

Land Use Compatibility Assessment – Environmental Air Quality & Noise Impacts at The Harbour Pointe Development



November 11, 2019

Prepared for:
Bellisle Developments Inc.

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CAMBIUM INC.
866.217.7900
cambium-inc.com

Peterborough | Barrie | Oshawa | Kingston



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EXECUTIVE SUMMARY

The Harbour Pointe Community is a subdivision located at 60 Bellisle Road, in Penetanguishene, ON. The Harbour Pointe Community consists of four phases of construction, including two that have been completed, and two more that are proposed to extend the current development approximately 300 m south-west. The expansion involves the construction of 178 single-family dwellings. The land use will only be for residential purposes.

Cambium's understanding at this point is that the subdivision has Ontario Municipal Board approval issued in 2006, and therefore the majority of the land use planning decision process was completed previously. It is understood there was one item in the approval that required a letter to be issued by the Ministry of Natural Resources and Forestry indicating that the setback distance was acceptable for the aggregate license in the area:

"That the Owner shall provide confirmation in writing from the Ministry of Natural Resources stating that it has reviewed the proposed Plan of Subdivision and that the location of the arterial road abutting the southerly boundary is and acts as a sufficient buffer for the proposed residential lots, from the lands to the south which include a licenced quarry."

Cambium's understanding is that this type of letter is not issued by the Ministry of Natural Resources and Forestry. Therefore Bellisle developments has retained Cambium to proactively assess the setback distance and compatibility of the two sites.

It is also noteworthy that a condition related to warning clause is already part of the Ontario Municipal Board Requirements:

"That the Subdivision Agreement shall provide that, until the license is surrendered or revoked, the Owner shall include in all agreements of purchase and sale, provisions identifying and warning of the existence of the quarrying activities on the lands to the south and noise and dust generated therefrom as follows:

"Purchasers are advised that the lands south of the plan of subdivision within which this lot is located are licenced for aggregate extraction (a pit or quarry) and as such noise, dust and other nuisances may emanate from the operation. Such aggregate extraction may continue until the licence is surrendered or revoked."

This report is a not general land use compatibility study, it is assumed that given the zoning has been approved that only the condition related to the aggregate license needs to be addressed.

We have conducted a specific Land Use Compatibility assessment of the proposed development site to evaluate the compatibility with the neighbouring aggregate operation. The aggregate extraction site is operated by Penetang Sand & Gravel is located at 9854 County Road 93, in Penetanguishene, ON.

Cambium was provided an operational plan, obtained by Bellisle Developments Inc. from the Ministry of Natural Resources and Forestry. A review of the Penetang Sand & Gravel aggregate licence's operational plan indicates the operations consist of the phased extraction of sand from the property using rubber tired loaders and the



subsequent loading into trucks for product shipment. The rehabilitation of excavated areas follows extraction which may include a topsoil screening operation. Rehabilitation activities have been assumed to be a construction type activity by Cambium, meaning the local bylaws on noise and dust would apply rather than Ministry of the Environment guidelines and therefore those activities will not be addressed here.

It has been noted that since the license was originally issued, an amendment in 2014 now allows the site to crush recycled concrete and asphalt products on site. Based on communication from Pentang Sand and Gravel Cambium understands the crusher is a mobile operation on site for short duration (approximately 2 weeks per year).

Cambium personal measured background noise levels and qualitative observations of the air quality in the area on October 4, 2019. Although open for business, there was not any loader or trucking activities occurring at the Penetang Sand & Gravel aggregate site that were audible from the development. There was no dust emissions from the Penetang Sand & Gravel aggregate site that was observable from the development site.

We have determined that Penetang Sand & Gravel is within the area of influences suggested in the Ministry's D-6 land use compatibility guides. However these guidelines would have been in force, and likely considered during the original zoning amendment application.

A review of the requirements for local air quality regulated by O. Reg. 419/05 indicated that adverse impacts from air quality are unlikely at the proposed Site. Our noise feasibility assessment shows that, the land uses are potentially compatible with one of the following options implemented:

1. Administrative operational controls (using extraction working face to screen the loader)
2. Noise barriers
3. The Municipality could classify some of the development lots as Class 4 points of reception under NPC-300

In the unmitigated condition, Cambium's predictions indicate extraction activities would impact the subdivision at 55 dBA. The crusher, assuming it would be compliant at all homes that were present in 2014 when the license was amended would impact the subdivision at 57 dBA.

It is Cambium's opinion that all three options are technically equivalent, resolving compliance/compatibility for the adjacent sites, we believe that the selection of the appropriate option should be completed in consultation with all parties.



TABLE OF CONTENTS

1.0	INTRODUCTION AND SITE DESCRIPTION	1
1.1	HARBOUR POINTE COMMUNITY SITE DESCRIPTION.....	1
1.2	AGGREGATE SITE DESCRIPTION.....	1
2.0	LAND USE COMPATABILITY ASSESSMENT	3
2.1	MINISTRY D-SERIES LAND USE COMPATABILITY GUIDES.....	3
2.2	APPLICATION OF MINISTRY GUIDELINES	4
3.0	AIR QUALITY	5
3.1	FUGITIVE DUST AND WIND CONDITIONS.....	5
3.2	AIR QUALITY CONCLUSION.....	6
4.0	VIBRATION IMPACTS	7
5.0	NOISE IMPACT ASSESMENT	8
5.1	TRAFFIC NOISE ASSESSMENT	10
5.1.1	Traffic Noise Assessment	12
5.1.2	Road Traffic Vibration	13
5.1.3	Road Noise Impacts – Outdoor Areas	13
5.1.4	Noise Impacts - Building façade Noise Impacts	13
5.1.5	Road Noise Impact Compliance Requirements.....	13
5.1.6	Future Ambient Noise	13
5.1.7	Road Traffic Noise Conclusions.....	14
5.2	POTENTIAL SOURCES OF OFFSITE NOISE.....	14
5.3	STATIONARY NOISE SOURCE MODELLING RESULTS	15
5.4	MOBILE CRUSHER CONSIDERATIONS	17
5.5	NOISE MITIGATION MEASURES.....	17
5.5.1	Noise Barriers	18
5.5.2	Administrative Noise Control.....	18
5.5.3	Class 4 Designation	18
5.5.4	Building Height.....	18
5.6	WARNING CLAUSES	19
6.0	SUMMARY AND CONCLUSIONS	20



REFERENCES

LIST OF APPENDED FIGURES

Figure 1	Site Location Plan
Figure 2	Land Use Zoning Designation Plan
Figure 3	Extraction Phase A
Figure 4	Extraction Phase B
Figure 5	Extraction Phase C
Figure 6	Extraction Phase D
Figure 7	Barrier Layout
Figure 8	Administrative Areas Layout
Figure 9	Crusher Unmitigated Layout

LIST OF APPENDED TABLES

Table 3	Representative Noise Source Summary Table
Table 4	POR Noise Impact
Table 5	Acoustic Summary
Table 6	Acoustic Summary Mitigated
Table 7	Road Traffic Summary

LIST OF APPENDICES

Appendix A	Harbour Pointe Community Sub Division Plan
Appendix B	Penetang Sand & Gravel Plan
Appendix C	Noise Supporting Information and Calculations
Appendix D	Noise Impact Assessment Results
Appendix E	Add Title
Appendix F	Add Title



1.0 INTRODUCTION AND SITE DESCRIPTION

Bellisle Developments Inc. had retained Cambium Inc. to complete a compatibility study of the proposed expansion site (the Site) of the Harbour Pointe Community subdivision located at 60 Bellisle Road, in Penetanguishene, ON. The expansion involves the construction of 178 single-family dwellings that extends 300 m south-west from the current development.

Cambium's understanding at this point is that the subdivision has Ontario Municipal Board approval for zoning, and therefore the majority of the land use planning decision process was completed previously. Cambium's scope of work with this report was to address a condition indicated by the Municipality for final site plan approval.

Therefore, this compatibility report focuses on the compatibility between the aggregate license and the subdivision. Specifically, Cambium Inc. will assess the impacts on the Site originating from the aggregate operations to the south of the proposed expansion. The aggregate operation operated by Penetang Sand & Gravel is located at 9854 County Road 93, in Penetanguishene, ON.

We have prepared this scope of work to fulfill the requirements specified above specific compatibility of the uses using common best practices and Ministry guidance for the assessment of land use compatibility.

1.1 HARBOUR POINTE COMMUNITY SITE DESCRIPTION

The Harbour Pointe Community is proposed to occupy 16.6 ha of land the expansion making up approximately 13 ha. The development is bounded on the east side by Owen St., the north side by Rogers Rd., the south side by Thompsons Rd. W., and will terminate on the west side behind Le Caron Secondary School. A total of 178 residences will be added to the development as part of the proposed expansion. The zoning of the Site is Residential with Industrial use zoning immediately south.

The general site location is shown in Figure 1. We have presented the sub division plan in Appendix A – Harbour Pointe Community Sub Division Plan.

1.2 AGGREGATE SITE DESCRIPTION

Penetang Sand & Gravel operates an aggregate business sharing a property line to the south of the Harbour Pointe Community's proposed expansion. We have reviewed the aggregate license, which allows Penetang Sand & Gravel to extract sand from the property. Grading is authorized to expose the excavation areas and for site restoration.

It was noted that a 2014 amendment to the license allows crushing of material in the south west corner of the site; the license only permits the screening of top soil as part of the rehabilitation activities, beyond excavation activities. The license allows bulldozers to contour slopes, rubber-tired loaders for excavation, and rubber tired vehicles for



transportation of materials. Cambium has assessed up to three loaders in the license area at once, as well as a maximum of 360 trucks per day, or 30 trucks per hour being loaded.

Generally speaking, rehabilitation activities such as the final grading of slopes, and final top soil remediation activities are considered by the regulatory authorities to be construction activities, and as such will be required to comply with local noise bylaws only. Temporary construction activities are not covered by compatibility guidelines. Extraction related crushing, excavation, loading, and trucking of material are considered to be operational activities.

The Penetang Sand & Gravel aggregate site occupies 16.6 ha of land. We have provided the site plan that also states the activities of the site in Appendix B – Penetang Sand & Gravel Plan.



2.0 LAND USE COMPATABILITY ASSESSMENT

The Ministry has developed a series of environmental considerations and requirements for industrial land use and sensitive lands. The Ministry has issued these D-Series guidelines to aid in minimizing potential environmental impacts between industrial and sensitive land uses. We have applied these guidelines in determining the recommended setback distance between the Harbour Pointe Community and Penetang Sand and Gravel sites.

2.1 MINISTRY D-SERIES LAND USE COMPATABILITY GUIDES

Guideline D-1 – Land Use Compatibility (Guideline D-1) recommends separation distances and control measures for land use planning. These recommendations seek to minimize potential adverse effects for an existing or proposed facility. Adverse effects considered under Guideline D-1 may include:

- Noise and vibration;
- Visual impact; and,
- Air emissions including odour and dust.

Utilizing appropriate separation distances is the recommended method for minimizing the impact between incompatible sites. Municipalities may increase the Ministry's recommended setbacks and place restrictions for the land use or activities on the land. Where setback distances are not feasible, barriers and control measures must be designed to mitigate the impact of concern.

Guideline D-6 Compatibility between stationary Industrial Facilities and Sensitive Land Uses (Guideline D-6) indicates the applicability of Guideline D-1 for industrial facilities. Guideline D-6 suggests separation distances between industrial and sensitive land uses from the effects of normal industrial operations; however, Guideline D-6 notes that detailed studies should be conducted to determine site-specific separation distances.

Guideline D-6 categorizes industrial facilities into 3 class designations, each of which have an expected influence area and minimum separation distance. We have provided these distances and classification descriptions below in Table 1.



Table 1: Guideline D-6 Summary of Ministry Identified Areas of Influence and Recommended Separation Distances

Class	Description	Potential Area of Influence (m)	Minimum Separation Distance (m)
Class I	<ul style="list-style-type: none"> • Small scale, self-contained facility • Low probability of fugitive dust • Infrequent not intense point source outputs of dust and odour • Day time operation hour • No outdoor storage • Not audible off site • No ground-borne vibration 	70	20
Class II	<ul style="list-style-type: none"> • Medium scale processing facility • Outdoor storage of waste material • Periodic releases of odour, and/dust that could result in minor annoyance • Odour and dust can be occasionally intense • Frequent movement of product/heavy trucks during daytime • Sound is occasionally audible off property • Minimal ground-borne vibration 	300	70
Class III	<ul style="list-style-type: none"> • Large Scale Manufacturing and Processing • Outdoor storage of final and waste material • Large footprint and production capacity • Continues movement of products and employees during shifts • Frequent outputs of point source odour or dust causing major annoyance • Odour and Dust emissions are intense • Sound is often audible off site • Vibration can be perceived off site 	1000	300

2.2 APPLICATION OF MINISTRY GUIDELINES

It should be noted that the D-6 guidelines were in existence during the approval process for this site, therefore Cambium would assume the issue of D-6 compatibility was addressed.

It is required that aggregate operations be considered Class III facilities with a minimum separation distance indicated of 300 metre. However it is notable that the Penetang Sand and Gravel site does not have vibration sources, does not operate in the evening or nighttime and is more likely to fall into the definition of Class II given the size and scope of the operations.

Regardless it must be emphasized that none of the setback distances in the D-6 guidelines completely preclude development, in the cases of infill development (such as the Harbour Point development) the separation distances can be less, provided that supporting reports are provided for dust, noise and vibration.



3.0 AIR QUALITY

The aggregate facility is an above water pit extraction operation. The facility has a license (#3744) from the Ministry of Natural Resources and Forestry. Conducting work previously Cambium contract ERIS to provide a Database Report for the site and all properties within 250 metres. This report indicated that it did not find any existing Environmental Compliance Approval (ECA) within public databases for the aggregate extraction operation. It is possible the operation has an older Certificate of Approval that would not be in database.

The primary contaminants of interest for air quality would be dust.

The Licensed area is located directly south and west of the proposed Harbour Point Development. The development design includes installing Thompsons Road West between the two uses, resulting in an overall separation (including the minimum 15 metre setback in the license) of approximately 44.5 metres from the extraction area to the nearest dwelling. The distance from the closest allowable stockpile area on the license would be approximately 90 metres.

The Ministry of the Environment Conservation and Parks (MECP) standards for general air contaminants and dust are required to be met at all off property locations (called the point of impingement). The regulations do not discriminate between neighbouring commercial land use, vacant land use, or residential land use, the same limits are applied to all off property locations (receptors). The addition of residential uses to this property does not modify the compliance requirement for the site, since the homes proposed are low rise (two stories maximum). This means that the dispersion of contaminants from Penetang sand and gravel will not be modified.

To Cambium's knowledge we are unaware of any existing dust complaints against the facility, and from our observations of air photos and the site we understand that water trucks are already used for dust control.

Regardless of the fact that an ECA could not be confirmed, in Cambium's experience the site would be capable of meeting the applicable limits at the existing points of reception around the license area (this would include the Harbour Point Development).

It is not within the scope of this report to confirm compliance for the facility, only to identify compatibility issues. It is Cambium's opinion that the proposed development does not create a new compliance issue with regard to air quality for the Penetang Sand and Gravel Site.

3.1 FUGITIVE DUST AND WIND CONDITIONS

Aside from the sources requiring compliance under Regulation 419/05 the MECP generally allows for fugitive dust sources such as roadways, stockpiles and loading activities to be managed by best practices. The Penetang Sand and Gravel site is already implementing dust controls via water trucks. This may mean that nuisance dust could possibly leave the site during specific wind conditions.



Cambium has created a wind frequency distribution diagram (a wind rose) which is appended to this report based on five years of data from the Collingwood weather station, the nearest station with usable data.

As noted above the site is required to comply with air standards at the property line. However guidance from the MECP also allows for the site to manage fugitive dust through a Fugitive Dust Management Plan rather than specific assessment. This means a review of the wind rose can indicate the potential for nuisance dust issues.

Based on the wind data collected, it can be seen the wind will be blowing in unfavorable directions only 29% of the time (generally out of the south and south west).

In addition to wind direction, wind speed is also critical to the potential for dust issues. As noted in the Good Practice Guide for Assessing and Managing Dust (Ministry For The Environment Wellington, 2016), generally dust pickup from stockpiles and surfaces is only a concern when winds are in excess of 5 m/s (10 knots).

Cambium has produced a second wind rose highlighting winds above 5 m/s, it can be seen that the vast majority of wind events that are high enough to cause concern will be for the most part out of the south west, blowing dust away from the Bellisle development meaning that the frequency of nuisance dust impacts on the development will be low.

3.2 AIR QUALITY CONCLUSION

Based on the above assessment, and considering the proposed development, adverse impacts from the aggregate operation are not anticipated on the proposed development.

Cambium would recommend that a warning clause be registered, noting that dust emissions may be noticeable from the aggregate operation. The warning clause that was previously indicated as required by the OMB would satisfy this.



4.0 VIBRATION IMPACTS

Cambium has reviewed the operational plan provided for Penetang Sand & Gravels aggregate license. As a Pit operation blasting is not approved on site. Approved operations include rubber tired loaders and trucks, and at most a bulldozer for final grading and a crusher. Given that the homes are located more than 20 metres from the property line, these types of sources would not cause any compatibility issue related to vibration.



5.0 NOISE IMPACT ASSESMENT

Cambium's understanding from the OMB records is that the condition placed on the development was to obtain a letter from the Ministry of Natural Resources and Forestry to confirm that placing the proposed Thompson Road between the homes and the license area would be adequate buffer.

As discussed above, the minimum recommended separation distance for this site would be 300 metres. Based on Cambium's review of the site plans of both the license and the subdivision the current setback from the home to the working are of the pit would include the 15 metre setback on the pit property, and Thompson Road. The nearest home to the pit will be approximately 44.5 metres from the pit's extraction area.

Given that the setbacks do not meet the minimum it is generally recommended that a report must be used to prove compatibility for noise.

As shown in Figure 1, the development site is located on Bellisle Road in Penetanguishene, Ontario. The site is located in an area generally zoned as residential second density (R2) with nearby rural (RU), environmental protection (EP), Open Space (OS), institutional (G), extractive industrial (M5) as per the Town of Penetanguishene Zoning by-law (The Corporation of the Town of Penetanguishene, 2012).

Note that as per NPC-300 (Ontario Ministry of the Environment, Conservation, and Parks, 2013). The available classifications of properties are:

Class 1 is an area with an acoustical environment typical of population center, where the background sound level is dominated by the activities of people, usually road traffic, often referred to as "urban hum."

Class 2 is an area with an acoustical environment that has qualities representative of both Class 1 and Class 3 areas. Sound levels characteristic of Class 1 during daytime (07:00 to 19:00 or to 23:00); and, low evening and night background sound level defined by natural environment and infrequent human activity.

Class 3 is a rural area with an acoustical environment that is dominated by natural sounds having little or no road traffic, such as a small community, agricultural area, or wilderness area.

Class 4 is an area that must be designated by the municipality and is specifically intended to allow for infill development of residential uses in proximity to industrial, without compromising the ability of industry to comply

Cambium would suggest that this development would be considered to be a Class 1 area, as an infill development next to existing industry and located within the Town of Penetanguishene, it is Cambium's opinion that the definition of Class 1 is met. Cambium's site visit also indicated that the area would at least be Class 2 based on ambient measurements of 48 dBA, note that during this measurement it was observed that the Pit was not in operation.

The Ministry exclusionary sound level limits for a Class 1 area are described in A-weighted decibels (dBA) for steady state noise as of 50 dBA during daytime and evening hours (07:00 – 23:00) and 45 dBA during nighttime hours



(23:00 – 07:00) at the plane of window. Also the limit is 50 dBA during the daytime and evening for outdoor living areas.

Also given that this site is a proposed infill development next to an existing industrial source, Cambium would note that the option to designate some or all of this development as Class 4 is available.

The Ministry exclusionary sound level limits for a Class 4 area are described in A-weighted decibels (dBA) for steady state noise as of 60 dBA during daytime and evening hours (07:00 – 23:00) and 55 dBA during nighttime hours (23:00 – 07:00) at the plane of window. Also the limit is 55 dBA during the daytime and evening for outdoor living areas.

The criteria listed in NPC-300 for obtaining a Class 4 designation are:

- The site must otherwise be considered Class 1 or Class 2,
- It is an area intended for development with noise sensitive uses that are not yet built,
- Is in proximity to existing lawfully established stationary source(s); and,
- It has formal confirmation from the land use planning authority with the Class 4 area classification determined during the land use planning process.

It is Cambium's opinion that these criteria are met for this stage of the development. The homes are not yet built and the area is intended for development. Penetang Sand and Gravel has held their aggregate license for decades and would likely meet the definition of an existing stationary source.

Note that this report is focused only on proposed development. Existing homes are outside of the scope of a land use compatibility study.

We identified the noise sensitive Points of Reception (POR) on the development site as the plane of window of various proposed or existing private residential buildings along the south east edge of the property. For the purpose of this report, we must consider the points with "the predictable worst case noise impacts".

- POR1_A represents a class 1 plane of window POR modelled at 4.5 meters, at a proposed, potential two storey private residence located in Phase 4 of the development;
- POR2_A represents a class 1 plane of window POR modelled at 1.5 meters, at a proposed, potential one storey private residence located in Phase 3 of the development;
- POR3_A represents a class 1 plane of window POR modelled at 1.5 meters, at a proposed, potential one storey private residence located in Phase 3 of the development;
- POR4_A represents a class 1 plane of window POR modelled at 1.5 meters, at a proposed, potential one storey private residence located in Phase 3 of the development;



- POR5_A represents a class 1 plane of window POR modelled at 1.5 meters, at a proposed, potential one storey private residence located in Phase 3 of the development;
- POR6_A represents a class 1 plane of window POR modelled at 1.5 meters, at an existing home;
- POR7_A represents a class 1 plane of window POR modelled at 1.5 meters, at an existing home;
- POR8_A represents a class 1 plane of window POR modelled at 1.5 meters, at an existing home;
- POR9_A represents a class 1 plane of window POR modelled at 4.5 meters, at an existing home;
- POR10_A represents a class 1 plane of window POR modelled at 4.5 meters, at a proposed two storey home;
- POR11_A represents a class 2 plane of window POR modelled at 4.5 meters, at a proposed two storey home;
- POR12_A represents a class 2 plane of window POR modelled at 4.5 meters, at a proposed two storey home;
- POR13_A represents a class 2 plane of window POR modelled at 4.5 meters, at a proposed two storey home;

In reference to the Development's Site plan, Cambium has assumed that the first three lots closest to the south property line will be bungalows, with the 4th row the first row with the possibility of a two storey home. This implies that single storey residences in the first three rows, are mandatory. As per the appended Draft Plan of Subdivision this would mean lots 82,83,84,85,86,87,115,116,117,118,119, and 120 must be bungalows while homes beyond those lots may be one or two stories.

Outdoor living areas (OLA) PORs at 1.5 meters were not modelled as the potential outdoor spaces are generally not in the direction of the potential noise sources or are close enough to the building to be adequately represented by the higher plane of window receptors. Furthermore in a Class 1 and Class 2 areas the daytime (0700-1900) limits are the same at both elevations.

Receptor location are shown in all figures.

5.1 TRAFFIC NOISE ASSESSMENT

The criteria for acceptable levels of road traffic noise at residential developments are provided in the Ministry's NPC-300 guidance document. NPC-300 requires that for land use compatibility that a future sound level be used for assessment. Generally it is accepted that a 10 year prediction is considered appropriate.

Note that specifically noise controls are not required if predicted sound levels are less than 55 dBA in outdoor living areas, and less than 50 dBA in the plane of bedroom windows during daytime or nighttime.



In the event that the sound level thresholds listed above are exceeded, the recommended outdoor and indoor sound level criteria for road noise impacts for different residential impacts are included in Table 2 below. Note that in the case of interior noise limits, these values assume closed windows and doors.

Table 2 Road Noise Criteria

Type of Space	07:00 to 23:00	23:00 to 07:00
	Road (dBA)	Road (dBA)
Outdoor Living Area	55	-
Living/Dining/Den Areas of Residence Indoor	45	45
Sleeping Quarters Indoor	45	40

The NPC-300 guideline defines an outdoor living area (OLA) as part of a noise sensitive land use (e.g. residential dwelling) that is intended and designed for the quiet enjoyment of the outdoor environment, and is readily accessible from the building. In the context of low rise developments, examples of OLAs include balconies with a minimum depth of 4 m, terraces, and common OLAs such as shared terraces, yards, and gardens.

If the 16-hour equivalent sound level ($L_{eq(16)}$) for an OLA is greater than 55 dBA and less than or equal to 60 dBA, then noise control measures may be applied to reduce the sound level to 55 dBA, or, if noise control measures are not applied, then prospective purchasers or tenants should be informed of potential noise concerns by a warning clause (Type A as defined in NPC-300).

If the $L_{eq(16)}$ for an OLA is greater than 60 dBA, then noise control measures should be applied to reduce the sound level to 55 dBA. In cases where noise control measures are not feasible for technical, economic, or administrative purposes, then an excess above the 55 dBA limit is acceptable with a warning clause (Type B as defined in NPC-300); however, excesses above 60 dBA are not acceptable.

For indoor living areas and sleeping quarters, the sound level criteria are used to determine transmission loss requirements for the building façade based on the predicted sound level at the plane of a window (POW). If the $L_{eq(16)}$ daytime sound level in the plane of a window is less than or equal to 55 dBA, then typical façade constructions are generally sufficient to achieve the indoor sound level criteria, and additional noise controls may not be required. If the sound level in the plane of a window is greater than 55 dBA and less than or equal to 65 dBA, then the dwelling should be designed with a provision for the installation of central air conditioning in the future, at the occupant's discretion, and prospective purchasers or tenants should be informed of potential noise concerns by a warning clause (Type C as defined in NPC-300).

If the daytime 16 hour equivalent sound level ($L_{eq(16)}$) in the plane of a window is greater than 65 dBA, installation of central air conditioning should be implemented, and prospective purchasers or tenants should be informed of potential noise concerns by a warning clause (Type D as defined in NPC-300). Additionally, building façade



components should be designed so that the indoor sound level criterion can be achieved when doors and windows are closed.

In addition, for indoor living areas and sleeping quarters the sound level criteria are used to determine transmission loss requirements for the building façade based on the predicted sound level at the plane of a window (POW). If the eight (8) hour equivalent ($L_{eq(8)}$) nighttime sound level in the plane of a window is less than or equal to 50 dBA, then typical façade constructions are generally sufficient to achieve the indoor sound level criteria, and additional noise controls may not be required. If the sound level in the plane of a window is greater than 50 dBA and less than or equal to 60 dBA, then the dwelling should be designed with a provision for the installation of central air conditioning in the future, at the occupant's discretion, and prospective purchasers or tenants should be informed of potential noise concerns by a warning clause (Type C as defined in NPC-300).

If the nighttime $L_{eq(8)}$ in the plane of a window is greater than 60 dBA, installation of central air conditioning should be implemented, and prospective purchasers or tenants should be informed of potential noise concerns by a warning clause (Type D as defined in NPC-300). Additionally, building façade components should be designed so that the indoor sound level criterion can be achieved when doors and windows are closed. The purpose of central air conditioning is to allow the occupant to keep windows and doors closed to achieve a quiet indoor acoustic environment, if required. Installation of all central air conditioning should comply with ministry guidelines.

5.1.1 TRAFFIC NOISE ASSESSMENT

The noise assessment was conducted using predictive calculations of road and rail noise developed by the Ministry: *Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT)* (Ontario Ministry of the Environment, 1989).

Noise impacts were assessed at the upper storey plane of window receptor locations, and at the outdoor living areas located at ground level.

Where,

- POW – Plane of window receptors representative of the worst case exposure on each side of the buildings in the proposed development; and
- OLA – Outdoor living area receptor located at ground level.

This assessment is based on the ultimate future traffic on Thompson Road which is adjacent to the proposed development

Traffic data used for the road noise assessment was obtained from data provided by JD Engineering. In relation to development planning, specifically the future condition assuming Thompson Road would be extended indicating an AADT of 2245 vehicles with medium and heavy truck percentages of 2% each.



The ORNAMENT recommended day/night split of 90%/10% for regional roads was used, which assumes 90 percent of the daily traffic occurs between 07:00 and 23:00. Note that traffic numbers for the nighttime were doubled to allow for analysis to be completed due to the limitation of ORNAMENT below 40 vehicles per hour. Therefore the traffic was doubled at night, and the calculated result was reduced by 3 dB to reflect that.

Traffic data requests and responses are provided in the appendices to this report along with traffic noise calculations.

5.1.2 ROAD TRAFFIC VIBRATION

Due to the nature of road vehicles, with pneumatic tires and suspension systems, it is generally accepted that road traffic will not be a significant source of vibration.

5.1.3 ROAD NOISE IMPACTS – OUTDOOR AREAS

As noted above, road noise must be assessed using potential future traffic conditions. Cambium reviewed the site plan for the proposed development and selected the first row of homes as the worst case receptors. As noted in the Assessment Criteria section of this report, predicted impacts at outdoor living areas due to road traffic that are below 55 dBA do not require noise controls, levels between 55 dBA and 60 dBA require either noise controls, or warning clauses. Sound levels above 60 dBA require noise controls and warning clauses.

Based on the noise prediction calculations completed using the STAMSON software, the noise impact from Thompson Road is expected to be 54.3 dBA, below the 55 dBA limit for all outdoor living areas on the property.

5.1.4 NOISE IMPACTS - BUILDING FAÇADE NOISE IMPACTS

As noted in the Assessment criteria section, the sound level limits for the windows of noise sensitive land uses are more stringent, at 55 dBA at the window in the daytime (07:00-23:00), and 50 dBA at the window in the nighttime.

Daytime Plane of Window sound levels are predicted to be 54.5 dBA, and at night 47.7 dBA. Indicating that no warning clauses are required in regard to Road Traffic Noise.

5.1.5 ROAD NOISE IMPACT COMPLIANCE REQUIREMENTS

Note that since the first row of homes, directly adjacent to Thompson Road Comply, it is assumed all homes will comply.

5.1.6 FUTURE AMBIENT NOISE

Based on information provided by JD Engineering for the Minimum Hourly daytime traffic (3% of AADT), Cambium predicted what the future ambient sound level would be, based on the traffic flow provided, it is predicted at 51 dBA in the daytime hours.



Note that generally speaking under NPC-300 future traffic cannot be used to set a noise limit for stationary noise sources, however this information may be useful for land use planning.

5.1.7 ROAD TRAFFIC NOISE CONCLUSIONS

Of all the information provided above, it should be noted that the 54 dBA value calculated above for future road noise impacts onto the development represents the daily average noise impact based on overall AADT values for the daytime period. The 51 dBA predicted value represents the sound level during the predicted lowest single hour of traffic (IE the quietest hour). All of this is based on the future condition of Thompson Road as an arterial road.

5.2 POTENTIAL SOURCES OF OFFSITE NOISE

As noted this is not a full land use compatibility study, due to specificity of the Municipality's condition this study's focus is on offsite stationary noise sources existing at the Penetang Sand & Gravel aggregate site, which is located directly to the south of the development site. In order to estimate the sound emitted during operation of noise producing equipment at the aggregate site, sound emitted from the site was assessed using known data from similar models of noise producing equipment previously studied and modelled by Cambium for the purpose of obtaining Environmental Compliance Approvals (ECA). It is understood that the aggregate site operates under an aggregate licence.

Cambium was provided information on operations by Penetang Sand and Gravel, including:

1. Hours of operation are typically 0700-1900 (daytime);
2. Daily tonnage capacity would be at most 2500 tonnes;
3. 3 loaders may be working in the Pit at a time;
4. 2 bulldozers may be used at a time to smooth slopes;
5. Trucking would be 30 trucks per hour;
6. Make and Model information was provided for Loaders and Dozers; and,
7. Crushing is done on site typically for a 2 week period, it was noted this was allowed via a license amendment in 2014.

Cambium has considered this information along with the provided operational plan from the MNRF.

It should be noted that generally rehabilitation activities are considered to be construction activities and would therefore be covered by the local noise bylaws, and NPC-115 which provides noise limits for construction



equipment. In this case it would include the bulldozers used for final slope shaping, as well as any activities related to importing topsoil for rehabilitation, this would include the topsoil screening.

Cambium has assumed three loaders could be serving the pit at a time as indicated by Penetang Sand and Gravel. Based on the daily maximum capacity of 2500 tonnes per day (210 tonnes per hour). Using an assumption of a bucket load capacity of approximately 3.5 tonnes per bucket, and a conservatively long cycle time of 90 seconds, 3 loaders could reach 210 tonnes of production within 30 minutes.

$$\text{Tonnes Loaded} = \text{Bucket Capacity} \times \# \text{ of loaders} \times \frac{\text{Working Time}}{\text{Loading Cycle Time}}$$

$$\text{Tonnes Loaded} = 3.5 \text{ tonnes} \times 3 \times \frac{30 \text{ min}}{1.5 \text{ min}} = 210 \text{ tonnes}$$

Finally Penetang Sand and Gravel has indicated that a mobile crusher may be brought to site for 2 week periods for asphalt recycling purposes. This use was amended to their license in 2014. Cambium has assumed that the crusher would be the primary operation, while it is on site. Which is to say that the site's worst case scenario would not typically include maximum asphalt recycling and maximum extraction simultaneously.

- LD01 – LD03 – These point sources represent the operation of the wheeled loaders working at the worst case location of each extraction phase defined in the Penetang Sand & Gravel aggregate licence. These sources were modelled as operating half an hour of any during daytime hours (07:00 to 19:00);
- TR01 – This moving source represents the potential movement of highway type trucks onsite. The route of this source was defined by the location of the site loader during each extraction phase. This source was modelled as a worst case of 30 trucks per hour during daytime hours (07:00 to 19:00);
- CR01 – This source represents a mobile crusher, similar to others measured by Cambium, this source was defined as operating continuously during the daytime hours;
- GE01 – this source represents a mobile generator that is often used by mobile crushing operations to produce power.

The noise sources are listed with corresponding modelling details in Table 3. Supporting information is provided in Appendix C.

5.3 STATIONARY NOISE SOURCE MODELLING RESULTS

We performed the noise impact calculations using the Bruel and Kjaer *Predictor Type 7810 version 2019v3* (Predictor) environmental noise prediction and control software. The calculations completed by this software are based on established prediction methods accepted by the Ministry; mainly ISO 9613-2 *Acoustics – Attenuation of Sound during Propagation Outdoors – Part 2: General Method of Calculation* (International Organization for



Standardization, December 1996). Predictor is an internationally marketed software package that offers calculation algorithms that comply with ISO 9613-2.

The Predictor software tool is a proprietary noise calculation package used to calculate, assess, predict, and display environmental noise. This software utilizes calculation algorithms and visualization of the predicted noise emissions, often referred to as acoustic mapping. The software calculates the resultant noise level and takes into account a range of factors affecting the propagation of sound including:

- Sources with direct line of site to receivers ignore barriers;
- Negative ground attenuation over barriers is not subtracted;
- The Facility layout, which includes the position and elevation of each building, major equipment and other façades in the propagation path;
- The natural topography and vegetation;
- The magnitude of the noise source in terms of octave band sound power;
- The distance between the source(s) and the POR(s);
- The presence of reflecting surfaces; and,
- The hardness of the ground between the source and the POR(s).

We completed the model with a general ground factor assumption of one, which is fully absorptive. Ground regions encompassing the aggregate extraction site was applied with a ground factor of 0.5, or mostly reflective, to account for the packed sand and gravel surfaces.

We modelled the terrain using elevations retrieved from Ontario Base Map sources, and adjusted elevation contours according to the extraction phases defined in the Penetang Sand & Gravel aggregate licence, and according to the site plan of the development site. We did not consider forested areas, conservatively ignoring any minor attenuation provided by foliage.

We activated settings in Predictor, which ignore barrier effects if line of sight is not broken, and avoid overestimating barrier effects due to porous ground, in the case of a negative Agr value in Equation 12 of ISO 9613-2 calculation method. Typically, we assumed that noise emanates from the highest point of the equipment. Using maximum heights reduces the barrier effect that intervening obstacles would have if we modelled the sources with lower elevations. No buildings were incorporated into the model. We did not consider other offsite sources of sound (i.e. traffic, etc.).

Due to our numerous conservative assumptions, the predicted noise impact at the PORs is likely to be greater than the actual noise impact.



A tabulated summary of the noise modelling results, with required mitigation, are shown in Table 4. We provide the sound pressure level contour plot files, and the predicted sound levels at the receptors in Appendix D.

5.4 MOBILE CRUSHER CONSIDERATIONS

The amendment to the aggregate license which allows asphalt recycling occurred in 2014. It is noted by Pentang Sand and Gravel that a mobile crusher is used on site, for 2 weeks per year to crush material.

Cambium has assessed the compatibility of a Crusher unit with the development, using measurement values from our files modified slightly based on the assumption that the Crusher would comply at existing homes. Effectively a sensitivity modelling run.

The noted area of crushing is currently shown to be approximately 300 metres from the proposed development.

Similar to the extraction operations, Cambium can determine compliance with a few different options for the crusher:

1. Administrative Controls: Since the crusher is portable, moving it to the south west corner of the license area could result in compliance at the proposed development.
2. Barriers: Given the distance from the source to receptor, a localised barrier near the crusher is most practical.
3. Class 4 designation: as noted for extraction operations predicted sound levels do not exceed class 4 designation limits.

Cambium completed preliminary investigations of property line barriers for the crusher, however this approach is impractical due to the distance from the source, and the height that would be required.

This analysis could be improved with specific crusher data, such as from a Crusher Mobile Environmental Compliance Approval

5.5 NOISE MITIGATION MEASURES

The noise analysis completed by Cambium indicates that only extraction operations during the Pit's Phase C (north east corner) of extraction will result in non-compliance. Cambium has assessed the worst case scenario provided by the pit staff, using the maximum daily production values provided.

Cambium has assessed how far into the extraction the site must proceed before compliance is achieved, and found that from the beginning of extraction in Phase C, shown at elevation 244 in their operation plan to be approximately 77 metres from the east property line, after the working face is extracted approximately 38 metres to the west Cambium would predict compliance for extraction operations. Assuming at most a 6 metre depth (as estimated from the terrain contours available) this would represent roughly 28,000 cubic metres of material, or 50,000 tonnes of



material. Given the assessment for compliance is based on the worst case scenario of 2500 tonnes per day, this represents 20 working days of non-compliance before the work would proceed to an area of compliance.

5.5.1 NOISE BARRIERS

Cambium has assessed the possibility of using barriers to control noise to Class 1 limits, and generally speaking a significant barrier would be required the barrier would be 3 metres in height and extend approximately 100 metres as shown in Figure 7. Also the mobile crusher would be required to implement a small barrier located in close proximity to it (This could also be achieved with berms, or stockpiles) approximately 5 metres tall, and 25 metres long as shown in Figure 7.

5.5.2 ADMINISTRATIVE NOISE CONTROL

As shown in Figure 8 based on Cambium's analysis, the pit could remain complaint by modifying their extraction procedure. If the pit were keep operations out of the north east corner of the site, and leave the initial area of Phase C of their operational plan un-extracted, that material could act as a noise berm, resulting in a prediction of compliance at the proposed development.

Based on Cambium's estimations this would require the Pit to leave approximately 5800 cubic metres of sand and gravel un-extracted to act as a noise berm.

In addition the crusher could be brought into compliance administratively by simply moving the operations to the south west corner of the site.

5.5.3 CLASS 4 DESIGNATION

Based on Cambium's analysis all the predicted noise impacts comply with the Class 4 noise level limits published in NPC-300. Cambium has provided our predicted noise contours in Figure 3 through Figure 6. Any Lots located within the 50 dBA contour line, could be designated by the Municipality as Class 4 to bring them into compliance by elevating their limits to 60 dBA (POW)/ 55 dBA (OLA) daytime. Note that this would require the installation of central air conditioning and warning clauses for all designated lots.

5.5.4 BUILDING HEIGHT

Cambium's assessment assumes that many of the closest lots to the aggregate operation will be single storey bungalows. This will be a requirement for the duration of operations at the aggregate license.



5.6 WARNING CLAUSES

The following warning clauses should be registered on the titles of each property for the duration of operations at the Penetang Sand and Gravel site. Note that the OMB has already placed a warning clause that would meet most requirements:

As required by OMB:

"Purchasers are advised that the lands south of the plan of subdivision within which this lot is located are licenced for aggregate extraction (a pit or quarry) and as such noise, dust and other nuisances may emanate from the operation. Such aggregate extraction may continue until the licence is surrendered or revoked."

From NPC-300 for all lots:

"Purchasers/tenants are advised that due to the proximity of the adjacent licenced aggregate operation, noise from the industry may at times be audible."

If the preferred Solution is Class 4 designation then this would be required on all lots made Class 4:

"Purchasers/tenants are advised that sound levels due to the licenced aggregate operation are required to comply with sound level limits that are protective of indoor areas and are based on the assumption that windows and exterior doors are closed. This dwelling unit has been supplied with a ventilation/air conditioning system which will allow windows and exterior doors to remain closed."



6.0 SUMMARY AND CONCLUSIONS

We have conducted a specific Land Use Compatibility assessment of the approved development site to evaluate the potential impacts of the neighbouring aggregate license and Thompson Road.

Note that no mitigation requirements for the development were identified for the future traffic related noise from Thompson Road, with future traffic noise meeting the Ministry Guidelines without warning clauses or specific controls.

The future traffic noise levels due to Thompson Road using minimum hourly analysis are predicted to be 51 dBA daytime for the nearest homes to the aggregate License. Future noise conditions cannot be used for compliance assessment for stationary sources, however this does indicate that noise levels due to traffic will increase over time.

We have determined that Penetang Sand & Gravel is within the minimum separation distance suggested in the Ministry of the Environment, Conservation and Parks D-6 land use compatibility guides. A review of the region's meteorological data and the requirements for local air quality regulated by O. Reg. 419/05 indicated that adverse impacts from air quality are unlikely at the proposed Site.

The pit operations are not a source of vibration and our noise feasibility assessment shows that, per NPC-300 noise level limits, compatibility could be achieved with one of three options for all sources on site:

1. Noise Barrier Installation at the Property line for Extraction, and a small local noise barrier or stockpile for the mobile crusher when used on site;
2. Administrative Controls could be used, by modifying the extraction procedures to ensure a working face remains during extraction to shield the development, this would result in some material becoming un-extractable. In addition the Mobile Crusher could be made compliant by moving to the Southwest corner of the site.
3. Class 4 Designation, if the Municipal Authority were to designate the lots outlined in this report as Class 4, compliance could be maintained for all proposed units without controls.

Note that a property line barrier is not feasible for the crusher operation, due to the distance from the source, it would have to be too high to be practical.

Finally whichever option is selected warning clauses must be implemented as outlined in this report.



In Cambium's opinion all three options listed above would result in compliance with NP₁ C-300 limits, and therefore any of the three options could be utilized. Cambium presents these options for consideration by others.

Cambium Inc.

Trevor Copeland P.Eng.

Project Coordinator

Trevor Ross, EIT

Project Technologist

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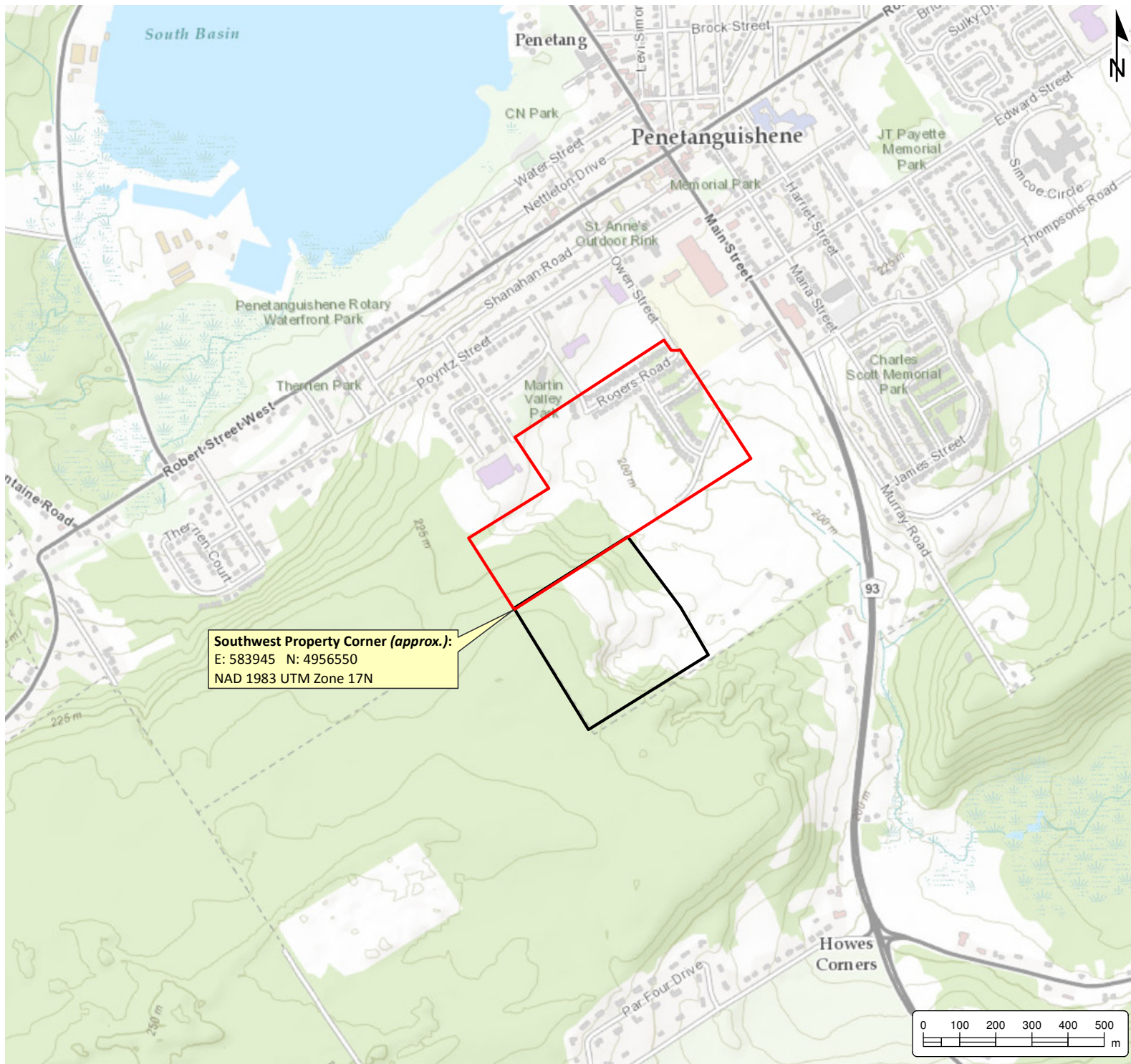
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Appended Figures



Southwest Property Corner (approx.):
 E: 583945 N: 4956550
 NAD 1983 UTM Zone 17N

**PRIMARY NOISE
 SCREENING METHOD**
 BELLISLE DEVELOPMENT INC.
 Subdivision 60, Bellisle Road
 Penetanguishene, Ontario

LEGEND

- Site (approximate)
- Aggregate License

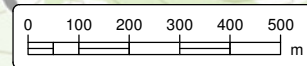
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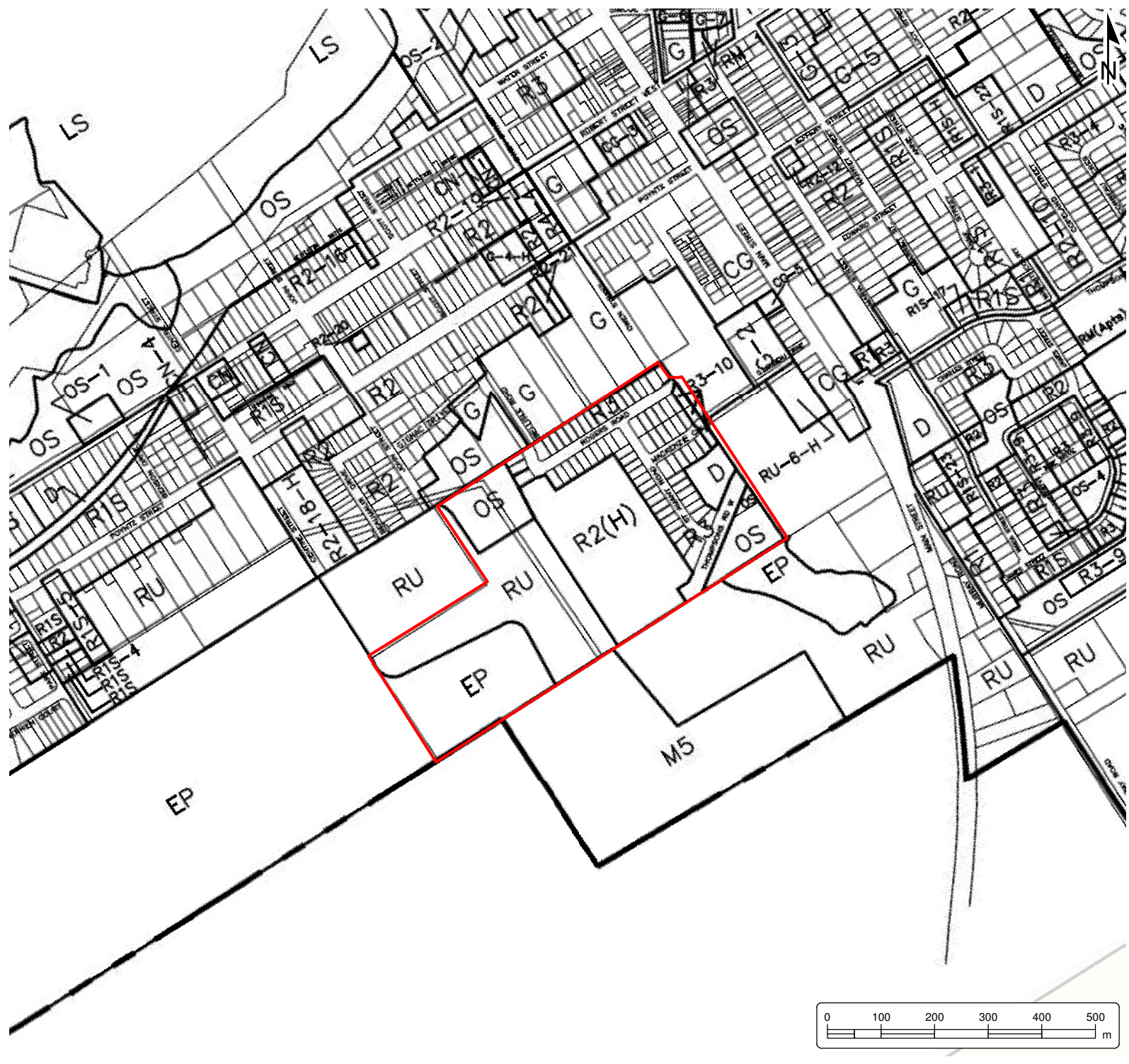
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 Peterborough, Ontario, K9H 1G5
 Tel: (705) 742.7900 Fax: (705) 742.7907
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SCALED AREA LOCATION PLAN

Project No.:	5292-008	Date:	November 2019
Scale:	1:15,000	Projection:	NAD 1983 UTM Zone 17N
Created by:	TLC	Checked by:	TMC
			Figure: 1


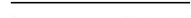



O:\GIS\project_L\06\5200-5299\5292-008 Bellisle (Penetang) Investments Limited - Air and Noise Compatibility - Harbour Pointe\2019-11-08 FIG 2 - Land Use Zoning.mxd



PRIMARY NOISE SCREENING METHOD
BELLISLE DEVELOPMENT INC.
 Subdivision 60, Bellisle Road
 Penetanguishene, Ontario

LEGEND

	Site (approximate)
Residential First Density	R1
Residential Second Density	R2
Residential Third Density	R3
Residential Multiple Density	RM
Residential First Density Special	R1S
Rural Residential	RR
Rural Residential Estate	RE
Shoreline Rural Residential One	SR1
Shoreline Rural Residential Two	SR2
Limited Services Rural Residential	LSR
Commercial General	CG
Commercial Neighbourhood	CN
Commercial Marine One	CM1
Commercial Marine Two	CM2
Industrial Services	M1
Storage and Light Manufacturing	M2
Yard Storage and Heavy Manufacturing	M3
Industrial Packaging	M4
Extractive Industrial	M5
Rural Industrial	M6
Rural	RU
Institutional	G
Open Space	OS
Deferred Development	D
Environmental Protection	EP
Lake Side	LS
	ZONE BOUNDARY
	TOWN BOUNDARY

Notes:
 - Zoning map was obtained from the Town of Penetanguishene - Schedule A to By-Law No. 2000-02, (updated January 2012)
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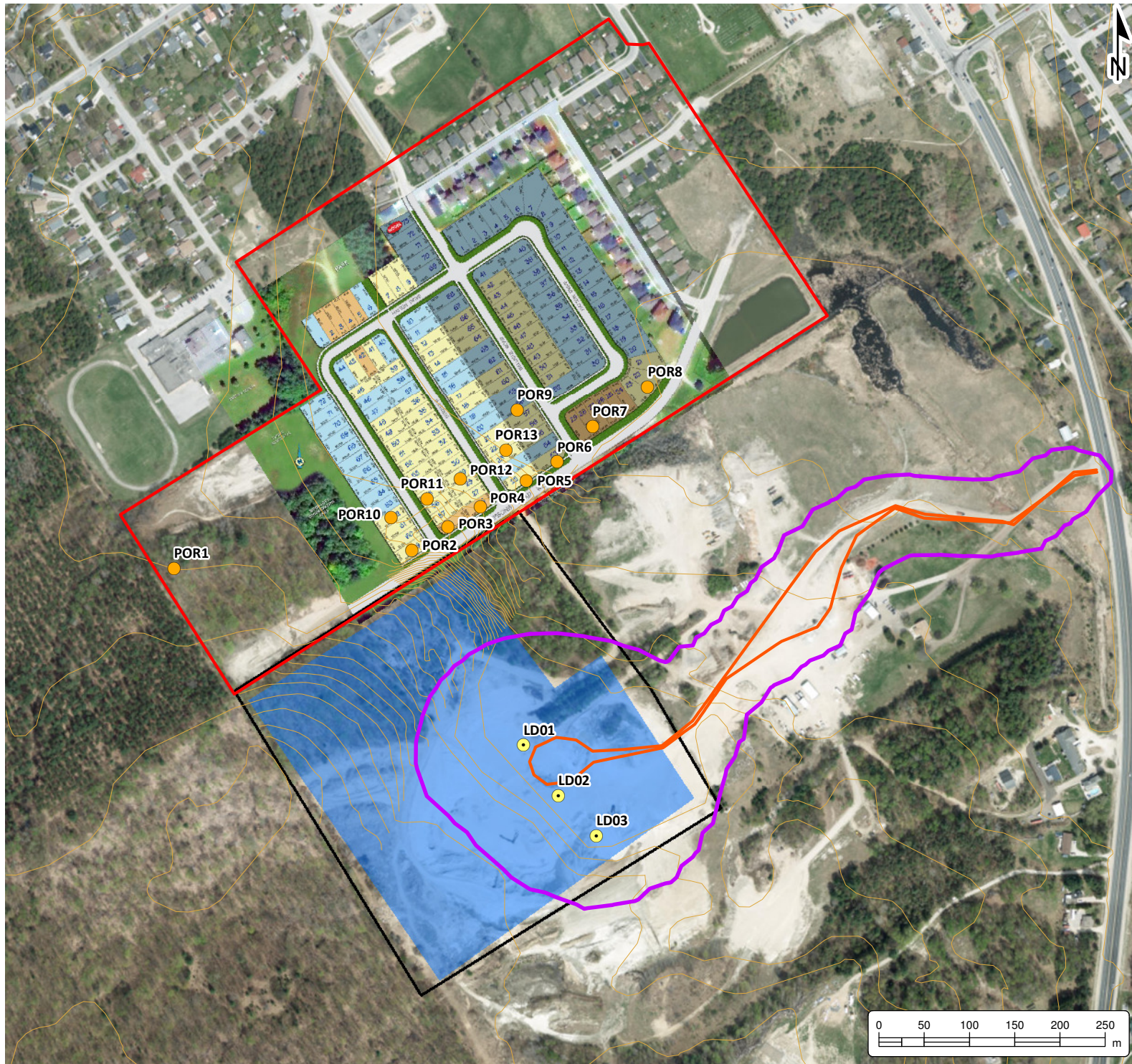


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LAND USE ZONING DESIGNATION PLAN

Project No.:	5292-008	Date:	November 2019
Scale:	1:10,000	Rev.:	
Created by:	TLC	Projection:	NAD 1983 UTM Zone 17N
Checked by:	TMC	Figure:	2

O:\GIS\project_LMC\0615200-5299\5292-008 Bellisle (Penetang) Investments Limited - Air and Noise Compatibility - Harbour Pointe\2019-11-11 FIG.3 - Extraction Phase A.mxd



PRIMARY NOISE SCREENING METHOD
BELLISLE DEVELOPMENT INC.
 Subdivision 60, Bellisle Road
 Penetanguishene, Ontario

LEGEND

- Receptors
- Point Source
- Trucking Route
- Contours
- Noise Contour - 50 dBA
- Site (approximate)
- Approximate Extraction Area
- Aggregate License

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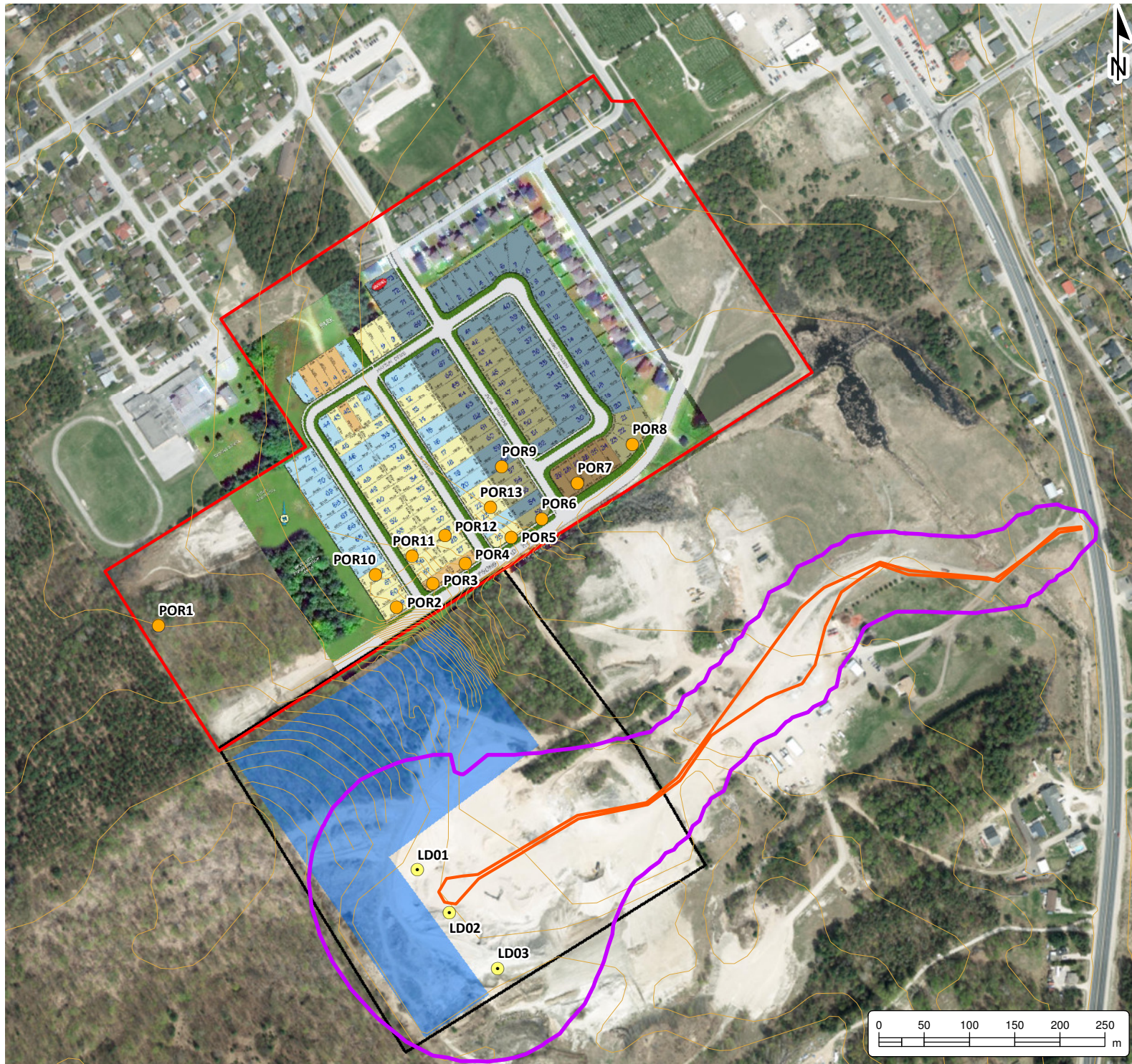


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EXTRACTION PHASE A

Project No.:	5292-008	Date:	November 2019
Scale:	1:6,000	Projection:	NAD 1983 UTM Zone 17N
Created by:	TLC	Checked by:	TMC
			3

O:\GIS\project_L\MC\615200-5299\5292-008 Bellisle (Penetang) Investments Limited - Air and Noise Compatibility - Harbour Pointe\2019-11-11 FIG 4 - Extraction Phase B.mxd



PRIMARY NOISE SCREENING METHOD
BELLISLE DEVELOPMENT INC.
 Subdivision 60, Bellisle Road
 Penetanguishene, Ontario

LEGEND

- Receptors
- Point Source
- Noise Contour - 50 dBA
- Trucking Route
- Contours
- Approximate Extraction Area
- Site (approximate)
- Aggregate License

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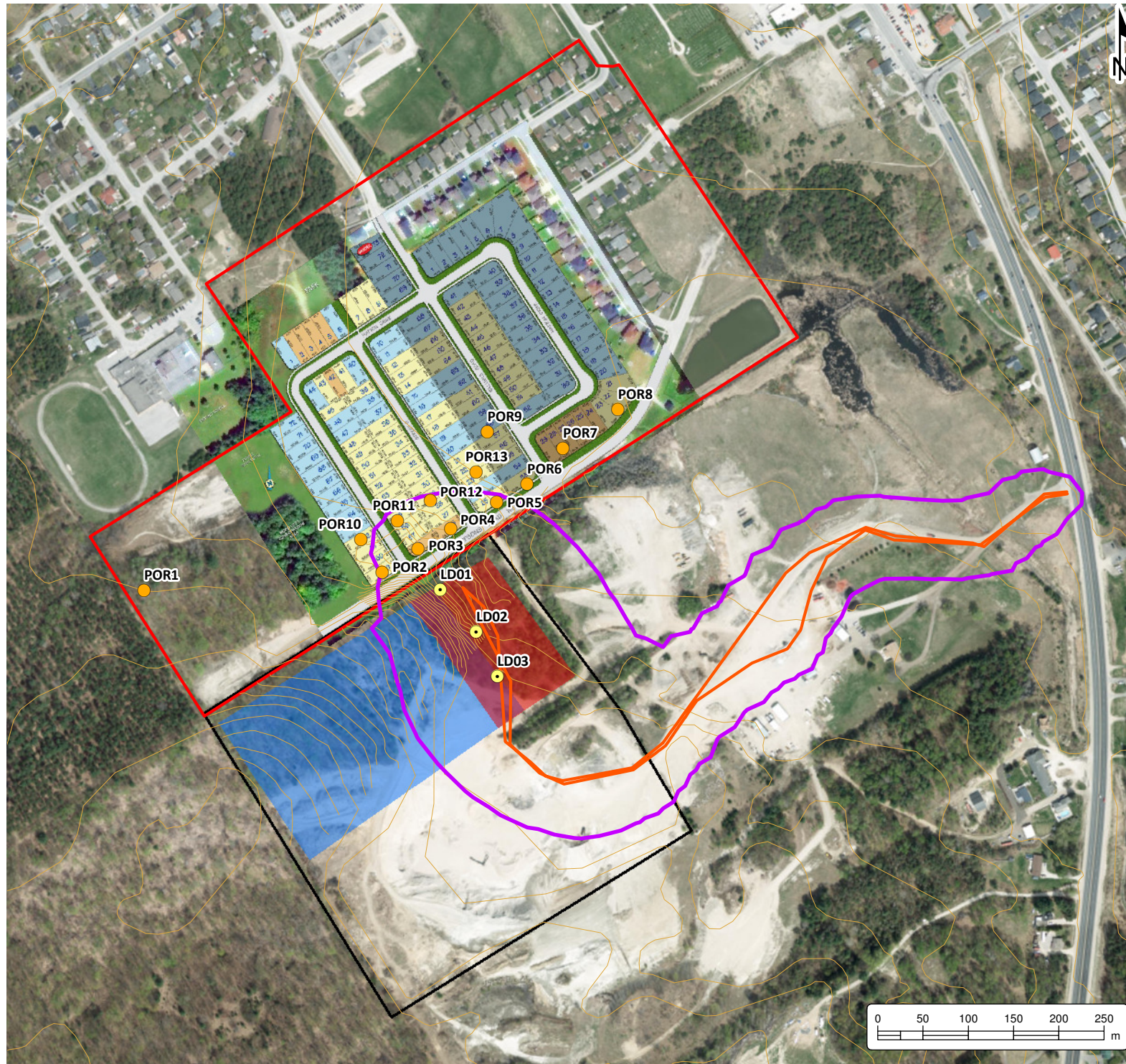


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EXTRACTION PHASE B

Project No.:	5292-008	Date:	November 2019
Scale:	1:6,000	Projection:	NAD 1983 UTM Zone 17N
Created by:	TLC	Checked by:	TMC
Figure:			4

O:\GIS\project_L\MC\615200-5292-008 Bellisle (Penetang) Investments Limited - Air and Noise Compatibility - Harbour Pointe\2019-11-11 FIG 5 - Extraction Phase C.mxd



PRIMARY NOISE SCREENING METHOD
BELLISLE DEVELOPMENT INC.
 Subdivision 60, Bellisle Road
 Penetanguishene, Ontario

- LEGEND**
- Receptors
 - Point sources
 - Noise Contour - 50 dBA
 - Trucking Route
 - Contours
 - Approximate Area of Non-Compliance
 - Approximate Extraction Area
 - Site (approximate)
 - Aggregate License

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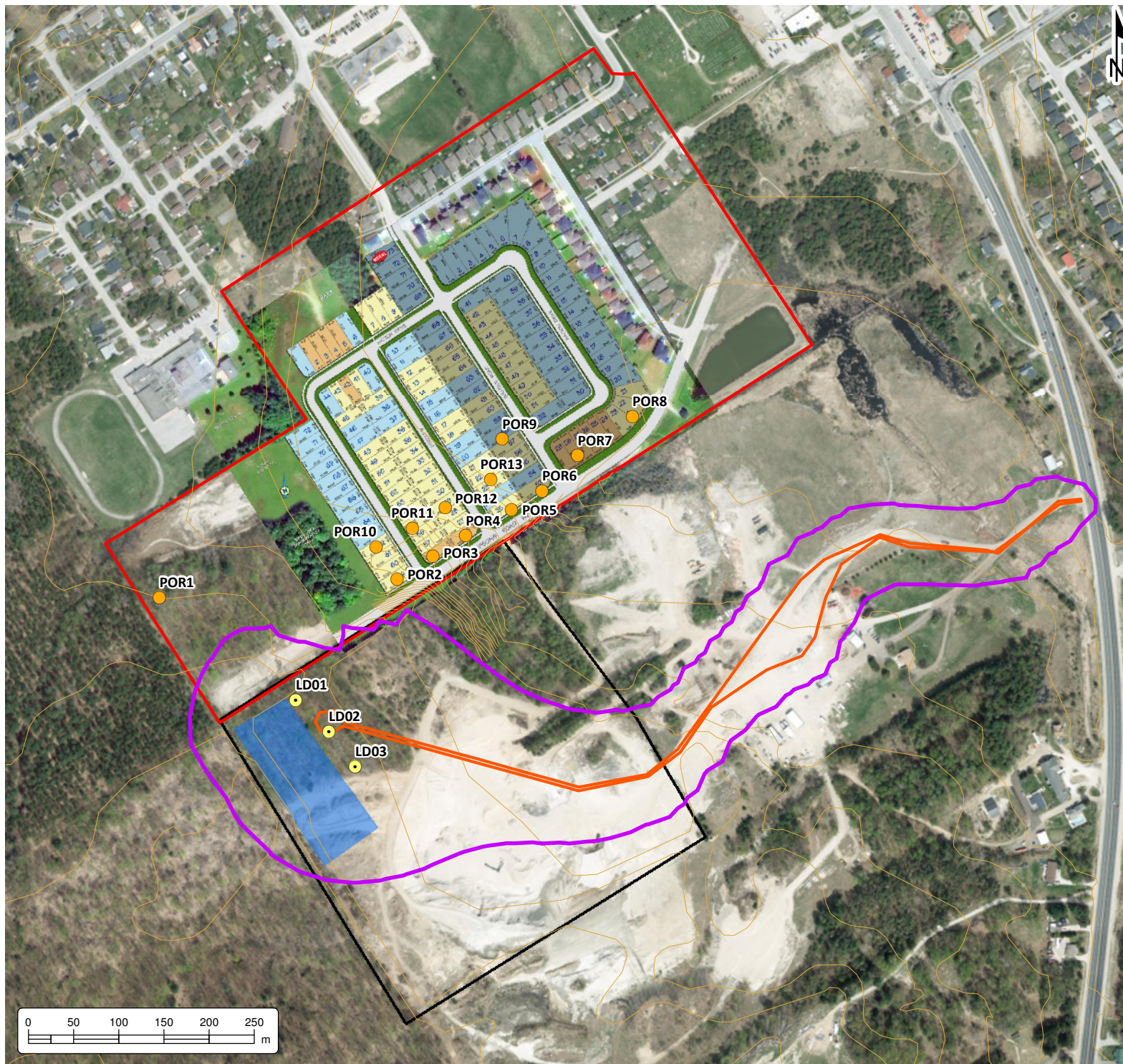


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EXTRACTION PHASE C

Project No.:	5292-008	Date:	November 2019
Scale:	1:6,000	Rev.:	
Created by:	TLC	Projection:	NAD 1983 UTM Zone 17N
Checked by:	TMC	Figure:	5

O:\GIS\project_L\MC\5200-5299\5292-008 Bellisle (Penetang) Investments Limited - Air and Noise Compatibility - Harbour Pointe\2019-11-11 FIG 6 - Extraction Phase D.mxd



PRIMARY NOISE SCREENING METHOD
BELLISLE DEVELOPMENT INC.
 Subdivision 60, Bellisle Road
 Penetanguishene, Ontario

LEGEND

- Receptors
- Point Sources
- Noise Contour - 50 dBA
- Trucking Route
- Contours
- Approximate Extraction Area
- Site (approximate)
- Aggregate License

Notes:
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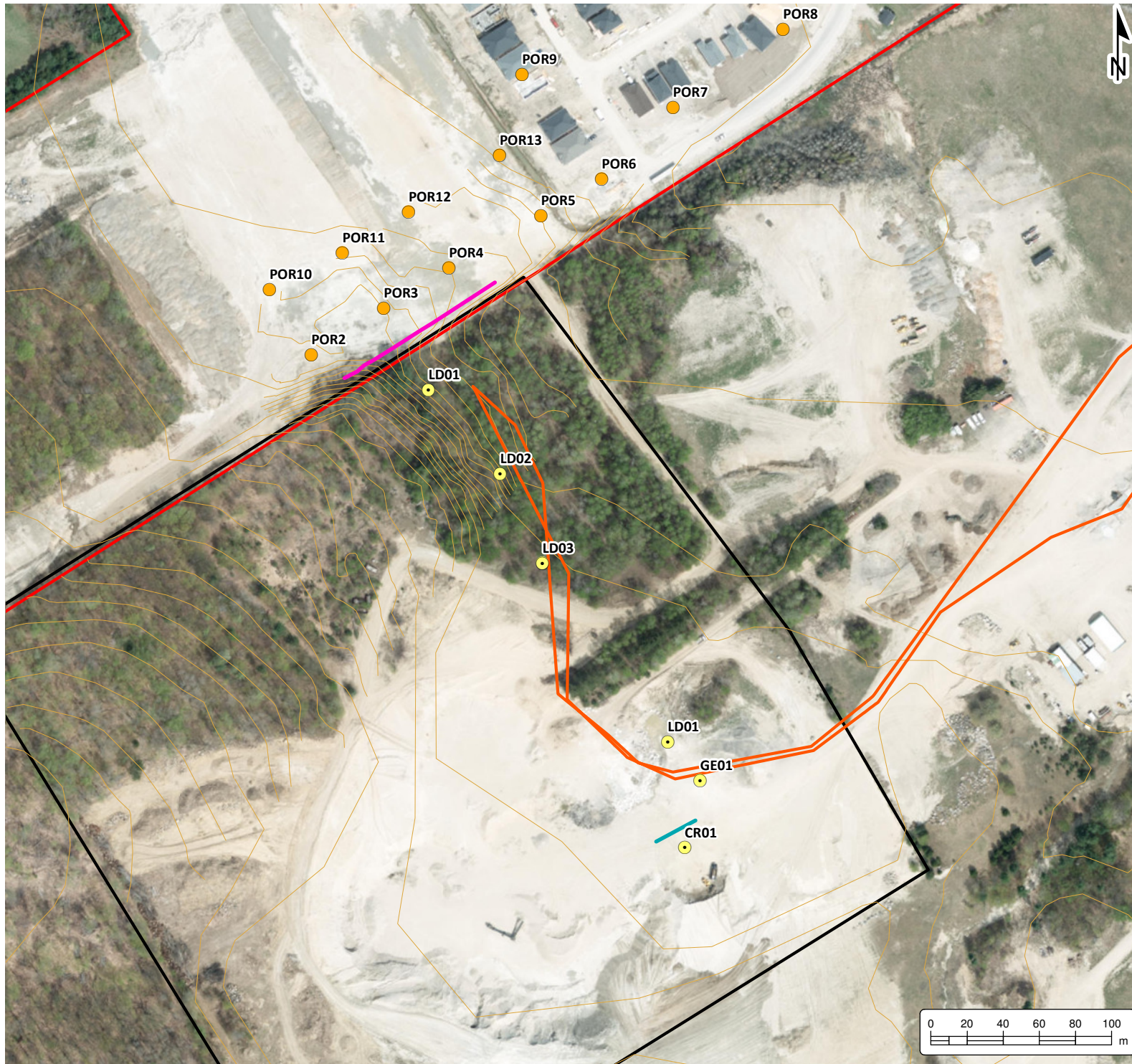


P.O. Box 325, 52 Hunter Street East
 Peterborough, Ontario, K9H 1G5
 Tel: (705) 742.7900 Fax: (705) 742.7907
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EXTRACTION PHASE D

Project No.:	5292-008	Date:	November 2019
Scale:	1:6,000	Rev.:	
Created by:	TLC	Projection:	NAD 1983 UTM Zone 17N
Checked by:	TMC	Figure:	6

O:\GIS\project_L\MC\5200-5299\5292-008 Bellisle (Penetang) Investments Limited - Air and Noise Compatibility - Harbour Pointe\2019-11-11 FIG 7 - Barrier Layout.mxd



PRIMARY NOISE SCREENING METHOD
BELLISLE DEVELOPMENT INC.
 Subdivision 60, Bellisle Road
 Penetanguishene, Ontario

LEGEND

- Receptors
- Point sources
- Barrier - Height 3.0m rel.
- Barrier - Height 5.0m rel.
- Trucking Route
- Contours
- Site (approximate)
- Aggregate License

Notes:
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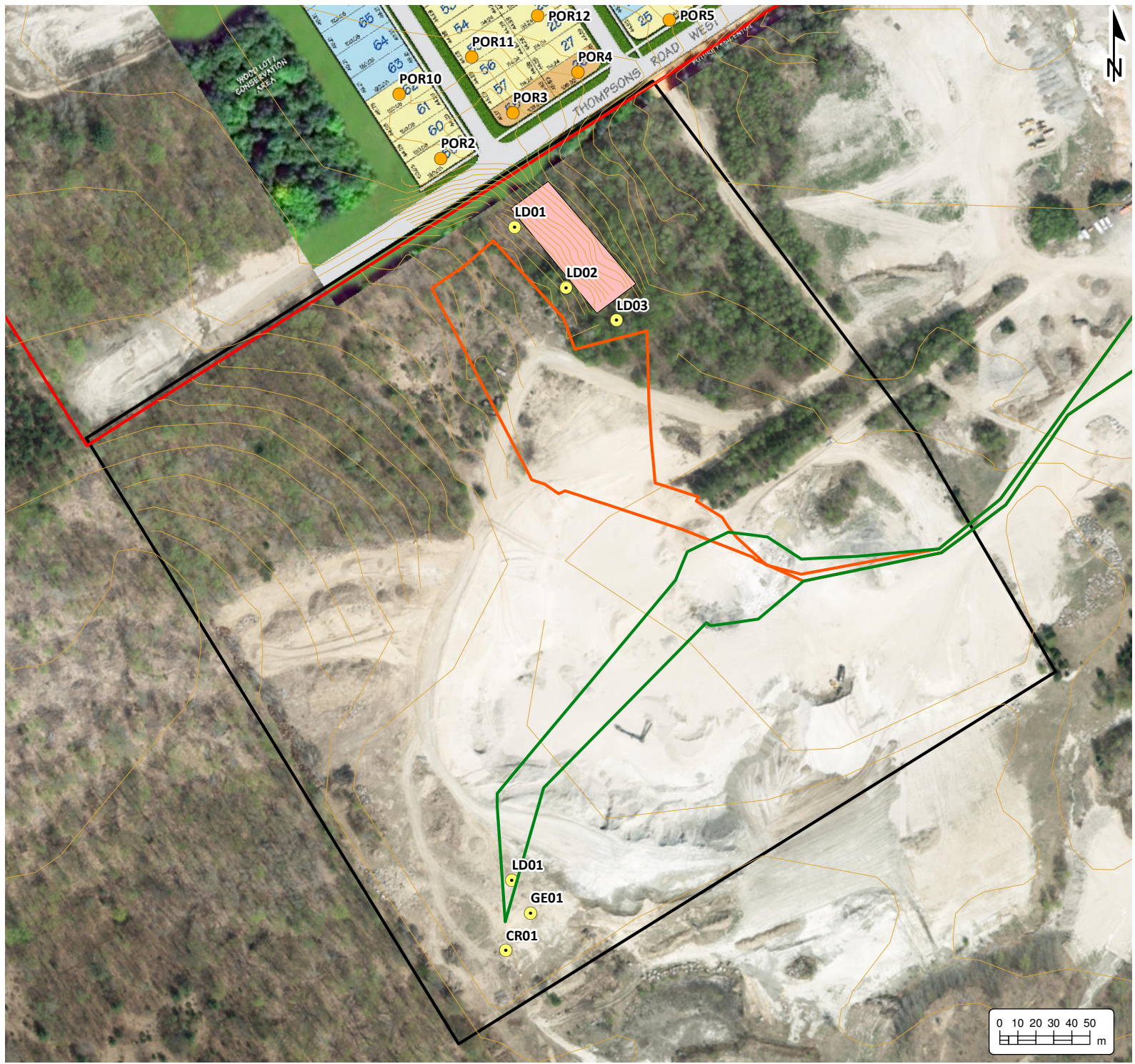


P.O. Box 325, 52 Hunter Street East
 Peterborough, Ontario, K9H 1G5
 Tel: (705) 742.7900 Fax: (705) 742.7907
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BARRIER LAYOUT

Project No.:	5292-008	Date:	November 2019
Scale:	1:3,000	Projection:	NAD 1983 UTM Zone 17N
Created by:	TLC	Checked by:	TMC
			7

O:\GIS\project_LMC\0615200-5299\5292-008 Bellisle (Penetang) Investments Limited - Air and Noise Compatibility - Harbour Pointe\2019-11-11 FIG 8 - Administrative Areas Layout.mxd



**PRIMARY NOISE
SCREENING METHOD**
BELLISLE DEVELOPMENT INC.
 Subdivision 60, Bellisle Road
 Penetanguishene, Ontario

LEGEND

- Receptors
- Point Sources
- Trucking Crusher Route
- Trucking Route
- Contours
- Area Sterilized
- Site (approximate)
- Aggregate License

Notes:
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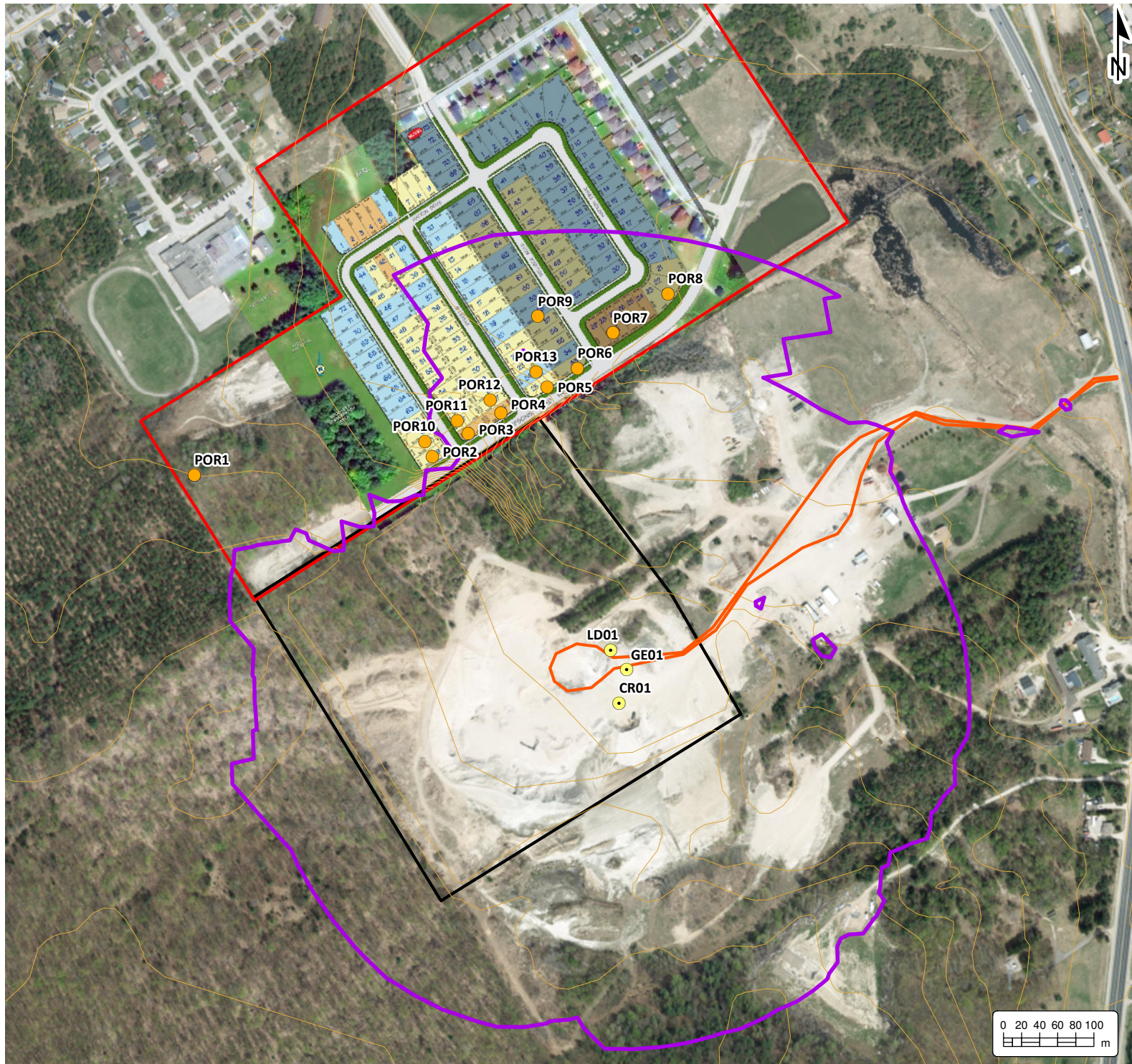


P.O. Box 325, 52 Hunter Street East
 Peterborough, Ontario, K9H 1G5
 Tel: (705) 742.7900 Fax: (705) 742.7907
 www.cambium-inc.com

**ADMINISTRATIVE
AREAS LAYOUT**

Project No.:	5292-008	Date:	November 2019
Scale:	1:3,000	Projection:	NAD 1983 UTM Zone 17N
Created by:	TLC	Checked by:	TMC
			8

O:\GIS\project_L\MC\615200-5299\5292-008 Bellisle (Penetang) Investments Limited - Air and Noise Compatibility - Harbour Pointe\2019-11-08 FIG 9 - Crusher Layout.mxd



PRIMARY NOISE SCREENING METHOD
BELLISLE DEVELOPMENT INC.
 Subdivision 60, Bellisle Road
 Penetanguishene, Ontario

LEGEND

- Receptors
- Point sources
- Noise Contour - 50 dBA
- Trucking Route
- Contours
- Site (approximate)
- Aggregate License

Notes:
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 - Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.
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P.O. Box 325, 52 Hunter Street East
 Peterborough, Ontario, K9H 1G5
 Tel: (705) 742.7900 Fax: (705) 742.7907
 www.cambium-inc.com

CRUSHER LAYOUT

Project No.: 5292-008	Date: November 2019
Scale: 1:6,000	Rev.: Rev.:
Created by: TLC	Checked by: TMC
Projection: NAD 1983 UTM Zone 17N	Figure: 9



Appended Tables



Table 3 - Representative Noise Source Summary Table

Source ID	Description	A-Weighted Sound Power Level After Reduction								Total dBA	Data Source	Equipment Location	Operating Times/Limits day,evening,night (%)	Noise Quality ²	Source Location	UTM Easting	UTM Northing	Height Above Rooftop or Ground
		63	125	250	500	1000	2000	4000	8000									
LD01	Loader 1	78.2	86.3	90.4	98.7	96.2	92.6	88.0	81.1	102.0	Cambium Noise Source Library	Ground	50,-,-	SS	Ground	Various	Various	2.5
LD02	Loader 2	78.2	86.3	90.4	98.7	96.2	92.6	88.0	81.1	102.0	Cambium Noise Source Library	Ground	50,-,-	SS	Ground	Various	Various	2.5
LD03	Loader 3	78.2	86.3	90.4	98.7	96.2	92.6	88.0	81.1	102.0	Cambium Noise Source Library	Ground	50,-,-	SS	Ground	Various	Various	2.5
TR01	Highway Trucks	85.4	83.9	84.7	88.0	91.8	89.9	83.0	71.9	96.2	Cambium Noise Source Library	Ground	100,-,-	SS	Ground	Various	Various	0.8
GE01	Generator	73.5	82.4	88.9	93.9	92.7	91.8	86.4	74.4	98.6	Cambium Noise Source Library	Ground	100,-,-	SS	Ground	Various	Various	2.5
CR01	Crusher	94.3	106.8	108.7	114.1	113.1	112.2	109.2	102.8	119.3	Cambium Noise Source Library	Ground	100,-,-	SS	Ground	Various	Various	2.5

¹ Noise Control Descriptions:
A barrier is required as described in the report.

² Noise Quality Descriptions:
SS Steady State
T Tonal
I Impulse

Assumed Crusher Does not run at the same time as full extraction



Table 4 - Point of Reception Noise Impact

Receptor ID	Receptor Coordinates				Predicted SPL (dBA)			Predictor Source ID	Source ID	PWL (dBA)	Time Correction (%)			Source/Receptor Distance (m)
	X (m)	Y (m)	Ground Elevation	Height	Daytime	Evening	Nighttime				Day	Evening	Night	
POR1_A	583876.6	4956692	224.97	4.5	23.4	-200	-200	455	LD02	102.0	50.0	--	--	370
POR1_A	583876.6	4956692	224.97	4.5	30.95	-200	-200	456	TR01	96.2	100.0	--	--	1026
POR1_A	583876.6	4956692	224.97	4.5	30.16	-200	-200	57311	LD01	102.0	50.0	--	--	328
POR1_A	583876.6	4956692	224.97	4.5	27.81	-200	-200	57312	LD03	102.0	50.0	--	--	402
POR2_A	584139.4	4956713	213.48	1.5	31.38	-200	-200	455	LD02	102.0	50.0	--	--	123
POR2_A	584139.4	4956713	213.48	1.5	35.42	-200	-200	456	TR01	96.2	100.0	--	--	762
POR2_A	584139.4	4956713	213.48	1.5	44.17	-200	-200	57311	LD01	102.0	50.0	--	--	68
POR2_A	584139.4	4956713	213.48	1.5	27.8	-200	-200	57312	LD03	102.0	50.0	--	--	172
POR3_A	584179.4	4956738	212.9	1.5	45.31	-200	-200	455	LD02	102.0	50.0	--	--	112
POR3_A	584179.4	4956738	212.9	1.5	43.93	-200	-200	456	TR01	96.2	100.0	--	--	720
POR3_A	584179.4	4956738	212.9	1.5	52.39	-200	-200	57311	LD01	102.0	50.0	--	--	51
POR3_A	584179.4	4956738	212.9	1.5	41.91	-200	-200	57312	LD03	102.0	50.0	--	--	166
POR4_A	584215.5	4956761	209.73	1.5	44.78	-200	-200	455	LD02	102.0	50.0	--	--	118
POR4_A	584215.5	4956761	209.73	1.5	44.07	-200	-200	456	TR01	96.2	100.0	--	--	682
POR4_A	584215.5	4956761	209.73	1.5	49.23	-200	-200	57311	LD01	102.0	50.0	--	--	69
POR4_A	584215.5	4956761	209.73	1.5	41.6	-200	-200	57312	LD03	102.0	50.0	--	--	172
POR5_A	584266.2	4956790	206.74	1.5	42.79	-200	-200	455	LD02	102.0	50.0	--	--	145
POR5_A	584266.2	4956790	206.74	1.5	42.87	-200	-200	456	TR01	96.2	100.0	--	--	630
POR5_A	584266.2	4956790	206.74	1.5	44.22	-200	-200	57311	LD01	102.0	50.0	--	--	115
POR5_A	584266.2	4956790	206.74	1.5	40.05	-200	-200	57312	LD03	102.0	50.0	--	--	193
POR6_A	584299.9	4956810	203.76	1.5	40.66	-200	-200	455	LD02	102.0	50.0	--	--	173
POR6_A	584299.9	4956810	203.76	1.5	41.57	-200	-200	456	TR01	96.2	100.0	--	--	597
POR6_A	584299.9	4956810	203.76	1.5	41.74	-200	-200	57311	LD01	102.0	50.0	--	--	152
POR6_A	584299.9	4956810	203.76	1.5	38.69	-200	-200	57312	LD03	102.0	50.0	--	--	216
POR7_A	584339	4956850	201	1.5	38.04	-200	-200	455	LD02	102.0	50.0	--	--	225
POR7_A	584339	4956850	201	1.5	40.03	-200	-200	456	TR01	96.2	100.0	--	--	559
POR7_A	584339	4956850	201	1.5	38.77	-200	-200	57311	LD01	102.0	50.0	--	--	207
POR7_A	584339	4956850	201	1.5	36.62	-200	-200	57312	LD03	102.0	50.0	--	--	263
POR8_A	584400	4956893	200	1.5	35.41	-200	-200	455	LD02	102.0	50.0	--	--	292
POR8_A	584400	4956893	200	1.5	39.71	-200	-200	456	TR01	96.2	100.0	--	--	505
POR8_A	584400	4956893	200	1.5	35.82	-200	-200	57311	LD01	102.0	50.0	--	--	280
POR8_A	584400	4956893	200	1.5	34.44	-200	-200	57312	LD03	102.0	50.0	--	--	325
POR9_A	584256	4956868	204	4.5	40.6	-200	-200	455	LD02	102.0	50.0	--	--	222
POR9_A	584256	4956868	204	4.5	39.89	-200	-200	456	TR01	96.2	100.0	--	--	644
POR9_A	584256	4956868	204	4.5	41.7	-200	-200	57311	LD01	102.0	50.0	--	--	182
POR9_A	584256	4956868	204	4.5	38.97	-200	-200	57312	LD03	102.0	50.0	--	--	271
POR10_A	584116	4956749	212	4.5	39.05	-200	-200	455	LD02	102.0	50.0	--	--	163
POR10_A	584116	4956749	212	4.5	37.61	-200	-200	456	TR01	96.2	100.0	--	--	782



Table 4 - Point of Reception Noise Impact

Receptor ID	Receptor Coordinates				Predicted SPL (dBA)			Predictor Source ID	Source ID	PWL (dBA)	Time Correction (%)			Source/Receptor Distance (m)
	X (m)	Y (m)	Ground Elevation	Height	Daytime	Evening	Nighttime				Day	Evening	Night	
POR10_A	584116	4956749	212	4.5	47.02	-200	-200	57311	LD01	102.0	50.0	--	--	104
POR10_A	584116	4956749	212	4.5	35.86	-200	-200	57312	LD03	102.0	50.0	--	--	214
POR11_A	584157	4956769	211	4.5	44.47	-200	-200	455	LD02	102.0	50.0	--	--	150
POR11_A	584157	4956769	211	4.5	41.52	-200	-200	456	TR01	96.2	100.0	--	--	741
POR11_A	584157	4956769	211	4.5	48.36	-200	-200	57311	LD01	102.0	50.0	--	--	90
POR11_A	584157	4956769	211	4.5	41.6	-200	-200	57312	LD03	102.0	50.0	--	--	204
POR12_A	584193.1	4956792	208.4	4.5	44.26	-200	-200	455	LD02	102.0	50.0	--	--	154
POR12_A	584193.1	4956792	208.4	4.5	41.72	-200	-200	456	TR01	96.2	100.0	--	--	704
POR12_A	584193.1	4956792	208.4	4.5	47.45	-200	-200	57311	LD01	102.0	50.0	--	--	99
POR12_A	584193.1	4956792	208.4	4.5	41.42	-200	-200	57312	LD03	102.0	50.0	--	--	208
POR13_A	584243.5	4956823	204.84	4.5	42.9	-200	-200	455	LD02	102.0	50.0	--	--	177
POR13_A	584243.5	4956823	204.84	4.5	41.27	-200	-200	456	TR01	96.2	100.0	--	--	653
POR13_A	584243.5	4956823	204.84	4.5	44.64	-200	-200	57311	LD01	102.0	50.0	--	--	136
POR13_A	584243.5	4956823	204.84	4.5	40.67	-200	-200	57312	LD03	102.0	50.0	--	--	227



Table 5A - Acoustic Assessment Summary Plane Of Window - No Mitigation

Point of Reception ID	Point of Reception Information					Noise Characteristic	Class 1 Daytime Limit (dBA)	Class 4 Daytime Limit (dBA)	Pit Phase 3A Daytime (dBA)	Pit Phase 3B Daytime (dBA)	Pit Phase 3C Daytime (dBA)	Pit Phase 3D Daytime (dBA)	Pit Crushing Daytime (dBA)	Verified by Acoustic Audit (Yes or No)	Compliant with Class 1 Limit	Compliant with POW Class 4 Limit
	Description	UTM Easting	UTM Northing	Height POW	Height OLA											
POR1_A	Phase 4	583877	4956692	4.5	-	Steady State Leq	50	60	34.5	34.3	34.9	43.3	47.9	N	Yes	Yes
POR2_A	Phase 3	584139	4956713	1.5	-	Steady State Leq	50	60	33.8	33.7	45.0	37.9	45.8	N	Yes	Yes
POR3_A	Phase 3	584179	4956738	1.5	-	Steady State Leq	50	60	40.0	38.5	53.9	41.9	55.8	N	No	Yes
POR4_A	Phase 3	584215	4956761	1.5	-	Steady State Leq	50	60	41.2	39.2	51.9	41.7	55.6	N	No	Yes
POR5_A	Phase 2	584266	4956790	1.5	-	Steady State Leq	50	60	42.0	40.2	48.7	41.3	54.6	N	No	Yes
POR6_A	Phase 2	584300	4956810	1.5	-	Steady State Leq	50	60	41.1	39.7	46.8	40.5	54.0	N	No	Yes
POR7_A	Phase 2	584339	4956850	1.5	-	Steady State Leq	50	60	40.3	39.2	44.6	39.8	52.7	N	No	Yes
POR8_A	Phase 2	584400	4956893	1.5	-	Steady State Leq	50	60	40.2	39.6	42.9	39.6	51.4	N	No	Yes
POR9_A	Phase 2	584256	4956868	4.5	-	Steady State Leq	50	60	41.6	39.3	46.4	40.0	54.3	N	No	Yes
POR10_A	Phase 3	584116	4956749	4.5	-	Steady State Leq	50	60	36.5	36.3	48.3	41.1	51.4	N	No	Yes
POR11_A	Phase 3	584157	4956769	4.5	-	Steady State Leq	50	60	39.5	38.2	51.0	41.6	56.2	N	No	Yes
POR12_A	Phase 3	584193	4956792	4.5	-	Steady State Leq	50	60	41.9	39.0	50.5	41.3	56.1	N	No	Yes
POR13_A	Phase 2	584243	4956823	4.5	-	Steady State Leq	50	60	42.7	40.0	48.7	40.9	55.7	N	No	Yes



Table 5B - Acoustic Assessment Summary OLA Class 4 - No Mitigation

Point of Reception ID	Point of Reception Information					Noise Characteristic	Class 1 Daytime Limit (dBA)	Class 4 Daytime OLA Limit (dBA)	Pit Phase 3A Daytime (dBA)	Pit Phase 3B Daytime (dBA)	Pit Phase 3C Daytime (dBA)	Pit Phase 3D Daytime (dBA)	Pit Crushing Daytime (dBA)	Verified by Acoustic Audit (Yes or No)	Compliant with Class 1 Limit	Compliant with OLA Class 4 Limit
	Description	UTM Easting	UTM Northing	Height POW	Height OLA											
POR1_A	Phase 4	583877	4956692	1.5	-	Steady State Leq	50	55	-	-	32.8	-	46.8	N	Yes	Yes
POR2_A	Phase 3	584139	4956713	1.5	-	Steady State Leq	50	55	-	-	45.0	-	45.8	N	Yes	Yes
POR3_A	Phase 3 - backyard	584185	4956746	1.5	-	Steady State Leq	50	55	-	-	53.9	-	55.0	N	No	Yes
POR4_A	Phase 3 - backyard	584205	4956760	1.5	-	Steady State Leq	50	55	-	-	51.9	-	54.9	N	No	Yes
POR5_A	Phase 2	584266	4956790	1.5	-	Steady State Leq	50	55	-	-	48.7	-	54.6	N	No	Yes
POR6_A	Phase 2	584300	4956810	1.5	-	Steady State Leq	50	55	-	-	46.8	-	54.0	N	No	Yes
POR7_A	Phase 2	584339	4956850	1.5	-	Steady State Leq	50	55	-	-	44.6	-	52.7	N	No	Yes
POR8_A	Phase 2	584400	4956893	1.5	-	Steady State Leq	50	55	-	-	42.9	-	51.4	N	No	Yes
POR9_A	Phase 2	584256	4956868	1.5	-	Steady State Leq	50	55	-	-	44.4	-	52.3	N	No	Yes
POR10_A	Phase 3	584116	4956749	1.5	-	Steady State Leq	50	55	-	-	46.2	-	48.3	N	Yes	Yes
POR11_A	Phase 3	584157	4956769	1.5	-	Steady State Leq	50	55	-	-	48.3	-	50.6	N	No	Yes
POR12_A	Phase 3	584193	4956792	1.5	-	Steady State Leq	50	55	-	-	48.3	-	53.8	N	No	Yes
POR13_A	Phase 2	584243	4956823	1.5	-	Steady State Leq	50	55	-	-	44.1	-	50.2	N	No	Yes



Table 6 - Acoustic Assessment Summary - Mitigated

Point of Reception ID	Point of Reception Information					Noise Characteristic	Daytime Limit (dBA)	Evening Limit (dBA)	Nighttime Limit (dBA)	Pit Phase 3C - With Barrier	Pit Phase 3C - With Admin. Control	Pit Crushing - With Barrier	Pit Crushing - With Admin. Control	Verified by Acoustic Audit (Yes or No)	Compliant with Limit
	Description	UTM Easting	UTM Northing	Height POW	Height OLA					Daytime (dBA)	Daytime (dBA)	Daytime (dBA)	Daytime (dBA)		
POR1_A	Phase 4	583877	4956692	4.5	-	Steady State Leq	50	50	45	34.6	37.3	42.3	48.3	N	Yes
POR2_A	Phase 3	584139	4956713	1.5	-	Steady State Leq	50	50	45	40.5	40.5	40.8	42.4	N	Yes
POR3_A	Phase 3	584179	4956738	1.5	-	Steady State Leq	50	50	45	44.0	45.2	48.9	48.4	N	Yes
POR4_A	Phase 3	584215	4956761	1.5	-	Steady State Leq	50	50	45	48.3	44.7	48.8	48.2	N	Yes
POR5_A	Phase 2	584266	4956790	1.5	-	Steady State Leq	50	50	45	48.7	45.1	48.3	47.5	N	Yes
POR6_A	Phase 2	584300	4956810	1.5	-	Steady State Leq	50	50	45	46.8	43.8	47.9	46.8	N	Yes
POR7_A	Phase 2	584339	4956850	1.5	-	Steady State Leq	50	50	45	44.6	42.1	47.2	45.8	N	Yes
POR8_A	Phase 2	584400	4956893	1.5	-	Steady State Leq	50	50	45	42.9	41.0	47.0	47.7	N	Yes
POR9_A	Phase 2	584256	4956868	4.5	-	Steady State Leq	50	50	45	46.4	42.5	47.7	46.8	N	Yes
POR10_A	Phase 3	584116	4956749	4.5	-	Steady State Leq	50	50	45	44.2	41.2	44.0	48.2	N	Yes
POR11_A	Phase 3	584157	4956769	4.5	-	Steady State Leq	50	50	45	43.8	43.7	48.9	48.9	N	Yes
POR12_A	Phase 3	584193	4956792	4.5	-	Steady State Leq	50	50	45	47.7	43.6	48.9	48.5	N	Yes
POR13_A	Phase 2	584243	4956823	4.5	-	Steady State Leq	50	50	45	48.6	44.1	48.6	47.8	N	Yes



Table 7 - Traffic Noise Results Summary

Source	Future AADT ¹	Traffic Breakdown, (Day/Night) ²			Receptor	Notes ⁴	Impact due to background traffic (dBA) ³
		Daytime	Med Trucks	Heavy Trucks			Day
Thompson Road	2245	1940	40	40	18 m from Thompson centerline, Front	4.5 m Height	54.51
Thompson Road	2245	216	4	4	18 m from Thompson centerline, Front	4.5 m Height	47.71
Thompson Road	2245	1940	40	40	18 m from Thompson centerline, Front	1.5 m height	54.31
For Future Ambient	2245	65	1	1	18 m from Thompson centerline, Front	4.5 m Height	51.00

1 - JD Engineering Report

2 - 90% day-night split from Ministry ORNAMENT, medium (2%) and heavy (2%) truck percentage taken from JD Engineering.

3 - Future Ambient based on lowest 1 hour traffic assumption provided by JD Engineering



Appendix A
Harbour Pointe Community Sub Division Plan





Appendix B
Penetang Sand & Gravel Plan

WILLIAM LEDIARD
SITE PLAN SHOWING
OPERATIONAL PLAN
OF PART OF
LOT 113, CONCESSION I
WEST OF THE PENETANGUSHENE ROAD
TOWNSHIP OF TINY
COUNTY OF SIMCOE

SCALE + 1:3000



JAMES W. NICHOLSON LIMITED
 ONTARIO LAND SURVEYORS
 CANADA LANDS SURVEYOR
 1993.

- LEGEND**
- BOUNDARY OF LICENCED AREA
 - LIMIT OF EXTRACTION
 - ⇄ ENTRANCE/EXIT GATE
 - EXISTING BUSH
 - CONTOUR LINE
 - SPOT ELEVATION
 - STOCKPILE
 - TOP OF EXTRACTION
 - BOTTOM OF STEEP SLOPE
 - DIRECTION OF PHASE
 - AREA UNDER REHABILITATION
 - REHABILITATION COMPLETED
 - TEST HOLE
 - DIRECTION OF SURFACE DRAINAGE
 - MAIN HAULAGE ROUTE

APPLICANT
 WILLIAM LEDIARD
 BOX 345
 PENETANGUSHENE,
 ONTARIO
 LOK IPO

METRIC NOTE
 DISTANCES SHOWN ON THIS PLAN ARE
 IN METRES AND CAN BE CONVERTED TO
 FEET BY DIVIDING BY 0.3048

NOTES

1. THIS SITE PLAN IS PREPARED FROM a) THE PREVIOUS SITE PLAN FOR THIS PROPERTY PREPARED BY J.W. NICHOLSON LIMITED, DATED MARCH 26, 1982. b) A FIELD INVESTIGATION DURING SEPTEMBER, 1991.
2. THIS SITE PLAN DEPICTS A SCHEMATIC OPERATION SEQUENCE FOR THE PROPERTY BASED UPON THE BEST INFORMATION AVAILABLE AT THE TIME OF PRESENTATION. PHASES SHOWN ARE SCHEMATIC AND MAY VARY SLIGHTLY DUE TO QUALITY OF MATERIAL, SITE HYDROLOGY, SITE HYDROGEOLOGY, OR MARKET DEMAND UPON PRIOR APPROVAL OF THE MINISTRY OF NATURAL RESOURCES. PHASES DO NOT REPRESENT ANY SPECIFIC OR EQUAL TIME PERIOD.
3. EXCAVATION OF THE SAND WILL RADIATE WESTERLY FROM THE EXISTING PIT. THE INITIAL PHASE WILL REMOVE 7m OF MATERIAL IN THE SOUTHERLY HALF OF THE LICENCED AREA. THE FINAL PHASE WILL REMOVE 7m OF MATERIAL FROM THE NORTHERLY HALF OF THE LICENCED AREA. BEFORE THE EXTRACTION OF THE SAND BEGINS IN ANY AREA, THE TREES WILL BE CUT AND THE STUMPS MAY BE STORED, UNDER 7m IN HEIGHT, IN THE DESIGNATED AREA OR REMOVED FROM THE SITE, THE LUMBER WILL BE MARKETED. IF THERE IS ANY TOPSOIL, IT WILL BE STRIPPED AND STOCKPILED SEPARATELY. AFTER THE EXCAVATION IS COMPLETED A FLOOR OF APPROXIMATELY 20:1 SLOPE WILL REMAIN SURROUNDED BY 3:1 MAXIMUM SIDE SLOPES.
4. EXTRACTION WILL NOT GO BELOW THE WATER TABLE ELEVATION OF 214.34m (ASL) AS ESTABLISHED FROM THE WATER WELL RECORDS. WELL DATA SUPPLIED BY MINISTRY OF ENVIRONMENT.
5. THERE WILL BE NO WASHING OR CRUSHING OF MATERIAL ON SITE, SCREENING OF IMPORTED TOPSOIL WILL OCCUR IN THE DESIGNATED AREA WITH A PORTABLE UNIT.
6. THERE IS A 1.2m POST AND WIRE FENCE ON THE BOUNDARIES OF THE LICENCED AREA, EXCEPT FOR THE EASTERLY LIMIT. A 1.2m FENCE ALONG WITH A LOCKABLE HEAVY DUTY ENTRANCE/EXIT GATE WILL BE ERECTED ON THE EASTERLY BOUNDARY DURING THE EARLY STAGES OF PHASE A.
7. DURING PHASE A, THE DISTURBED SECTION OF THE SETBACK AREA NEAR THE SOUTH EASTERLY CORNER WILL BE GRADED, COVERED WITH TOPSOIL, SEEDED WITH A GRASS/LEGUME MIXTURE AND PLANTED WITH PINE SEEDLINGS. AS EXTRACTION OF MATERIALS PROCEED WESTERLY, THE EXPOSED SIDE SLOPES WILL BE GRADED TO PRODUCE THE FINAL 3:1 MAXIMUM SIDE SLOPES, STABILIZED WITH A 5cm COVERING OF TOPSOIL, SEEDED WITH A GRASS/LEGUME MIXTURE AND PLANTED WITH PINE SEEDLINGS. THE REHABILITATION OF THE SIDE SLOPES WILL BE STAGED AT A REASONABLE DISTANCE FROM THE PIT OPERATION TO ENSURE VEGETATION DEVELOPMENT. THE PIT FLOOR WILL BE COVERED WITH TOPSOIL, SEEDED WITH A GRASS/LEGUME MIXTURE AND PLANTED WITH PINE SEEDLINGS PLACED 3m APART.
8. ALL TREES WITHIN THE SETBACK AREAS WILL NOT BE DISTURBED. DURING PHASE A, NON-TREED SECTIONS WITHIN THE SETBACK AREA WILL BE PLANTED WITH PINE SEEDLINGS.
9. ALL DEAD OR DYING TREES WITHIN THE SETBACK AREAS WILL BE REPLACED WITH PINE SEEDLINGS UNTIL REHABILITATION OF THE ENTIRE LICENCED AREA IS COMPLETED.
10. TO CONTROL DUST GENERATED ON THE SITE, INTERNAL HAULAGE ROUTES WILL BE SPRAYED WITH WATER AND/OR DUST SUPPRESSANTS AS APPROVED BY THE MINISTRY OF THE ENVIRONMENT.
11. THE APPLICANT ACKNOWLEDGES THAT THERE ARE LIMITATIONS FOR NOISE AND VIBRATION AND IS AWARE THAT EXCEEDANCE OF THESE LIMITATIONS WILL CONSTITUTE A VIOLATION OF THE ENVIRONMENTAL PROTECTION ACT.
12. IMPORTED MATERIALS, SUCH AS BOULDERS FOR GABION WALLS, WILL BE STOCKPILED IN THE DESIGNATED AREA UNTIL MARKETED. TOPSOILS WILL BE SCREENED ON SITE. IMPORTED TOPSOIL WILL BE USED TO SUPPLEMENT THE ORIGINAL TOPSOIL IN THE REHABILITATION PROGRAM, BUT WILL NOT BE STORED ON SITE.
13. ALL SCRAP ORIGINATING FROM THIS PIT OPERATION WILL BE STORED, UNDER 5m IN HEIGHT, IN THE DESIGNATED AREA AND WILL BE REMOVED FROM THE SITE ON AN ONGOING BASIS. THE PRESENT SCRAP WILL BE REMOVED AND A NEW AREA OVER 30m FROM THE EASTERLY BOUNDARY WILL BE ESTABLISHED.
14. BULLDOZERS WILL CONTOUR THE SLOPES. ALL EXCAVATION WILL BE DONE WITH RUBBER TIRE LOADERS. ALL TRANSPORTATION OF MATERIAL WILL BE CONDUCTED BY RUBBER TIRE VEHICLES.
15. THERE ARE NO BUILDINGS ON SITE AND NONE ARE PROPOSED TO BE CONSTRUCTED.
16. NO BLASTING OPERATIONS WILL OCCUR ON SITE.
17. CROSS SECTIONS A-A', B-B' AND C-C' ARE ILLUSTRATED ON SHEET 4.
18. THE FINAL ELEVATIONS DEPICTED ON THESE SITE PLANS CONFORM TO THE FINAL ELEVATIONS OF THE PREVIOUS SITE PLANS PREPARED FOR THIS PROPERTY BY J.W. NICHOLSON LIMITED, DATED MARCH 26, 1982.

SURVEYOR'S CERTIFICATE

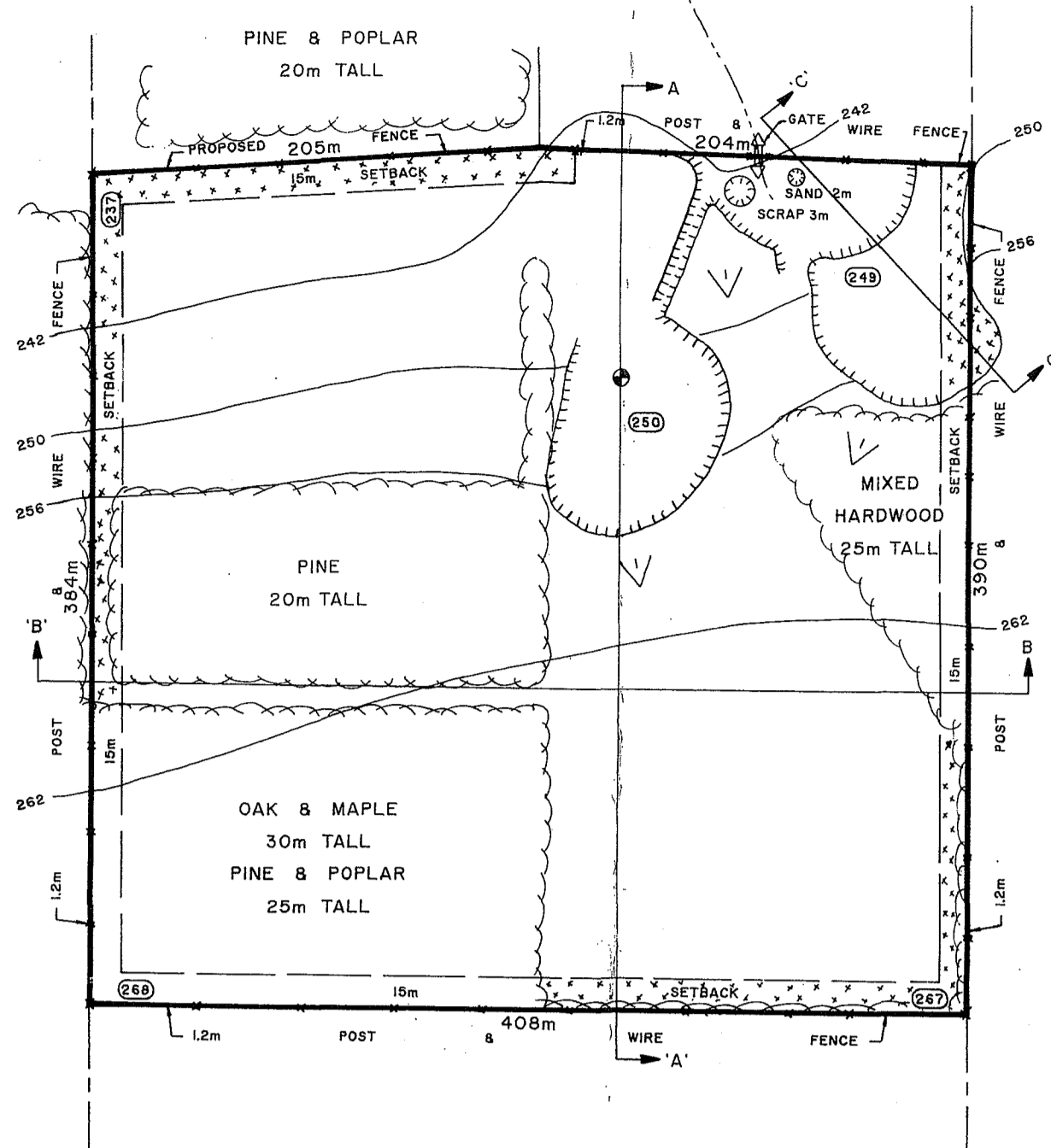
I HEREBY CERTIFY THAT THIS SITE PLAN THAT ACCOMPANIES THIS APPLICATION HAS BEEN PREPARED BY ME.

AUGUST 18, 1993
 MIDLAND, ONTARIO
 J.W. NICHOLSON
 ONTARIO LAND SURVEYOR
 CANADA LANDS SURVEYOR

J.W. Nicholson

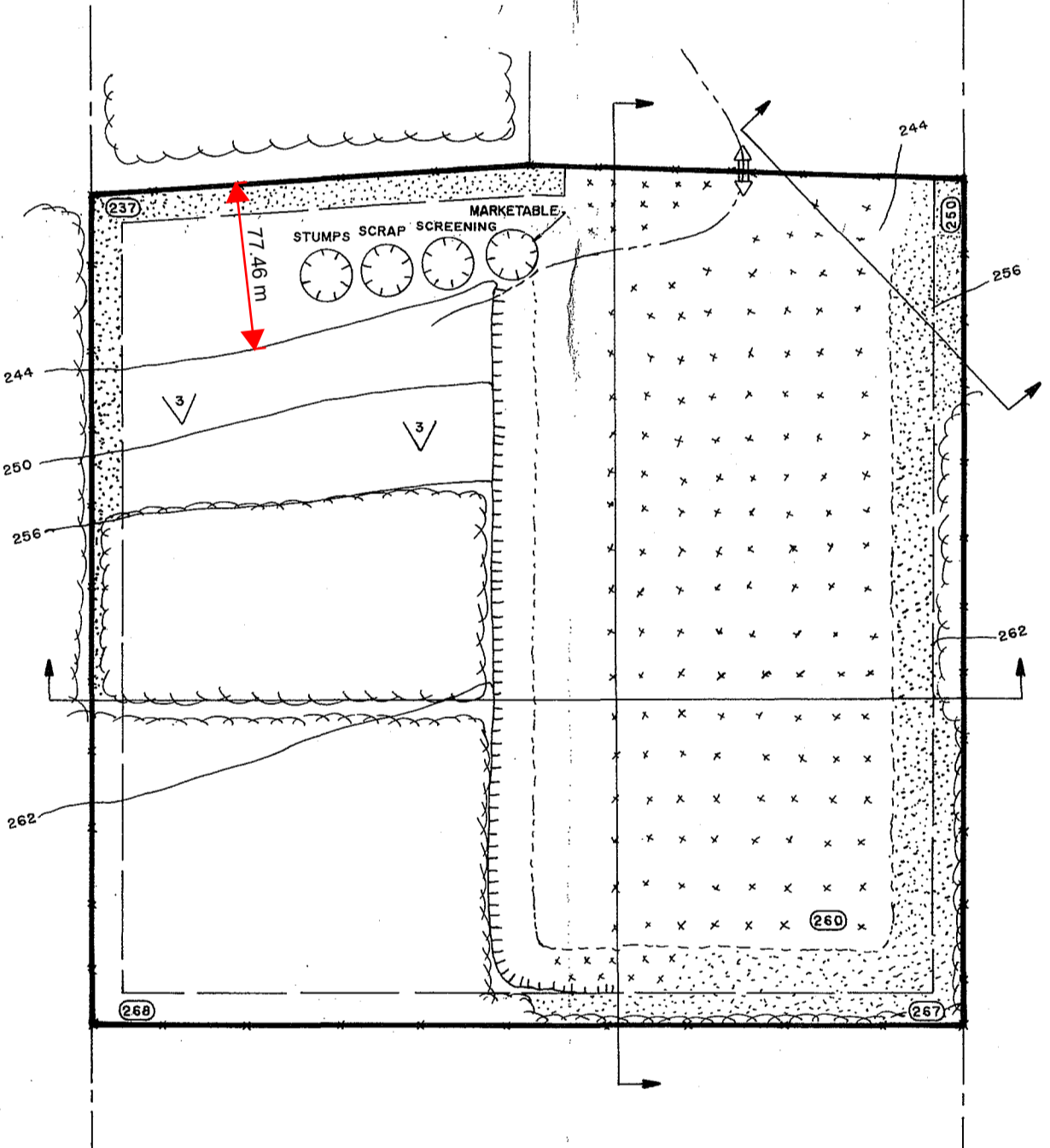
SITE PLANS APPROVED BY MINISTRY OF NATURAL RESOURCES

J.W. Nicholson SIGNATURE 93 08 25 DATE



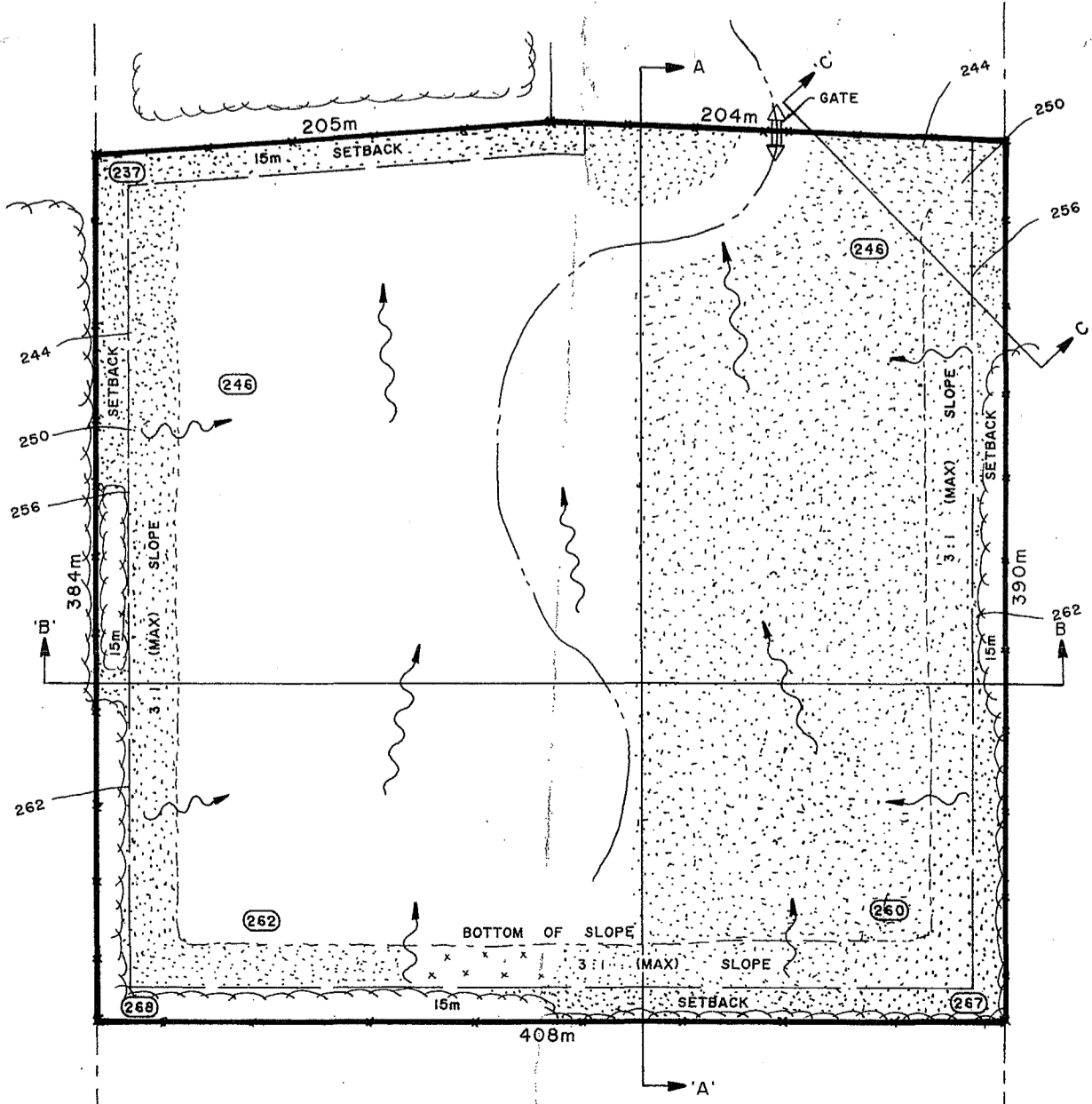
PHASE A (EXISTING)

- ERECT A 1.2m FENCE ALONG THE EASTERLY BOUNDARY WITH ENTRANCE/EXIT LOCKABLE GATE.
- GRADE THE DISTURBED AREA WITHIN THE 15m SETBACK, NEAR THE SOUTH EASTERLY CORNER, COVER WITH TOPSOIL, SEED WITH A GRASS/LEGUME MIXTURE AND PLANT PINE SEEDLINGS.
- REPAIR AND/OR REPLACE THE 1.2m FENCE ALONG THE SOUTHERLY BOUNDARY NEAR THE SOUTH EASTERLY CORNER.
- PLANT PINE SEEDLINGS WITHIN THE NON-TREED SECTIONS OF THE SET BACK AREAS NEAR THE NORTH EASTERLY AND SOUTH WESTERLY CORNERS.
- REMOVE SCRAP FROM SITE UNTIL THE DESIGNATED TEMPORARY STORAGE AREA IS EXCAVATED.
- IN AREA 1, CUT TREES, REMOVE STUMPS FROM SITE UNTIL THE DESIGNATED TEMPORARY STORAGE AREA IS EXCAVATED, AND MARKET LUMBER. THERE IS NO TOPSOIL TO STRIP AND STOCKPILE.
- EXCAVATE SAND IN AREA 1 WITH A LIFT OF 7m MAXIMUM, COMMENCING AT THE EASTERLY BOUNDARY ABOVE 242m (ASL) AND PROCEEDING WESTERLY AND UPHILL PRODUCING A SMOOTH PIT FLOOR WITH AN APPROXIMATE 20:1 SLOPE SURROUNDED BY 3:1 SIDE SLOPES.
- REHABILITATION OF THE SIDE SLOPES ADJACENT TO THE SOUTHERLY SETBACK AREAS WILL FOLLOW CLOSELY BEHIND THE EXCAVATION. THE SIDE SLOPES WILL BE GRADED TO ITS FINAL 3:1 MAXIMUM SLOPE, COVERED WITH TOPSOIL, SEEDED WITH A GRASS/LEGUME MIXTURE AND PLANTED WITH PINE SEEDLINGS.



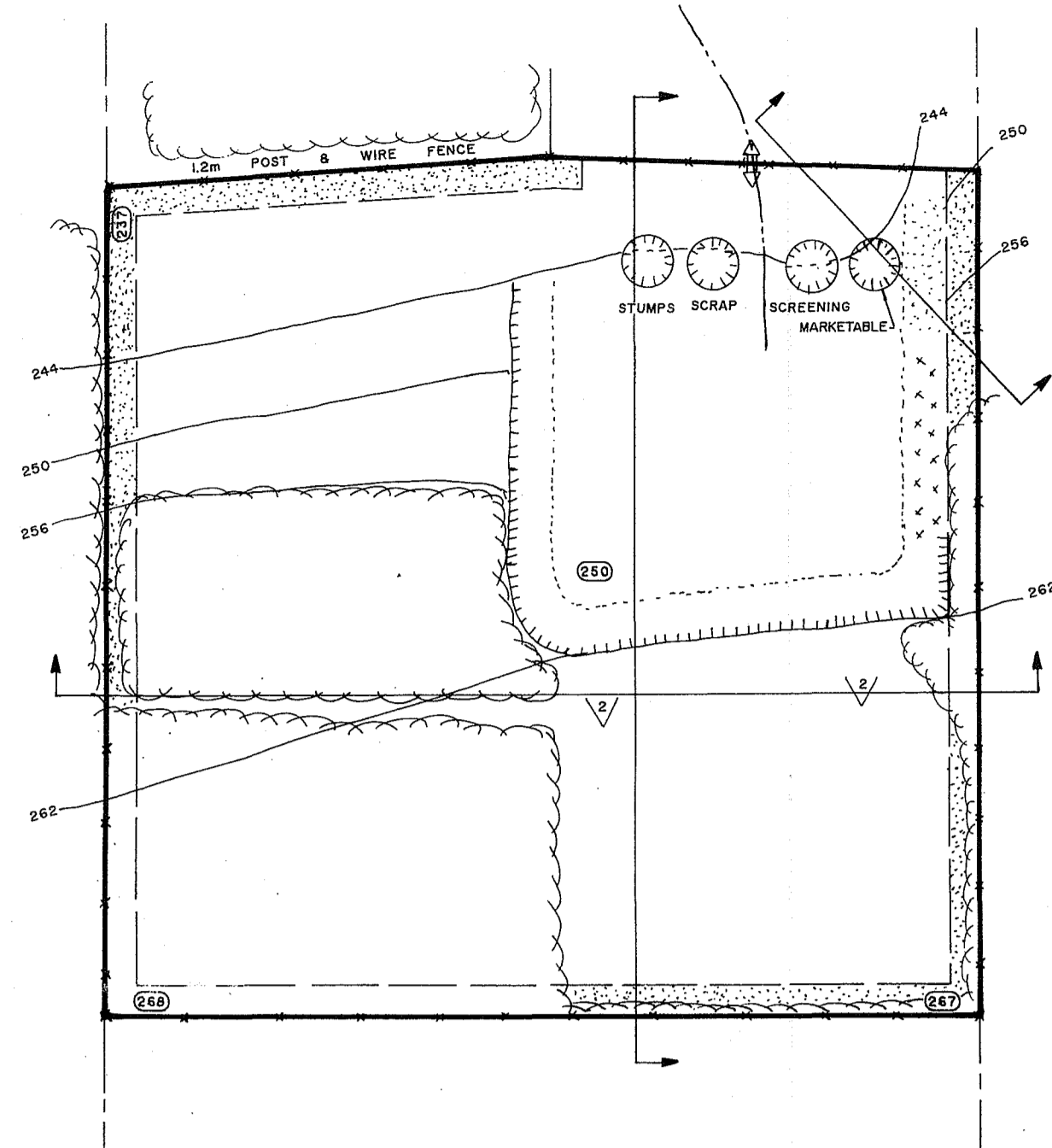
PHASE C

- STAYING A REASONABLE WORKING DISTANCE FROM THE SIDE SLOPES, COVER THE PIT FLOOR IN THE SOUTHERLY HALF OF THE LICENCED AREA WITH TOPSOIL, SEED WITH A GRASS/LEGUME MIXTURE AND PLANT PINE SEEDLINGS.
- IN AREA 3, CUT TREES, STOCKPILE STUMPS IN DESIGNATED AREA, MARKET LUMBER, THERE IS NOT ENOUGH TOPSOIL TO STRIP AND STOCKPILE.
- EXCAVATE SAND IN AREA 3 WITH A LIFT OF 7m MAXIMUM, COMMENCING NEAR THE EASTERLY BOUNDARY ABOVE 244m (ASL) AND PROCEEDING WESTERLY AND UPHILL TO PRODUCE A SMOOTH PIT FLOOR WITH AN APPROXIMATE 20:1 SLOPE AND 3:1 MAXIMUM SIDE SLOPES.
- REHABILITATION OF THE SIDE SLOPES ADJACENT TO THE NORTHERLY SETBACK AREAS WILL FOLLOW CLOSELY BEHIND THE EXCAVATION. THE SIDE SLOPES WILL BE GRADED TO ITS FINAL 3:1 MAXIMUM SLOPE, COVERED WITH TOPSOIL, SEEDED WITH A GRASS/LEGUME MIXTURE AND PLANTED WITH PINE SEEDLINGS.



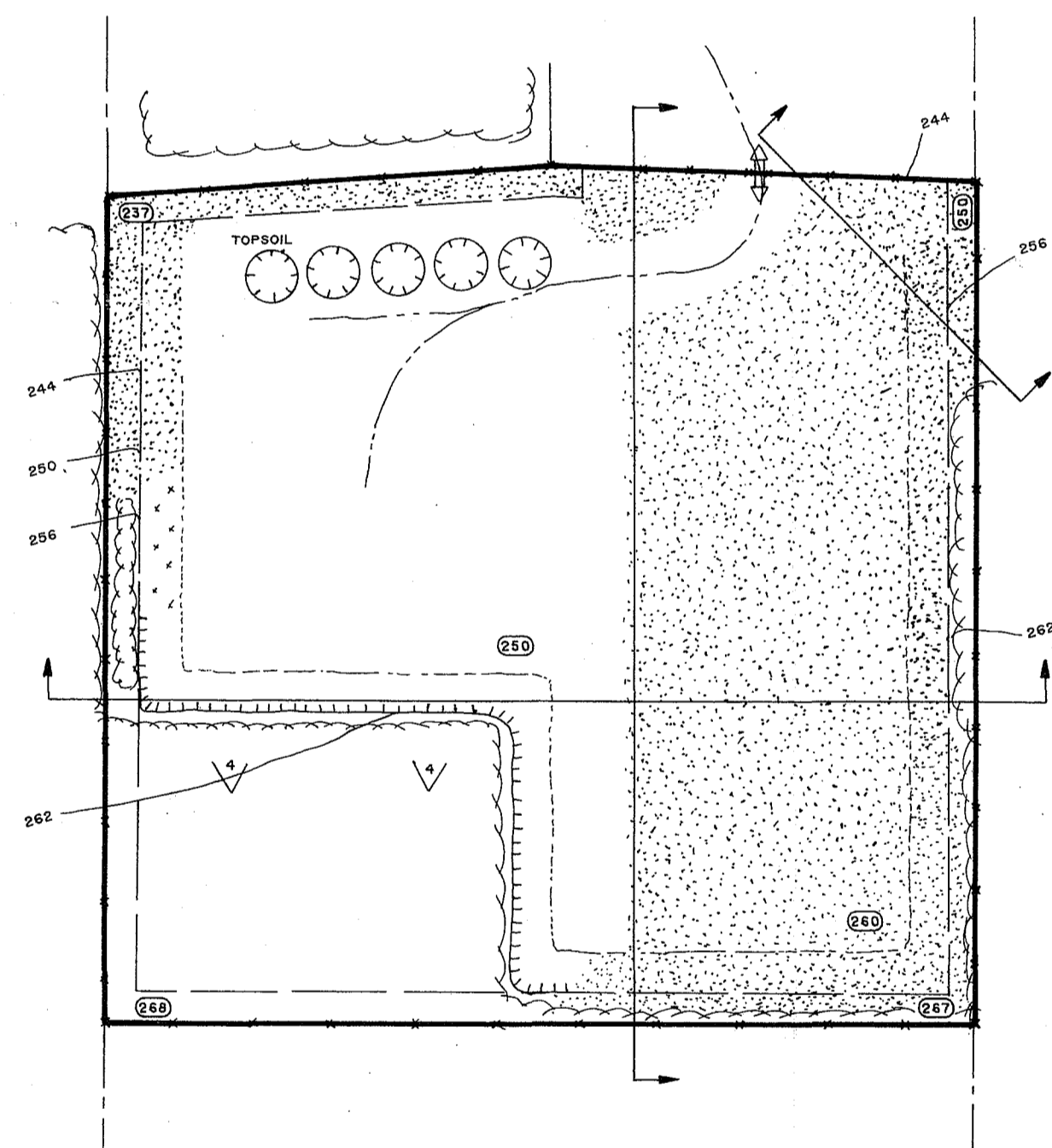
PHASE E (FINAL)

- REMOVE ALL STOCKPILES, MACHINERY AND SCRAP IN NORTHERLY HALF OF THE LICENCED AREA.
- SPREAD TOPSOIL OVER THE PIT FLOOR, SEED WITH A GRASS/LEGUME MIXTURE AND PLANT PINE SEEDLINGS.
- MAINTAIN VEGETATION UNTIL SELF SUSTAINING.



PHASE B

- IN AREA 2, CUT TREES, STOCKPILE STUMPS IN DESIGNATED AREA, MARKET LUMBER, THERE IS NOT ENOUGH TOPSOIL TO STRIP AND STOCKPILE.
- EXCAVATE SAND IN AREA 2 WITH A LIFT OF 7m MAXIMUM, THE SMOOTH PIT FLOOR, SURROUNDED BY A 3:1 MAXIMUM SIDE SLOPES WILL CONTINUE WESTERLY FROM PHASE A AT APPROXIMATELY A 20:1 SLOPE TO 260m (ASL) NEAR THE WESTERLY BOUNDARY.
- REHABILITATION OF THE SIDE SLOPES ADJACENT TO THE SOUTHERLY AND WESTERLY SETBACK AREAS WILL FOLLOW CLOSELY BEHIND THE EXCAVATION. THE SIDE SLOPES WILL BE GRADED TO ITS FINAL 3:1 MAXIMUM SLOPE, COVERED WITH TOPSOIL, SEEDED WITH A GRASS/LEGUME MIXTURE AND PLANTED WITH PINE SEEDLINGS.
- ALL TOPSOIL USED IN REHABILITATION PROCESS WILL BE IMPORTED, SCREENED ON SITE AND SPREAD AS REQUIRED.



PHASE D

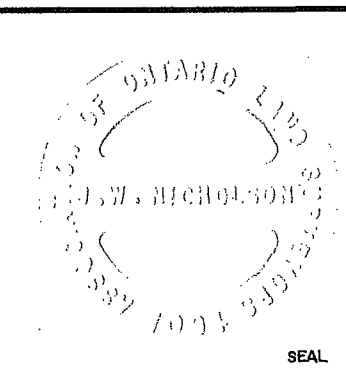
- IN AREA 4, CUT TREES, STOCKPILE STUMPS IN DESIGNATED AREA, MARKET LUMBER, STRIP TOPSOIL AND STOCKPILE SEPARATELY.
- EXCAVATE SAND IN AREA 4 WITH A LIFT OF 7m MAXIMUM, CREATING A SMOOTH PIT FLOOR CONTINUING WESTERLY FROM PHASE C, AT APPROXIMATELY A 20:1 SLOPE TO 260m (ASL) NEAR THE WESTERLY BOUNDARY.
- REHABILITATION OF THE SIDE SLOPES ADJACENT TO THE NORTHERLY AND WESTERLY SETBACK AREAS WILL FOLLOW CLOSELY BEHIND THE EXCAVATION. THE SIDE SLOPES WILL BE GRADED TO ITS FINAL 3:1 MAXIMUM SLOPE, COVERED WITH TOPSOIL, SEEDED WITH A GRASS/LEGUME MIXTURE AND PLANTED WITH PINE SEEDLINGS.

SITE PLAN OVERRIDE

THE FOLLOWING CONDITIONS ILLUSTRATED ON THESE PLANS VARY FROM THE REQUIREMENTS OF ONTARIO REGULATION 702/89 AS PROVIDED FOR UNDER SECTION 15. EXCAVATION OF THE MATERIALS WITHIN THE SOUTHERLY PORTION OF THE EASTERLY SETBACK AREA WILL OCCUR THEREBY OVERRIDING SECTION 16 (2).

SHEET 2 OF 4 PAGES

N°	REVISIONS	DATE	APPD



JAMES W. NICHOLSON LIMITED
 ONTARIO LAND SURVEYORS - CANADA LANDS SURVEYOR
 BOX 461 - 372 MIDLAND AVENUE - MIDLAND, ONTARIO - L4R 4L3
 (705) 526 - 5668 FAX 526 - 8877

DATE	JULY 22, 1993.	FOR	LEDIARD
FILE	4766	SURVEY	
SCALE	1:3000	DRAWN	R.S.R. & J.K.V.



Appendix C

Noise Supporting Information and Calculations



Point Source Sound Power Level Calculations

$$L_w = L_p + 20 \log(r) + 11 - 10 \log(Q)$$

$$L_p(\text{total}) = 10 \log(10(L_p(31\text{Hz})/10) + 10(L_p(63\text{Hz})/10) + \dots + 10(L_p(8\text{kHz})/10))$$

r is distance measurement was taken, Q is directivity index, t is operating time

Source ID	Source Description	Source Directionality	Operating Condition	Horizontal Measurement Distance (m)	SLM Height (m)	Source Height (m)	Total Measurement Distance (m)	Measurement Directionality (deg)	Source To Receptor Directionality (deg)	Directivity Factor (Q)	Tonal (Yes/No)	Octave Band (Hz)									
												63	125	250	500	1000	2000	4000	8000	Total	
Hidden Row												A-Weighting									
												-26	-16	-9	-3	0	1.0	1	-1		
TR01	Kenworth Highway Truck	None	Drive By (slow speed)	6.928	1.5	2.5	6.999798854	N/A	N/A	2	No	Measured SPL (dB)	86.47	75.03	68.82	66.15	66.86	63.98	57.12	48.02	86.95
												Calculated PWL (dBA)	85.36	83.92	84.71	88.04	91.75	89.87	83.01	71.91	96.24
												Msmnt Directionality Correction (dB)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
												Receptor Directionality Correction (dB)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
												Applied PWL with Penalties (dBA)	85.36	83.92	84.71	88.04	91.75	89.87	83.01	71.91	96.24
LD01	Representative Loader Measured by Cambium	None	Steady State	5.92	1.5	2.5	6.0	N/A	N/A	2	No	Measured SPL (dB)	80.64	78.78	75.84	78.09	72.66	68.07	63.43	58.50	85.08
												Calculated PWL (dBA)	78.20	86.34	90.40	98.65	96.22	92.63	87.98	81.06	101.96
												Msmnt Directionality Correction (dB)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
												Receptor Directionality Correction (dB)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
												Applied PWL with Penalties (dBA)	78.20	86.34	90.40	98.65	96.22	92.63	87.98	81.06	101.96
GE01	CAT C15 w Enclosure	None	Steady State	1	1.5	1.5	1.0	N/A	N/A	2	No	Measured SPL (dB)	91.52	90.36	89.92	88.90	84.72	82.77	77.42	67.44	96.82
												Calculated PWL (dBA)	73.51	82.35	88.91	93.89	92.71	91.76	86.41	74.43	98.60
												Msmnt Directionality Correction (dB)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
												Receptor Directionality Correction (dB)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
												Applied PWL with Penalties (dBA)	73.51	82.35	88.91	93.89	92.71	91.76	86.41	74.43	98.60
CR01	Crusher Screen and Excavator	None	Crushing	13	1.5	3	13.1	N/A	N/A	2	No	Measured SPL (dB)	90.54	93.09	87.99	87.41	83.36	81.46	78.47	74.10	96.82
												Calculated PWL (dBA)	94.87	107.42	109.32	114.74	113.68	112.78	109.80	103.43	119.92
												Msmnt Directionality Correction (dB)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
												Receptor Directionality Correction (dB)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
												Applied PWL with Penalties (dBA)	94.87	107.42	109.32	114.74	113.68	112.78	109.80	103.43	119.92

Trevor Copeland

From: Greg <greg@bataviyahomes.ca>
Sent: October-10-19 1:32 PM
To: Trevor Copeland
Subject: FW: Harbour Pointe Traffic Study

See attached information.

Regards,
Greg

From: John Northcote <john.northcote@jdengineering.ca>
Sent: October 10, 2019 12:06 PM
To: Greg <greg@bataviyahomes.ca>
Subject: Harbour Pointe Traffic Study

Hello Greg,

Please see below the traffic data requested for the Harbour Pointe Development. The following estimates are for Thompson Road near the condition with the Thompson Road extension.

- 1) Predicted Minimum hourly traffic (or predicted 24 hour hourly distribution) – minimum hourly volume would be approximately 3% of the total daily volume.
- 2) Predicted AADT on Thompson Road west of Main Street – 2,245 vehicles
- 3) Traffic distribution (Heavy and Medium Trucks). 96% light vehicles, 2% medium trucks and 2% heavy trucks

Thanks,

John Northcote, P.Eng.

JD Engineering

Phone: (705) 725-4035





Appendix D
Noise Impact Assessment Results

Filename: T15.te Time Period: 1 hours
Description: Lowest Hourly Future Noise

Road data, segment # 1:

Car traffic volume : 65 veh/TimePeriod
Medium truck volume : 1 veh/TimePeriod
Heavy truck volume : 1 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1:

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 18.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑

Results segment # 1:

Source height = 1.11 m

ROAD (0.00 + 51.06 + 0.00) = 51.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	53.63	0.00	-1.25	-1.32	0.00	0.00	0.00	51.06

Segment Leq : 51.06 dBA

Total Leq All Segments: 51.06 dBA

↑

TOTAL Leq FROM ALL SOURCES: 51.06

↑

↑

STAMSON 5.0 NORMAL REPORT Date: 08-11-2019 15:24:37
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: T15.te Time Period: Day/Night 16/8 hours
 Description: First Row

Road data, segment # 1: (day/night)

 Car traffic volume : 1940/432 veh/TimePeriod
 Medium truck volume : 40/8 veh/TimePeriod
 Heavy truck volume : 40/8 veh/TimePeriod
 Posted speed limit : 50 km/h
 Road gradient : 0 %
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: (day/night)

 Angle1 Angle2 : -90.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 18.00 / 18.00 m
 Receiver height : 1.50 / 4.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

↑

Results segment # 1: (day)

 Source height = 1.19 m

ROAD (0.00 + 54.31 + 0.00) = 54.31 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	57.08	0.00	-1.31	-1.46	0.00	0.00	0.00	54.31

 Segment Leq : 54.31 dBA

Total Leq All Segments: 54.31 dBA

↑

Results segment # 1: (night)

 Source height = 1.16 m

ROAD (0.00 + 50.71 + 0.00) = 50.71 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	53.28	0.00	-1.25	-1.32	0.00	0.00	0.00	50.71

 Segment Leq : 50.71 dBA

Total Leq All Segments: 50.71 dBA

Cambium Inc.

↑

TOTAL Leq FROM ALL SOURCES (DAY): 54.31
(NIGHT): 50.71

↑

↑

Filename: T15.te Time Period: Day/Night 16/8 hours
Description: First Row

Road data, segment # 1: (day/night)

Car traffic volume : 1940/432 veh/TimePeriod
Medium truck volume : 40/8 veh/TimePeriod
Heavy truck volume : 40/8 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 18.00 / 18.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Results segment # 1: (day)

Source height = 1.19 m

ROAD (0.00 + 54.51 + 0.00) = 54.51 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 90 0.58 57.08 0.00 -1.25 -1.32 0.00 0.00 0.00 54.51

Segment Leq : 54.51 dBA

Total Leq All Segments: 54.51 dBA

↑
Results segment # 1: (night)

Source height = 1.16 m

ROAD (0.00 + 50.71 + 0.00) = 50.71 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 90 0.58 53.28 0.00 -1.25 -1.32 0.00 0.00 0.00 50.71

Segment Leq : 50.71 dBA

Total Leq All Segments: 50.71 dBA

Cambium Inc.

↑

TOTAL Leq FROM ALL SOURCES (DAY): 54.51
(NIGHT): 50.71

↑

↑

Cambium Inc.

=====
Testfile openend: 11/08/19 4:23:26 PM
=====

=====
>>> CALCULATION SPECIFICATION

Version : 3.01
Mapname : Pit Phase 3C
MethodID : 513
Model bounds - Min : (581122.19, 4953695.48)
Model bounds - Max : (587779.90, 4960317.81)
Min. ground level : 0.00
CalcTestLevel : 7
Do Shape Export : No
Fetching radius : -1.00
ErrorMargin : 0.00
Default ground factor : 1.00
Meteo correction : None
Max.barrier attenuation: According to ISO standard
Dmax1 / Dmax2 : 20.00 / 25.00
Full DTM : Yes
Ground attenuation : Avoid overestimating barriereffect
Barrier attenuation : No barrier effect for direct sight
Dicalculation : No
TemperatureK : 283.15
Humidity : 70.00
Pressure : 101.33
GroundAttAlternative : No
SpeedOfSound : 337.30
Alu : 0.032 \ 0.122 \ 0.411 \ 1.043 \ 1.928 \ 3.658 \ 9.664 \ 32.770 \ 116.883
=====

Cross section for receiver POR3 (Id=-4158) and source LD01 (Id=57311)

ItemType	Id	Distance	X	Y	Hgrnd	Height	GrndFact	Cluster
Receiver	POR3	0.000	584179.42	4956738.26	212.90	4.50	1.00	
Heightline	meshline12311	2.923	584180.82	4956735.70	213.00	0.00	1.00	
Heightline	meshline12310	4.349	584181.51	4956734.45	213.00	0.00	1.00	
Heightline	meshline12270	4.981	584181.81	4956733.89	213.00	0.00	1.00	

5292-001

Cambium Inc.

Heightline	meshline12268	5.975	584182.29	4956733.02	213.00	0.00	1.00
Heightline	meshline12256	6.389	584182.49	4956732.66	212.98	0.00	1.00
Heightline	meshline12255	6.422	584182.50	4956732.63	212.99	0.00	1.00
Heightline	meshline12210	6.484	584182.53	4956732.57	212.99	0.00	1.00
Heightline	meshline12144	14.388	584186.33	4956725.64	212.86	0.00	1.00
Heightline	meshline12145	16.736	584187.46	4956723.58	212.87	0.00	1.00
Heightline	meshline12149	20.523	584189.28	4956720.26	212.48	0.00	1.00
Heightline	meshline12148	24.058	584190.98	4956717.16	212.37	0.00	1.00
Heightline	meshline12146	24.156	584191.02	4956717.08	212.35	0.00	1.00
Heightline	meshline12132	25.515	584191.68	4956715.88	212.25	0.00	1.00
Ground	LA1	29.382	584193.53	4956712.49	0.00	0.00	0.50
Heightline	meshline12131	30.257	584193.95	4956711.72	212.00	0.00	0.50
Heightline	meshline19711	30.346	584194.00	4956711.65	212.00	0.00	0.50
Heightline	meshline12063	32.845	584195.20	4956709.45	211.83	0.00	0.50
Heightline	meshline12064	33.657	584195.59	4956708.74	211.85	0.00	0.50
Heightline	meshline12046	42.887	584200.02	4956700.65	211.86	0.00	0.50
Heightline	meshline11964	44.129	584200.62	4956699.56	211.93	0.00	0.50
Heightline	meshline11962	45.483	584201.27	4956698.37	212.00	0.00	0.50
Pointsource	LD01	51.366	584204.09	4956693.21	212.48	2.50	0.50

L(wr)	--	78.20	86.34	90.40	98.65	96.22	92.63	87.98	81.06
G(rec) = 0.79;	G(mid) = 1.00;	G(src) = 0.79							
A(ground;rec)	-1.50	-1.50	1.15	0.38	-0.32	-0.32	-0.32	-0.32	-0.32
A(ground;mid)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A(ground;src)	-1.50	-1.50	0.41	2.15	0.08	-0.31	-0.32	-0.32	-0.32
A(ground;tot)	-3.00	-3.00	1.57	2.53	-0.24	-0.63	-0.64	-0.64	-0.64

Screening Vertical: no detour
 Screening Left: no detour
 Screening Right: no detour

A(barrier, v)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A(barrier, l)	--	--	--	--	--	--	--	--	--
A(barrier, r)	--	--	--	--	--	--	--	--	--
A(barrier, tot)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A(veg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A(sit)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A(bld)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A(air)	0.00	0.01	0.02	0.05	0.10	0.19	0.50	1.69	6.01
A(geo)	45.22	45.22	45.22	45.22	45.22	45.22	45.22	45.22	45.22
C(meteo)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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L(p) -- 35.98 39.54 42.60 53.58 51.45 47.56 41.72 30.48 | 56.74

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Height	Source	Per	LAeq	32	63	125	250	500	1000	2000	4000	8000
4.50	LD01	1	53.73	--	32.97	36.53	39.59	50.57	48.44	44.55	38.71	27.47
4.50	LD01	2	--	--	--	--	--	--	--	--	--	--
4.50	LD01	3	--	--	--	--	--	--	--	--	--	--
4.50	LD01	4	--	--	--	--	--	--	--	--	--	--

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Height	Per	LAeq	32	63	125	250	500	1000	2000	4000	8000
4.50	1	53.73	--	32.97	36.53	39.59	50.57	48.44	44.55	38.71	27.47
4.50	2	--	--	--	--	--	--	--	--	--	--
4.50	3	--	--	--	--	--	--	--	--	--	--
4.50	4	--	--	--	--	--	--	--	--	--	--

0.0000; 214; 0.0000002; "TTimerSet - overhead"
0.0917; 1; 0.0917390; "TMeshLineList.AddLines"
0.0015; 106; 0.0000139; "WriteTestString"

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Testfile closed: 11/08/19 4:23:26 PM

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