



Badenview Industrial Subdivision Air Quality & Noise Compatibility Study New Hamburg, ON

Novus Reference No. 18-0049

Version 1.1

December 19, 2018

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1.0 INTRODUCTION

Novus Environmental Inc. (Novus) was retained by Badenview Development Inc. (BDI) to complete a land use compatibility study for their proposed industrial development, located at Part Lot 20, German Block North of Highway 7/8, Township of Wilmot, Regional Municipality of Waterloo, Ontario (“the Development”). The study is focused on potential air quality and environmental noise impacts on nearby sensitive residential receptors in support of a rezoning application. Novus has assessed potential air quality and noise impacts from the Development with respect to Ministry of the Environment, Conservation and Parks (“MECP”) Guideline D-6 - *Compatibility Between Industrial Facilities & Sensitive Land Uses*.

A context plan showing the location of the Development with respect to the surroundings is provided in **Figure 1**.

1.1 Proposed Industrial Development

BDI proposes to subdivide the Development property into twelve (12) Blocks, six (6) of which will cover the majority of land to create industrial blocks that cover 31.5 ha. The site is to be developed over two stages, Stage 1 being the southern and eastern portions of the property and Stage 2 being the western section of the property. Stage 1 will consist of four (4) industrial blocks covering 16.8 ha, and Stage 2 consist of two (2) industrial Blocks covering 14.7 ha. A stormwater management plan will cover the entire southern property line over 5.80 ha, along Highway 7/8. The industrial blocks will be developed in a range of industrial uses from Class I to a possible Class II. The Stage 2 area is proposed to be Class I industrial use. The industrial uses will range from commercial business spaces to manufacturing and processing. There is a potential for 24-hr operations. A full list of the potential industrial uses in the Stage 2 area are listed below and copy of the draft plan of subdivision concept is provided in **Appendix A**.

Stage 2 Area “Light Industrial” Uses:

- Audio-visual or medical laboratory
- Beverage-Making Equipment Sales
- Biotechnological Establishment
- Building Material and Decorating Supply Sales
- Canine or Feline Grooming or Training
- Computer, Electronic and Data processing business
- Financial Establishment
- Health Clinic
- Health Office
- Laboratory
- Office

- Private club or lodge, Union Hall
- Repair service
- Research and Development Establishment
- Sale of Monuments
- Sale, Rental or Service of Business Machines and Office Supplies
- Sale, Rental or Service of Tools and Industrial, Farm or Catering Equipment
- Sale of Pets and Pet Supplies
- Sale of Sporting Goods
- Scientific, Technological or Communications Establishment
- Security or Janitorial Services
- Studio
- Surveying, Engineering, Planning or Design Business
- Tradesman or Contractor’s Establishment
- Veterinary Services
- Warehouse
- Wholesaling

1.1.1 Permitted Industrial Uses

Official Plan of The Township of Wilmot

The Township of Wilmot land use designations for New Hamburg are outlined in the Official Plan for the Township. The BDI Development property is designated as “Light Industrial” for Blocks 1 and 2 in the Stage 2 area, and “General Industrial” for Blocks 1 to 4 in the Stage 1 areas. A copy of the New Hamburg, Township of Wilmot Official Plan and provisions for the area are provided in **Appendix B**.

The Township of Wilmot Official Plan for the Baden and New Hamburg Areas “Light Industrial” areas permit the use of: *“offices, small-scale scale, self-contained industrial uses that produce and/or store a product where there is a low probability of fugitive emissions”* or commercial buildings. The “General Industrial” areas permit the use of *“industrial uses that require open storage of goods and materials such as manufacturing, processing, assembling, repairing, wholesaling, warehousing, trucking and storage”*.

Township of Wilmot Zoning

The Township of Wilmot zoning by-law for New Hamburg are outlined in the industrial Zoning regulations Zone 10a, and Zone 10. This application is intended to support a re-zoning application for Stage 2 Blocks 1 and 2 area from agricultural land to a Zone10a “Light Industrial” land use. The land use zoning would permit no more than a Class I industry, and outdoor storage is prohibited. The full list of permitted uses in a Zone10a area can be seen in **Appendix C**.

Zoning for Stage 1 Blocks 1, 2, 3, and 4 are designed as Zone 10 “General Industrial”. Zone 10 permits the use of manufacturing, processing, distribution, and storage with exceptions to particularly offensive, obnoxious uses. The full list of permitted uses in a Zone 10 area can be seen in **Appendix C**.

The locations of the zones with respect to the surrounding are shown in **Figure 2**. The Zone 10a Light Industrial zones are closest to the existing residences, and act as a buffer for the more intense land uses.

1.2 Surroundings

Immediately to the south of the BDI Development property and south of Highway 7/8 is an existing industrial and agricultural land. The existing industrial area is currently designated as general industrial land in the official plan, and the agricultural area is un-designated. See **Appendix B** for the Official Plan map of New Hamburg. West of the Development site is an existing residential subdivision. This residential area is immediately adjacent to Block 2, which is designated as “Light Industrial”. North of the Development site is open space, existing Class 3 industry as well as agricultural land, and East of the site is existing industrial uses mixed with agricultural lands.

Given its close proximity to the BDI Development, the sensitive receptors with the greatest potential for air quality and noise impacts is the existing residential subdivision along Captain McCallum Drive, Maurice Street, Good Street, and Boulee Street. If the applicable Provincial air quality limits and noise guidelines are met there, they will be met at all other existing sensitive receptors. Along the northern portion of the residential development exists a built-up berm with a noise barrier wall that wraps around the eastern corner of the residential development.

2.0 PROVINCIAL GUIDELINES AND REGULATIONS

2.1 D-Series of Guidelines

The D-series of guidelines were developed by the MECP in 1995, to provide a means to assess recommended separation distances and other control measures as part of land use planning, in an effort to prevent or minimize ‘adverse effects’ resulting from the encroachment of incompatible land uses.

Adverse effect is a term defined in the Environmental Protection Act and “means one or more of:

- impairment of the quality of the natural environment for any use that can be made of it;
- injury or damage to property or to plant or animal life;
- harm or material discomfort to any person;

- an adverse effect on the health of any person;
- impairment of the safety of any person;
- rendering any property or plant or animal life unfit for human use;
- loss of enjoyment of normal use of property; and
- interference with the normal conduct of business”.

To minimize the potential to cause an adverse effect, areas of influence and recommended minimum setback distances are included within the guidelines.

MECP Guideline D-6 “Compatibility Between Industrial Facilities and Sensitive Land Uses” is specific to industrial uses in proximity to more sensitive land uses such as the existing residences. The areas of influence and recommended separation distances from the guidelines are provided in the **Table 1** below.

Table 1: Guideline D-6 Potential Influence Areas and Recommended Minimum Separation Distances for Industrial Land Uses

Industry Classification	Area of Influence	Recommended Minimum Separation Distance
Class I – Light Industrial	70 m	20 m
Class II – Medium Industrial	300 m	70 m
Class III – Heavy Industrial	1000 m	300 m

Industrial categorization criteria are supplied in Guideline D-6-2, and are shown in the following **Table 2**:

Table 2: Guideline D-6 – Industrial Categorization Criteria

Category	Outputs	Scale	Process	Operations / Intensity	Possible Examples
Class I	<ul style="list-style-type: none"> • Noise: Sound not audible off-property • Dust: Infrequent and not intense • Odour: Infrequent and not intense • Vibration: No ground-borne vibration on plant property 	<ul style="list-style-type: none"> • No outside storage • Small-scale plant or scale is irrelevant in relation to all other criteria for this Class 	<ul style="list-style-type: none"> • Self-contained plant or building which produces/ stores a packaged product • Low probability of fugitive emissions 	<ul style="list-style-type: none"> • Daytime operations only • Infrequent movement of products and/ or heavy trucks 	<ul style="list-style-type: none"> • Electronics manufacturing and repair • Furniture repair and refinishing • Beverage bottling • Auto parts supply • Packaging and crafting services • Distribution of dairy products • Laundry and linen supply

Category	Outputs	Scale	Process	Operations / Intensity	Possible Examples
Class II	<ul style="list-style-type: none"> Noise: Sound occasionally heard off-property Dust: Frequent and occasionally intense Odour: Frequent and occasionally intense Vibration: Possible ground-borne vibration, but cannot be perceived off-property 	<ul style="list-style-type: none"> Outside storage permitted Medium level of production allowed 	<ul style="list-style-type: none"> Open process Periodic outputs of minor annoyance Low probability of fugitive emissions 	<ul style="list-style-type: none"> Shift operations permitted Frequent movements of products and/ or heavy trucks with the majority of movements during daytime hours 	<ul style="list-style-type: none"> Magazine printing Paint spray booths Electrical production Manufacturing of dairy products Dry cleaning services Feed packing plants
Class III	<ul style="list-style-type: none"> Noise: Sound frequently audible off property Dust: Persistent and/ or intense Odour: Persistent and/ or intense Vibration: Ground-borne vibration can frequently be perceived off-property 	<ul style="list-style-type: none"> Outside storage of raw and finished products Large production levels 	<ul style="list-style-type: none"> Open process Frequent outputs of major annoyances High probability of fugitive emissions 	<ul style="list-style-type: none"> Continuous movement of products and employees Daily shift operations permitted 	<ul style="list-style-type: none"> Paint and varnish manufacturing Organic chemical manufacturing Breweries Solvent recovery plants Soaps and detergent manufacturing Metal refining and manufacturing

2.1.1 Classification of Badenview Development Inc. Industrial Development

The following table outlines the expected outputs and intensity of operations at proposed BDI development:

Table 3: Industrial Categorization of Badenview Development Inc. Industrial Development

Outputs	Scale	Intensity	Classification
<p><u>Dust</u>: Infrequent and not intense</p> <p><u>Odour</u>: Infrequent and not intense</p> <p><u>Noise</u>: Sound occasionally heard off-property</p>	<ul style="list-style-type: none"> • Small to Medium production levels • Minimal outdoor activities; odour sources limited to diesel trucks and garbage bins • Minimal periodic outputs of minor annoyance 	<ul style="list-style-type: none"> • Daytime and shift-work operations only • Self-contained buildings with no outside storage • No open processes Infrequent and minimal odours expected • Frequent movements of products and/ or heavy trucks with the majority of movements during daytime hours 	<p>Mix of Class I, and Class II</p>

Based on the table above, the industries which will occupy Stage 1 area of the site will likely be a mix of “Class I, and Class II” medium scale uses; and Stage 2 area of the site will be “Class I” small scale uses. The following recommended setback distances from the respective property lines would apply:

- Recommended minimum setback: 20 m, and 70 m
- Area of Influence: 70 m, and 300 m

Figure 3 shows the proposed sensitive receptors are within the 20m Recommended Minimum Set Back Distance of the proposed development’s property line (as indicated by the blue line).

The D-6 Guideline recommends that when a development is proposed within an industry’s area of influence or recommended minimum setback distance, a detailed assessment should be conducted to determine if compatibility can be achieved.

2.2 Provincial Regulations and Guidelines

Where potential compatibility issues are identified under the D-6 Guideline, potential impacts are then evaluated versus the applicable MECP regulations, guidelines and policies.

2.2.1 Air Quality Regulations and Guidelines

Ontario Regulation 419/05 (O.Reg. 419/05) applies to air quality emissions from industrial operations. This regulation came into effect December 1, 2005. This regulation specifies air quality standards (concentration limits) that must be met by facilities in order to operate. Facilities that emit contaminants of concern under O.Reg. 419/05 may be required to obtain an Environmental Certificate of Approval to ensure compliance. In addition to chemical contaminants, “best management practices plans” and mitigation measures may also be required for fugitive dust and odours.

2.2.2 Noise Guidelines

The applicable guideline limits are outlined in the MECP NPC-300 Guidelines for Stationary Noise Sources. The applicable portions of NPC-300 are Part C – Land Use Planning and the associated definitions outlined in Part A Background.

3.0 AIR QUALITY IMPACT ASSESSMENT

As stated in section 2.2.1 under Section 9 of the EPA no industry can emit air contaminants that exceed applicable standards as outline in O.Reg. 419/05. Therefore, all future industrial/commercial occupants of the BDI Development, with the potential to emit contaminants as part of regular operations will have to apply to the MECP for either an Environmental Compliance Approval (“ECA”) or an Environmental Activity & Sector Registry (“EASR”) approval. As part of the application process, the industries will complete Emission Summary and Dispersion Modelling analyses and reports showing that all the applicable air quality standards under O.Reg. 419/05 are met, at the property line and beyond. As such, air quality impacts at the existing residential subdivision are not anticipated. Further discussions are provided below regarding the potential for fugitive emissions with no provincial standards from the proposed industrial developments.

3.1 Class I Industrial

Fugitive Dust

All roadways, loading areas, and parking areas are to be paved and there will be no outside storage of loose materials in the Stage 2 development area. All waste and garbage materials should be stored in enclosed roll-off bins at the back of the proposed buildings and are not anticipated to be sources of fugitive dust. Given the industries proposed for the Stage 2 development area (listed in **Section 1.1**), fugitive dust emissions will be limited, if any. With the above listed barriers in place, Novus’ opinion is that fugitive dust will not cause adverse impacts at the neighbouring residential development.

Odour

Potential sources of odour at the proposed BDI Development Stage 2 site area is expected to be limited to odours associated with industries listed in **Section 1.1**. Sources of odour are expected to be mostly limited to diesel truck fuel combustion, or putrescible waste within waste garbage bins. Diesel odours from truck movements are expected to be minimal at the proposed residences as there are no manufacturing or production industries proposed in the Stage 2 area that would involve frequent truck movements. It is recommended that the parking areas of the Stage 2, Block 2 industries are placed along the western property at the rear of the industries to provide a buffer to the main building operations. This buffer will allow for dilution of odours

from waste materials in the enclosed waste bins and from business operations to the sensitive receptors at the existing residences.

O. Reg. 1/17 under the EPA was introduced in January 2017, which includes new regulations regarding odour control for prescribed activities. Under these EASR limits, any industrial use with NAICS codes set out in Table 1 of Chapter 4 in the regulation that do not meet the recommended setback distances would be required to create a Best Management Practices Plan (BMPP) for odour mitigation. This regulation would apply to the potential industries at the proposed development, which would provide an odour mitigation plan to the identified high-risk odour sources identified under O.Reg. 1/17.

3.2 Class II Industrial

Fugitive Dust

All roadways, loading areas, and parking areas are to be paved and there will be no outside storage of loose materials in the Stage 2 development area. All waste and garbage materials should be stored in enclosed roll-off bins at the back of the proposed buildings and are not anticipated to be sources of fugitive dust. As Class II industry has a recommended minimum setback distance of 70m, the non-commercial, laboratory, and health service industries should be limited to Block 1 in the Stage 2 development area, or to the Stage 1 development Blocks. The industries proposed for the Stage 2 development listed in **Section 1.1** would have limited fugitive dust emissions, if any. With the above listed barriers in place, Novus' opinion is that fugitive dust will not cause adverse impacts at the neighbouring residential development.

Odour

Potential sources of odour at the proposed “Light Industrial” sources on the BDI Development site are expected to be limited to odours associated with diesel fuel combustion, putrescible waste within waste garbage bins, or cooking odours from food service operations, if any. Diesel odours from truck movements are expected to be minimal at the proposed residences. It is recommended that the Class II industry be developed in Block 1, or the Stage 1 Blocks to provide a buffer to the operations. This buffer will allow for dilution of odours from waste materials in the enclosed waste bins and business operations to the sensitive receptors at the existing residences.

As stated in **Section 3.1** for Class I industries, any Class II industrial use with NAICS codes set out in Table 1 of Chapter 4 in the regulation that do not meet the recommended setback distances would be required to create a BMPP for odour mitigation. This regulation would apply to the potential industries at the proposed development, which would provide an odour mitigation plan to the identified high-risk odour sources identified under O.Reg. 1/17.

As part of reducing odour impacts at the existing residences, it is recommended that industries with potential odour emissions from regular operations minimize odours from diesel truck movements by posting no idling truck signs at industries located at the west end of the development site.

4.0 NOISE IMPACT ASSESSMENT – STATIONARY NOISE

4.1 MECP Publication NPC-300 Guidelines

The applicable MECP noise guidelines for new industrial land uses are provided in MECP Publication NPC-300 (NPC-300). NPC-300 sets out noise limits for two main types of noise sources: Non-impulsive, “continuous” noise sources such as ventilation fans, mechanical equipment, and vehicles while moving within the property boundary of an industry. Continuous noise is measured using 1-hour average sound exposures (L_{eq} (1hr) values), in dBA; and Impulsive noise, which is a “banging” type noise characterized by rapid rise time and decay. Impulsive noise is measured using a logarithmic mean (average) level (L_{LM}) of the impulses in a one-hour period, in dBAI.

The guideline requires an assessment at, and provides separate guideline limits for:

- Outdoor points of reception (backyards); and
- Plane of windows on the outdoor facade which connect onto noise sensitive spaces, such as living rooms, dens, eat-in kitchens, dining rooms and bedrooms.

The applicable noise limits at a point of reception are the higher of:

- The existing ambient sound level due to road traffic, or
- The exclusion limits set out in the guideline.

Based on the nature of the area, the Class 1 urban sound level limits apply¹. The area is dominated by the roadway noise and a general urban hum during all periods of the day. Therefore, the proposed development is considered to be located in a Class 1 urban area. All existing and currently zoned for future use noise sensitive receptors would be in Class 1 areas. The following tables set out the exclusion (time of day activities) limits from the guideline.

¹ Note that the Class 1 area designation refers to the nature of the acoustical environment, and is different from the “Class I” industrial classification discussed previously, which refers to the nature of the proposed industry.

Table 4: Exclusion Limits for Non-Impulsive Sounds – Class 1 Area (L_{eq} (1h), dBA)

Time of Day	Outdoor Points of Reception	Plane of Windows of Noise Sensitive Spaces
7am to 7 pm	50	50
7 pm to 11 pm	50	50
11 pm to 7 am	n/a	45

Notes: n/a - Not Applicable. Outdoor points of reception are not noise sensitive during the overnight period.

Table 5: Exclusion Limits for Impulsive Sounds – Class 1 Area (L_{LM}, dBAI)

Number of Impulses In A 1 Hour Period	Outdoor Points of Reception (7 am to 11 pm)	Plane of Windows of Noise Sensitive Spaces (7 am to 11 pm) / (11 pm to 7 am)
9 or more	50	50 / 45
7 to 8	55	55 / 50
5 to 6	60	60 / 55
4	65	65 / 60
3	70	70 / 65
2	75	75 / 70
1	80	80 / 75

Notes: - Outdoor points of reception are not considered to be noise sensitive during the overnight period (11 pm to 7 am)

4.2 Predicted Impacts from the Development

4.2.1 Facility Site Plan

Segregation of industrial lots within the proposed development is unknown at this time. For modelling purposes, Stage 2 Blocks 1, 2 and 3 were divided into 2 to 4-acre lots, and one 7-acre lot was included in Block 1. One building was assumed per lot for Blocks 1, 2 and 3. The front of each building in Blocks 2 and 3 are facing the street adjacent to any lot. Two building configurations, Scenario 1 and Scenario 2, were modelled for Block 1 and are described in further detail below. The assumed lot divisions and building sizes and configurations are based on an established site plan from another proposed industrial development of a similar size and type. A copy of the Site Plan is shown in **Appendix A**. The modelled Site Plan with assumed lot divisions and buildings is provided in **Figure 4**.

4.2.2 Points of Reception

The points of reception of concern are the existing residences located on the east side of Captain McCallum Drive and Maurice Street. The residences are located along the entire western property line of the Development and are therefore the receptors of primary concern for this assessment. These are the closest noise-sensitive points of reception – if the applicable MECP noise guidelines are met there, they will also be met at other all other receptor locations. The residences on Captain McCallum Drive and Maurice Street are 2-storey detached homes.

The land slopes downward from the front yard to the rear yard of the houses on Captain McCallum Drive such that these houses have walkout basements.

Aerial imagery showing the existing residences along the western property line of the Development is provided in **Figure 4**.

4.2.3 Facility Operations

Although the specific industrial uses for the proposed development are unknown, a general list of industry types to be permitted for the development has been determined. See Section 1.1 above.

Based on the nature of the types of industries listed, the primary noise sources of concern from the proposed facilities will be noise from truck traffic related to shipping and receiving activities. Rooftop HVAC units servicing office space have also been assumed for each Development building. It has been assumed that truck loading and unloading takes place at the opposite end of the building as the office space. A description of the source location scenarios considered in this assessment is provided below. A description of the non-impulsive and impulsive noise sources included in this assessment is also provided.

4.2.1 Source Location Scenarios

Two scenarios were considered in this assessment and differ by the location of the Block 2 buildings' loading docks only.

Scenario 1 – Block 2 Loading Docks Adjacent to Existing Residences

In Scenario 1, the loading docks of the buildings in Block 2 are adjacent to the back yards of the existing residences on Captain McCallum Drive and Maurice Street. In this scenario, the Block 2 buildings do not screen the existing residences from Block 2 loading dock related noise impacts. Block 1 and Block 3 buildings face “Street Two” and “Street One” respectively, and loading docks are located in the rear yard.

Scenario 2 – Block 2 Loading Docks Adjacent to “Street Two”

In Scenario 2, the loading docks of the buildings in Block 2 are located adjacent to “Street Two”. In this scenario, the Block 2 buildings screen the existing residences from Block 2 loading dock related noise impacts. Block 1 and Block 3 buildings face “Street Two” and “Street One” respectively, and loading docks are located in the rear yard.

4.2.2 Modelled Noise Sources

Non-Impulsive Noise (Continuous)

A shipping and receiving truck frequency of one (1) truck per hour has been applied. It has been assumed that shipping and receiving activities for all industries will occur during the daytime period (7:00 – 19:00) only.

It is our understanding that the facilities will have a no engine idling policy, thus only truck traffic entering and exiting each industry (and not idling) has been assessed.

Additionally, with the exception of Lot 11, each industrial lot building is assumed to have one (1) 5-ton HVAC rooftop unit to service an office area. Given Lot 11's larger building size, two (2) 5-ton HVAC rooftop units have been assumed. Noise impacts from the rooftop HVAC units were modelled using a 30-minute duty cycle duration during the evening and night-time periods.

The continuous noise source locations are shown in **Figure 5** for Scenario 1 and **Figure 6** for Scenario 2.

Impulsive Noise

Based on the nature of the permitted types of industries, potential impulsive noise sources for the Development include forklift operations for the loading and unloading of materials during shipping and receiving activities at two (2) or three (3) loading bays. The following was assumed:

- Industrial Lots 1-10 and 12-16: Forklift operations at two (2) loading bays
- Industrial Lot 11: Forklift operations at three (3) loading bays

The impulsive noise source locations are shown in **Figure 7** for Scenario 1 and **Figure 8** for Scenario 2.

It was assumed that if required, “quiet” lift gates for forklift loading and unloading operations would be installed at each Development building. Forklift operation sound levels included in the model are based on this assumption.

Source data used in the modelling is provided in **Appendix D**.

4.3 Noise Modelling

Noise impacts from operations at the nearby facilities were modelled using Cadna/A, a computerized noise model implementation of the internationally recognized ISO-9613-2 environmental noise propagation algorithms. Cadna/A / ISO-9613 is the preferred noise model of the MECP. The model accounts for source noise emission levels, distance, screening effects

from buildings, terrain and noise barriers, reflections off of the ground and surrounding buildings, atmospheric absorption, and worst-case meteorological conditions.

The model took into account the existing 2 m high earthen berm and 2 m high noise wall (approximated heights) that extends 90 m southward from the north-eastern corner of the Captain McCallum Drive residential area. It is our understanding that the existing berm and noise wall were included as a mitigation measure to protect the Captain McCallum Drive residences from noise generated by the Pestell Minerals and Ingredients industrial facility located to the north. The existing berm and noise wall structure are shown in **Figure 4**.

As described in ISO 9613-2, ground factor values that represent the effect of ground absorption on sound levels range between 0 and 1. Based on the specific site conditions, the ground factor values used in the modelling were a ground factor value of 1 for acoustically absorptive surfaces, such as the rear lots of the existing residences.

4.4 Noise Model Results

4.4.1 Non-Impulsive Noise (Continuous) - Unmitigated

Noise impacts were predicted for Scenario 1 and Scenario 2 and compared to the criteria outlined in **Table 4**.

Façades

Modelled noise results for the façades for Scenario 1 and Scenario 2 are shown in **Figure 9** and **Figure 10**, respectively.

The predicted worst-case façade sound levels at Captain McCallum Drive and Maurice Street are summarized in **Table 6**.

Table 6: Summary of Predicted Façade Sound Levels - Non-Impulsive Noise, Unmitigated

Point of Reception ^[1]	Scenario 1		Scenario 2	
	Predicted Façade Sound Level L_{eq} (1h) dBA ^[2]	Meets Class 1 Guideline Limits? ^[3]	Predicted Façade Sound Level L_{eq} (1h) dBA ^[2]	Meets Class 1 Guideline Limits? ^[3]
72 Captain McCallum Drive	55	No	45	Yes
265 Maurice Street	54	No	45	Yes

Notes: [1] Receptor locations shown in **Figure 9** and **Figure 10**.

[2] Level represents the maximum impact on all façades of Captain McCallum Drive or Maurice Street residences.

[3] Compared against Class 1 daytime criteria.

Backyard Receptors

Modelled noise results for the backyard receptors for Scenario 1 and Scenario 2 are shown in **Figure 9** and **Figure 10**, respectively.

The predicted worst-case backyard receptor sound levels at Captain McCallum Drive and Maurice Street are summarized in

Table 7.

Table 7: Summary of Predicted Backyard Receptor Sound Levels - Non-Impulsive Noise, Unmitigated

Point of Reception ^[1]	Scenario 1		Scenario 2	
	Predicted Sound Level L_{eq} (1h) dBA	Meets Class 1 Guideline Limits? ^[4]	Predicted Sound Level L_{eq} (1h) dBA	Meets Class 1 Guideline Limits? ^[4]
62 Captain McCallum Drive	57 ^[2]	No	43	Yes
72 Captain McCallum Drive	51	No	46 ^[3]	Yes
271 Maurice Street	56 ^[2]	No	47 ^[3]	Yes

- Notes:
- [1] Receptor locations shown in **Figure 9** and **Figure 10**.
 - [2] Level represents the Scenario 1 maximum impact on all backyard receptors of Captain McCallum Drive or Maurice Street residences.
 - [3] Level represents the Scenario 2 maximum impact on all backyard receptors of Captain McCallum Drive or Maurice Street residences.
 - [4] Compared against Class 1 daytime criteria.

4.4.2 Impulsive Noise - Unmitigated

Noise impacts were predicted for Scenario 1 and Scenario 2 and compared to the criteria outlined in **Table 5**.

Façades

Modelled noise results for the façades for Scenario 1 and Scenario 2 are shown in **Figure 11** and **Figure 12**, respectively.

The predicted worst-case façade sound levels at Captain McCallum Drive and Maurice Street are summarized in **Table 8**.

Table 8: Summary of Predicted Façade Sound Levels - Impulsive Noise, Unmitigated

Point of Reception ^[1]	Scenario 1		Scenario 2	
	Predicted Sound Level L_{eq} (1h) dBA	Meets Class 1 Guideline Limits? ^[4]	Predicted Sound Level L_{eq} (1h) dBA ^[2]	Meets Class 1 Guideline Limits? ^[4]
64 Captain McCallum Drive	47 ^[2]	Yes	26	Yes
62 Captain McCallum Drive	46	Yes	28 ^[3]	Yes
253 Maurice Street	46 ^[2]	Yes	26 ^[3]	Yes

Notes: [1] Receptor locations shown in **Figure 11** and **Figure 12**.
 [2] Level represents the Scenario 1 maximum impact on all façades of Captain McCallum Drive or Maurice Street residences.
 [3] Level represents the Scenario 2 maximum impact on all façades of Captain McCallum Drive or Maurice Street residences.
 [4] Compared against Class 1 daytime criteria.

Backyard Receptors

Modelled noise results for the backyard receptors for Scenario 1 and Scenario 2 are shown in **Figure 11** and **Figure 12**, respectively.

The predicted worst-case backyard receptor sound levels at Captain McCallum Drive and Maurice Street are summarized in **Table 9**.

Table 9: Summary of Predicted Backyard Receptor Sound Levels - Impulsive Noise, Unmitigated

Point of Reception ^[1]	Scenario 1		Scenario 2	
	Predicted Sound Level L_{eq} (1h) dBA	Meets Class 1 Guideline Limits? ^[4]	Predicted Sound Level L_{eq} (1h) dBA	Meets Class 1 Guideline Limits? ^[4]
62 Captain McCallum Drive	49 ^[2]	Yes	27 ^[3]	Yes
253 Maurice Street	48 ^[2]	Yes	25	Yes
277 Maurice Street	46	Yes	27 ^[3]	Yes

Notes: [1] Receptor locations shown in **Figure 11** and **Figure 12**.
 [2] Level represents the Scenario 1 maximum impact on all backyard receptors of Captain McCallum Drive or Maurice Street residences.
 [3] Level represents the Scenario 2 maximum impact on all backyard receptors of Captain McCallum Drive or Maurice Street residences.
 [4] Compared against Class 1 daytime criteria.

4.4.3 Mitigation Requirements

Scenario 1

The results of the assessment indicate that the daytime Scenario 1 sound levels are expected to exceed the NPC-300 sound criteria for non-impulsive noise on multiple façades and backyard receptors of the existing residences on Captain McCallum Drive and Maurice Street.

Therefore, noise mitigation in the form of a berm and noise barrier would be warranted if

Block 2 building loading docks are located adjacent to the property boundary between the Development and the existing residences.

The required noise barrier height and location for Scenario 1 is shown in **Figure 13**. A noise barrier, located atop a 2.5 m high earthen berm, with the following step-down in total would be required:

$$5.6 \text{ m} - 2.8 \text{ m} - 1.3 \text{ m}$$

The berm would be designed to meet the proposed grades on the existing residential and proposed industrial properties.

The step-up and step-down heights provided above are approximate, as the top and bottom elevations of the berm would vary with location. As such, the required height of the noise barrier has also been provided as the elevation in height above sea level (m asl). The “5.6 m high” portion of the noise wall, which would be located adjacent to the Captain McCallum Drive residences must have a top of wall elevation of **351.0 m asl**. When referring to the Site Plan dated November 22nd, 2018, this portion of the wall should start approximately 20 m from the northwest corner of the proposed development. This portion of the wall should overlap slightly with the existing berm and noise wall. The “2.8 m high” portion of the noise wall, adjacent to the residences at 247, 253, 259, 265 and 271 Maurice Street, should have a top-of-wall elevation of **348.0 m asl**. The “1.3 m high” portion of the noise wall, adjacent to the residences between and including 277 Maurice Street and 343 Maurice Street, should have a top-of-wall elevation of **346.5 m asl**. When referring to the November 5th, 2018 Site Plan, this portion of the wall should terminate at the southwestern corner of Block 2.

The noise barriers should be free of gaps and cracks. The barriers can be made from a number of different materials, provided they have sufficient face density (mass per unit area of wall). A minimum face density of 20 kg/m² (4 lbs/sq.ft.) is required to achieve the desired noise mitigation. A number of different commercially available materials/noise barrier designs meet these requirements, including steel, concrete, or plexiglass.

The resulting sound levels for Scenario 1 with the inclusion of mitigation are summarized below.

Scenario 1 Non-Impulsive Noise (Continuous) - Mitigated

Noise impacts for Scenario 1 were predicted and compared to the criteria outlined in **Table 4**. The results are summarized in **Table 10** for the worst-case façade and backyard receptors. Modelled noise results are also shown in **Figure 14**.

Table 10: Summary of Predicted Sound Levels - Non-Impulsive Noise, Mitigated

Point of Reception ^[1]	Predicted Sound Level L _{eq} (1h) dBA ^[2]		Meets Class 1 Guideline Limits? ^[3]
	Facades	Rear Yard	
64 Captain McCallum Drive	50 ^[2]	41 ^[3]	Yes
265 Maurice Street	50 ^[2]	45	Yes
271 Maurice Street	45	47 ^[3]	Yes

Notes: [1] Receptor locations shown in **Figure 14**.
 [2] Level represents the maximum impact on all façade receptors of Captain McCallum Drive or Maurice Street residences.
 [3] Level represents the maximum impact on all backyard receptors of Captain McCallum Drive or Maurice Street residences.
 [4] Compared against Class 1 daytime criteria.

Scenario 1 Impulsive Noise - Mitigated

Noise impact results for Scenario 1 with mitigation have not been presented in this report as unmitigated predicted impacts are expected to be below the NPC-300 sound criteria for impulsive noise at all existing façade and backyard receptors.

With the inclusion of the above berm and noise barrier, the results of the assessment indicate that the sound levels are expected to meet the NPC-300 sound criteria for Non-Impulsive and Impulsive noise at all façades and backyard receptors of the existing residences on Captain McCallum Drive and Maurice Street.

It should be noted that these results are based on modelling truck traffic and shipping and receiving activities only, with the assumption that quiet lift gates would be in place.

Scenario 2

The results of the assessment indicate that the predicted impacts for Scenario 2 without mitigation are expected to be below the NPC-300 sound criteria for non-impulsive and impulsive noise at all existing façade and backyard receptors.

Recommended Mitigation

As indicated above, a stepped-down noise barrier with a maximum height of approximately 5.6 m atop a 2.5 m berm would be required if truck loading and unloading occurs in the rear yard of all Block 2 lots, adjacent to the existing residences. Although two scenarios of the Development configuration were considered in this assessment, the industry types, and therefore the associated noise sources and their locations, cannot be confirmed. At this stage, we recommend that a 2.5 m high earthen berm is installed at the western edge of Block 2. As with air quality, the individual industries which occupy the buildings will need to evaluate potential noise impacts as part of their required ECA or EASR approval process. Additional industry-specific noise mitigation (e.g. noise barrier atop the 2.5 m berm) would be specified at that time.

5.0 CONCLUSIONS

Based on the analysis above, we recommend that a 2.5 m high earthen berm be located along the western edge of Block 2 (Stage 2). When a future industry purchases/leases a lot, they will need to conduct a noise assessment for their building/industry in accordance with the requirements of the *Environmental Protection Act* and O. Reg. 1/17. That assessment will inform them of what noise mitigation is required for their specific use.

Having the 2.5 m berm earthen berm along the western edge of Block 2 will:

- a) provide some initial mitigation for ground levels and outdoor amenity areas for the existing residences; and
- b) allow industries of the Development to install an additional noise wall on top of the berm if it is required.

With the inclusion of the above scenario-specific mitigation, it is Novus' opinion that:

- The applicable MECP air quality and noise regulations, guidelines and policies will be met;
- The requirements of MECP Guideline D-6 are met; and
- The potential for adverse impacts from air quality and noise sources associated with the BDI industrial development is negligible.

All future industrial/commercial occupants of the BDI Development, with the potential to emit contaminants (including noise) as part of regular operations, will have to apply to the MECP for either an Environmental Compliance Approval (“ECA”) or an Environmental Activity & Sector Registry (“EASR”) approval. As part of their application processes, additional site-specific mitigation measures may be required.

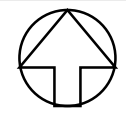
Figures

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Figure No. 1
Context Plan with Surroundings

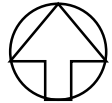
Badenvue Industrial Subdivision
 New Hamburg, Ontario



True
 North

Scale: 1: 6,600
 Date: 18/12/04
 File No.: 18-0049
 Drawn By: LC





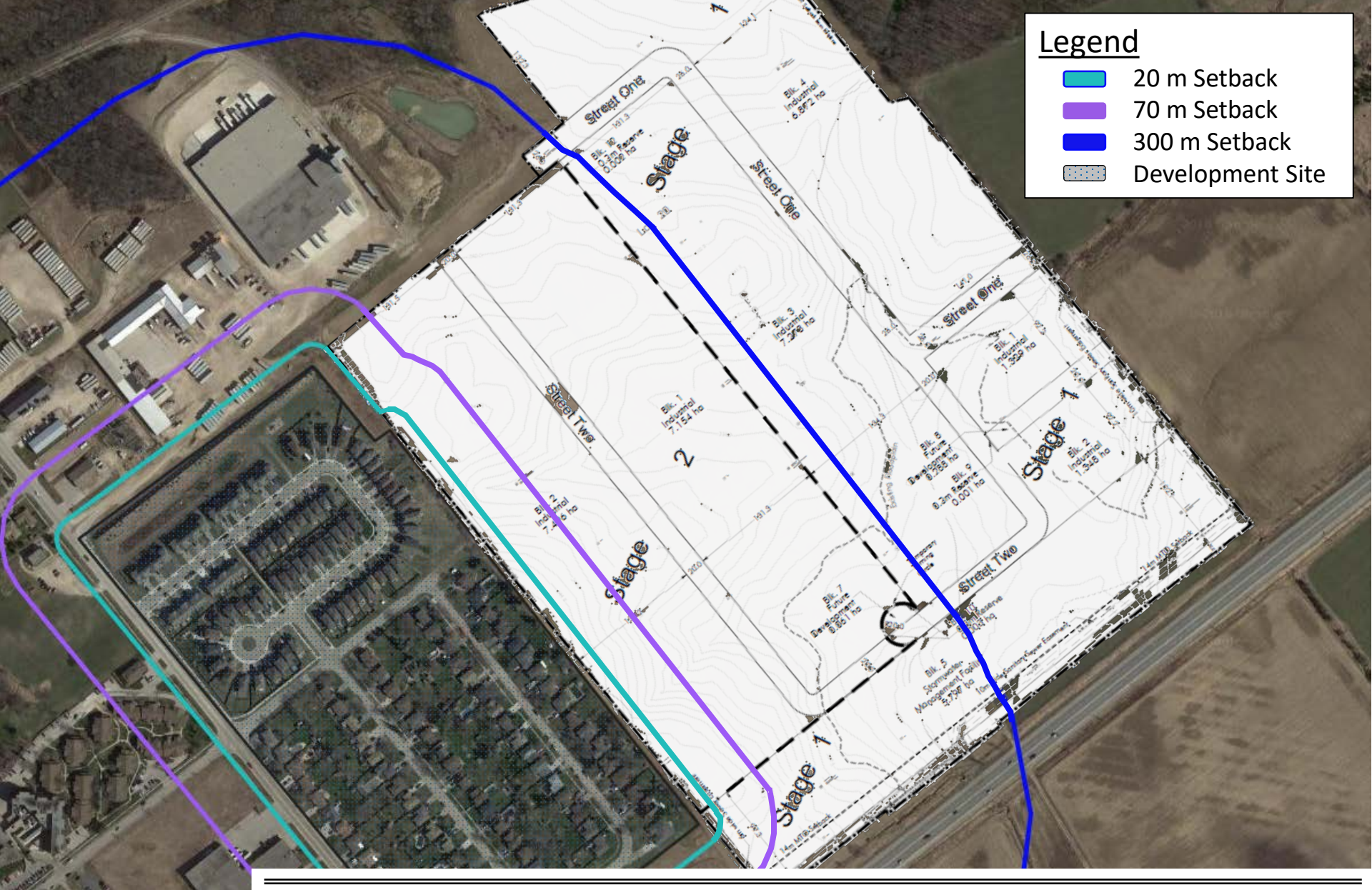
True North



Scale: n/a
 Date: 18/12/06
 File No.: 18-0049
 Drawn By: SLP

Figure No. 2
Zone Locations

Badenview Industrial
 Subdivision
 New Hamburg, Ontario



Legend

- 20 m Setback
- 70 m Setback
- 300 m Setback
- Development Site

Figure No. 3
Guideline D-6 Setback Distance from Site

Badenview Industrial Subdivision
 New Hamburg, Ontario



True North

Scale: 1: 2,700
 Date: 18/12/04
 File No.: 18-0049
 Drawn By: LC

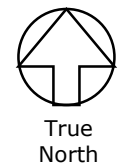




Lot # assigned by Novus

Figure No. 4
Site Plan with Estimated Lot Divisions

Badenview Industrial Subdivision
 New Hamburg, Ontario



Scale: 1: 5,500
 Date: 18/11/23
 File No.: 18-0049
 Drawn By: SS





Figure No. 5

Modelled Noise Source Locations – Non-Impulsive (Continuous) Sources, Scenario 1

Badenvue Industrial Subdivision
New Hamburg, Ontario



True North

Scale: 1: 4,500
Date: 18/11/23
File No.: 18-0049
Drawn By: SS





Figure No. 6

Modelled Noise Source Locations – Non-Impulsive (Continuous) Sources, Scenario 2

Badenvue Industrial Subdivision
New Hamburg, Ontario



True
North

Scale: 1: 4,500

Date: 18/11/23

File No.: 18-0049

Drawn By: SS





Figure No. 7

Modelled Noise Source Locations – Impulsive Sources, Scenario 1

Badenvue Industrial Subdivision
New Hamburg, Ontario



True
North

Scale: 1: 4,500

Date: 18/11/23

File No.: 18-0049

Drawn By: SS





Figure No. 8

Modelled Noise Source Locations – Impulsive Sources, Scenario 2

Badenvue Industrial Subdivision
New Hamburg, Ontario



True North

Scale: 1: 4,500

Date: 18/11/23

File No.: 18-0049

Drawn By: SS

novus
ENVIRONMENTAL

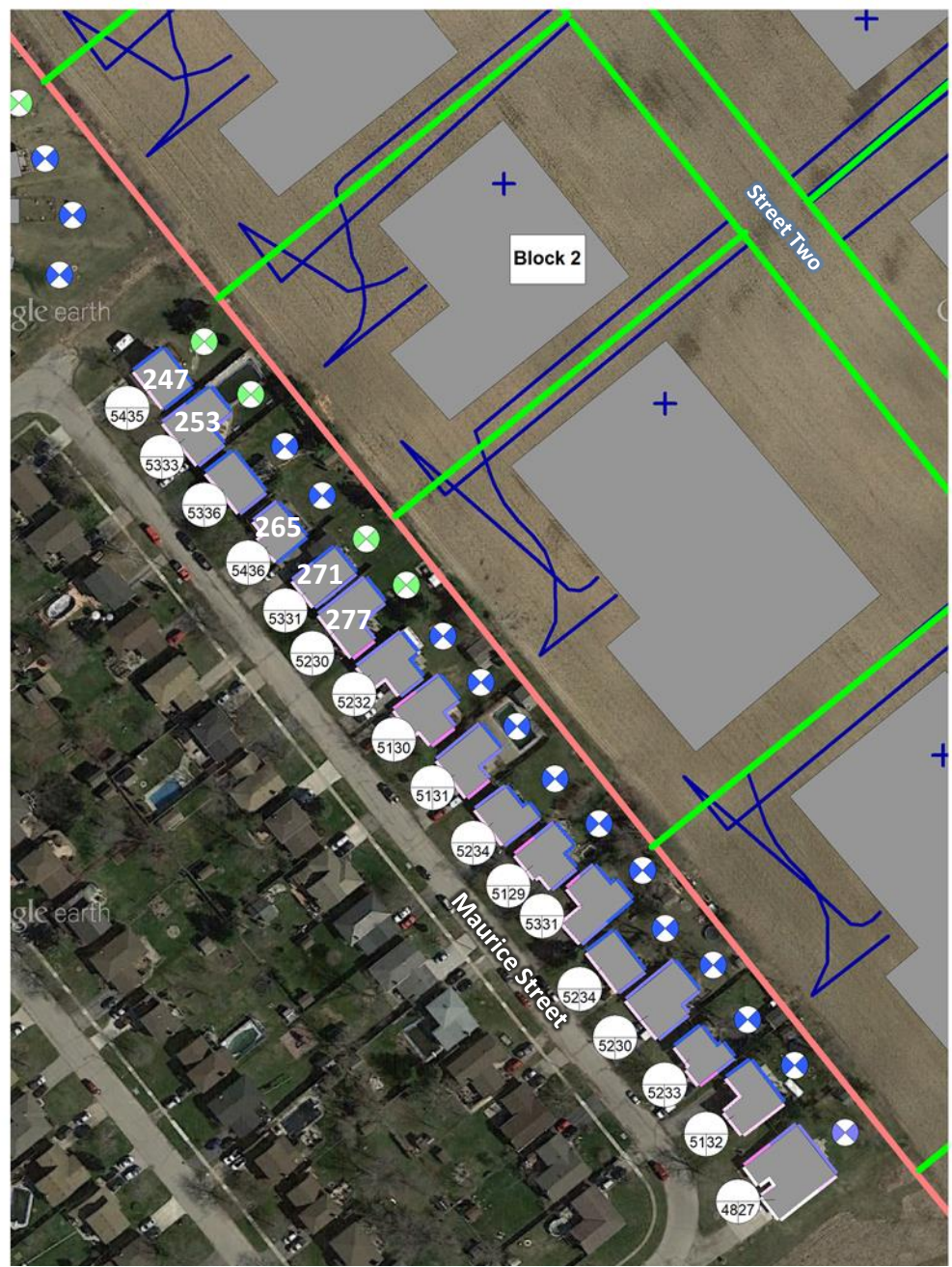
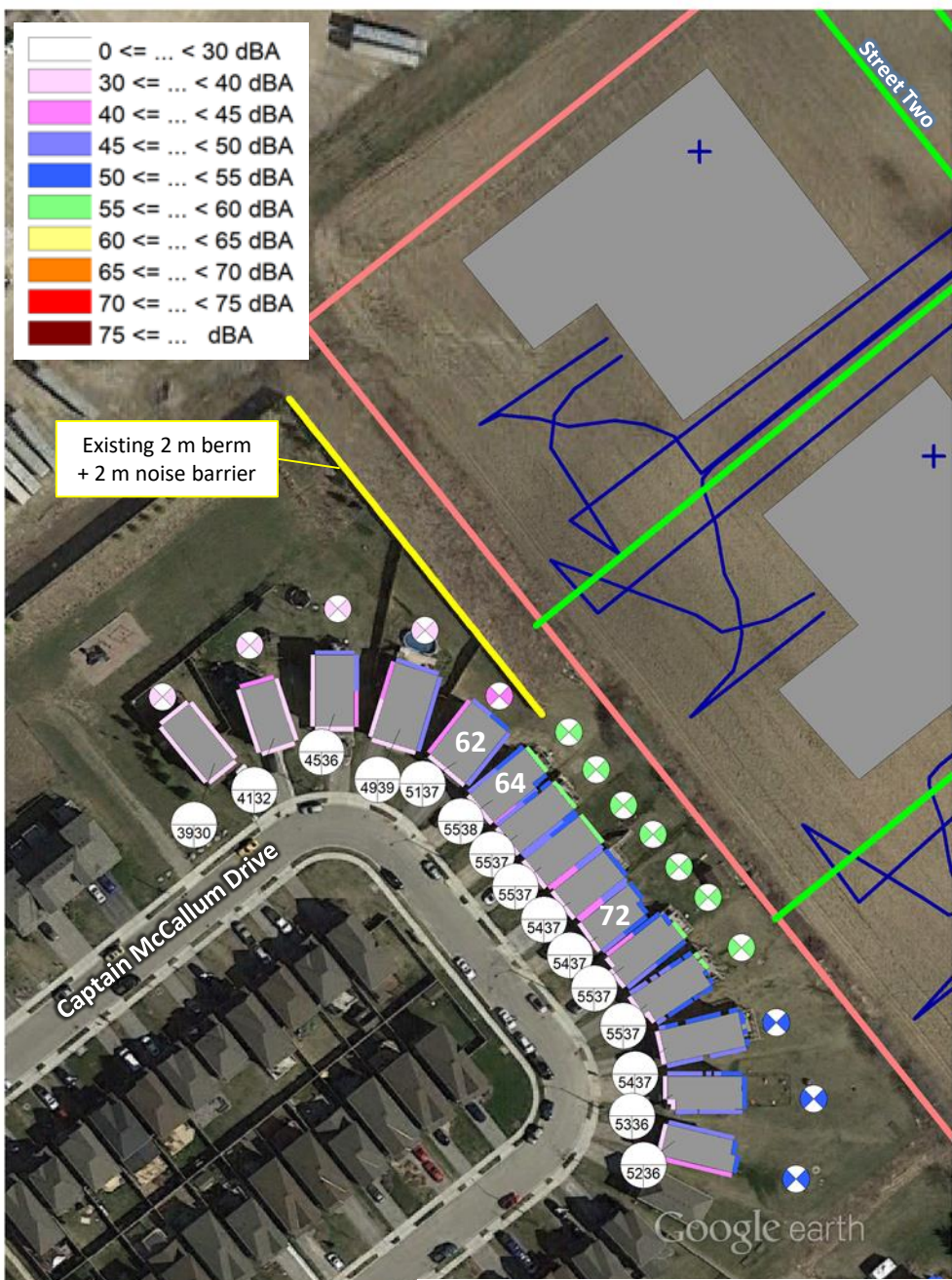


Figure No. 9

**Predicted Noise Levels – Non-Impulsive
(Continuous) Noise, Unmitigated, Scenario 1**

Badenvue Industrial Subdivision
New Hamburg, Ontario



True
North

Scale (L/R): 1: 1,500/2,000

Date: 18/11/23

File No.: 18-0049

Drawn By:

SS



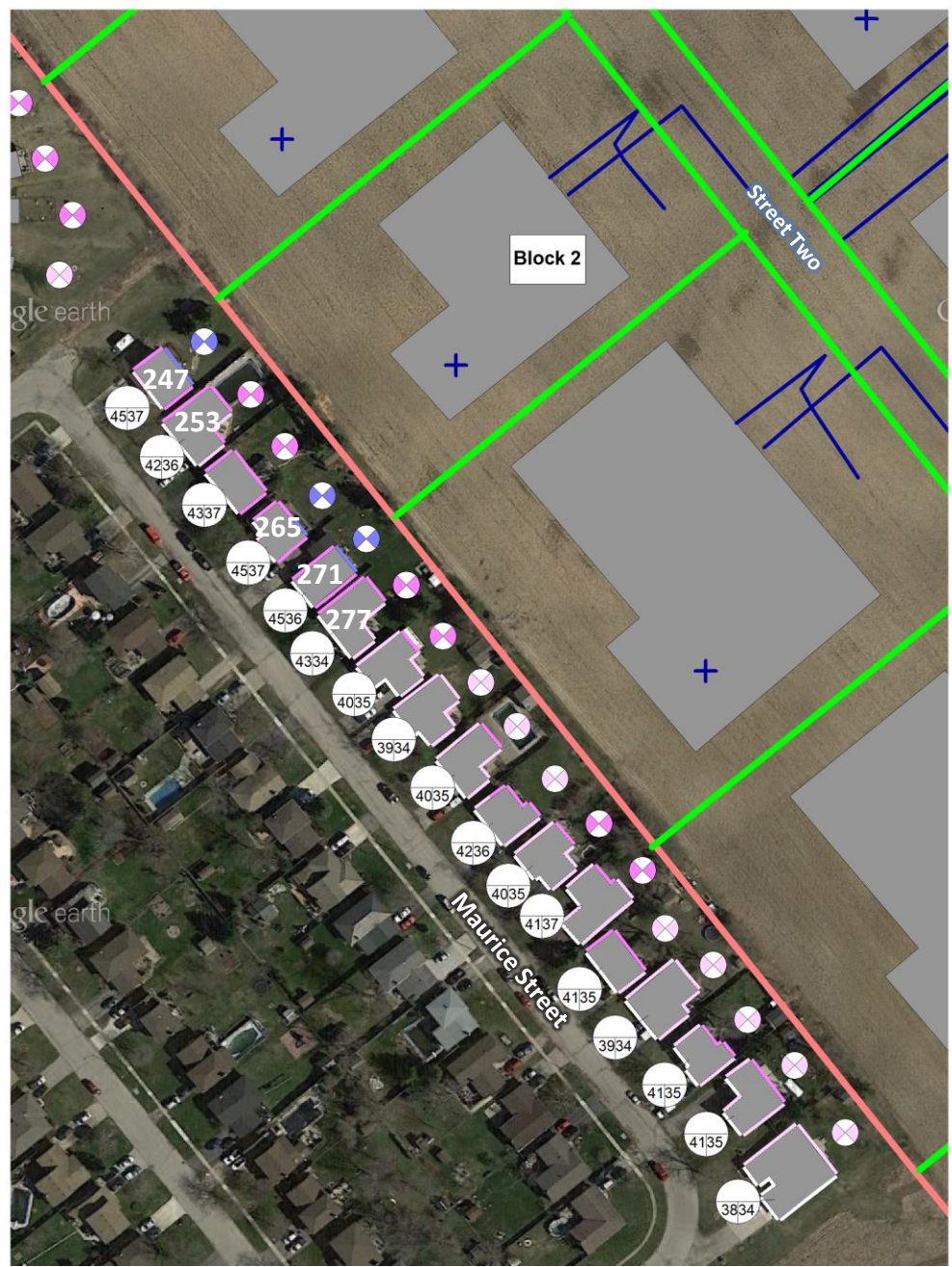
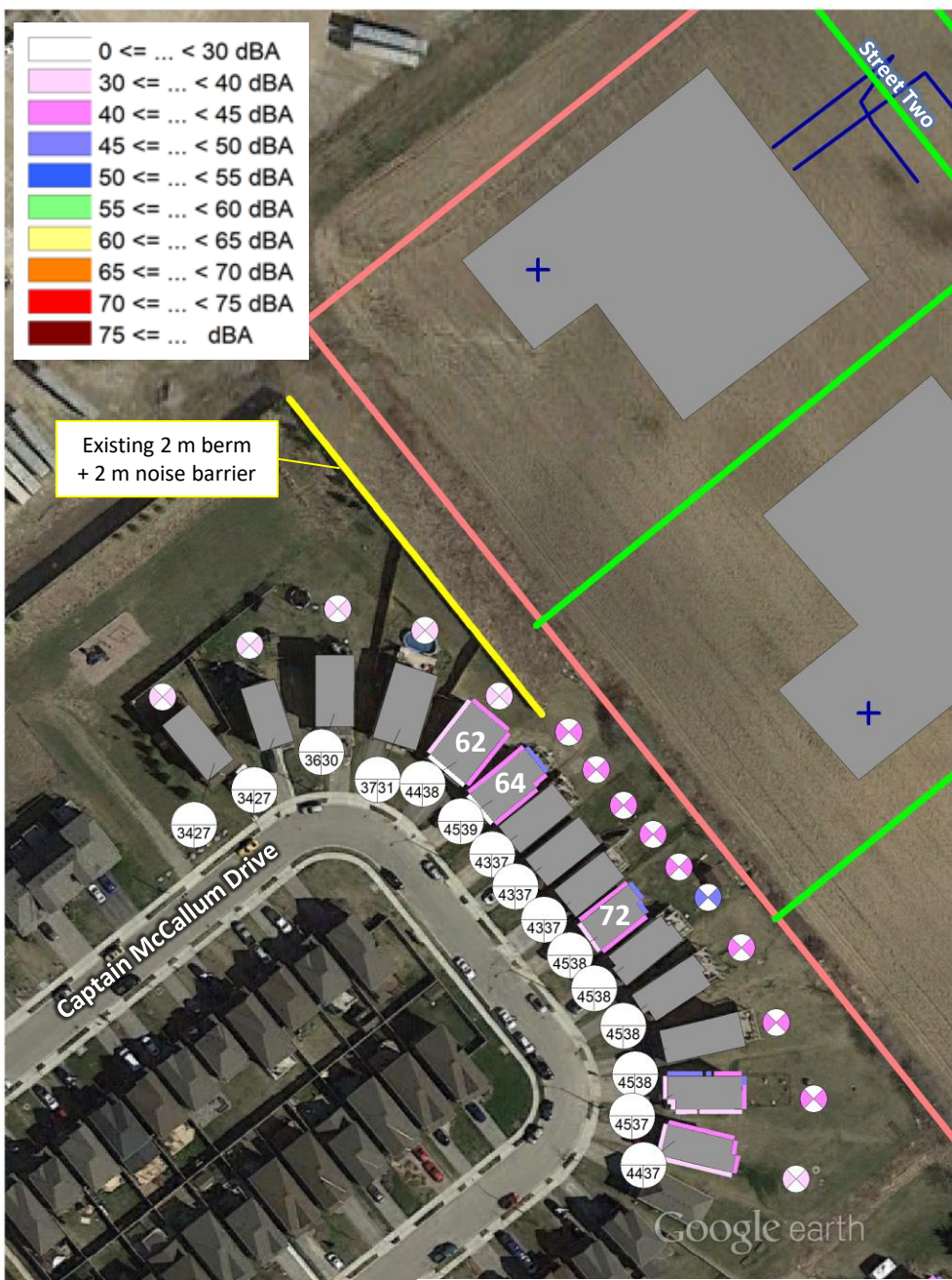
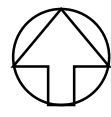


Figure No. **10**
**Predicted Noise Levels – Non-Impulsive
 (Continuous) Noise, Unmitigated, Scenario 2**

Badenvue Industrial Subdivision
 New Hamburg, Ontario



True
 North

Scale (L/R): 1: 1,500/2,000
 Date: 18/11/23
 File No.: 18-0049
 Drawn By: SS



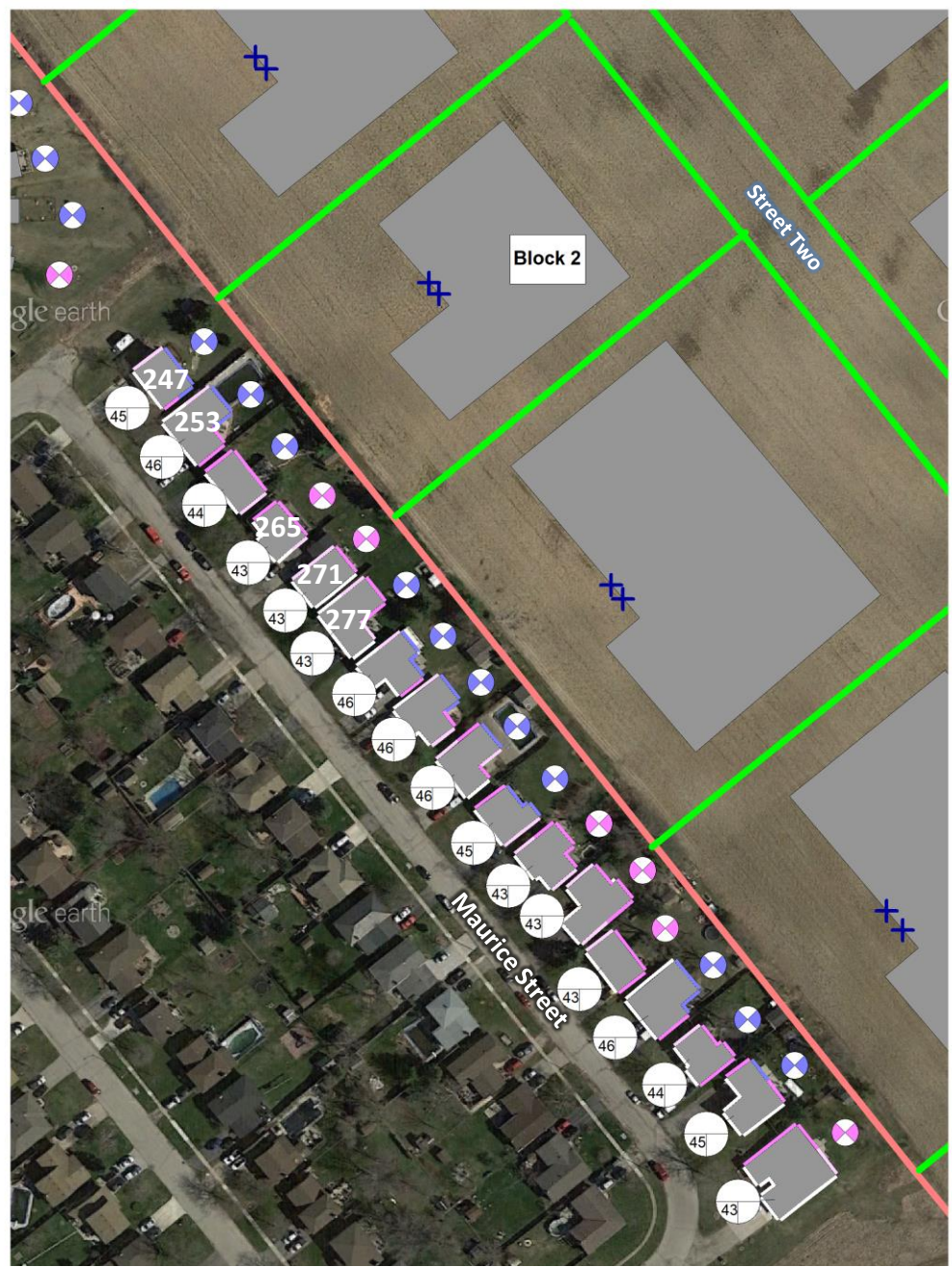
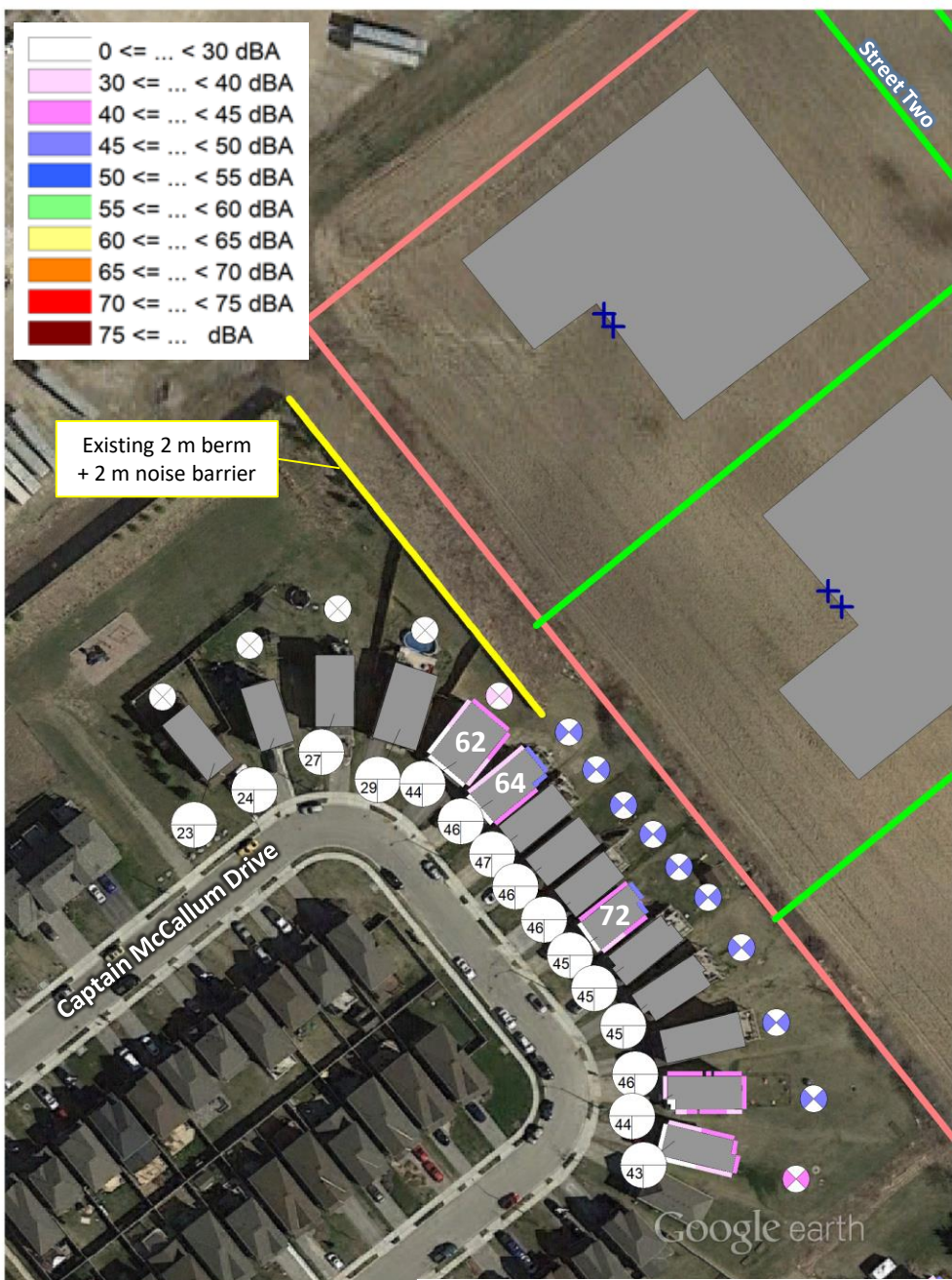
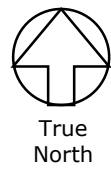
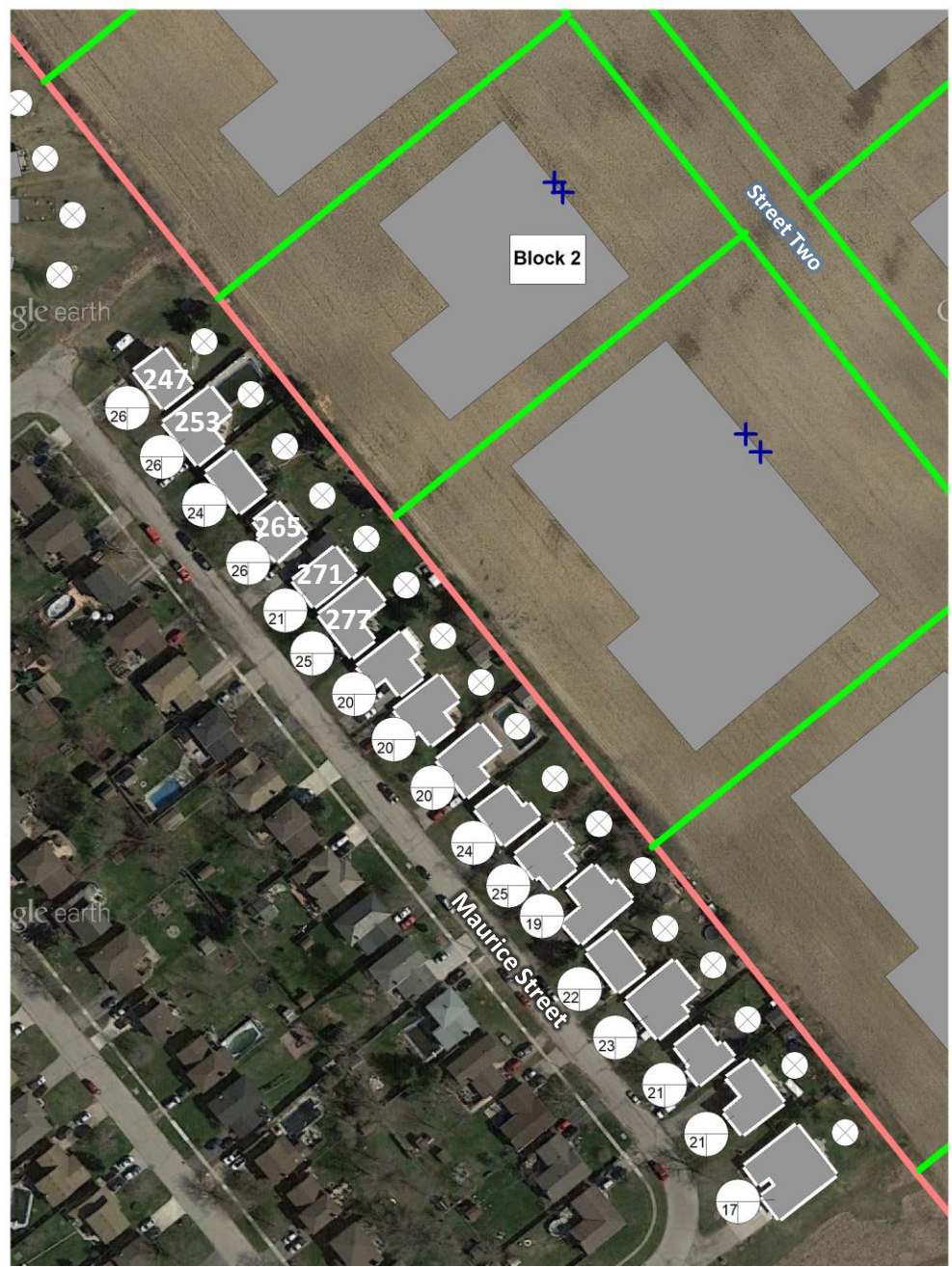
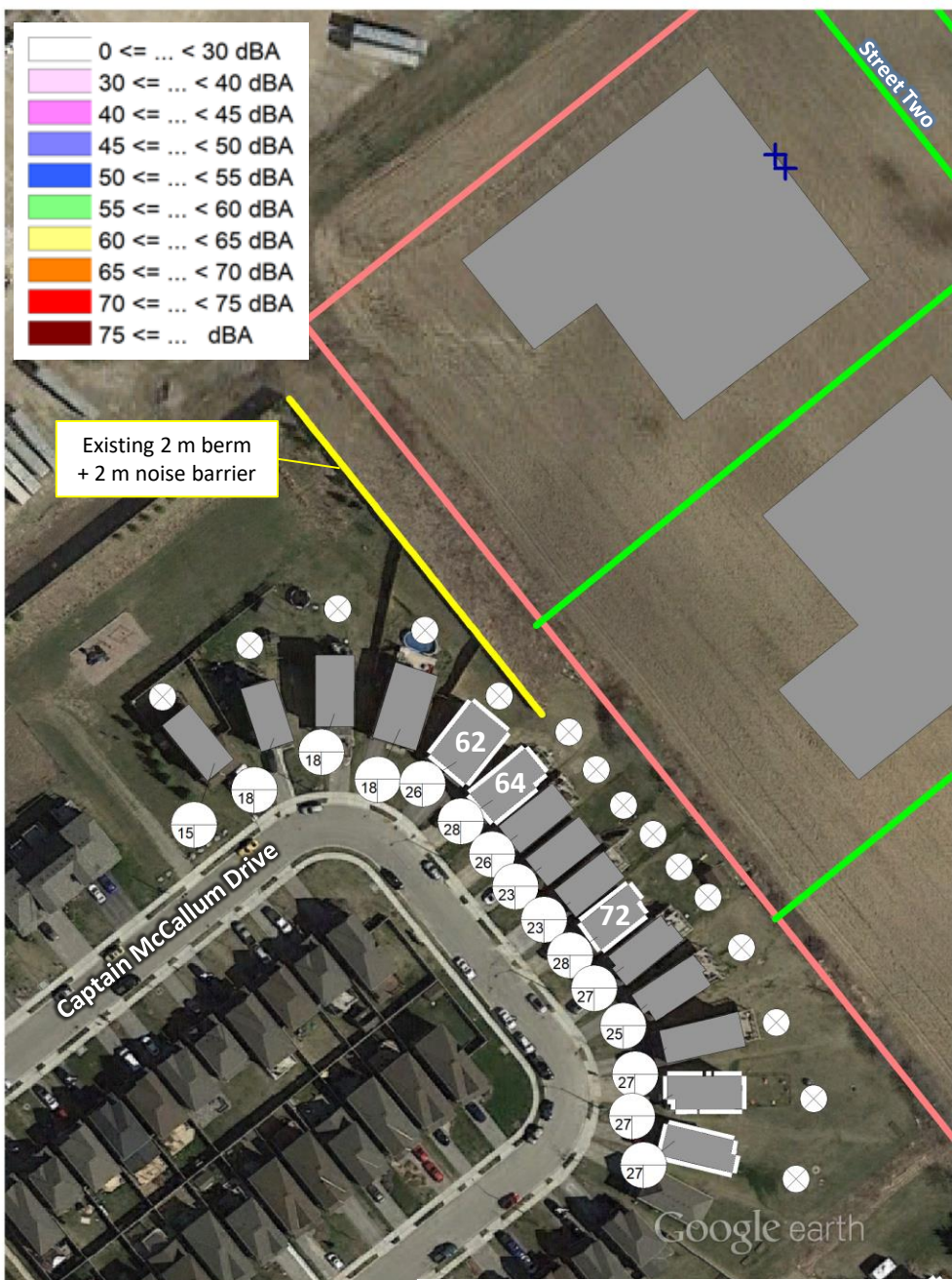


Figure No. **11**
Predicted Noise Levels – Impulsive Noise, Unmitigated, Scenario 1
 Badenvue Industrial Subdivision
 New Hamburg, Ontario

Scale (L/R): 1: 1,500/2,000
 Date: 18/11/23
 File No.: 18-0049
 Drawn By: SS



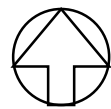


- 0 ≤ ... < 30 dBA
- 30 ≤ ... < 40 dBA
- 40 ≤ ... < 45 dBA
- 45 ≤ ... < 50 dBA
- 50 ≤ ... < 55 dBA
- 55 ≤ ... < 60 dBA
- 60 ≤ ... < 65 dBA
- 65 ≤ ... < 70 dBA
- 70 ≤ ... < 75 dBA
- 75 ≤ ... dBA

Existing 2 m berm
+ 2 m noise barrier

Figure No. **12**
**Predicted Noise Levels – Impulsive Noise,
 Unmitigated, Scenario 2**

Badenvue Industrial Subdivision
 New Hamburg, Ontario



True
North

Scale (L/R): 1: 1,500/2,000
 Date: 18/11/23
 File No.: 18-0049
 Drawn By: SS





Figure No. **13**

Required Noise Barrier Location and Heights

Badenvue Industrial Subdivision
New Hamburg, Ontario



True
North

Scale: 1: 4,500

Date: 18/11/26

File No.: 18-0049

Drawn By: SS



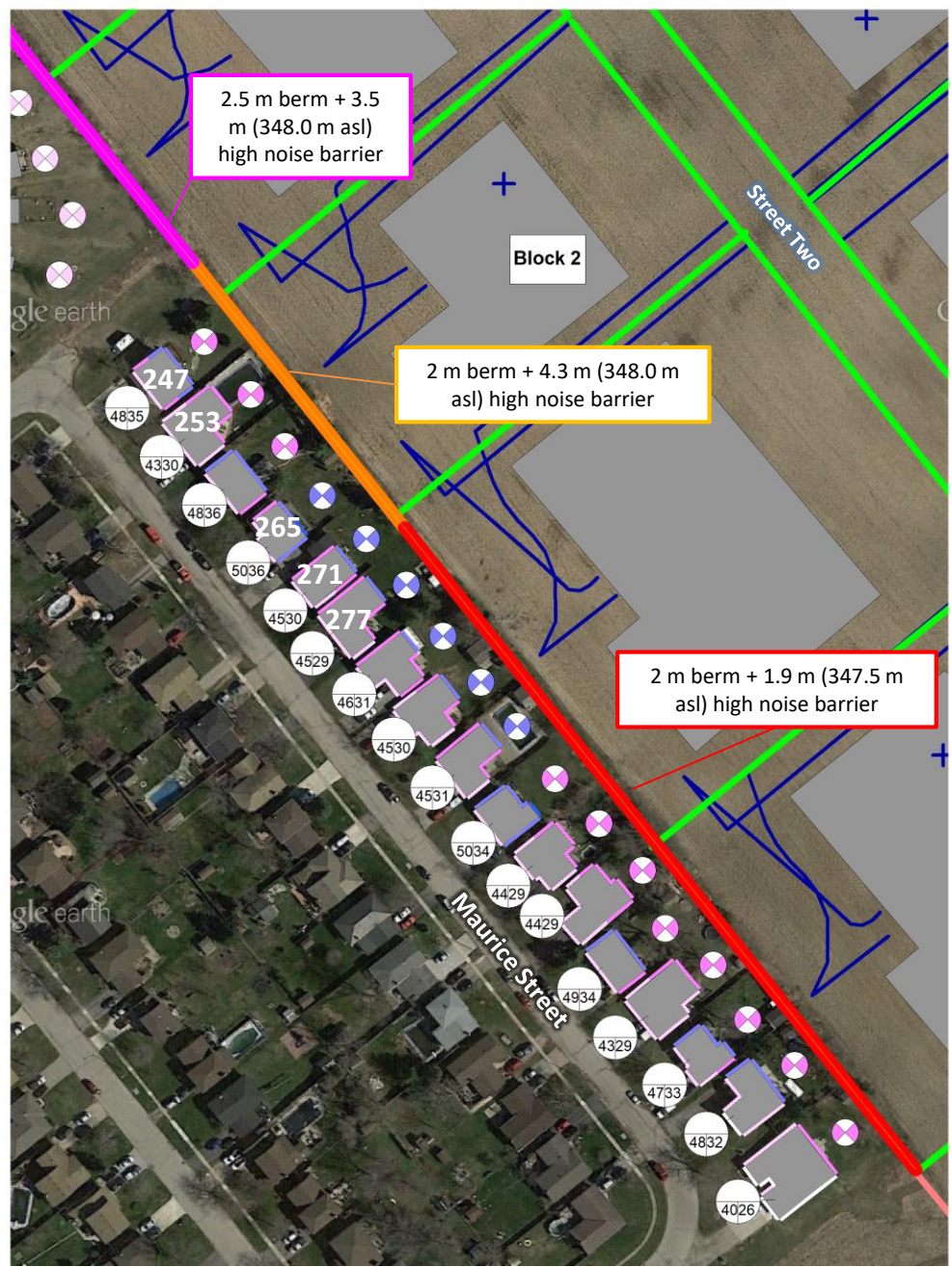
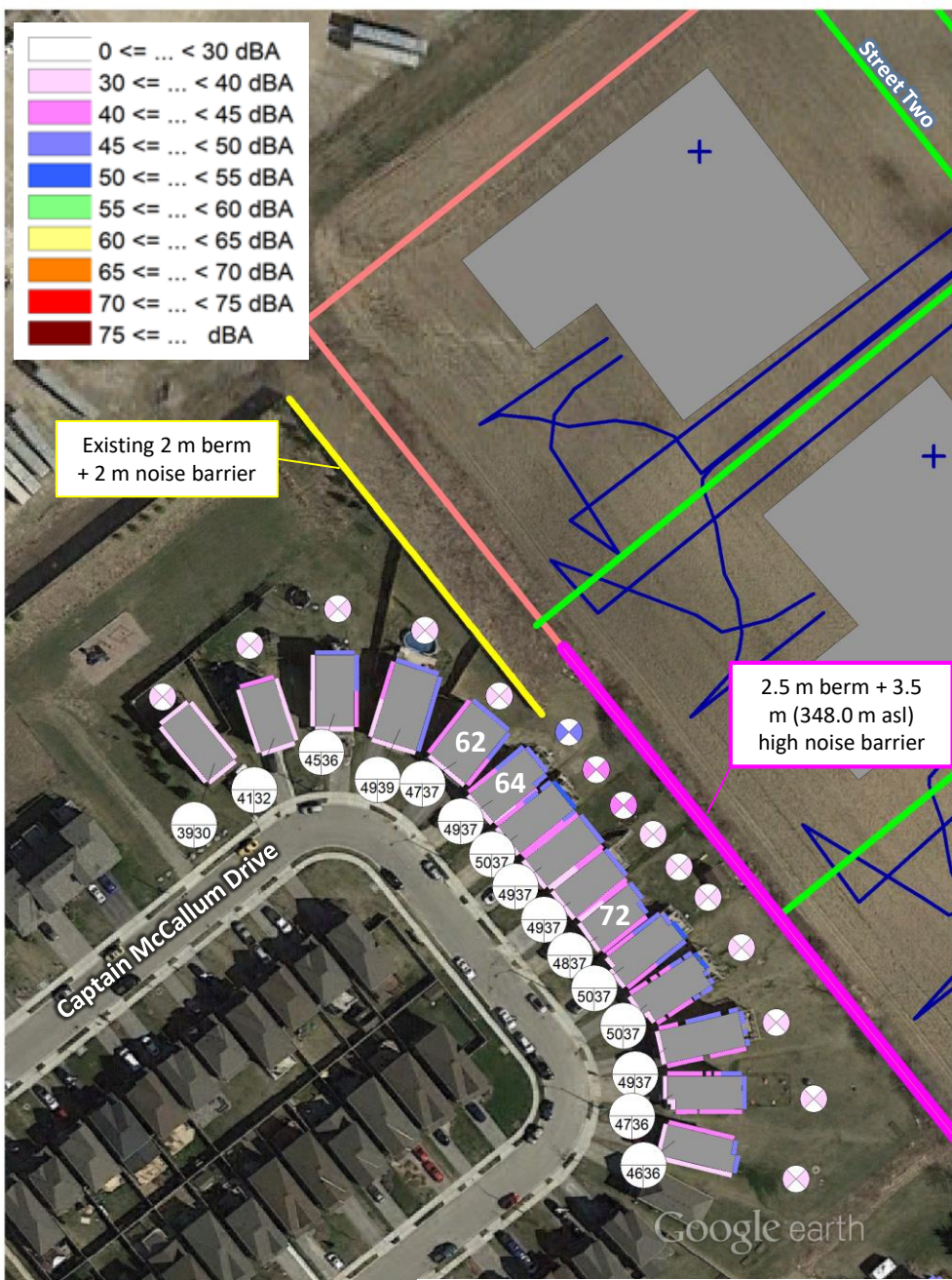


Figure No. **14**

Predicted Noise Levels – Non-Impulsive (Continuous) Noise, Mitigated, Scenario 1

Badenvue Industrial Subdivision
New Hamburg, Ontario



True North

Scale (L/R): 1: 1,500/2,000

Date: 18/11/23

File No.: 18-0049

Drawn By: SS



Appendix A – BDI Site Plan Concept

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for 2-sided printing purposes

Notes
 1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.
 2. SITE BOUNDARY AND TOPOGRAPHIC BASE PLAN PREPARED BY MTE AUGUST 25, 2017 AND UPDATED JUNE 2018.
 BOUNDARY INFORMATION ALSO TAKEN FROM PLAN 58R-20194.
 3. ADJACENT PARCEL FABRIC IS APPROXIMATE.
 STAGE LINE

DRAFT PLAN OF SUBDIVISION

Legal Description
 PART OF LOT 20, NORTH OF BLEAMS ROAD
 PART OF LOT 20, SOUTH OF SNYDERS ROAD
 TOWNSHIP OF WILMOT
 REGIONAL MUNICIPALITY OF WATERLOO

Owner's Certificate
 I HEREBY AUTHORIZE MACNAUGHTON HERMSEN BRITTON CLARKSON PLANNING LIMITED TO SUBMIT THIS PLAN FOR APPROVAL.
 DATE: *December 4, 2018* *Patrick George*
 BADENVIEW DEVELOPMENT INC. (OWNER)

Surveyor's Certificate
 I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED ON THIS PLAN AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.
 DATE: *NOV. 22, 2018* *Trevor D.A. McNeil*
 TREVOR D.A. McNEIL, OLS
 (MTE OLS LTD.)

Key Plan

Subject Lands

SCALE: NTS
 Source: Region of Waterloo SLRN

Additional Information Required Under Section 51(17) of the Planning Act R.S.O. 1990, c.P.13 as Amended

A. AS SHOWN	B. AS SHOWN	C. AS SHOWN
D. INDUSTRIAL, STORMWATER MANAGEMENT	F. AS SHOWN	I. SILTY CLAY LOAM
E. AS SHOWN	G. AS SHOWN	J. AS SHOWN
H. MUNICIPAL WATER SUPPLY	K. ALL SERVICES AS REQUIRED	L. AS SHOWN

Area Schedule

Description	Stage 1		Stage 2	
	Blocks	Area (ha)	Blocks	Area (ha)
Industrial	1-4	16.822	1,2	14.650
Stormwater Management Facility	5	5.797		
Road Widening	6	0.631		
Future Development	7,8	0.349		
0.3m Reserve	9-12	0.007		
Roads		2.501		1.317
Sub-Total	12	26.107	2	15.967

Total

Description	Blocks	Area (ha)
Industrial	6	31.472
Stormwater Management Facility	1	5.797
Road Widening	1	0.631
Future Development	2	0.349
0.3m Reserve	4	0.007
Roads		3.818
Total	14	42.074

Revision No.	Date	Issued / Revision	By
2.	Nov. 22, 2018	For submission to Region;	DGS
1.	Nov. 5, 2018	For review by surveyor and client;	DGS

200-540 BINGEMANS CENTRE DR. KITCHENER, ON, N2B 3X9 | P: 519-574-3650 F: 519-574-0121 | WWW.MHBCPLAN.COM

Approval Stamp

Date: November 22, 2018

File No.: 1159A

Plan Scale: 1:2,000 (24x36)

Drawn By: D.G.S.

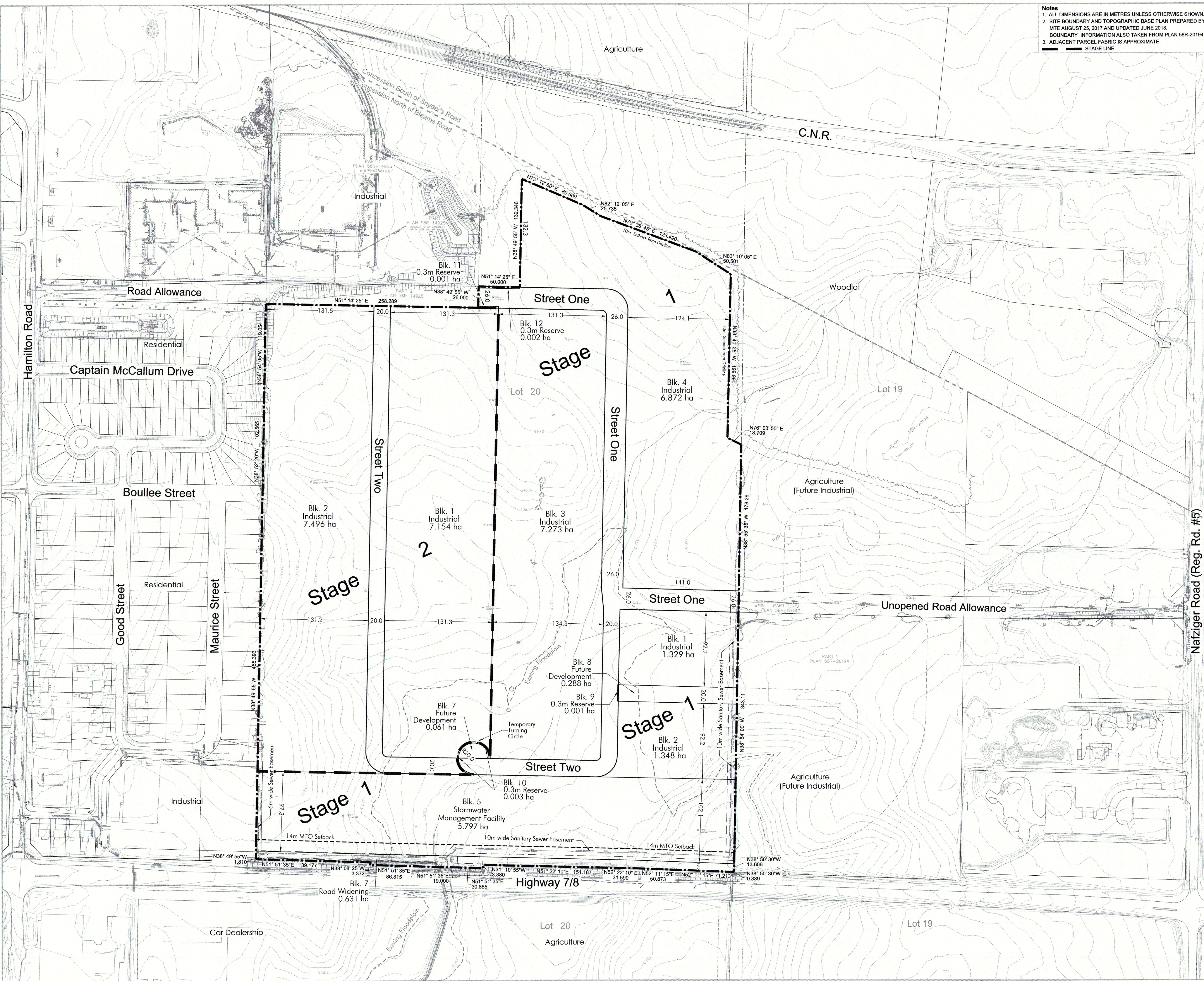
Project Wilmot Employment Lands

Applicant Badenview Developments Inc.
 P.O. Box 249 Breslau, ON
 N0B 1M0
 P: 519.648.2285

Checked By: P.C.

File Name DRAFT PLAN **Dwg No.** 1 of 1

Scale Bar



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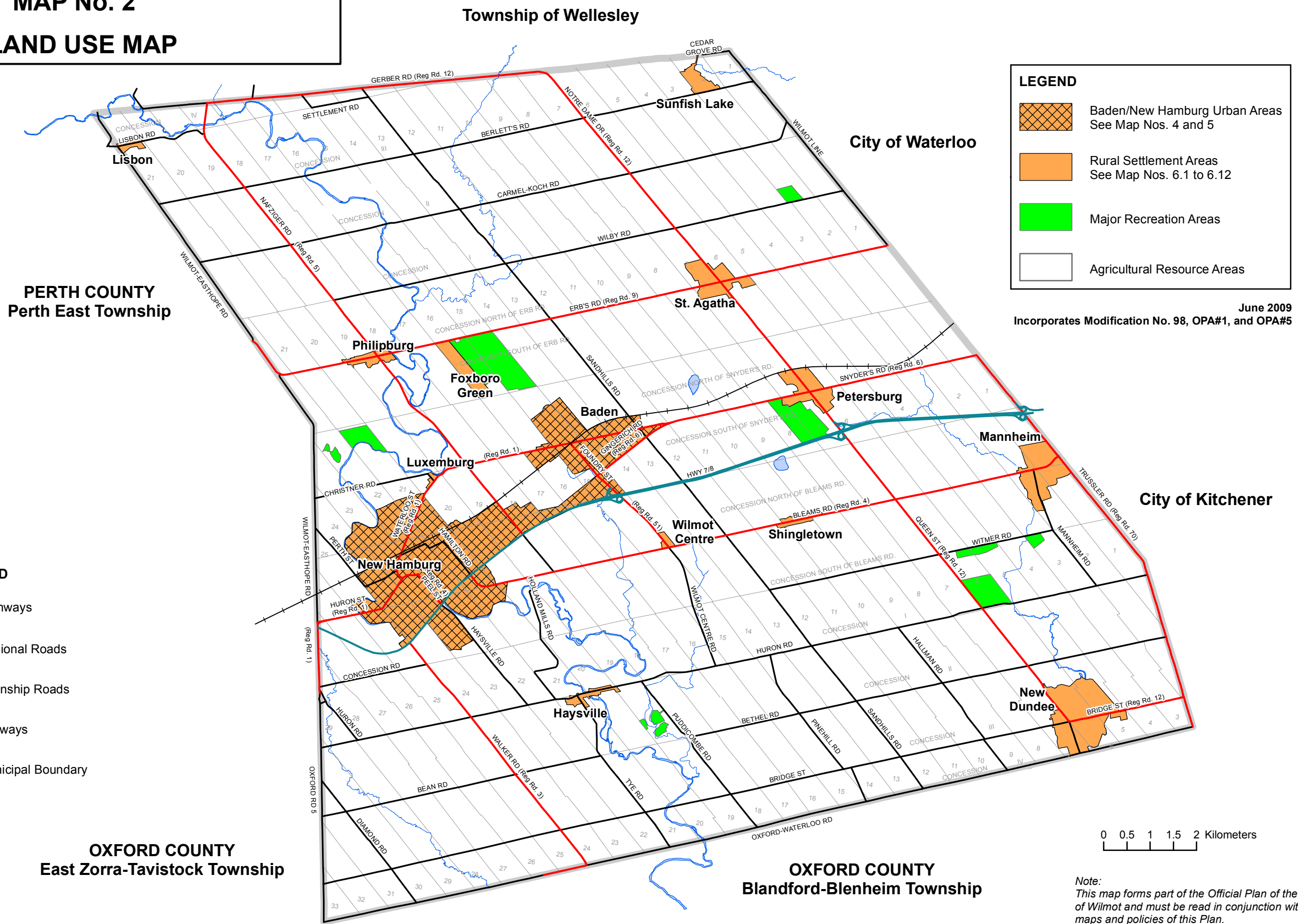
Appendix B – Township of Wilmot Official Plan

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TOWNSHIP OF WILMOT OFFICIAL PLAN



MAP No. 2 LAND USE MAP



LEGEND

- Baden/New Hamburg Urban Areas
See Map Nos. 4 and 5
- Rural Settlement Areas
See Map Nos. 6.1 to 6.12
- Major Recreation Areas
- Agricultural Resource Areas

June 2009
Incorporates Modification No. 98, OPA#1, and OPA#5

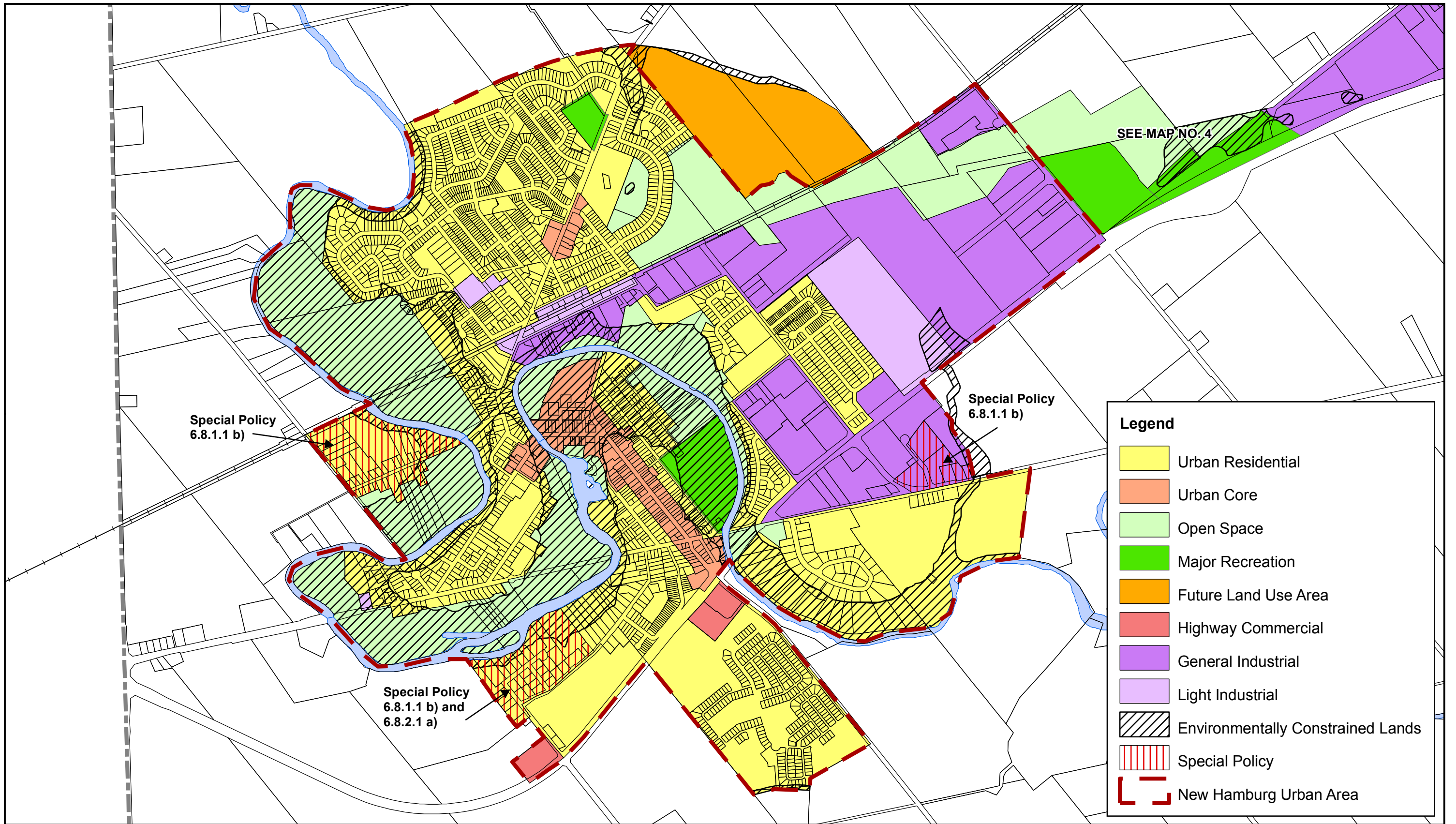
BASE LEGEND

- Highways
- Regional Roads
- Township Roads
- Railways
- Municipal Boundary

0 0.5 1 1.5 2 Kilometers



Note:
This map forms part of the Official Plan of the Township of Wilmot and must be read in conjunction with the other maps and policies of this Plan.



TOWNSHIP OF WILMOT OFFICIAL PLAN
MAP NO. 5 NEW HAMBURG URBAN AREA

0 0.3 0.6 Kilometers



June 2012
 Incorporates Modification No. 101, OP#1 and OPA#6
 Note:
 This map forms part of the Official Plan of the Township of Wilmot and must be read in conjunction with the other maps and policies of this Plan.

Appendix C – Zone 10A, and Zone 10 Permitted Uses

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16.2 **Permitted Uses in Zone 10a**

Within a Zone 10a, no land shall be used and no building or structure shall be erected or used except for the permitted uses listed below:

16.2.1 Any repair, storage, distribution or transportation operation, except for the following:

- (a) a use designated as an offensive trade, business or manufacture by The Public Health Act, R.S.O., 1980 and amendments thereto;
- (b) a use which is or may become obnoxious, offensive or dangerous by reasons of the presence, emission or production in any manner of odour, dust, smoke noise, fumes, vibration, refuse matter or water carried wastes;
- (c) a use which would require for its operation a standard of services (particularly water supply and waste disposal) which the municipality is unable or unwilling to provide;
- (d) the recycling of animal products or a rendering plant;
- (e) the recycling or refining of petroleum products;
- (f) metal stamping.

16.2.2 Signs as accessory uses to the foregoing permitted uses in conformity with the regulations contained in subsection 6.15 of this By-law.

16.2.3 Uses accessory to the foregoing permitted uses, including:

- (a) outdoor storage.

16.3 **Regulations**

Within a Zone 10 or Zone 10a, no land shall be used and no building or structure shall be erected or used except in conformity with the following regulations:

16.3.1 All of the applicable regulations contained in Section 6 – General Regulations of this By-law.

16.3.2 Minimum Lot Area

- (a) Without Municipal Sewer 2,000 square metres or the area of a Recognized Lot
- (b) With Municipal Sewer 695 square metres

- 16.3.3 Minimum Lot Width
- (a) Without Municipal Sewer 30 metres
- (b) With Municipal Sewer 22.5 metres
- 16.3.4 Minimum Side Yard (each side)
- Equal to one-half (1/2) building height but in no case less than 4.5 metres. On any side where a Zone 10 or Zone 10a abuts a Zone 2, Zone 2a, Zone 2b, Zone 2c, Zone 3 or Zone 4, the minimum side yard shall be 7.5 metres.
- 16.3.5 Minimum Rear Yard
- Equal to the building height but in no case less than 7.5 metres. In any zone where the rear yard of a Zone 10 or 10a abuts a Zone 2, Zone 2a, Zone 2b, Zone 2c, Zone 3, or Zone 4, no building, structure, outdoor storage or parking shall be permitted within 7.5 metres of the rear lot line. Where any rear yard abuts a railway right-of-way, no rear yard is required.
- 16.3.6 Buffer Strips
- A buffer strip in conformity with the regulations contained in subsection 6.14 of this By-law shall be provided along lot lines that abut a Zone 2, Zone 2a, Zone 2b, Zone 2c, Zone 3, or Zone 4.
- 16.3.7 Maximum Building Height Four (4) storeys
- 16.3.8 Maximum Lot Coverage (all buildings) 50% of total lot area
- 16.3.9 Off-Street Parking and Off-Street Loading
- Off-street parking and off-street loading shall be provided in conformity with the regulations contained in subsections 6.10, 6.11 and 6.12 of this By-law.
- 16.3.10 Notwithstanding anything contained in this By-law, parking spaces may be provided in the front and flankage yards in a Zone 10 or Zone 10a in accordance with the following regulation:
- (a) that a landscaped strip of flowers, grass or shrubs, a minimum of 1.0 metres in width, shall be provided and maintained along and abutting the street, except at the location of the ingress and egress ramps.
- 16.3.11 Outdoor Storage
- All outdoor storage shall be located in the rear or side yard and shall not be located within 4.5 metres of any lot line.

16.3.12 Main and Accessory Buildings

Notwithstanding any other provisions in this By-law, more than one main building shall be permitted on any lot in this zone and all buildings in Zone 10 or Zone 10a shall be considered to be main buildings.

16.3.13 Notwithstanding any other provisions in this By-law, only those uses which qualify as “dry industry” shall be permitted where municipal sewers are not available to the subject property.

16.3.14 *Retail Sale as Accessory Use* (***By-law amendment 90-78***).

Retail sales space shall be limited in size to 25% of the building area occupied by the permitted use to which it is accessory. Only one accessory retail outlet shall be permitted per lot.

16.1 Permitted Uses in Zone 10

Within a Zone 10, no land shall be used and no building or structure shall be erected or used except for the permitted uses listed below:

- 16.1.1 Any manufacturing, fabricating, processing, repair, storage, distribution or transportation operation, except for the following:
- (a) a use designated as an offensive trade, business or manufacture by The Public Health Act, R.S.O. 1980 and amendments thereto;
 - (b) a use which is or may become obnoxious, offensive or dangerous by reasons of the presence, emission or production in any manner of odour, dust, smoke, noise, fumes, vibration, refuse matter or water carried wastes;
 - (c) a use which would require for its operation a standard of services (particularly water supply and waste disposal) which the municipality is unable or unwilling to provide;
 - (d) the recycling of animal products or a rendering plant.
 - (e) the recycling or refining of petroleum products.
- 16.1.2 Veterinary Clinic
- 16.1.3 In connection with an industrial use, the residence of caretaker, supervisor or other such employee whose residence on the premises is essential, provided that the location of such residence shall have the approval of the Regional Medical Officer of Health *and provided that such residence shall be an apartment, fully self-contained within a main building occupied by a permitted use, have a floor area of not less than 37 square meters and having a direct means of access by stairs and/or hallways.*
- The floor area of the residence shall not exceed the lesser of 100 square metres or 25% of the gross floor area of the building in which the residence is to be situate. (By-law amendment 96-41)*
- 16.1.4 Contractor, building supplies dealer/outlet or sawmill.
- 16.1.5 Trade School
- 16.1.6 Signs as accessory uses to the foregoing permitted uses in conformity with the regulations contained in subsection 6.15 of this By-law.
- 16.1.7 Uses accessory to the foregoing permitted uses, including:
- (a) outdoor storage
 - (b) *retail sale of goods produced or stored on site. (By-law amendment 90-78).*

16.1.8 One refreshment vehicle or refreshment cart. *(By-law amendment 96-41)*

16.1.9 Motor Vehicles sales, service and repair. *(By-law amendment 01-03)*

16.3 **Regulations**

Within a Zone 10 or Zone 10a, no land shall be used and no building or structure shall be erected or used except in conformity with the following regulations:

16.3.1 All of the applicable regulations contained in Section 6 – General Regulations of this By-law.

16.3.2 Minimum Lot Area

(a) Without Municipal Sewer 2,000 square metres
or the area of a Recognized Lot

(b) With Municipal Sewer 695 square metres

16.3.3 Minimum Lot Width

(a) Without Municipal Sewer 30 metres

(b) With Municipal Sewer 22.5 metres

16.3.4 Minimum Side Yard (each side)

Equal to one-half (1/2) building height but in no case less than 4.5 metres. On any side where a Zone 10 or Zone 10a abuts a Zone 2, Zone 2a, Zone 2b, Zone 2c, Zone 3 or Zone 4, the minimum side yard shall be 7.5 metres.

16.3.5 Minimum Rear Yard

Equal to the building height but in no case less than 7.5 metres. In any zone where the rear yard of a Zone 10 or 10a abuts a Zone 2, Zone 2a, Zone 2b, Zone 2c, Zone 3, or Zone 4, no building, structure, outdoor storage or parking shall be permitted within 7.5 metres of the rear lot line. Where any rear yard abuts a railway right-of-way, no rear yard is required.

16.3.6 Buffer Strips

A buffer strip in conformity with the regulations contained in subsection 6.14 of this By-law shall be provided along lot lines that abut a Zone 2, Zone 2a, Zone 2b, Zone 2c, Zone 3, or Zone 4.

16.3.7 Maximum Building Height Four (4) storeys

16.3.8 Maximum Lot Coverage (all buildings) 50% of total lot area

16.3.9 Off-Street Parking and Off-Street Loading

Off-street parking and off-street loading shall be provided in conformity with the regulations contained in subsections 6.10, 6.11 and 6.12 of this By-law.

16.3.10 Notwithstanding anything contained in this By-law, parking spaces may be provided in the front and flankage yards in a Zone 10 or Zone 10a in accordance with the following regulation:

- (a) that a landscaped strip of flowers, grass or shrubs, a minimum of 1.0 metres in width, shall be provided and maintained along and abutting the street, except at the location of the ingress and egress ramps.

16.3.11 Outdoor Storage

All outdoor storage shall be located in the rear or side yard and shall not be located within 4.5 metres of any lot line.

16.3.12 Main and Accessory Buildings

Notwithstanding any other provisions in this By-law, more than one main building shall be permitted on any lot in this zone and all buildings in Zone 10 or Zone 10a shall be considered to be main buildings.

16.3.13 Notwithstanding any other provisions in this By-law, only those uses which qualify as “dry industry” shall be permitted where municipal sewers are not available to the subject property.

16.3.14 *Retail Sale as Accessory Use (By-law amendment 90-78).*

Retail sales space shall be limited in size to 25% of the building area occupied by the permitted use to which it is accessory. Only one accessory retail outlet shall be permitted per lot.

Appendix D – Noise Modelling Data

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Source	Octave Data (dB)									PWL (dBA)
	32	63	125	250	500	1000	2000	4000	8000	
Truck Passby	105.3	101	107.7	102.3	106.4	106.4	103.5	99.5	94.5	110.5
Impulsive Loading/Unloading	-	-	-	-	-	-	-	96.9	-	97.9

Note 1- Sound power levels are based on historical measurements.

Note 2: A 10 dB reduction was applied to Source "Impulsive Loading/Unloading" to account for quiet lift gates

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