Land Use Compatibility Study

4631 Sideroad 20 North
Puslinch Township, Ontario

Puslinch Development GP Inc.

30 May 2025

→ The Power of Commitment

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Executive Summary

GHD Limited (GHD) was retained by Puslinch Development GP Inc. to prepare a Land Use Compatibility Study for the proposed industrial development (Development) located at 4631 Sideroad 20 North in Puslinch Township, Ontario (Site). This Study has been prepared in support of the planning approvals for the Development.

The Development consists of three industrial-use buildings with a total of 36 loading bays for shipping and receiving activities, a gym, and a daycare. The Development will also include a storm water management pond, a septic field, and a wetland.

The purpose of this Study is to assess land use compatibility of the proposed Development with the surrounding land uses in accordance with the Ministry of Environment, Conservation and Parks (MECP) D-series land use compatibility guidelines. This Study includes a summary of the existing land uses in the area surrounding the Site and assesses the potential for air quality, odour, dust, noise, and vibration compatibility issues.

The Development is not expected to produce significant air quality, odour, dust noise or vibration emissions that would impact nearby sensitive uses.

Noise is anticipated to be the primary type of emission from the Development and has been evaluated in detail based on the information available at the time of writing. Predicted cumulative noise levels from the Development are within the applicable stationary sound level limits of the MECP at all points of reception; therefore, it is expected that the future tenants of the Development will be able to comply with the MECP noise guidelines with appropriate mitigation measures similar to the preliminary noise control recommendations provided herein.

This report is subject to, and must be read in conjunction with, the limitations set out in Section 1.2 and the assumptions and qualifications contained throughout the Report.

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1. Introduction

1.1 Purpose of this Report

GHD Limited (GHD) was retained by *Puslinch Development GP Inc.* to prepare a Land Use Compatibility (Study) in support of the planning applications for the proposed mixed-use commercial/industrial Development located at 4631 Sideroad 20 North in Puslinch Township, Ontario (Development). The purpose of this Study is to assess potential land use compatibility issues between the Development and surrounding sensitive land uses including mitigation measures as applicable.

1.2 Scope and Limitations

This report: has been prepared by GHD for Puslinch Development GP Inc. and may only be used and relied on by Puslinch Development GP Inc. for the purpose agreed between GHD and Puslinch Development GP Inc. as set out in section 1.1 of this report.

GHD otherwise disclaims responsibility to any person other than Puslinch Development GP Inc. arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

2. Site and Development Description

The Site is located on the southwest side of Hanlon Parkway (Highway 6), immediately north of Concession Road 4, and immediately east of Sideroad 20 North. A key plan is included as Figure 2.1, which shows the location of the Site in relation to these transportation corridors.

The Site is currently zoned as Agricultural (A) and Natural Environment (NE). The lands surrounding the Site include properties zoned as Employment (B) to the north, A and NE to the south, and west, and a mixture of NE, B, Future Development (FB), Industrial (IND), and Natural Heritage System (NHS) to the east. A zoning map is included in Figure A.1 of Appendix A.

The area surrounding the Site is relatively flat, and the Site currently consists of vacant farmland. The Development consists of two three industrial buildings having a total gross floor area of 92,949 square metres (1,000,500 square feet), a daycare, and a gym. The Site is currently vacant.

3. Land Use Compatibility Assessment

Land use compatibility assessments in Ontario are typically performed in two stages. In the case of proposed industrial uses in proximity to sensitive uses, the first step is to determine if there are any potential adverse effects.

The Ministry of the Environment, Conservation and Parks , 1995Guideline D-6 (MECP, 1995) is meant to identify potential compatibility issues between employment uses and sensitive land uses. The guideline has been considered in this assessment and is described further below. Where the potential for compatibility issues is identified a more detailed assessment may be performed.

3.1 Provincial Planning Statement

The Provincial Planning Statement (“PPS”) is a consolidated statement of the provincial government’s policies on land use planning (MMAH, 2024). It “provides policy direction on matters of provincial interest related to land use planning and development. As a key part of Ontario’s policy-led planning system, the Provincial Planning Statement sets the policy foundation for regulating the development and use of land province-wide, helping achieve the provincial goal of meeting the needs of a fast-growing province while enhancing the quality of life for all Ontarians.”

The current PPS became effective on October 20, 2024. Policy direction concerning land use compatibility is provided in Section 3.5 of the PPS:

> “1. Major facilities and sensitive land uses shall be planned and developed to avoid, or if avoidance is not possible, minimize and mitigate any potential adverse effects from odour, noise and other contaminants, minimize risk to public health and safety, and to ensure the long-term operational and economic viability of major facilities in accordance with provincial guidelines, standards and procedures.
>
> 2. Where avoidance is not possible in accordance with policy 3.5.1, planning authorities shall protect the long-term viability of existing or planned industrial, manufacturing or other major facilities that are vulnerable to encroachment by ensuring that the planning and development of proposed adjacent sensitive land uses is only permitted if potential adverse effects to the proposed sensitive land use are minimized and mitigated, and potential impacts to industrial, manufacturing or other major facilities are minimized and mitigated in accordance with provincial guidelines, standards and procedures.”

The goals of the PPS are implemented through Municipal and Provincial policies, as discussed below. Provided the Municipal and Provincial policies, guidelines, standards and procedures are met, the requirements of the PPS will be met.

3.2 Guideline D-6

The MECP Guideline D-6 "Compatibility Between Industrial Facilities and Sensitive Land Uses" (Guideline D-6) provides recommended minimum separation distances (RMSD) and potential areas of influence (AOI) based on the class of the industrial facility. RMSDs are provided based on the industry size and operation type. The guideline provides direction for land use planning to maximize compatibility of industrial uses with adjacent land uses. The goal of Guideline D-6 is to minimize encroachment of sensitive land uses on industrial facilities and vice versa, in order to address potential incompatibility due to adverse effects including air quality, dust, odour, and noise.

Guideline D-6 separates industries into three broad categories, depending on the nature of their operations and the types of potential impacts:

- **Class I industries** are small scale, self-contained plants or buildings, which produce and store products internally, and have low probability of fugitive emissions. They have daytime operations only, with infrequent movements of products and/or heavy trucks. Some examples include furniture repair and refinishing, electronics manufacturing, auto parts supply, distribution of dairy products, and beverages bottling.
- **Class II industries** perform medium scale processing, with occasional outputs of point source or fugitive emissions. Activities may include some outdoor storage of wastes and materials, frequent movement of products and/or heavy trucks during the daytime, and shift work. Some examples include paint spray booths, feed packing plant, dairy product manufacturing, and dry-cleaning services.
- **Class III industries** conduct large-scale manufacturing and are characterized by persistent and/or intense dust and/or odour, frequent outputs of major annoyances, and have a high probability of fugitive emissions. Activities may include continuous operations and movements of products, outside storage of raw and finished goods, and

high levels of production. Some examples include manufacturing of paint and varnish, manufacturing of resins and coatings, solvent recovery plants, organic chemicals manufacturing, breweries, and metal manufacturing.

The following table summarizes the recommended minimum setback distances and areas of potential influence which represent the distances within which adverse effects could potentially occur.

Table 3.1 Guideline D-6 Industry Separation Distances

Industry Classification	RMSD (metres)	AOI (metres)
Class I	20	70
Class II	70	300
Class III	300	1,000

Guideline D-6 provides criteria for classifying industrial land uses, based on their outputs, scale of operations, processes, schedule, and intensity of operations. Often an industry will fall between two Classes. Guideline D-6 states that no incompatible development should occur within the recommended minimum separation distance as noted in Table 3.1. In cases where the recommended minimum separation distances are not met, further detailed assessment is warranted to ensure compatibility as stated in guideline D-6.

3.3 Classification of the Development

As noted above, the Development consists of four industrial building. Specific uses of the complete Development are not known at this time, as some tenants have not yet been identified. The buildings have the following proposed uses:

– Industrial Building 1: Appliance assembly and minor wood processing
– Industrial Building 2: Light industrial
– Industrial Building 3: Light industrial

Based on communications with Puslinch Development GP Inc, it is expected that Buildings 2 and 3 could potentially include the following uses which GHD classified using the three industrial classes of Guideline D-6, as summarized in Table 3.2 below:

Table 3.2 Summary of Proposed Uses and Potential Classifications

Proposed Uses, Buildings and Structures	Potential Class Rating	Notes/Provisions
Manufacturing/processing (small wood mill, pharmaceutical, tea manufacturing, appliance assembly/manufacturing)	I or II	– Industry class dependent on the scale of operations
Warehousing with truck/trailer/container parking	I or II	– Industry class dependent on the scale of operations – If a distribution centre, Class II
Office	I	
Incubator/start-up (combination of office, shared office and warehouse, and manufacturing)	I or II	– Industry class dependent on the scale of operations
Outdoor meeting rooms (e.g., gazebo) picnic tables	I	
Ghost kitchens	I	– Typically self-contained, small-scale
Cafeteria/banquet hall	I	– Some nuisance potential during events with amplified music, etc.
Refugee non-profit (mostly administration, but includes **classrooms** and event space)	I	

Based on the descriptions above, the most intense industrial uses being contemplated (manufacturing/processing and warehousing) would be best described as Class II under Guideline D-6. This is based on the assumption that nighttime operations would occur, with noise likely to be audible off-site. Class II industries have an RMSD of 70 metres and a potential AOI of 300 metres.

3.4 Guideline D-6 Assessment Conclusions

Figure 3.1 shows the property lines of the Site and the Guideline D-6 RMSD and AOI setbacks (Class II). As seen in the figure, there are several residential dwellings located within the AOI of the Development, including homes on Side Road 20 to the west, Crawley Road to the northeast, and Concession Road 4 to the south. As such, further assessments are included in Section 4 to examine the potential for noise impacts to the existing sensitive uses.

Note that this analysis is not an exhaustive consideration of all possible sensitive land uses that could be impacted by the proposed Site, but rather preliminary screening of the most probable points of concern.

4. Impact Assessments

4.1 Air Quality

Based on the proposed building uses in Section 3.3, all potential industries for the Development do not have processes that would be significant sources of air quality impacts. All future tenants will be obligated to comply with air contaminant concentration limits at their respective property lines and any points of impingement as per O.Reg.419/0 (MECP, 2025).

4.2 Dust

The tenant of Building 1, Level 1 has indicated that internal dust collectors may be implemented. These units would be required to meet the General Duty Clause of Occupational Safety and Health Administration (OSHA, 1970) standards and can be considered a negligible source of dust. Based on the remaining proposed building uses in Section 3.3, all potential industries for the Development do not have processes that would be significant sources of dust.

If any of the industries are determined to during the detailed design stage to be potentially significant sources of fugitive dust emissions, then a dust best management practices plan (BMPP) should be prepared to ensure that appropriate dust mitigation measures are incorporated into the design and/or standard operating procedures.

4.3 Odour

Based on the proposed building uses in Section 3.3, none of the potential industries for the Development have processes that are listed in the Environmental Activity and Sector Registry (MECP, 2021). Therefore, it is GHD's opinion that odour impacts from the Development will be insignificant.

If any of the industries are determined to during the detailed design stage to be potentially significant sources of fugitive odour emissions, then an odour best management practices plan (OMPP) should be prepared to ensure that appropriate odour mitigation measures are incorporated into the design and/or standard operating procedures.

4.4 Vibration

Based on the proposed building uses in Section 3.3, none of the potential industries for the Development have processes that are significant sources of ground-borne vibration. Therefore, it is GHD's opinion that vibration impacts from the Development will be insignificant.

4.5 Noise

The sensitive uses surrounding the Site include residential dwellings and outdoor living spaces. GHD has evaluated these locations as points of reception (PORs) quantitatively to determine whether there is significant potential for noise compatibility issues due to the Development.

4.5.1 Sound Level Criteria

4.5.1.1 Municipal Ordinances

The Corporation of The Township of Puslinch, By-Law 6001-24, Noise (Puslinch, 6001-24), dated April 10, 2024, has been reviewed in the context of this Study. The Noise By-Law includes specific requirements and prohibitions of noise emissions based on source type during certain time periods, including:

– The sounding of any alarm, bell, horn, siren or other warning device for unreasonable period of time;
– The operation of any air conditioner, heat pump, pool pump, compressor, condenser, chiller, cooling tower or similar device, which is not in good working order;
– The operation of any auditory signalling device, including by not limited to the ringing of bells or gongs and the blowing of horns or sirens, or the production, reproduction or amplification of any similar sounds by electronic means except where required or authorized by law or in accordance with good safety practices; and
– Operation of a Vehicle or Vehicle with a trailer resulting in banging, clanking, squealing or other like sounds due to improperly secured load or equipment, or inadequate maintenance.

The Noise By-Law does not include any objective sound level criteria for the assessment of noise emissions from commercial/industrial operations; therefore, sound level criteria contained in the Ontario Ministry of the Environment, Conservation and Parks (MECP, 2013) guideline NPC-300 "Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning" (August 2013) are appropriate to be used as the basis for assessment of potential noise impacts.

4.5.1.2 MECP Standard Limits

NPC-300 defines stationary noise sources as sound from all sources that are normally operated within the property lines of a facility. The noise impact from stationary sources is evaluated based on operations during a predictable worst-case hour. Stationary noise assessment criteria are generally determined based on the MECP's minimum exclusionary sound level limits, as presented in NPC-300, in comparison to the background sound levels experienced in the area.

The Site is in what would generally be considered a Class 2 acoustic environment as defined by NPC-300, as the acoustic environment is dominated by human activities (i.e., road traffic) during the daytime, and low evening and night background sounds levels defined by the natural environment.

Table 4.1 below summarizes the MECP's minimum exclusionary sound level limits for Class 2 areas, which are expressed in terms of 1-hour equivalent sound levels (1-hour Leq):

Table 4.1 MECP Minimum Exclusionary Sound Level Limits for Steady Sound – Class 2 Area

Point of Reception Type	Sound Level Limits (dBA)		
	Day (7am – 7pm)	Evening (7pm – 11pm)	Night (11pm – 7am)
Plane of window	50	50	45
Outdoor space	50	45	--

The applicable guideline sound level limits for regular scheduled testing of emergency equipment (e.g., standby generator) are 5 dBA higher than the corresponding values above.

Impulse noise sources are evaluated separately from steady noise sources. For impulse noise, the sound level limit at a point of reception expressed in terms of the Logarithmic Mean Impulse Sound Level (LLM), and is dependent on the number of impulses in a given hour. The impulse sound level limits for a Class 2 Areas are summarized as follows:

Table 4.2 MECP Minimum Exclusionary Sound Level Limits for Impulsive Sound – Class 2 Area

Number of Impulses Per Hour	Sound Level Limits (dBAI)	
	Plane of Window POR (7am – 11pm / 11pm – 7pm)	Outdoor POR (7am – 11pm)
9 or more	50 / 45	50
7 to 8	55 / 50	55
5 to 6	60 / 55	60
4	65 / 60	65
3	70 / 65	70
2	75 / 70	75
1	80 / 75	80

4.5.1.3 Background Sound Levels

GHD conducted a background sound level assessment to evaluate the existing background noise due to road traffic on Highway 6. Background noise was modelled in CadnaA, which was set to predict noise emission rates in accordance with the United States of America's (US) Department of Transportation's Traffic Noise Model (TNM). These noise emissions were validated with STAMSON, the MECP's computerized model of the Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT). The applicable noise criteria at a point of reception are based on the higher of the background sound level and the MECP's minimum sound level limits, as noted in Section 4.5.1.2.

The computer model input parameters include, among other data, the number of road segments, number of house rows, the positional relationship of the receptor to a noise source or barrier in terms of distance, elevation and angle, the basic site topography, the ground surface type, traffic volumes, traffic composition, and speed limit.

Hourly traffic counts for Highway 6 from the year 2019 were obtained from the Ontario Ministry of Transportation. These counts were used to determine the minimum hourly counts during the day, evening, and nighttime periods, which are summarized in Table 4.3 below.

Table 4.3 Background Road Traffic Parameters

Road Segment	Minimum Hourly Daytime Vehicles	Minimum Hourly Evening Vehicles	Minimum Hourly Nighttime Vehicles	Commercial Vehicle Rates (medium trucks / heavy trucks)
Highway 6	397	276	97	3% / 5%

The above road traffic data was used to calculate background sound levels at the façades and outdoor points of reception of the Development using the detailed model methodology described in Section 4.5.2.1 of this Study. Predicted noise levels exceed the minimum Class 2 exclusionary limits at the worst-case facades of the development. The lowest sound levels generally occur at the ground floor level (1.5 metres above grade) and increase with height due to increased line-of-sight exposure to the roadways.

Where the predicted background sound level due to road traffic exceeds the corresponding minimum exclusionary sound level limit of NPC-300 (see Table 4.1), the background sound level is instead used as the criteria for assessment of stationary noise impacts. The applicable site-specific sound level limits for the Development are summarized as follows:

Table 4.4 Applicable MECP Sound Level Limits for Steady Sound

POR ID	POR Description	Sound Level Limits (dBA)		
		Day (7am – 7pm)	Evening (7pm – 11pm)	Night (11pm – 7am)
POR-01A	7047 Concession Road 4 plane of window on north façade, ground floor (1.5 m AB)	50	50	45
POR-01B	7047 Concession Road 4, outdoor amenity space on ground floor (1.5 m AB)	50	45	--
POR-02A	264 Crawley Rd plane of window on southwest façade, 2nd floor (4.5 m AB)	**54**	**52**	45
POR-02B	264 Crawley Rd 2 storey outdoor amenity space on ground floor (1.5 m AB)	**55**	**53**	--
POR-03A	372 Crawley Rd plane of window on southwest façade, 2nd floor (4.5 m AB)	50	50	45
POR-03B	372 Crawley Rd outdoor amenity space on ground floor (1.5 m AB)	50	**48**	--
POR-04	4652 Sideroad 20 N Parcel 38832 Vacant Lot (1.5 m AB)	50	50	45
POR-05A	4620 Sideroad 20 N plane of window on east façade, 2nd floor (4.5 m AB)	50	50	45
POR-05B	4620 Sideroad 20 N outdoor amenity space on ground floor (1.5 m AB)	50	45	--
POR-06A	4632 Sideroad 20 N plane of window on east façade on ground floor (1.5 m AB)	50	50	45
POR-06B	4632 Sideroad 20 N outdoor amenity space on ground floor (1.5 m AB)	50	45	--
POR-07A	4636 Sideroad 20 N plane of window on east façade on 2nd floor (4.5 m AB)	50	50	45
POR-07B	4636 Sideroad 20 N outdoor amenity space on ground floor (1.5 m AB)	50	45	--
POR-08A	4638 Sideroad 20 N plane of window on east façade on 2nd floor (4.5 m AB)	50	50	45
POR-08B	4638 Sideroad 20 N outdoor amenity space on ground floor (1.5 m AB)	50	45	--
POR-09A	4652 Sideroad 20 N plane of window on southeast façade on 2nd floor (4.5 m AB)	50	50	45
POR-09B	4652 Sideroad 20 N outdoor amenity space on ground floor (1.5 m AB)	50	45	--
POR-10A	7060 Concession plane of window on northwest façade on 2nd floor (4.5 m AB)	**51**	50	45
POR-10B	7060 Concession 4 outdoor amenity space on ground floor (1.5 m AB)	50	**48**	--
POR-11	Daycare plane of window on north facade (1.5 m AB)	50	50	45

The applicable guideline sound level limits for regular scheduled testing of emergency equipment (e.g., standby generator) are 5 dBA higher than the corresponding values above.

4.5.2 Stationary Noise Impact Assessment

4.5.2.1 Methodology

Detailed assessment of noise impacts from the Development has been carried out using Datakustik CadnaA version 2025 (CadnaA). CadnaA was set to predict sound propagation from the Development to the worst-case points of reception (PORs) in accordance with ISO standard 9613-2 (ISO, 2024) “Acoustics – Attenuation of Sound during Propagation Outdoors”. CadnaA modelling assumptions used in this Study include:

– Reflection Order: A maximum reflection order of 2 was used to evaluate indirect noise impact from reflecting surfaces.
– Ground Absorption: The model was set up with conservative ground absorption coefficients of 0 for asphalt and water surfaces and 1.0 for absorptive areas of grass.
– Receptor Elevation: POR receptor heights were modelled appropriately based on an assumed storey height of 3 m. POR locations are shown in Figure 4.3.
– Building Surfaces: The buildings are modelled as reflective surfaces with an absorption coefficient of 0.99.

4.5.2.2 Stationary Noise Sources

Table D.1 of Appendix D lists all noise sources included in the CadnaA model with their corresponding source sound power levels, and noise source locations are identified in Figure 4.1. Descriptions of each category of noise source are included in the sections that follow.

No emergency noise sources are currently identified in the Development concept drawings.

4.5.2.2.1 HVAC Equipment

The Development includes roof-mounted heating, ventilation, and air conditioning (HVAC) equipment. GHD modelled these sources using the manufacturer’s specification sound data for all HVAC units and roof-top vents in the Development. These units have been conservatively assumed to operate continuously during the day, and on a 50% duty cycle at night (30 minutes per hour).

4.5.2.2.2 Truck Movements

Heavy trucks are expected to be utilized at the Development for shipping and receiving operations, with estimated worst-case truck volumes summarized in the table below.

Table 4.5 Truck Movements during Worst-Case Hours

Type of Vehicle	Noise Source ID	Truck Movements (worst-case hour)		
		Day (7a.m. to 7 p.m.)	Evening (7p.m. to 11 p.m.)	Night (11 p.m. to 7 a.m.)
Shunt Truck	TR01	0	0	2
Shipping/Receiving Trucks Building 1, Level 1	TR02	8	3	6
Shipping/Receiving Trucks Building 1, Level 2	TR03	9	0	0
Shipping/Receiving Trucks Building 2	TR04	2	2	2
Shipping/Receiving Trucks Building 3	TR05	2	2	2

Trucks were assumed to operate at a speed of 20 km/h. GHD also assumed that up to two (2) heavy trucks could idle continuously for Building 1, Level 1. One (1) heavy truck was assumed to idle continuously for Building 1, Level 2 and one (1) for Building 2.

4.5.2.2.3 Forklifts

Forklifts are expected to be used in the outdoor loading area of Building 1, Level 1. GHD modelled these sources using representative reference spectra. The proposed tenant has indicated that up to 4 forklifts could operate outdoors, and it is conservatively assumed that they will operate approximately 50% of any worst-case hour.

4.5.2.2.4 Truck Coupling Impulses

The proposed tenant of Building 1, Level 1, will have one shunt truck which will be utilized exclusively during the night to move trailers at the loading docks. A shunt truck will couple and decouple from trailers at the docks and trailer parking areas, which is a source of impulse noise. Shunt truck coupling/decoupling impulse noise levels were evaluated based on source sound levels measured by GHD from past projects. The shunt truck is expected to couple/decouple from trailers up to 2 times per hour between the hours of 12 AM and 5AM.

Heavy trucks will also couple and decouple from trailers at the docks and trailer parking areas, which is a source of impulse noise, with all impulse sources shown in Figure 4.2. Truck coupling/decoupling impulse noise levels were evaluated based on source sound levels measured by GHD from past projects.

Table 4.6 below summarizes the shunt truck and heavy truck impulse noise emissions expected to occur during the worst-case hours:

Table 4.6 Shunt Truck and Heavy Truck Impulse during Worst-Case Hours

Type of Vehicle	Noise Source IDs	Truck Movements (worst-case hour)	
		Day (7a.m. to 11 p.m.)	Night (11 p.m. to 7 a.m.)
Shunt Truck at Loading Docks of Building 1, Level 1	i01, i02	0	2
Heavy Trucks at Loading Docks of Building 1, Level 1	i07 – i14	8	6
Heavy Trucks at Loading Docks of Building 1, Level 2	i15 – i19	5	0
Heavy Trucks at Loading Docks of Building 2	i03, i04	2	0
Heavy Trucks at Loading Docks of Building 3	i05, i06	2	0

4.5.2.3 Unmitigated Noise Prediction Results

4.5.2.3.1 Steady Unmitigated

Based on the assumptions described above, the predicted worst-case steady noise levels are summarized as follows:

Table 4.7 Predicted Unmitigated Steady State Noise Levels

POR ID	Predicted Noise Level (dBA)			Sound Level Limits (dBA)			Limits Exceeded?
	Day	Evening	Night	Day	Evening	Night	
POR-01A	49	45	43	50	50	45	No
POR-01B	50	**46**	--	50	**45**	--	**Yes**
POR-02A	47	46	43	54	52	45	No
POR-02B	47	46	--	55	53	--	No
POR-03A	49	47	**46**	50	50	**45**	**Yes**
POR-03B	48	46	44	50	48	--	No
POR-04	45	45	42	50	50	45	No
POR-05A	45	44	41	50	50	45	No
POR-05B	45	44	--	50	45	--	No

POR ID	Predicted Noise Level (dBA)			Sound Level Limits (dBA)			Limits Exceeded?
	Day	Evening	Night	Day	Evening	Night	
POR-06A	44	44	41	50	50	45	No
POR-06B	45	45	--	50	45	--	No
POR-07A	47	46	43	50	50	45	No
POR-07B	46	**46**	--	50	**45**	--	**Yes**
POR-08A	46	46	43	50	50	45	No
POR-08B	45	45	--	50	45	--	No
POR-09A	45	45	42	50	50	45	No
POR-09B	43	43	--	50	45	--	No
POR-10A	49	47	**46**	51	50	**45**	**Yes**
POR-10B	48	45	--	50	48	--	No
POR-11	46	45	42	50	50	45	No

As seen above, predicted steady noise levels produced by the Development slightly exceed the applicable sound limits at POR-01B, POR-03A, POR-07B, and POR-10A. Therefore, noise controls are required to achieve compliance with steady sound level limits of NPC-300 based on the assumptions stated in this Study.

4.5.2.3.2 Impulse Unmitigated

The predicted worst-case daytime hour includes 17 transport truck impulses; and the predicted worst-case nighttime hour includes 2 shunt truck and 6 transport truck couplings (8 impulses total). The unmitigated impulse noise prediction results are summarized as follows:

Table 4.8 Predicted Unmitigated Impulse Noise

POR ID	Predicted Noise Level (L_{LM}, dBAI)		Sound Level Limits (L_{LM}, dBAI)		Limits Exceeded?
	Day	Night	Day	Night	
POR-01A	27	38	50	50	No
POR-01B	29	--	50	--	No
POR-02A	49	**51**	50	**50**	**Yes**
POR-02B	50	--	50	--	No
POR-03A	50	**54**	50	**50**	**Yes**
POR-03B	50	--	50	--	No
POR-04	38	46	50	50	No
POR-05A	36	34	50	50	No
POR-05B	36	--	50	--	No
POR-06A	39	39	50	50	No
POR-06B	41	--	50	--	No
POR-07A	43	43	50	50	No
POR-07B	42	--	50	--	No
POR-08A	44	43	50	50	No
POR-08B	43	--	50	--	No
POR-09A	35	45	50	50	No

POR ID	Predicted Noise Level (L_{LM}, dBAI)		Sound Level Limits (L_{LM}, dBAI)		Limits Exceeded?
	Day	Night	Day	Night	
POR-09B	32	--	50	--	No
POR-10A	48	**52**	50	**50**	**Yes**
POR-10B	47	--	50	--	No
POR-11	28	36	50	50	No

As seen above, the worst-case predicted impulse noise levels exceed the applicable impulse sound level limits at POR-02A, POR-03A, and POR-10A based on the expected frequency of truck coupling/decoupling impulse noises (i.e., 9 or more per hour during the day, and up to 8 per hour at night). Therefore, noise controls are required to achieve compliance with the impulse sound level limits of NPC-300 based on the assumptions stated in this Study.

4.5.2.4 Preliminary Noise Control Recommendations

4.5.2.4.1 Steady Noise Controls

GHD has evaluated noise impacts based on the best information available at the time of writing. However, it is possible that the modelled noise sources do not encompass the full scope of equipment that will be used by the future tenants of the Development. Therefore, should there be any additional outdoor/rooftop equipment added to the Development, GHD recommends that this study be updated accordingly. At a minimum, GHD recommends the following noise mitigation measures to help ensure there are no noise issues resulting in incompatibility with nearby sensitive uses:

– Mechanical equipment on the roof of Building 1 should be designed/selected with sound power levels equivalent or less than those of the HVAC units assumed in this Study (i.e., **90 dBA**). Depending on the specific make and model of the HVAC units, this may require equipment upgrades such as low-noise condenser fans and silencers for inlets and exhausts. Note that for larger quantities of sources, equipment sound power level requirements would need to be more stringent.
– Mechanical equipment on the roofs of Buildings 2 and 3 should be designed/selected with sound power levels equivalent or less than those of the HVAC units assumed in this Study (i.e., **94 dBA**). Depending on the specific make and model of the HVAC units, this may require equipment upgrades such as low-noise condenser fans and silencers for inlets and exhausts. Note that for larger quantities of sources, equipment sound power level requirements would need to be more stringent.
– Larger mechanical cooling equipment (e.g., chillers, cooling towers, dry coolers) may require physical noise mitigation in the form of acoustic barriers, silencers, etc. to achieve compliance, subject to further detailed assessment.

4.5.2.4.2 Impulse Noise Controls

GHD has evaluated noise impacts based on the best information available at the time of writing. However, it is possible that the modelled noise sources do not encompass the full scope of equipment that will be used by the future tenants of the Development. Therefore, should there be any additional truck coupling/decoupling movements be added to the Development, GHD recommends that this study be updated accordingly.

Based on observations of other facilities there are several factors affecting the shunting noise, including the ramp approach angles on the shunt, speed of the shunt truck, and the height at which the trailer is resting before the shunt trucks approach the trailer. If the trailer is lower than normal, then the fifth wheel of the shunt truck must lift the trailer, which causes the fifth wheel to pivot and slap the stops under the trailer. Observations with the trailer raised to a level height showed significant noise reductions. At a minimum, GHD recommends the following cumulative administrative measures to reduce noise from shunting operations to help ensure there are no noise issues resulting in incompatibility with nearby sensitive uses:

– Initiate driver training program in which drivers are instructed how to drive the shunt trucks and connect/disconnect trailers in a careful manner and with full consideration of noise emissions from the Development to nearby residences.
– When possible, ensure that any trailers dropped on the site to be moved by shunt trucks are maintained at a level height of approximately 47” to ensure the fifth wheel can access the coupling mechanism without lifting the trailer.

The implementation of these controls provides a 10 to 15 dB reduction in the impulse noise emissions associated with shunt activities at the Facility.

4.5.2.5 Mitigated Noise Prediction Results

4.5.2.5.1 Steady Mitigated

Based on the mitigation measures described above, the predicted worst-case steady noise levels at the worst-case PORs surrounding the Development are summarized in the table below:

Table 4.9 Predicted Mitigated Steady State Noise Levels

POR ID	Predicted Noise Level (dBA)			Sound Level Limits (dBA)			Limits Exceeded?
	Day	Evening	Night	Day	Evening	Night	
POR-01A	48	44	44	50	50	45	No
POR-01B	50	45	--	50	45	--	No
POR-02A	46	45	43	54	52	45	No
POR-02B	47	45	--	55	53	--	No
POR-03A	48	46	45	50	50	45	No
POR-03B	47	45	--	50	48	--	No
POR-04	45	45	42	50	50	45	No
POR-05A	43	42	40	50	50	45	No
POR-05B	43	42	--	50	45	--	No
POR-06A	43	42	40	50	50	45	No
POR-06B	44	44	--	50	45	--	No
POR-07A	46	45	43	50	50	45	No
POR-07B	45	44	--	50	45	--	No
POR-08A	46	45	43	50	50	45	No
POR-08B	45	44	--	50	45	--	No
POR-09A	45	45	42	50	50	45	No
POR-09B	43	43	--	50	45	--	No
POR-10A	48	45	45	51	50	45	No
POR-10B	48	44	--	50	48	--	No
POR-11	44	43	41	50	50	45	No

As seen above, predicted steady noise levels produced by the Development are within the applicable sound level limits at all PORs surrounding the Development. Noise contour plots (day and night) are included in Figure 4.4, inclusive of mitigation measures.

4.5.2.5.2 Impulse Mitigated

The predicated mitigated worst-case impulsive noise levels at the worst-case PORs surrounding the Development are summarized in the table below:

Table 4.10 Predicted Transport Truck Impulsive Noise

POR ID	Predicted Noise Level (L_{LM}, dBAI)		Sound Level Limits (L_{LM}, dBAI)		Limits Exceeded?
	Day	Night	Day	Night	
POR-01A	27	30	50	50	No
POR-01B	29	--	50	--	No
POR-02A	49	47	50	50	No
POR-02B	50	--	50	--	No
POR-03A	50	50	50	50	No
POR-03B	50	--	50	--	No
POR-04	38	40	50	50	No
POR-05A	36	26	50	50	No
POR-05B	36	--	50	--	No
POR-06A	39	33	50	50	No
POR-06B	41	--	50	--	No
POR-07A	43	40	50	50	No
POR-07B	42	--	50	--	No
POR-08A	44	39	50	50	No
POR-08B	43	--	50	--	No
POR-09A	35	37	50	50	No
POR-09B	32	--	50	--	No
POR-10A	48	49	50	50	No
POR-10B	47	--	50	--	No
POR-11	28	29	50	50	No

As seen above, predicted impulse noise levels from the Development are within the applicable sound level limits at all PORs surrounding the Development with the recommended mitigation measures. Figure 4.5 shows the mitigated impulse noise contours.

5. Recommendations

This Study includes preliminary noise control recommendations, which are anticipated to be sufficient to achieve compliance with the sound level limits of NPC-300 based on the information available at the time of writing. Final noise control requirements may differ, subject to reassessment during the site plan application or detailed design phases. The preliminary noise control recommendations are described in Section 4.5.2.4 of this Study, which include equipment sound power level performance specifications for the rooftop equipment of Building 1 and recommended standard operating procedures for the shunt truck.

6. Conclusions

It is GHD's opinion that the proposed development is feasible and is not anticipated to result in land use compatibility issues with respect to air quality, odour, dust, noise, or vibration emissions, provided that appropriate noise controls are incorporated into the design. This Study includes preliminary noise controls described in Section 4.5.2.4, which are predicted to be sufficient to achieve compliance with the sound level limits of NPC-300 at the nearby PORs based on the current concept and available information. Further assessments may be carried out during the site plan application and/or detailed design phases to refine the noise control requirements.

7. References

The Corporation of the Township of Puslinch (Puslinch, 6001-24), Noise By-Law Number 6001-24

International Organization for Standardization (ISO, 2024), ISO 9613-2: 2024: *Acoustics – Attenuation of sound during propagation outdoors*

Occupational Safety and Health Administration. (OSHA, 1970). Occupational Safety and Health Act of 1970: *General Duty Clause,* Section 5(a)(1)

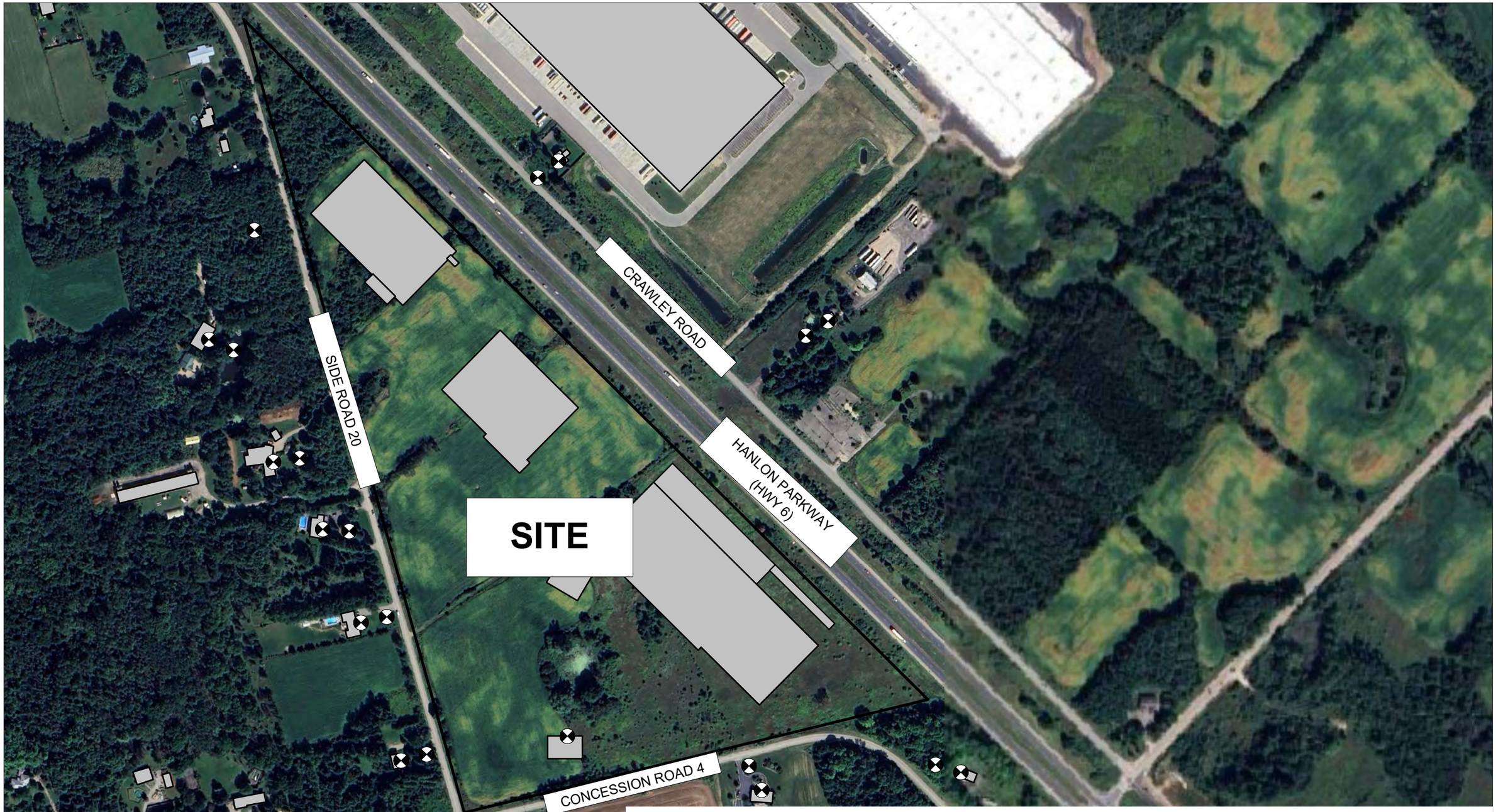
Ontario Ministry of Environment, Conservation and Parks (MECP, 1995), Guideline D-6: *Compatibility Between Industrial Facilities and Sensitive Land Uses*

Ontario Ministry of Environment, Conservation and Parks (MECP, 2013), Publication NPC-300: *Environmental Noise Guideline: Stationary and Transportation Sources – Approval and Planning*

Ontario Ministry of Environment, Conservation and Parks (MECP, 2021), Ontario Regulation 1/17: Environmental Activity and Sector Registry – Limits and other requirements for activities with air emissions

Ontario Ministry of Environment, Conservation and Parks (MECP, 2025) Environmental Protection Act, R.S.O. 1990, c. E.19: *Ontario Regulation 419/05 Air Pollution – Local Air Quality*

Ontario Ministry of Municipal Affairs and Housing (MMAH, 2024), *Provincial Planning Statement, 2024*



Paper Size ANSI B

0 20 40 60 80 100 m

Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 83 UTM Zone 17

N

GHD

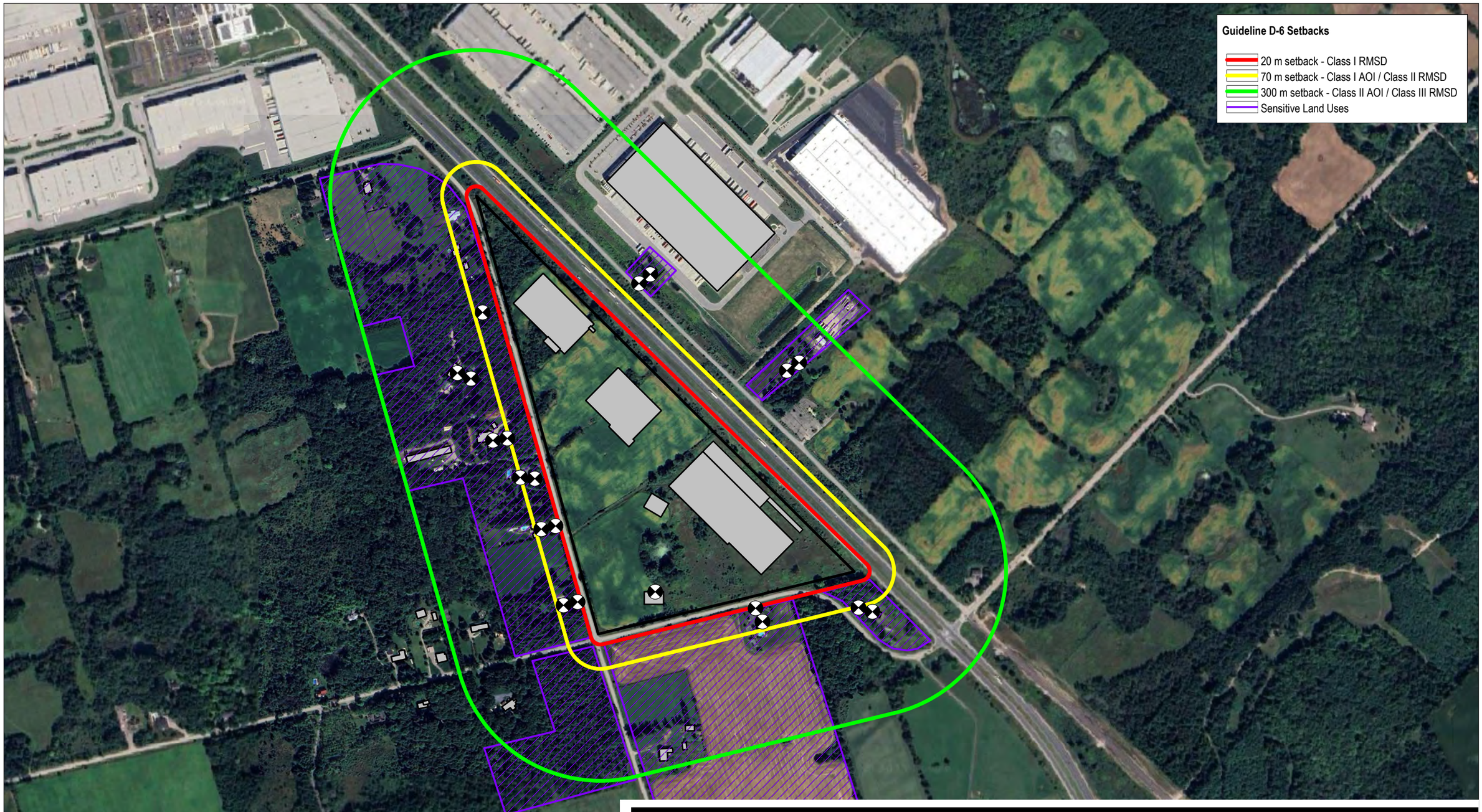
LAND USE COMPATIBILITY STUDY
PUSLINCH DEVELOPMENT GP INC.
4631 SIDEROAD 20 N, PUSLINCH TOWNSHIP, ONTARIO

KEY PLAN

Project No. **12618927**
Revision No. **-**
Date **30.05.2025**

FIGURE 2.1

\\ghdnet\ghd\CA\Waterloo\Projects\662\12618927\Tech\Noise\CadnaA\12618927_Danby_2025_rev03.1.cna
Imagery source: Google Satellite



Paper Size ANSI B

0 50 100 150 200 250 m

Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 83 UTM Zone 17

N

GHD

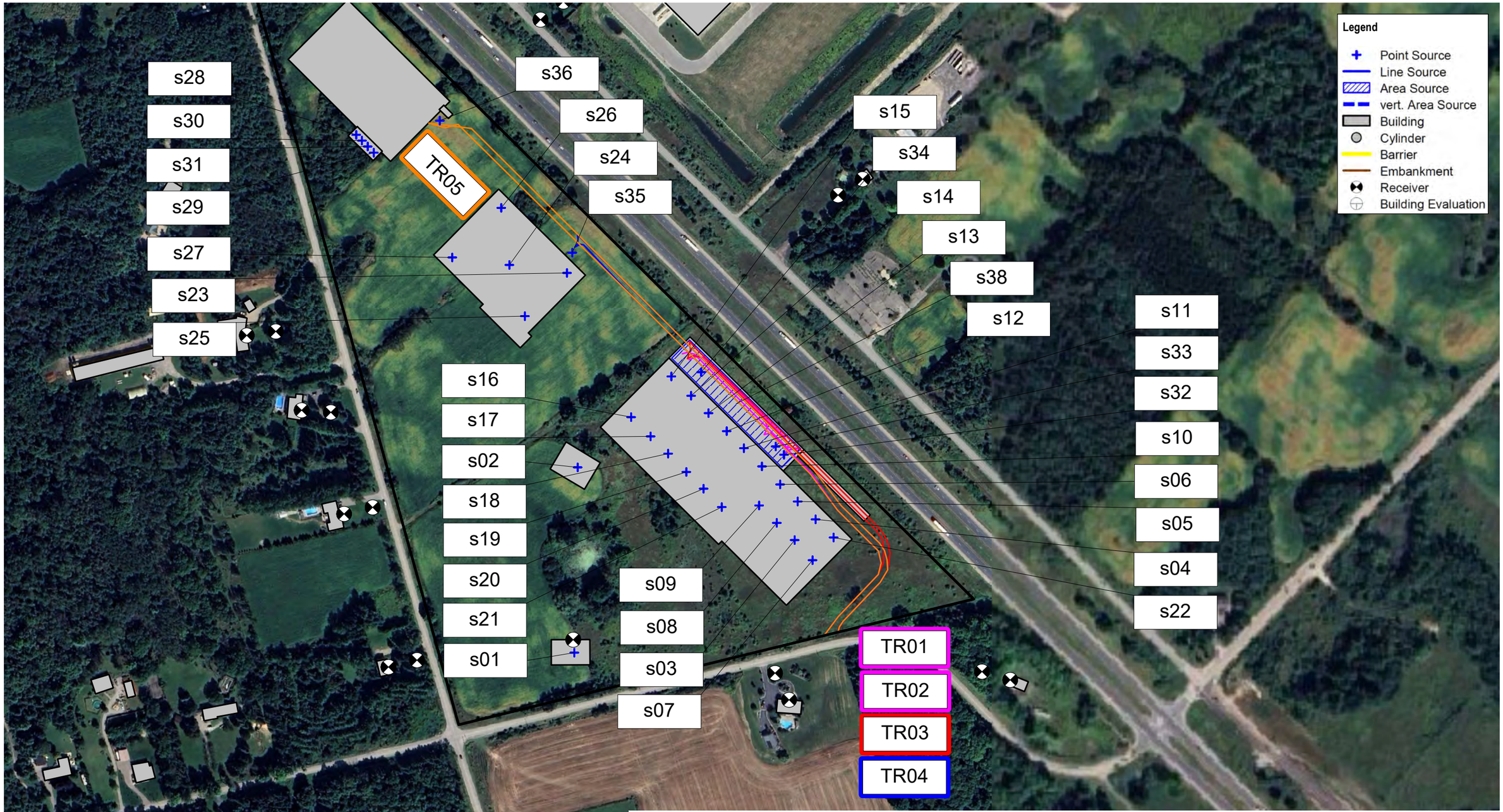
LAND USE COMPATIBILITY STUDY
PUSLINCH DEVELOPMENT GP INC.
4631 SIDEROAD 20 N, PUSLINCH TOWNSHIP, ONTARIO

GUIDELINE D-6 SETBACKS

Project No. **12618927**
Revision No. **-**
Date **30.05.2025**

FIGURE 3.1

\\ghdnet\ghd\CA\Waterloo\Projects\662\12618927\Tech\Noise\CadnaA\12618927_Danby_2025_rev03.1.cna
Imagery source: Google Satellite



Paper Size ANSI B

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Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 83 UTM Zone 17

N

GHD

LAND USE COMPATIBILITY STUDY
PUSLINCH DEVELOPMENT GP INC.
4631 SIDEROAD 20 N, PUSLINCH TOWNSHIP, ONTARIO

STEADY NOISE SOURCE LOCATIONS

Project No. **12618927**
Revision No. **-**
Date **30.05.2025**

FIGURE 4.1

\\ghdnet\ghd\CA\Waterloo\Projects\662\12618927\Tech\Noise\CadnaA\12618927_Danby_2025_rev03.1.cna
Imagery source: Google Satellite

Paper Size ANSI B

0 20 40 60 80 100 m

Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 83 UTM Zone 17

N

GHD

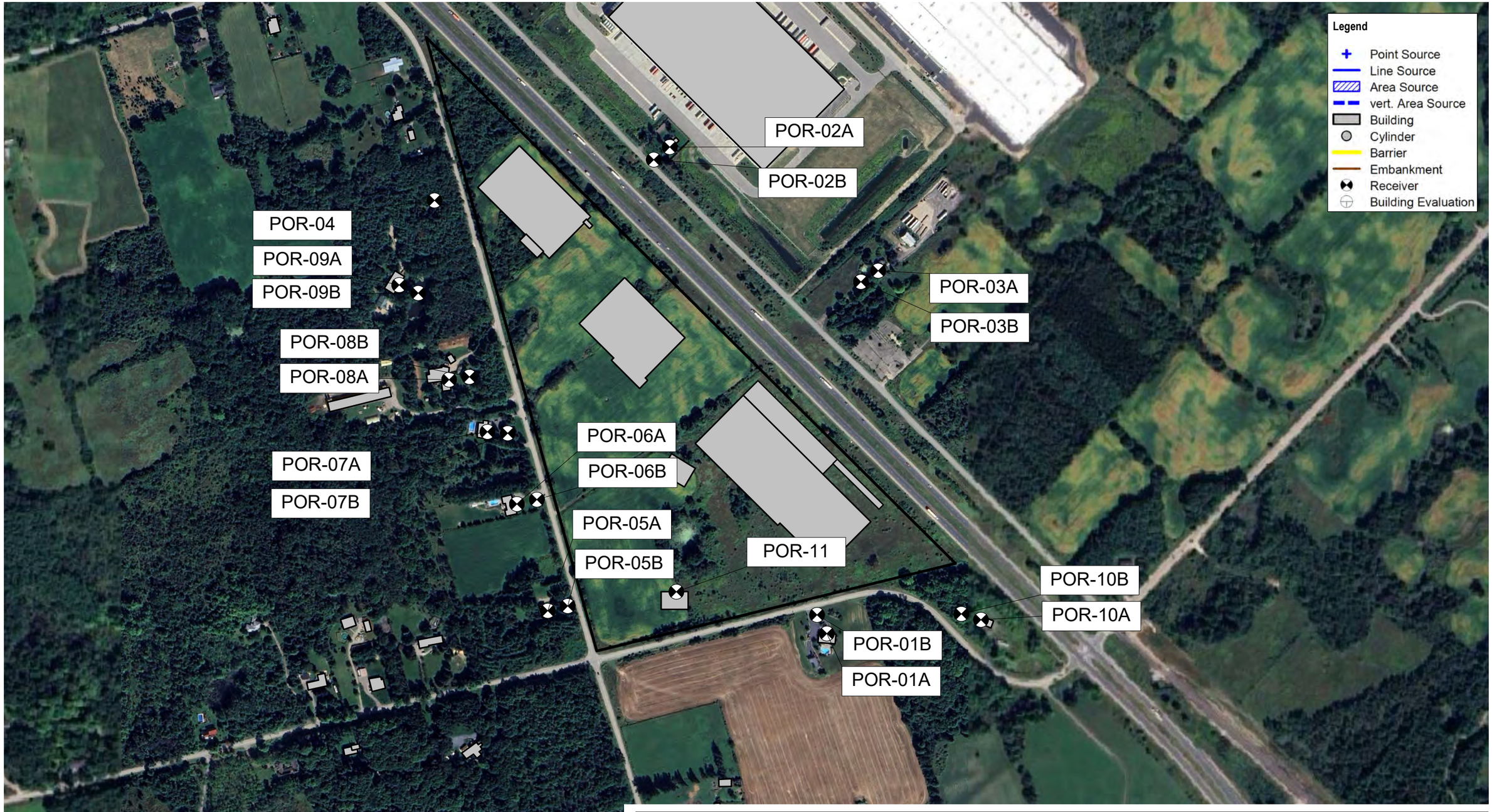
LAND USE COMPATIBILITY STUDY
PUSLINCH DEVELOPMENT GP INC.
4631 SIDEROAD 20 N, PUSLINCH TOWNSHIP, ONTARIO

IMPULSE NOISE SOURCE LOCATIONS

Project No. **12618927**
Revision No. **-**
Date **30.05.2025**

FIGURE 4.2

\\ghdnet\ghd\CA\Waterloo\Projects\662\12618927\Tech\Noise\CadnaA\12618927_Danby_2025_rev03.1.cna
Imagery source: Google Satellite



Paper Size ANSI B

0 50 100 150 200 250 m

Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 83 UTM Zone 17

N

GHD

LAND USE COMPATIBILITY STUDY
PUSLINCH DEVELOPMENT GP INC.
4631 SIDEROAD 20 N, PUSLINCH TOWNSHIP, ONTARIO

POINT OF RECEPTION LOCATIONS

Project No. **12618927**
Revision No. **-**
Date **30.05.2025**

FIGURE 4.3

\\ghdnet\ghd\CA\Waterloo\Projects\662\12618927\Tech\Noise\CadnaA\12618927_Danby_2025_rev03.1.cna
Imagery source: Google Satellite

DAY

NIGHT

Legend

- > 40 dBA
- > 41 dBA
- > 42 dBA
- > 43 dBA
- > 44 dBA
- > 45 dBA
- > 46 dBA
- > 47 dBA
- > 48 dBA
- > 49 dBA
- > 50 dBA
- > 51 dBA
- > 52 dBA
- > 53 dBA
- > 54 dBA
- > 55 dBA

Note: Sound levels are presented in terms of 1-hour Leq. Noise contours calculated at a grid height of 4.5 m above grade.

Paper Size ANSI B

0 50 100 150 200 250 m

Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 83 UTM Zone 17

N

GHD

LAND USE COMPATIBILITY STUDY
PUSLINCH DEVELOPMENT GP INC.
4631 SIDEROAD 20 N, PUSLINCH TOWNSHIP, ONTARIO

MITIGATED STEADY NOISE LEVELS

Project No. **12618927**
Revision No. **-**
Date **30.05.2025**

FIGURE 4.4

\\ghdnet\ghd\CA\Waterloo\Projects\662\12618927\Tech\Noise\CadnaA\12618927_Danby_2025_rev03.1.cna
Imagery source: Google Satellite

DAY

NIGHT

Legend

- > 45 dBAI
- > 46 dBAI
- > 47 dBAI
- > 48 dBAI
- > 49 dBAI
- > 50 dBAI
- > 51 dBAI
- > 52 dBAI
- > 53 dBAI
- > 54 dBAI
- > 55 dBAI
- > 56 dBAI
- > 57 dBAI
- > 58 dBAI
- > 59 dBAI
- > 60 dBAI

Note: Sound levels are presented in terms of 1-hour LLM. Noise contours calculated at a grid height of 4.5 m above grade.

Paper Size ANSI B

0 50 100 150 200 250 m

Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 83 UTM Zone 17

N

GHD

LAND USE COMPATIBILITY STUDY
PUSLINCH DEVELOPMENT GP INC.
4631 SIDEROAD 20 N, PUSLINCH TOWNSHIP, ONTARIO

MITIGATED IMPULSE NOISE LEVELS

Project No. **12618927**
Revision No. **-**
Date **30.05.2025**

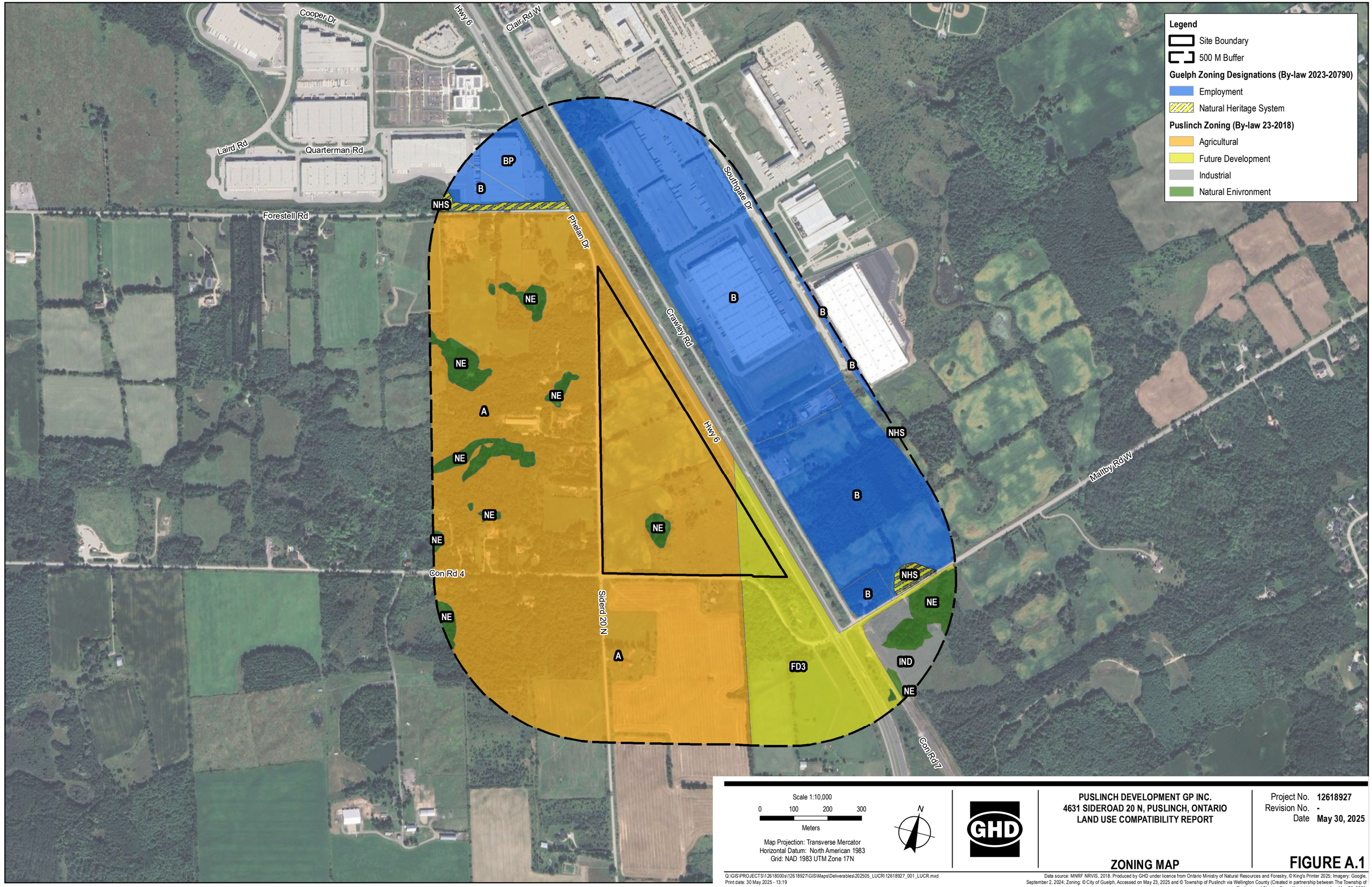
FIGURE 4.5

\\ghdnet\ghd\CA\Waterloo\Projects\662\12618927\Tech\Noise\CadnaA\12618927_Danby_2025_rev03.1.cna
Imagery source: Google Satellite

Appendices

Appendix A

Zoning Map and Site Plan



Scale 1:10,000

0 100 200 300

Meters

Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 1983 UTM Zone 17N

N

GHD

PUSLINCH DEVELOPMENT GP INC.
4631 SIDEROAD 20 N, PUSLINCH, ONTARIO
LAND USE COMPATIBILITY REPORT

Project No. **12618927**
Revision No. **-**
Date **May 30, 2025**

ZONING MAP

FIGURE A.1

Q:\GIS\PROJECTS\12618000s\12618927\GIS\Maps\Deliverables\202505_LUCR\12618927_001_LUCR.mxd
Print date: 30 May 2025 - 13:19

Puslinch Industrial Develpoment 2421
21-Jan-25

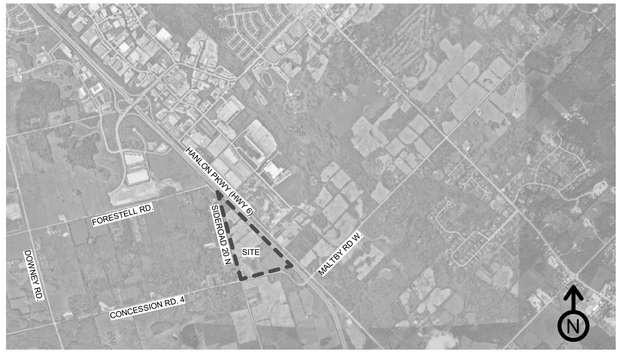
*** NOTE: SURVEY INFORMATION TAKEN FROM VAN HARTEN LAND SURVEY DATED 2023-04-06**

*** NOTE: WETLAND TAKEN FROM GHD TOPOGRAPHIC PLAN CI-101 DATED 2024-01-09**

Gross Constructed Area Summary

		Total GCA	Office	Warehouse	Manufacturing	Retail	Conference	Food Service	Gym	Daycare
Industrial Bldg #1	Tenant 1	245,000 sf *22,761 m2*	30,000 sf *2,787 m2*	150,000 sf *13,935 m2*	50,000 sf *4,645 m2*	15,000 sf *1,394 m2*				
	Tenant 1 Expansion	50,000 sf *4,645 m2*		37,500 sf *3,484 m2*	12,500 s.f *1,161 m2*					
	Tenant 2	230,000 sf *21,368 m2*	20,000 sf *1,858 m2*	200,000 sf *18,580 m2*		10,000 sf *929 m2*				
	Tenant 2 Expansion	100,000 sf *9,290 m2*		100,000 sf *9,290 m2*						
	Retail	15,000 sf *1,394 m2*			15,000 s.f *1,394 m2*					
	Shared Spaces	25,000 sf *2,323 m2*					20,000 sf *1,858 m2*	5,000 sf *465 m2*		
		665,000 sf ***61,780 m2***								
	Industrial Bldg #2	120,000 sf *11,148 m2*	10,000 sf *929 m2*		110,000 sf *10,219 m2*					
	Expansion	75,000 sf *6,968 m2*			75,000 sf *6,968 m2*					
		195,000 sf **18,115.94 m2**								
	Industrial Bldg #3	140,500 sf *13,053 m2*	5,000 sf *465 m2*		135,500 sf *12,588 m2*					
		140,500 ft **13,053 m2**								
	Gym	15,000 sf *1,394 m2*							15,000 sf *1,394 m2*	
		15,000 sf ***1,394 m2***								
	Daycare	10,000 sf *929 m2*								10,000 s.f *929 m2*
		10,000 sf ***929 m2***								
Total GCA		**1,025,500 sf** ***95,271 m2***	65,000 sf *6,039 m2*	487,500 sf *45,290 m2*	398,000 sf *36,975 m2*	25,000 sf *2,323 m2*	20,000 sf *1,858 m2*	5,000 sf *465 m2*	15,000 sf *1,394 m2*	10,000 sf *929 m2*

VEHICULAR PARKING			
TENANT	**REQUIRED**		**PROVIDED**
Industrial Building #1		631	631
Industrial Building #2	1/200 sq.m	56	56
Industrtial Building #3	1/100 sq.m	114	114
Gym	1/20 sq.m	70	70
Daycare	1/40 sq.m	23	23
TOTAL PARKING		**894**	**894**
ACCESSIBLE PARKING			
All Buildings	8 + 2% of Total Parking	**26**	**26**



Context Map
1 : 1

1 / AC102 OPA / ZBA PHASE 1 PLAN
1 : 1500

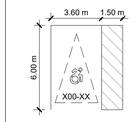
CAR PARKING SPACE:

NOTES:

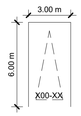
- DRIVE AISLE MINIMUM 6.0m UNLESS OTHERWISE NOTED.

MINIMUM PARKING SPACE DIMENSIONS:

ACCESSIBLE :
WIDTH: 3.6m
LENGTH: 6.0m



STANDARD :
WIDTH: 3.0m
LENGTH: 6.0m



LEGEND:

ACCESIBLE PARKING SPACE

Parking Requirement
1 : 200

BICYCLE PARKING SPACE:

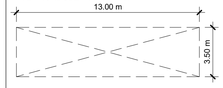
MINIMUM BICYCLE PARKING SPACE DIMENSIONS:

HORIZONTAL:
WIDTH: 0.60m
LENGTH: 1.80m

TYPICAL LOADING SPACE:

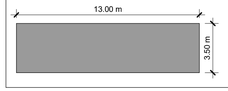
MINIMUM TRAILER SPACE DIMENSIONS:

LENGTH: 13.00m
WIDTH: 3.50m
VERTICAL CLEARANCE: 4.0m



MINIMUM LOADING SPACE DIMENSIONS:

LENGTH: 13.00m
WIDTH: 3.50m
VERTICAL CLEARANCE: 4.0m



DRAWING NOT TO BE SCALED

Contractor must check and verify all dimensions on the job and report any discrepancies to the architect before proceeding with the work.

This drawing shall not be used for construction purposes until signed by the consultant responsible. This drawing, as an instrument of service, is provided by and is the property of Sweeny & Co. Architects.

ISSUED / REVISED yy-mm-dd

ISSUED FOR OPA / ZBA	2025-01-27

SITE SYMBOL LEGEND:

F FACILITY ENTRANCE
R RETAIL ENTRANCE
O OFFICE ENTRANCE

Sweeny&Co Architects

134 PETER STREET | SUITE 1601
TORONTO, ONTARIO | M5V 2H2 | CANADA
P: 416-971-6252 | F: 416-971-5420
E: info@sweenyandco.com | www.sweenyandco.com

PROJ. NAME
Puslinch Industrial
4631 Sideroad 20 N
Puslinch Township

OWNER
Estill Innovation Hub

DWG TITLE
OPA / ZBA Phase 1

DATE:	2025-01-21
SCALE :	As indicated
DRAWN :	AT
CHECKED :	GD
PROJ. No. :	2421

DWG No.
AC102

Appendix B

Sample STAMSON Calculation

STAMSON 5.0 SUMMARY REPORT Date: 29-05-2025 08:44:47
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: danbyDay.te Time Period: 1 hours
Description: 264 Crawley Road, Minimum daytime, southwest facade 4.5m AB

Road data, segment # 1: Highway 6N

Car traffic volume	:	182	veh/TimePeriod
Medium truck volume	:	6	veh/TimePeriod
Heavy truck volume	:	10	veh/TimePeriod
Posted speed limit	:	80	km/h
Road gradient	:	0	%
Road pavement	:	1	(Typical asphalt or concrete)

Data for Segment # 1: Highway 6N

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	:	85.60	m
Receiver height	:	4.50	m
Topography	:	1	(Flat/gentle slope; no barrier)
Reference angle	:	0.00	

Road data, segment # 2: Highway 6S

Car traffic volume	:	180	veh/TimePeriod
Medium truck volume	:	6	veh/TimePeriod
Heavy truck volume	:	10	veh/TimePeriod
Posted speed limit	:	80	km/h
Road gradient	:	0	%
Road pavement	:	1	(Typical asphalt or concrete)

Data for Segment # 2: Highway 6S

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	:	110.50	m
Receiver height	:	4.50	m
Topography	:	1	(Flat/gentle slope; no barrier)
Reference angle	:	0.00	

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Highway 6N	1.50	52.34	52.34
2.Highway 6S	1.50	50.60	50.60
		Total	54.57 dBA

TOTAL Leq FROM ALL SOURCES: 54.57

STAMSON 5.0 SUMMARY REPORT Date: 26-05-2025 11:53:56
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: danbyEve.te Time Period: 1 hours
Description: 264 Crawley Road, Minimum Eve, southwest 4.5m AB

Road data, segment # 1: Highway 6N

Car traffic volume	:	127	veh/TimePeriod
Medium truck volume	:	4	veh/TimePeriod
Heavy truck volume	:	7	veh/TimePeriod
Posted speed limit	:	80	km/h
Road gradient	:	0	%
Road pavement	:	1	(Typical asphalt or concrete)

Data for Segment # 1: Highway 6N

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	:	85.60	m
Receiver height	:	4.50	m
Topography	:	1	(Flat/gentle slope; no barrier)
Reference angle	:	0.00	

Road data, segment # 2: Highway 6S

Car traffic volume	:	127	veh/TimePeriod
Medium truck volume	:	4	veh/TimePeriod
Heavy truck volume	:	7	veh/TimePeriod
Posted speed limit	:	80	km/h
Road gradient	:	0	%
Road pavement	:	1	(Typical asphalt or concrete)

Data for Segment # 2: Highway 6S

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	:	110.50	m
Receiver height	:	4.50	m
Topography	:	1	(Flat/gentle slope; no barrier)
Reference angle	:	0.00	

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Highway 6N	1.50	50.76	50.76
2.Highway 6S	1.50	49.02	49.02
		Total	52.99 dBA

TOTAL Leq FROM ALL SOURCES: 52.99

STAMSON 5.0 SUMMARY REPORT Date: 26-05-2025 11:54:44
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: danbyNig.te Time Period: 1 hours
Description: 264 Crawley Road, Minimum Night, Southwest façade 4.5m AB

Road data, segment # 1: Highway 6N

Car traffic volume	:	45	veh/TimePeriod
Medium truck volume	:	2	veh/TimePeriod
Heavy truck volume	:	2	veh/TimePeriod
Posted speed limit	:	80	km/h
Road gradient	:	0	%
Road pavement	:	1	(Typical asphalt or concrete)

Data for Segment # 1: Highway 6N

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	:	85.60	m
Receiver height	:	4.50	m
Topography	:	1	(Flat/gentle slope; no barrier)
Reference angle	:	0.00	

Road data, segment # 2: Highway 6S

Car traffic volume	:	45	veh/TimePeriod
Medium truck volume	:	2	veh/TimePeriod
Heavy truck volume	:	2	veh/TimePeriod
Posted speed limit	:	80	km/h
Road gradient	:	0	%
Road pavement	:	1	(Typical asphalt or concrete)

Data for Segment # 2: Highway 6S

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	:	110.50	m
Receiver height	:	4.50	m
Topography	:	1	(Flat/gentle slope; no barrier)
Reference angle	:	0.00	

Result summary
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Highway 6N	1.42	45.96	45.96
2.Highway 6S	1.42	44.21	44.21
		Total	48.18 dBA

TOTAL Leq FROM ALL SOURCES: 48.18

Appendix C

Traffic Data

Ontario

TES - Traffic Engineering System

ICS Weekly Volume Summary

Hwy:	6	TS:	145	Start:	13595.0000
Btwn.:	HWY 401			and:	LAIRD RD
Regn:	WR	Pattern:	C	PDCS:	90
ICS:	145	LHRS:	13595	Locn:	2.900 KM N OF W JCT HWY 401-M/C FRWY IC
Dir:	Combined	Lanes:	4	Speed:	80 km/h

End: 13599.0000

Factor: 1.03

Dates: 10-Nov-2019 to 17-Nov-2019

Summary

	11/10	11/11	11/12	11/13	11/14	11/15	11/16	11/17
Part of Day	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun
AM		10,994	11,436	12,565	12,361	12,747	7,852	6,145
PM	16,203	10,313	15,629	16,777	17,586	19,225	15,957	
24-hour Total	**16,203**	**21,307**	**27,065**	**29,342**	**29,947**	**31,972**	**23,809**	**6,145**
Noon - Noon		**27197**	**21749**	**28194**	**29138**	**30333**	**27077**	**22102**

Peak Hour	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun
AM		2065	2133	2292	2308	2249	1058	600
Mid-Day	1796	1239	1566	1616	1714	1967	1778	1561
PM	1793	1335	2127	2442	2347	2482	1840	

ADT	AWD	AADT	SADT	SAWDT	WADT	DHV	% Trucks	AADTT
26541	27354	27331	29958	29787	24667	1509	8.2%	2250

Dir. Split	Highest Dir.	Trk Dir. Split	Trk Highest Dir.
50%	NB	50%	NB

Data collection note:

Note / Comment:

Ontario

TES - Traffic Engineering System

ICS Weekly Volume Summary

Hwy: 6 TS: 145 Start: 13595.0000 End: 13599.0000
Btwn.: HWY 401 and: LAIRD RD
Regn: WR Pattern: C PDCS: 90 Factor: 1.03
ICS: 145 LHRS: 13595 Locn: 2.900 KM N OF W JCT HWY 401-M/C FRWY IC
Dir: N Lanes: 2 Speed: 80 km/h Dates: 10-Nov-2019 to 17-Nov-2019

		11/10	11/11	11/12	11/13	11/14	11/15	11/16	11/17
Part of Day	Interval	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun
AM	00:00-01:00		142	113	136	118	146	216	210
	01:00-02:00		73	99	88	82	86	132	123
	02:00-03:00		49	58	62	49	44	74	79
	03:00-04:00		61	63	56	59	52	63	66
	04:00-05:00		114	90	107	87	108	53	45
	05:00-06:00		296	261	332	304	303	133	71
	06:00-07:00		776	604	744	753	739	213	108
	07:00-08:00		1,031	917	1,085	1,029	1,108	326	176
	08:00-09:00		1,122	1,278	1,238	1,301	1,224	447	257
	09:00-10:00		703	862	948	964	918	608	391
	10:00-11:00		596	767	756	755	775	712	553
	11:00-12:00		566	761	725	729	834	765	763
AM Total			5,529	5,873	6,277	6,230	6,337	3,742	2,842
PM	12:00-13:00	827	564	691	774	779	833	822	
	13:00-14:00	847	635	802	817	842	942	885	
	14:00-15:00	841	656	852	890	904	1,054	949	
	15:00-16:00	828	594	800	938	940	1,051	902	
	16:00-17:00	901	644	1,107	1,151	1,076	1,162	843	
	17:00-18:00	845	704	1,112	1,104	1,179	1,027	766	
	18:00-19:00	694	468	921	784	823	832	757	
	19:00-20:00	686	314	596	517	743	751	677	
	20:00-21:00	764	269	469	535	493	559	498	
	21:00-22:00	479	203	388	421	419	499	419	
	22:00-23:00	376	147	295	319	367	377	431	
	23:00-00:00	205	149	198	210	222	324	320	
PM Total		8,293	5,347	8,231	8,460	8,787	9,411	8,269	
24-hour Total		8,293	10,876	14,104	14,737	15,017	15,748	12,011	2,842
Noon - Noon			13822	11220	14508	14690	15124	13153	11111

Ontario

TES - Traffic Engineering System

ICS Weekly Volume Summary

Hwy: 6 TS: 145 Start: 13595.0000 End: 13599.0000
Btwn.: HWY 401 and: LAIRD RD
Regn: WR Pattern: C PDCS: 90 Factor: 1.03
ICS: 145 LHRS: 13595 Locn: 2.900 KM N OF W JCT HWY 401-M/C FRWY IC
Dir: S Lanes: 2 Speed: 80 km/h Dates: 10-Nov-2019 to 17-Nov-2019

		11/10	11/11	11/12	11/13	11/14	11/15	11/16	11/17
Part of Day	Interval	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun
AM	00:00-01:00		85	109	142	125	128	193	131
	01:00-02:00		51	74	73	86	74	79	71
	02:00-03:00		48	52	53	72	85	80	92
	03:00-04:00		57	75	79	57	81	50	48
	04:00-05:00		191	186	162	170	158	81	77
	05:00-06:00		469	414	475	496	457	159	101
	06:00-07:00		856	772	947	871	835	255	115
	07:00-08:00		1,034	972	1,186	1,147	1,132	341	221
	08:00-09:00		863	855	1,054	1,007	1,025	611	343
	09:00-10:00		607	718	759	745	782	662	569
	10:00-11:00		602	653	658	648	800	798	737
	11:00-12:00		602	683	700	707	853	801	798
AM Total			5,465	5,563	6,288	6,131	6,410	4,110	3,303
PM	12:00-13:00	919	584	723	738	808	890	867	
	13:00-14:00	949	604	764	799	872	1,025	893	
	14:00-15:00	1,000	662	865	904	1,004	1,097	837	
	15:00-16:00	862	741	1,027	1,180	1,149	1,298	938	
	16:00-17:00	892	620	1,020	1,291	1,271	1,320	903	
	17:00-18:00	802	517	782	1,058	1,047	1,132	787	
	18:00-19:00	710	337	633	657	706	956	700	
	19:00-20:00	619	263	436	455	531	625	556	
	20:00-21:00	498	177	402	386	500	456	363	
	21:00-22:00	300	167	314	369	381	380	340	
	22:00-23:00	240	129	217	244	273	329	273	
	23:00-00:00	119	165	215	236	257	306	231	
PM Total		7,910	4,966	7,398	8,317	8,799	9,814	7,688	
24-hour Total		7,910	10,431	12,961	14,605	14,930	16,224	11,798	3,303
Noon - Noon			13375	10529	13686	14448	15209	13924	10991

Ontario

TES - Traffic Engineering System

ICS Weekly Volume Summary

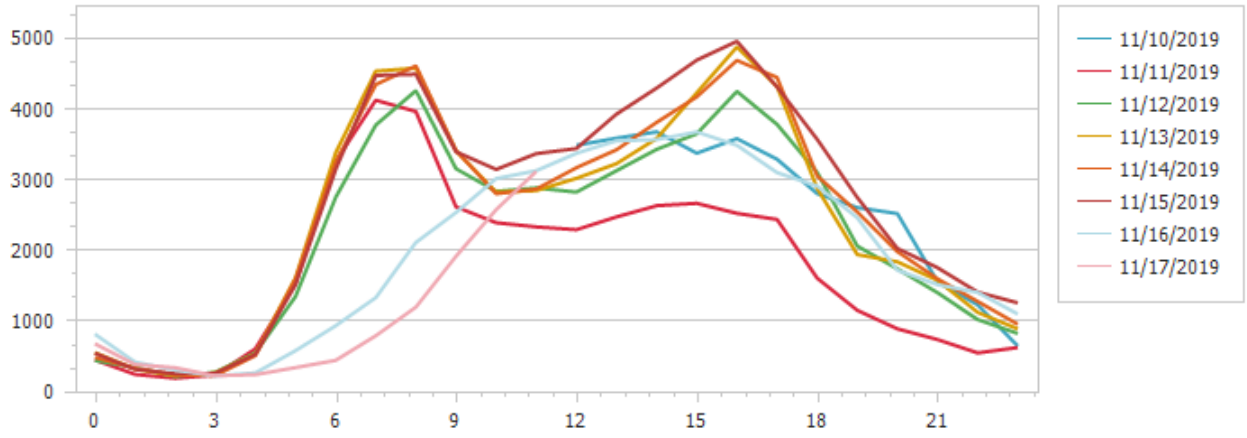
Hwy:	6	TS:	145	Start:	13595.0000	End:	13599.0000
Btwn.:	HWY 401			and:	LAIRD RD		
Regn:	WR	Pattern:	C	PDCS:	90	Factor:	1.03
ICS:	145	LHRS:	13595	Locn:	2.900 KM N OF W JCT HWY 401-M/C FRWY IC		
Dir:	Combined	Lanes:	4	Speed:	80 km/h	Dates:	10-Nov-2019 to 17-Nov-2019

		11/10	11/11	11/12	11/13	11/14	11/15	11/16	11/17
Part of Day	Interval	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun
AM	00:00-01:00		227	222	278	243	274	409	341
	01:00-02:00		124	173	161	168	160	211	194
	02:00-03:00		97	110	115	121	129	154	171
	03:00-04:00		118	138	135	116	133	113	114
	04:00-05:00		305	276	269	257	266	134	122
	05:00-06:00		765	675	807	800	760	292	172
	06:00-07:00		1,632	1,376	1,691	1,624	1,574	468	223
	07:00-08:00		2,065	1,889	2,271	2,176	2,240	667	397
	08:00-09:00		1,985	2,133	2,292	2,308	2,249	1,058	600
	09:00-10:00		1,310	1,580	1,707	1,709	1,700	1,270	960
	10:00-11:00		1,198	1,420	1,414	1,403	1,575	1,510	1,290
	11:00-12:00		1,168	1,444	1,425	1,436	1,687	1,566	1,561
AM Total			10,994	11,436	12,565	12,361	12,747	7,852	6,145
PM	12:00-13:00	1,746	1,148	1,414	1,512	1,587	1,723	1,689	
	13:00-14:00	1,796	1,239	1,566	1,616	1,714	1,967	1,778	
	14:00-15:00	1,841	1,318	1,717	1,794	1,908	2,151	1,786	
	15:00-16:00	1,690	1,335	1,827	2,118	2,089	2,349	1,840	
	16:00-17:00	1,793	1,264	2,127	2,442	2,347	2,482	1,746	
	17:00-18:00	1,647	1,221	1,894	2,162	2,226	2,159	1,553	
	18:00-19:00	1,404	805	1,554	1,441	1,529	1,788	1,457	
	19:00-20:00	1,305	577	1,032	972	1,274	1,376	1,233	
	20:00-21:00	1,262	446	871	921	993	1,015	861	
	21:00-22:00	779	370	702	790	800	879	759	
	22:00-23:00	616	276	512	563	640	706	704	
	23:00-00:00	324	314	413	446	479	630	551	
PM Total		16,203	10,313	15,629	16,777	17,586	19,225	15,957	
24-hour Total		16,203	21,307	27,065	29,342	29,947	31,972	23,809	6,145
Noon - Noon			27197	21749	28194	29138	30333	27077	22102

ADT	AWD	AADT	SADT	SAWDT	WADT	DHV	% Trucks	AADTT
26541	27354	27331	29958	29787	24667	1509	8.2%	2250

Dir. Split	Highest Dir.	Trk Dir. Split	Trk Highest Dir.
50%	NB	50%	NB

Hwy:	6	TS:	145	Start:	13595.0000	End:	13599.0000
Btwn.:	HWY 401			and:	LAIRD RD		
Regn:	WR	Pattern:	C	PDCS:	90	Factor:	1.03
ICS:	145	LHRS:	13595	Locn:	2.900 KM N OF W JCT HWY 401-M/C FRWY IC		
Dir:	Combined	Lanes:	4	Speed:	80 km/h	Dates:	10-Nov-2019 to 17-Nov-2019



Appendix D

Stationary Noise Model Information

Table D.1

NOISE SOURCE SOUND LEVEL SUMMARY
PUSLINCH DEVELOPMENT GP INC.
4631 SIDEROAD N, PUSLINCH TOWNSHIP, ONTARIO

Cadna A ID	Noise Source Description		1/1 Octave Band Data									Unadjusted Total Sound Power Level	Tonal Penalty Assessment		Height Absolute	Operating Time Day/Eve/Night	Vehicle Volumes Day/Eve/Night	Speed	Reference/Comments
			32	63	125	250	500	1000	2000	4000	8000	(dBA)		(dBA)	(m)	(min)	(veh/hr)	(km/hr)	
TR01	Shunt Truck Driving (Building 1, Level 1)	PWL (dB)	94.0	97.0	101.0	100.0	97.0	93.0	90.0	83.0	76.0	105.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	54.6	70.8	84.9	91.4	93.8	93.0	91.2	84.0	74.9	**98.9**	No	0	341.5	—	2/2/2	20	GHD Reference Spectra
TR02	Heavy Truck Movements (Building 1, Level 1) UCS	PWL (dB)	30.6	116.6	111.6	104.6	106.6	103.6	102.6	99.6	90.6	118.6							Referenced from US Federal Highway Administration (FHWA)
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								Traffic Noise Model (TNM) Technical Manual, December 2019
		PWL (dBA)	—	90.4	95.5	96.0	103.4	103.6	103.8	100.6	89.5	**109.5**	No	0	338.5	—	8/3/6	20	Heavy Trucks: Cruise Throttle - TNM Technical Manual, Figure 6, p. 26
TR03	Heavy Truck Movements (Building 1, Level 2) Danby	PWL (dB)	30.6	116.6	111.6	104.6	106.6	103.6	102.6	99.6	90.6	118.6							Referenced from US Federal Highway Administration (FHWA)
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								Traffic Noise Model (TNM) Technical Manual, December 2019
		PWL (dBA)	—	90.4	95.5	96.0	103.4	103.6	103.8	100.6	89.5	**109.5**	No	0	338.5	—	5/0/0	20	Heavy Trucks: Cruise Throttle - TNM Technical Manual, Figure 6, p. 26
TR04	Heavy Truck Movements (Building 2)	PWL (dB)	30.6	116.6	111.6	104.6	106.6	103.6	102.6	99.6	90.6	118.6							Referenced from US Federal Highway Administration (FHWA)
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								Traffic Noise Model (TNM) Technical Manual, December 2019
		PWL (dBA)	—	90.4	95.5	96.0	103.4	103.6	103.8	100.6	89.5	**109.5**	No	0	341.4	—	2/2/2	20	Heavy Trucks: Cruise Throttle - TNM Technical Manual, Figure 6, p. 26
TR05	Heavy Truck Movements (Building 3)	PWL (dB)	30.6	116.6	111.6	104.6	106.6	103.6	102.6	99.6	90.6	118.6							Referenced from US Federal Highway Administration (FHWA)
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								Traffic Noise Model (TNM) Technical Manual, December 2019
		PWL (dBA)	—	90.4	95.5	96.0	103.4	103.6	103.8	100.6	89.5	**109.5**	No	0	341.1	—	2/2/2	20	Heavy Trucks: Cruise Throttle - TNM Technical Manual, Figure 6, p. 26
s01	Daycare HVAC	PWL (dB)	—	97.6	90.4	85.7	84.8	83.9	77.5	71.3	65.8	98.9							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	71.4	74.3	77.1	81.6	83.9	78.7	72.3	64.7	**87.6**	No	0	340.2	60/60/30	—	—	GHD Reference Spectra
s02	Gym HVAC	PWL (dB)	—	97.6	90.4	85.7	84.8	83.9	77.5	71.3	65.8	98.9							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	71.4	74.3	77.1	81.6	83.9	78.7	72.3	64.7	**87.6**	No	0	345.7	60/60/30	—	—	GHD Reference Spectra
s03	HVAC Unit 1 (Building 1)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	361.5	60/60/30	—	—	GHD Reference Spectra
s04	HVAC Unit 2 (Building 1)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	361.5	60/60/30	—	—	GHD Reference Spectra
s05	HVAC Unit 3 (Building 1)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	361.5	60/60/30	—	—	GHD Reference Spectra
s06	HVAC Unit 4 (Building 1)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	361.5	60/60/30	—	—	GHD Reference Spectra
s07	HVAC Unit 5 (Building 1)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	361.5	60/60/30	—	—	GHD Reference Spectra
s08	HVAC Unit 6 (Building 1)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	361.5	60/60/30	—	—	GHD Reference Spectra
s09	HVAC Unit 7 (Building 1)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	361.5	60/60/30	—	—	GHD Reference Spectra
s10	HVAC Unit 8 (Building 1)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	361.5	60/60/30	—	—	GHD Reference Spectra
s11	HVAC Unit 9 (Building 1)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	361.5	60/60/30	—	—	GHD Reference Spectra
s12	HVAC Unit 10 (Building 1)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	361.5	60/60/30	—	—	GHD Reference Spectra
s13	HVAC Unit 11 (Building 1)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	361.5	60/60/30	—	—	GHD Reference Spectra
s14	HVAC Unit 12 (Building 1)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	361.5	60/60/30	—	—	GHD Reference Spectra
s15	HVAC Unit 13 (Building 1)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	361.5	60/60/30	—	—	GHD Reference Spectra
s16	HVAC Unit 14 (Building 1)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	361.5	60/60/30	—	—	GHD Reference Spectra
s17	HVAC Unit 15 (Building 1)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	361.5	60/60/30	—	—	GHD Reference Spectra

Table D.1

NOISE SOURCE SOUND LEVEL SUMMARY
PUSLINCH DEVELOPMENT GP INC.
4631 SIDEROAD N, PUSLINCH TOWNSHIP, ONTARIO

Cadna A ID	Noise Source Description		1/1 Octave Band Data									Unadjusted Total Sound Power Level	Tonal Penalty Assessment		Height Absolute	Operating Time Day/Eve/Night	Vehicle Volumes Day/Eve/Night	Speed	Reference/Comments
			32	63	125	250	500	1000	2000	4000	8000	(dBA)		(dBA)	(m)	(min)	(veh/hr)	(km/hr)	
s18	HVAC Unit 16 (Building 1)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	361.5	60/60/30	—	—	GHD Reference Spectra
s19	HVAC Unit 17 (Building 1)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	361.5	60/60/30	—	—	GHD Reference Spectra
s20	HVAC Unit 18 (Building 1)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	361.5	60/60/30	—	—	GHD Reference Spectra
s21	HVAC Unit 19 (Building 1)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	361.5	60/60/30	—	—	GHD Reference Spectra
s22	HVAC Unit 20 (Building 1)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	361.5	60/60/30	—	—	GHD Reference Spectra
s23	HVAC Unit 1 (Building 2)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	353.7	60/60/30	—	—	GHD Reference Spectra
s24	HVAC Unit 2 (Building 2)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	353.7	60/60/30	—	—	GHD Reference Spectra
s25	HVAC Unit 3 (Building 2)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	353.7	60/60/30	—	—	GHD Reference Spectra
s26	HVAC Unit 4 (Building 2)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	353.7	60/60/30	—	—	GHD Reference Spectra
s27	HVAC Unit 5 (Building 2)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	353.7	60/60/30	—	—	GHD Reference Spectra
s28	HVAC Unit 1 (Building 3)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	348.1	60/60/30	—	—	GHD Reference Spectra
s29	HVAC Unit 2 (Building 3)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	348.1	60/60/30	—	—	GHD Reference Spectra
s30	HVAC Unit 3 (Building 3)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	348.1	60/60/30	—	—	GHD Reference Spectra
s31	HVAC Unit 4 (Building 3)	PWL (dB)	—	98.7	92.3	93.8	90.9	89.6	85.9	80.3	74.3	101.5							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	72.5	76.2	85.2	87.7	89.6	87.1	81.3	73.2	**94.1**	No	0	348.1	60/60/30	—	—	GHD Reference Spectra
s32	Truck Idling (Building #1, Level 1)	PWL (dB)	84.0	87.0	91.0	90.0	87.0	83.0	80.0	73.0	66.0	95.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	44.6	60.8	74.9	81.4	83.8	83.0	81.2	74.0	64.9	**88.9**	No	0	340.8	60/60/60	—	—	GHD Reference Spectra
s33	Truck Idling (Building #1, Level 1)	PWL (dB)	84.0	87.0	91.0	90.0	87.0	83.0	80.0	73.0	66.0	95.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	44.6	60.8	74.9	81.4	83.8	83.0	81.2	74.0	64.9	**88.9**	No	0	341.0	60/60/60	—	—	GHD Reference Spectra
s34	Truck Idling (Building #1, Level 2)	PWL (dB)	84.0	87.0	91.0	90.0	87.0	83.0	80.0	73.0	66.0	95.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	44.6	60.8	74.9	81.4	83.8	83.0	81.2	74.0	64.9	**88.9**	No	0	351.0	60/60/60	—	—	GHD Reference Spectra
s35	Truck Idling (Building #2)	PWL (dB)	84.0	87.0	91.0	90.0	87.0	83.0	80.0	73.0	66.0	95.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	44.6	60.8	74.9	81.4	83.8	83.0	81.2	74.0	64.9	**88.9**	No	0	343.4	60/60/60	—	—	GHD Reference Spectra
s36	Truck Idling (Building #3)	PWL (dB)	84.0	87.0	91.0	90.0	87.0	83.0	80.0	73.0	66.0	95.8							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	44.6	60.8	74.9	81.4	83.8	83.0	81.2	74.0	64.9	**88.9**	No	0	345.5	60/60/60	—	—	GHD Reference Spectra
s38	Forklift	PWL (dB)	84.8	98.1	94.2	95.7	92.1	90.3	90.8	84.9	80.4	102.4							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	45.4	71.9	78.1	87.1	88.9	90.3	92.0	85.9	79.3	**96.5**	No	0	341.2	30/30/30	—	—	GHD Reference Spectra
i01	Shunt truck Coupling Impulse 1 (Building 1, Level 1)	PWL (dB)	149.9	138.5	124.9	113.8	110.6	105.0	103.1	95.5	96.6	150.2							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	110.5	112.3	108.8	105.2	107.4	105.0	104.3	96.5	95.5	**117.1**	No	0	340.5	0/0/60	—	—	GHD Reference Spectra
i02	Shunt truck Coupling Impulse 2 (Building 1, Level 1)	PWL (dB)	149.9	138.5	124.9	113.8	110.6	105.0	103.1	95.5	96.6	150.2							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	110.5	112.3	108.8	105.2	107.4	105.0	104.3	96.5	95.5	**117.1**	No	0	340.1	0/0/60	—	—	GHD Reference Spectra

Table D.1

NOISE SOURCE SOUND LEVEL SUMMARY
PUSLINCH DEVELOPMENT GP INC.
4631 SIDEROAD N, PUSLINCH TOWNSHIP, ONTARIO

Cadna A ID	Noise Source Description		1/1 Octave Band Data									Unadjusted Total Sound Power Level	Tonal Penalty Assessment		Height Absolute	Operating Time Day/Eve/Night	Vehicle Volumes Day/Eve/Night	Speed	Reference/Comments
			32	63	125	250	500	1000	2000	4000	8000	(dBA)		(dBA)	(m)	(min)	(veh/hr)	(km/hr)	
i03	Truck Coupling Impulse 1 (Building 3)	PWL (dB)	—	107.4	106.4	106.4	105.4	108.4	102.4	98.4	93.4	114.4							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	81.2	90.3	97.8	102.2	108.4	103.6	99.4	92.3	**111.0**	No	0	344.5	60/0/0	—	—	GHD Reference Spectra
i04	Truck Coupling Impulse 2 (Building 3)	PWL (dB)	—	107.4	106.4	106.4	105.4	108.4	102.4	98.4	93.4	114.4							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	81.2	90.3	97.8	102.2	108.4	103.6	99.4	92.3	**111.0**	No	0	343.5	60/0/0	—	—	GHD Reference Spectra
i05	Truck Coupling Impulse 3 (Building 2)	PWL (dB)	—	107.4	106.4	106.4	105.4	108.4	102.4	98.4	93.4	114.4							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	81.2	90.3	97.8	102.2	108.4	103.6	99.4	92.3	**111.0**	No	0	342.4	60/0/0	—	—	GHD Reference Spectra
i06	Truck Coupling Impulse 4 (Building 2)	PWL (dB)	—	107.4	106.4	106.4	105.4	108.4	102.4	98.4	93.4	114.4							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	81.2	90.3	97.8	102.2	108.4	103.6	99.4	92.3	**111.0**	No	0	343.0	60/0/0	—	—	GHD Reference Spectra
i07	Truck Coupling Impulse 5 (Building 1, Level 1)	PWL (dB)	—	107.4	106.4	106.4	105.4	108.4	102.4	98.4	93.4	114.4							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	81.2	90.3	97.8	102.2	108.4	103.6	99.4	92.3	**111.0**	No	0	340.9	60/60/60	—	—	GHD Reference Spectra
i08	Truck Coupling Impulse 6 (Building 1, Level 1)	PWL (dB)	—	107.4	106.4	106.4	105.4	108.4	102.4	98.4	93.4	114.4							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	81.2	90.3	97.8	102.2	108.4	103.6	99.4	92.3	**111.0**	No	0	340.4	60/60/60	—	—	GHD Reference Spectra
i09	Truck Coupling Impulse 7 (Building 1, Level 1)	PWL (dB)	—	107.4	106.4	106.4	105.4	108.4	102.4	98.4	93.4	114.4							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	81.2	90.3	97.8	102.2	108.4	103.6	99.4	92.3	**111.0**	No	0	340.2	60/60/60	—	—	GHD Reference Spectra
i10	Truck Coupling Impulse 8 (Building 1, Level 1)	PWL (dB)	—	107.4	106.4	106.4	105.4	108.4	102.4	98.4	93.4	114.4							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	81.2	90.3	97.8	102.2	108.4	103.6	99.4	92.3	**111.0**	No	0	340.2	60/60/60	—	—	GHD Reference Spectra
i11	Truck Coupling Impulse 9 (Building 1, Level 1)	PWL (dB)	—	107.4	106.4	106.4	105.4	108.4	102.4	98.4	93.4	114.4							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	81.2	90.3	97.8	102.2	108.4	103.6	99.4	92.3	**111.0**	No	0	340.0	60/60/60	—	—	GHD Reference Spectra
i12	Truck Coupling Impulse 10 (Building 1, Level 1)	PWL (dB)	—	107.4	106.4	106.4	105.4	108.4	102.4	98.4	93.4	114.4							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	81.2	90.3	97.8	102.2	108.4	103.6	99.4	92.3	**111.0**	No	0	340.1	60/60/60	—	—	GHD Reference Spectra
i13	Truck Coupling Impulse 11 (Building 1, Level 1) Daytime	PWL (dB)	—	107.4	106.4	106.4	105.4	108.4	102.4	98.4	93.4	114.4							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	81.2	90.3	97.8	102.2	108.4	103.6	99.4	92.3	**111.0**	No	0	340.3	60/0/0	—	—	GHD Reference Spectra
i14	Truck Coupling Impulse 12 (Building 1, Level 1)Daytime	PWL (dB)	—	107.4	106.4	106.4	105.4	108.4	102.4	98.4	93.4	114.4							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	81.2	90.3	97.8	102.2	108.4	103.6	99.4	92.3	**111.0**	No	0	340.0	60/0/0	—	—	GHD Reference Spectra
i15	Truck Coupling Impulse 13 (Building 1, Level 2)	PWL (dB)	—	107.4	106.4	106.4	105.4	108.4	102.4	98.4	93.4	114.4							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	81.2	90.3	97.8	102.2	108.4	103.6	99.4	92.3	**111.0**	No	0	350.0	60/0/0	—	—	GHD Reference Spectra
i16	Truck Coupling Impulse 14 (Building 1, Level 2)	PWL (dB)	—	107.4	106.4	106.4	105.4	108.4	102.4	98.4	93.4	114.4							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	81.2	90.3	97.8	102.2	108.4	103.6	99.4	92.3	**111.0**	No	0	350.0	60/0/0	—	—	GHD Reference Spectra
i17	Truck Coupling Impulse 15 (Building 1, Level 2)	PWL (dB)	—	107.4	106.4	106.4	105.4	108.4	102.4	98.4	93.4	114.4							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	81.2	90.3	97.8	102.2	108.4	103.6	99.4	92.3	**111.0**	No	0	350.0	60/0/0	—	—	GHD Reference Spectra
i18	Truck Coupling Impulse 16 (Building 1, Level 2)	PWL (dB)	—	107.4	106.4	106.4	105.4	108.4	102.4	98.4	93.4	114.4							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	81.2	90.3	97.8	102.2	108.4	103.6	99.4	92.3	**111.0**	No	0	350.0	60/0/0	—	—	GHD Reference Spectra
i19	Truck Coupling Impulse 17 (Building 1, Level 2)	PWL (dB)	—	107.4	106.4	106.4	105.4	108.4	102.4	98.4	93.4	114.4							
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1								
		PWL (dBA)	—	81.2	90.3	97.8	102.2	108.4	103.6	99.4	92.3	**111.0**	No	0	350.0	60/0/0	—	—	GHD Reference Spectra

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