 |
| 17:00 | 0 | 285 | 68 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 2 | 0 | 2 | 362 |
| 18:00 | 0 | 165 | 40 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 208 |
| 19:00 | 0 | 110 | 28 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 140 |
| 20:00 | 0 | 80 | 13 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 94 |
| 21:00 | 0 | 52 | 9 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 62 |
| 22:00 | 0 | 45 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 55 |
| 23:00 | 0 | 12 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| Day Total | 7 | 2619 | 704 | 2 | 19 | 12 | 2 | 25 | 5 | 0 | 28 | 1 | 5 | 3429 |
| Percent | 0.2% | 76.4% | 20.5% | 0.1% | 0.6% | 0.3% | 0.1% | 0.7% | 0.1% | 0.0% | 0.8% | 0.0% | 0.1% | |
| AM Peak | 07:00 | 08:00 | 07:00 | 06:00 | 09:00 | 09:00 | 07:00 | 08:00 | 10:00 | | 09:00 | 08:00 | | 08:00 |
| Vol. | 2 | 240 | 55 | 1 | 4 | 4 | 1 | 4 | 1 | | 3 | 1 | | 303 |
| PM Peak | 13:00 | 17:00 | 16:00 | 15:00 | 16:00 | 12:00 | | 17:00 | 12:00 | | 16:00 | | 17:00 | 16:00 |
| Vol. | 1 | 285 | 81 | 1 | 3 | 1 | | 4 | 2 | | 9 | | 2 | 363 |

Ontario Traffic, Inc.
 17705 Leslie St., Unit 6
 Newmarket, Ontario L3Y 3E3
 Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 3
 Station ID: HI19
 Cedar Springs Rd north of 2 Side Rd

Date Start: 08-Dec-18
 Date End: 11-Dec-18
 Date Start: 08-Dec-18

| NB, SB | | | | | | | | | | | | | | |
|-------------|-------|-----------------|-------------|-------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|------------|
| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
| 12/11/18 | 0 | 9 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 01:00 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 02:00 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 03:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 04:00 | 0 | 6 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 05:00 | 0 | 20 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 |
| 06:00 | 0 | 74 | 26 | 0 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 105 |
| 07:00 | 0 | 201 | 54 | 0 | 2 | 2 | 0 | 5 | 0 | 0 | 4 | 0 | 1 | 269 |
| 08:00 | 2 | 234 | 65 | 0 | 2 | 1 | 0 | 4 | 1 | 0 | 3 | 0 | 1 | 313 |
| 09:00 | 1 | 141 | 54 | 0 | 5 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 1 | 206 |
| 10:00 | 3 | 145 | 35 | 0 | 0 | 1 | 0 | 4 | 0 | 0 | 0 | 1 | 0 | 189 |
| 11:00 | 1 | 142 | 34 | 0 | 0 | 3 | 1 | 3 | 0 | 1 | 3 | 0 | 0 | 188 |
| 12 PM | 0 | 121 | 43 | 0 | 2 | 2 | 1 | 2 | 1 | 0 | 2 | 0 | 0 | 174 |
| 13:00 | 4 | 143 | 40 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 190 |
| 14:00 | 0 | 144 | 54 | 0 | 1 | 1 | 0 | 2 | 1 | 0 | 2 | 0 | 0 | 205 |
| 15:00 | 1 | 209 | 50 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 266 |
| 16:00 | 1 | 221 | 78 | 0 | 2 | 1 | 0 | 3 | 0 | 0 | 7 | 0 | 0 | 313 |
| 17:00 | 3 | 290 | 67 | 1 | 0 | 0 | 0 | 6 | 0 | 0 | 5 | 0 | 0 | 372 |
| 18:00 | 0 | 167 | 53 | 0 | 1 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 225 |
| 19:00 | 2 | 101 | 25 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 129 |
| 20:00 | 0 | 70 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 94 |
| 21:00 | 1 | 54 | 17 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 74 |
| 22:00 | 0 | 51 | 9 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 62 |
| 23:00 | 0 | 22 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 |
| Day Total | 19 | 2572 | 752 | 1 | 20 | 19 | 2 | 40 | 3 | 1 | 29 | 1 | 3 | 3462 |
| Percent | 0.5% | 74.3% | 21.7% | 0.0% | 0.6% | 0.5% | 0.1% | 1.2% | 0.1% | 0.0% | 0.8% | 0.0% | 0.1% | |
| AM Peak | 10:00 | 08:00 | 08:00 | | 09:00 | 11:00 | 11:00 | 07:00 | 08:00 | 11:00 | 07:00 | 10:00 | 07:00 | 08:00 |
| Vol. | 3 | 234 | 65 | | 5 | 3 | 1 | 5 | 1 | 1 | 4 | 1 | 1 | 313 |
| PM Peak | 13:00 | 17:00 | 16:00 | 17:00 | 12:00 | 12:00 | 12:00 | 17:00 | 12:00 | | 16:00 | | | 17:00 |
| Vol. | 4 | 290 | 78 | 1 | 2 | 2 | 1 | 6 | 1 | | 7 | | | 372 |
| Grand Total | 53 | 9434 | 2412 | 4 | 50 | 34 | 5 | 101 | 11 | 1 | 84 | 3 | 10 | 12202 |
| Percent | 0.4% | 77.3% | 19.8% | 0.0% | 0.4% | 0.3% | 0.0% | 0.8% | 0.1% | 0.0% | 0.7% | 0.0% | 0.1% | |

Ontario Traffic, Inc.
 17705 Leslie St., Unit 6
 Newmarket, Ontario L3Y 3E3
 Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 4
 Station ID: HI25
 Colling Rd east of Blind Line

Date Start: 08-Dec-18
 Date End: 11-Dec-18
 Date Start: 08-Dec-18

EB, WB

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|------------|----------|-----------------|-------------|-------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|-----------|
| 12/09/18 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 01:00 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 02:00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 03:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 05:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 06:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 07:00 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 08:00 | 0 | 17 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| 09:00 | 0 | 30 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 34 |
| 10:00 | 1 | 23 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 |
| 11:00 | 2 | 39 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 |
| 12 PM | 2 | 35 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 |
| 13:00 | 2 | 32 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 41 |
| 14:00 | 1 | 32 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 43 |
| 15:00 | 3 | 41 | 7 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 52 |
| 16:00 | 2 | 21 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 |
| 17:00 | 2 | 36 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39 |
| 18:00 | 0 | 14 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 19:00 | 0 | 15 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| 20:00 | 0 | 9 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 21:00 | 0 | 10 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 22:00 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 23:00 | 1 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| Day Total | 16 | 385 | 60 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 464 |
| Percent | 3.4% | 83.0% | 12.9% | 0.0% | 0.0% | 0.0% | 0.0% | 0.2% | 0.0% | 0.0% | 0.4% | 0.0% | 0.0% | |
| AM Peak | 11:00 | 11:00 | 10:00 | | | | | | | | | | | 11:00 |
| Vol. | 2 | 39 | 7 | | | | | | | | | | | 45 |
| PM Peak | 15:00 | 15:00 | 14:00 | | | | | 15:00 | | | 13:00 | | | 15:00 |
| Vol. | 3 | 41 | 9 | | | | | 1 | | | 1 | | | 52 |

Ontario Traffic, Inc.
 17705 Leslie St., Unit 6
 Newmarket, Ontario L3Y 3E3
 Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 4
 Station ID: HI25
 Colling Rd east of Blind Line

Date Start: 08-Dec-18
 Date End: 11-Dec-18
 Date Start: 08-Dec-18

EB, WB

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|------------|-------|-----------------|-------------|-------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|-------|
| 12/10/18 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 01:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 05:00 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 06:00 | 0 | 16 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 |
| 07:00 | 4 | 52 | 16 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 74 |
| 08:00 | 2 | 71 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 91 |
| 09:00 | 1 | 28 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 |
| 10:00 | 2 | 23 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 |
| 11:00 | 0 | 29 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 |
| 12 PM | 1 | 23 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 |
| 13:00 | 2 | 24 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 |
| 14:00 | 0 | 23 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 32 |
| 15:00 | 3 | 27 | 6 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 37 |
| 16:00 | 1 | 56 | 15 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 75 |
| 17:00 | 4 | 47 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 56 |
| 18:00 | 3 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 |
| 19:00 | 0 | 17 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| 20:00 | 1 | 16 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| 21:00 | 2 | 16 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 22:00 | 0 | 13 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 23:00 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Day Total | 26 | 514 | 128 | 0 | 2 | 1 | 1 | 4 | 0 | 0 | 4 | 0 | 0 | 680 |
| Percent | 3.8% | 75.6% | 18.8% | 0.0% | 0.3% | 0.1% | 0.1% | 0.6% | 0.0% | 0.0% | 0.6% | 0.0% | 0.0% | |
| AM Peak | 07:00 | 08:00 | 08:00 | | 07:00 | | | 07:00 | | | | | | 08:00 |
| Vol. | 4 | 71 | 18 | | 1 | | | 1 | | | | | | 91 |
| PM Peak | 17:00 | 16:00 | 16:00 | | 16:00 | 12:00 | 16:00 | 15:00 | | | 14:00 | | | 16:00 |
| Vol. | 4 | 56 | 15 | | 1 | 1 | 1 | 1 | | | 3 | | | 75 |

Ontario Traffic, Inc.
 17705 Leslie St., Unit 6
 Newmarket, Ontario L3Y 3E3
 Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 4
 Station ID: HI25
 Colling Rd east of Blind Line

Date Start: 08-Dec-18
 Date End: 11-Dec-18
 Date Start: 08-Dec-18

EB, WB

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|-------------|----------|-----------------|-------------|-------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|-----------|
| 12/11/18 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 01:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 04:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 05:00 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 06:00 | 0 | 14 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 |
| 07:00 | 2 | 55 | 23 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 81 |
| 08:00 | 1 | 62 | 15 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 79 |
| 09:00 | 0 | 45 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 55 |
| 10:00 | 2 | 32 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 |
| 11:00 | 0 | 32 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 |
| 12 PM | 1 | 22 | 5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 29 |
| 13:00 | 0 | 30 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39 |
| 14:00 | 1 | 29 | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 35 |
| 15:00 | 1 | 31 | 10 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 |
| 16:00 | 2 | 55 | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 |
| 17:00 | 4 | 39 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 56 |
| 18:00 | 1 | 32 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 37 |
| 19:00 | 0 | 22 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 20:00 | 1 | 17 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 21:00 | 0 | 10 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 22:00 | 0 | 10 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 23:00 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Day Total | 16 | 549 | 122 | 0 | 4 | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 696 |
| Percent | 2.3% | 78.9% | 17.5% | 0.0% | 0.6% | 0.3% | 0.0% | 0.4% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | |
| AM Peak | 07:00 | 08:00 | 07:00 | | 07:00 | 11:00 | | 08:00 | | | | | | 07:00 |
| Vol. | 2 | 62 | 23 | | 1 | 1 | | 1 | | | | | | 81 |
| PM Peak | 17:00 | 16:00 | 17:00 | | 13:00 | 21:00 | | 12:00 | | | | | | 16:00 |
| Vol. | 4 | 55 | 13 | | 1 | 1 | | 1 | | | | | | 65 |
| Grand Total | 77 | 1913 | 381 | 0 | 6 | 3 | 1 | 8 | 1 | 0 | 6 | 0 | 0 | 2396 |
| Percent | 3.2% | 79.8% | 15.9% | 0.0% | 0.3% | 0.1% | 0.0% | 0.3% | 0.0% | 0.0% | 0.3% | 0.0% | 0.0% | |

APPENDIX E

Sample STAMSON Calculation



ACOUSTICS



NOISE



VIBRATION

APPENDIX F

Sample Calculations



ACOUSTICS



NOISE



VIBRATION

| Src ID | Src Name | Band | X | Y | Z | LxD | LxE | LxN | Adiv | K0 | Dc | Agnd | Abar | Aatm | Afol | Ahous | CmetD | CmetE | CmetN | ReflD | ReflE | ReflN | LrD | LrE | LrN | Band |
|--------|--------------------|------|--------|---------|-------|-----|-----|-----|------|----|-----|------|------|-------|------|-------|-------|-------|-------|-------|-------|-------|-----|-----|--------|------|
| Q-08 | Drill | 31.5 | 590537 | 4805561 | 281.1 | 45 | -- | -- | 74.2 | 0 | 0.0 | -5.7 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -- | -- | -- | 31.5 | |
| Q-08 | Drill | 63 | 590537 | 4805561 | 281.1 | 59 | -- | -- | 74.2 | 0 | 0.0 | -5.7 | 4.8 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -- | -- | -- | 63.0 | |
| Q-08 | Drill | 125 | 590537 | 4805561 | 281.1 | 75 | -- | -- | 74.2 | 0 | 0.0 | 8.8 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -- | -- | -- | 125.0 | |
| Q-08 | Drill | 250 | 590537 | 4805561 | 281.1 | 83 | -- | -- | 74.2 | 0 | 0.0 | 8.9 | 0.0 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -- | -- | -- | 250.0 | |
| Q-08 | Drill | 500 | 590537 | 4805561 | 281.1 | 91 | -- | -- | 74.2 | 0 | 0.0 | 11.6 | 0.0 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3 | -- | -- | 500.0 | |
| Q-08 | Drill | 1000 | 590537 | 4805561 | 281.1 | 103 | -- | -- | 74.2 | 0 | 0.0 | 3.1 | 2.1 | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18 | -- | -- | 1000.0 | |
| Q-08 | Drill | 2000 | 590537 | 4805561 | 281.1 | 104 | -- | -- | 74.2 | 0 | 0.0 | -0.9 | 5.6 | 13.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12 | -- | -- | 2000.0 | |
| Q-08 | Drill | 4000 | 590537 | 4805561 | 281.1 | 105 | -- | -- | 74.2 | 0 | 0.0 | -0.9 | 6.3 | 47.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -- | -- | -- | 4000.0 | |
| Q-08 | Drill | 8000 | 590537 | 4805561 | 281.1 | 101 | -- | -- | 74.2 | 0 | 0.0 | -0.9 | 7.4 | 168.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -- | -- | -- | 8000.0 | |
| Q-09 | Moving Rock Trucks | 31.5 | 590354 | 4805835 | 269.5 | 65 | -- | -- | 71.6 | 0 | 0.0 | -5.4 | 3.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -- | -- | -- | 31.5 | |
| Q-09 | Moving Rock Trucks | 63 | 590354 | 4805835 | 269.5 | 92 | -- | -- | 71.7 | 0 | 0.0 | -5.4 | 3.9 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22 | -- | -- | 63.0 | |
| Q-09 | Moving Rock Trucks | 125 | 590354 | 4805835 | 269.5 | 104 | -- | -- | 70.9 | 0 | 0.0 | 5.1 | 1.3 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 26 | -- | -- | 125.0 | |
| Q-09 | Moving Rock Trucks | 250 | 590354 | 4805835 | 269.5 | 103 | -- | -- | 71.2 | 0 | 0.0 | 3.3 | 2.7 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 25 | -- | -- | 250.0 | |
| Q-09 | Moving Rock Trucks | 500 | 590354 | 4805835 | 269.5 | 109 | -- | -- | 71.6 | 0 | 0.0 | -0.8 | 5.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 31 | -- | -- | 500.0 | |
| Q-09 | Moving Rock Trucks | 1000 | 590354 | 4805835 | 269.5 | 109 | -- | -- | 71.6 | 0 | 0.0 | -1.3 | 5.4 | 3.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 30 | -- | -- | 1000.0 | |
| Q-09 | Moving Rock Trucks | 2000 | 590354 | 4805835 | 269.5 | 111 | -- | -- | 71.2 | 0 | 0.0 | -1.4 | 7.4 | 9.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 25 | -- | -- | 2000.0 | |
| Q-09 | Moving Rock Trucks | 4000 | 590354 | 4805835 | 269.5 | 103 | -- | -- | 69.4 | 0 | 0.0 | -1.5 | 8.4 | 31.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -- | -- | -- | 4000.0 | |
| Q-09 | Moving Rock Trucks | 8000 | 590354 | 4805835 | 269.5 | 98 | -- | -- | 68.8 | 0 | 0.0 | -1.6 | 7.2 | 99.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -- | -- | -- | 8000.0 | |

Where: Lr = Lx - Adiv + K0 + Dc - Agnd - Abar - Aatm - Afol - Ahous + Cmet + Refl



APPENDIX G

Consultant's Curriculum Vitae



ACOUSTICS



NOISE



VIBRATION

Petr Chocensky, Project Consultant, PhD

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|-----------------------------|--|
| Education | Czech Technical University in Prague (CTU), Prague, Czech Republic, PhD, Civil Engineering |
| | Czech Technical University in Prague (CTU), Prague, Czech Republic, Masters Degree in Civil Engineering |
| Professional History | 2010 to Present Project Engineer, HGC Engineering, <i>Mississauga</i> |
| | 2003 to 2004 Project Engineer, EKOLAgrou, <i>Czech Republic</i> |
| | and 2006 to 2010 |
| | 2004 to 2005 Noise Review Engineer, Ministry of Health, <i>Czech Republic</i> |
| Experience | Dr. Chocensky's area of expertise covers acoustic assessments and solutions for a variety of industries – industrial and commercial facilities, aggregate pits, mines, renewable energy projects, road and rail infrastructure project, as well as projects related to building acoustics. He is an expert in computerized noise modeling and the use of CadnaA modeling software. |
| Selected Projects | The Bay Adelaide Centre, Toronto, Ontario One York, Toronto, Ontario Lafarge Canada Inc., various sites, Ontario G.E. Booth Wastewater Treatment Facility, Mississauga, Ontario Petro-Canada, Mississauga, Ontario Vale & Kelly Mine, Sudbury, Ontario Bunge, Hamilton, Ontario Dufferin Concrete, various sites, Ontario Dufferin Construction, various sites, Ontario NOVA Chemicals, Corunna, Ontario Kellogg Canada Inc., London, Ontario Morrison-Hershfield Energy Centre, Windsor, Ontario Chapman's Ice Cream, Markdale, Ontario Strategic Noise Maps for Roads, Prague, Czech Republic |

Corey D. Kinart, Senior Associate, MBA, PEng

| | |
|---------------------------------|---|
| Education | University of Waterloo, Bachelor of Applied Science, 2001 Schulich School of Business, York University, Master of Business Administration, 2015 |
| Professional Memberships | Professional Engineers Ontario (PEO) |
| Professional History | 2009 to present Senior Engineer/Associate, HGC Engineering, <i>Mississauga</i> 2006 to 2009 Project Engineer, HGC Engineering, <i>Mississauga</i> 2001 to 2006 Mechanical Engineer, Magellan Aerospace, <i>Mississauga</i> 2000 to 2001 Contract Engineer, HGC Engineering, <i>Mississauga</i> |
| Experience | Mr. Kinart has extensive experience in the assessment and mitigation of noise emissions from industrial and commercial facilities, and specializes in the use of advanced sound intensity measurement equipment and techniques. He has conducted feasibility studies, acoustic assessments and audits for government approvals, as well as noise complaint investigations for hundreds of facilities across Ontario and abroad. His experience spans a wide variety of industrial and commercial sectors and is highlighted by natural gas fired power generation facilities, natural gas transmission and distribution facilities, electrical transformer stations, petrochemical refineries, mineral mines, hot mix asphalt, ready-mix concrete and cement plants, aggregate pits and quarries and myriad of other sites and facilities of varying size and complexity. |
| Selected Projects | Union Gas Ltd., <i>Numerous sites throughout Ontario</i> General Dynamics Land Systems, <i>London, Ontario</i> Vale, <i>Copper Cliff & Garson, Ontario</i> Suncor Energy Products Inc., <i>Mooretown, Ontario</i> Lafarge Canada Inc., <i>Numerous sites throughout Ontario</i> National Gas Company of Trinidad & Tobago, <i>Trinidad & Tobago</i> General Motors, <i>St. Catharines, Ontario</i> Petro-Canada, <i>Mississauga, Ontario</i> TransCanada Pipelines Ltd., <i>Numerous sites in Ontario and Western Canada</i> Canada Building Materials, <i>Numerous sites throughout Ontario</i> DeBeers Victor Mine Project, <i>Northern Ontario</i> Staatsolie, <i>Tout Lui Faut, Suriname</i> Owens Corning, <i>Guelph, Ontario</i> Dufferin Concrete, <i>Numerous sites throughout Ontario</i> NOVA Chemicals, <i>Corunna, Mooretown & St. Clair, Ontario</i> Hydro One, <i>Numerous sites throughout Ontario</i> Xstrata Strathcona Mine, <i>Levack, Ontario</i> |