

# FINAL REPORT



## 0 CHIPPEWA STREET

SAULT STE. MARIE, ONTARIO

LAND-USE COMPATIBILITY/MITIGATION STUDY  
(AIR QUALITY AND NOISE)

RWDI # 2302983

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### SUBMITTED TO

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# 1 INTRODUCTION

RWDI was retained by RPD Studio to undertake a land use compatibility study in support of a site-specific Zoning By-law Amendment submission for the proposed 0 Chippewa Street development, located in Sault Ste. Marie, Ontario. The proposed development will consist of 60 detached, 22 semi-detached, 112 townhouse, and 180 apartment units. The location of the subject lands is shown on **Figure 1**. This study was based on architectural drawings dated August 23, 2023. The drawings are provided in **Appendix A**.

The subject lands are currently unused. The surrounding land use consists primarily of residential lands, natural environment and light industry.

The scope of this study was to identify any existing and potential land use compatibility issues, with respect to air quality and noise, and evaluate options to achieve appropriate design, buffering and/or separation distances between the proposed sensitive land uses and nearby employment areas and/or major facilities.

## 2 LAND USE COMPATIBILITY POLICIES AND GUIDELINES

### 2.1 Provincial Policy Statement

Sections 3.5 of the Provincial Policy Statement 2024 (Government of Ontario 2024) state the following:

*“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. ”*

Section 3.3 of the Provincial Policy Statement 2024 further states that “New development proposed on adjacent lands to existing or planned corridors and transportation facilities should be compatible with, and supportive of, the long-term purposes of the corridor and should be designed to avoid, or where avoidance is not possible, minimize and mitigate negative impacts on and *adverse effects* from the corridor and transportation facilities.”

### 2.2 Provincial Compatibility Guidelines

The Ministry of Environment, Conservation and Parks’ (MECP) D-series guidelines deal with land use compatibility in Ontario. The most relevant guideline in the present case is D-6 Compatibility between Industrial Facilities (MOE 1995). It provides a classification scheme for industries based their potential for emissions that could cause adverse effects. The classification scheme is summarized in **Table 1**.



**Table 1: D-6 Industry Classification Scheme**

Class	Descriptors
I	<ul style="list-style-type: none"> <li>• Small scale</li> <li>• Self-contained</li> <li>• Packaged product</li> <li>• Low probability of fugitive emissions</li> <li>• Daytime operations only</li> <li>• Infrequent and/or low intensity outputs of noise, odour, dust, vibration</li> </ul>
II	<ul style="list-style-type: none"> <li>• Medium scale</li> <li>• Outdoor storage of wastes or materials</li> <li>• Periodic outputs of minor annoyance</li> <li>• Low probability of fugitive emissions</li> <li>• Shift operations</li> <li>• Frequent movement of products and/or heavy trucks during daytime</li> </ul>
III	<ul style="list-style-type: none"> <li>• Large scale</li> <li>• Outside storage of raw and finished products</li> <li>• Large production volumes</li> <li>• Continuous movement of products and employees during shift operations</li> <li>• Frequent outputs of major annoyance</li> <li>• High probability of fugitive emissions</li> </ul>

For each class of industry, the guideline provides an estimate of potential influence area and a minimum recommended separation distance, which is set out in **Table 2**.

**Table 2: D-6 Separation Distances**

Class	Potential Influence Area (m)	Minimum Separation Distance (m)
I	70	20
II	300	70
III	1000	300

Guideline D-6 recommends the following:

1. "...no sensitive land uses shall be permitted within the actual or potential influence areas of Class I, II or III industrial land uses, without evidence to substantiate the absence of a problem." (Sec. 4.5.1 of Guideline D-6).
2. "No incompatible development other than that identified in Section 4.10, *Redevelopment, Infilling and Mixed-Use Areas* should occur [within the recommended minimum separation distances]" (Sec. 4.3 of Guideline D-6)
3. "When a change in land use is proposed [in an area of urban redevelopment, infilling or transition to mixed use] for either industrial or sensitive land use, less than the minimum separation distance ... may be acceptable subject to either the municipality or the proponent providing a justifying impact assessment (i.e., a use specific evaluation of the industrial processes and the potential for off-site impacts on existing and proposed sensitive land uses). Mitigation is the key to dealing with less than the minimum to the greatest extent possible." (Sec. 4.10.3 of Guideline D-6).



4. With respect to how separation distance should be measured, the guideline states that “measurement shall normally be from the closest existing, committed and proposed property/lot line of the industrial land use to the property/lot line of the closest existing, committed or proposed sensitive land use.” However, it does allow the measurement to include areas within the lot lines (on-site buffers) where site-specific zoning or site plan control precludes the use of the area for a sensitive use in the case of the sensitive land use, and for an activity that could create an adverse effect in the case of the industrial land use.

When dealing with vacant industrial lands, the guideline states that “determination of the potential influence area shall be based upon a hypothetical worst-case scenario for which the zone area is committed”.

## 2.3 Environmental Noise Guideline NPC-300

The MECP Environmental Noise Guideline NPC-300, Stationary and Transportation Sources – Approval and Planning (MOE, 2013) sets out requirements for noise and vibration modelling, monitoring, and reporting that must be completed when applying for an Environmental Compliance Approval (ECA). The guideline also supports land use applications made under the Planning Act. Guidance from NPC-300 was used to assess environmental sound from industrial sources and nearby transportation corridors. NPC-300 also specifies that industry and road traffic noise are to be assessed separately.

NPC-300 noise criteria applicable to an industry vary depending on the character of ambient noise in the surrounding area. Class 1 is an urban area with an acoustic environment that is continuously dominated by the sounds of human activity, as would be found in a major urban centre. Class 2 areas are suburban or semi-rural areas where sounds of human activity drop off earlier in the evening. Class 3 areas are rural where the acoustic environment is dominated by natural sounds. The acoustic environment surrounding the study area would be classified as a Class 1 area.

### 2.3.1 Stationary Sources

Stationary sources could be grouped into two categories: Those that have a permit with the MECP through an ECA or Environmental Activity and Sector Registry (EASR); and those that are exempt from ECA or EASR permit requirements.

In the case where a stationary source has an ECA or EASR permit with the MECP and would be put in a position where it is no longer in compliance with the applicable sound level criteria due to the encroachment of the proposed new development, source specific mitigation and/or formal classification of the proposed development lands as a “Class 4 Area” (refer to C.4.4.2 “Class 4 Area” in NPC-300) would be required. In this case, coordination and agreements between the stationary source owner, proposed new development owner, the land-use planning authority and potentially the MECP would be needed.

In the case where a stationary source is exempt from ECA or EASR permit requirements with the MECP, the noise provisions of the applicable Municipal Code and guidance from NPC-300 would be applicable. In this case, mitigation of sound levels due to stationary sources would be from a due diligence perspective to avoid nuisance complaints from future occupants of the proposed new development. Mitigation could be in the form of mitigation at the source (with agreement from the stationary source owner) and/or mitigation at the receptor through site and building element design (building orientation, acoustical barriers, façade sound insulation design).



For assessing sound originating from industry, NPC-300 defines sound level criteria for Points of Reception (PORs). Outdoor amenity areas and windows/doors leading to sensitive indoor spaces are both defined as PORs. There are distinct assessment criteria for outdoor PORs, and PORs on building façade.

Outdoor PORs such as front, side or back yards and large balconies are assessed based on the worst-case one-hour equivalent sound level for daytime (0700 to 1900h), and evening (1900 to 2300h). Outdoor PORs are not assessed during the nighttime (23:00 to 07:00h). The sound level criteria for stationary sources associated with industry are summarized in **Table 3**.

Façade PORs, such as windows/doors leading to sensitive indoor spaces, are also based on worst-case one-hour equivalent sound level for daytime, evening, and nighttime. The assessment of sound at façade PORs assumes that all windows and doors are open to the environment. The sound level criteria for stationary sources associated with industry are summarized in **Table 3**.

**Table 3: NPC-300 Limits for Industrial Sources**

Time of Day	Time Period	Exclusion Limit for Outdoor Points of Reception	Exclusion Limit for Plane of Window of Noise Sensitive Spaces
		Class 1, L <sub>EQ-1hr</sub>	Class 1, L <sub>EQ-1hr</sub>
Daytime	07:00-19:00h	50 dBA	50 dBA
Evening	19:00-23:00h	50 dBA	50 dBA
Nighttime	23:00-7:00h	N/A	45 dBA

### 3 METHODOLOGY

The tasks for this study consisted of reviewing the following items:

- The official plan and zoning by-laws for the surrounding area;
- Published satellite imagery and street-based photography;
- MECP Environmental Compliance Approval (ECA) and Environmental Sector and Activity Registry (EASR) permits for existing industries within 1000 m of the subject lands;
- Pending applications for amendment to ECAs of any major facilities, posted on the Environmental Registry;
- Guidelines D-1 (Land Use Compatibility) and D-6 (Compatibility between Industrial Uses) from the MECP;
- Meteorological data for the study area.

RWDI reviewed wind data from Sault Ste. Marie, Michigan Municipal Airport, the nearest meteorological station to the subject lands with current available data, to assist in the assessment. A summary of the directional distribution of winds over a period from 2002-2020 is shown in **Figure 2**. The wind directions in the figure refer to the direction from which the wind blows, while the annual frequency of a given wind direction is shown as a distance radially from the centre. The most frequent winds originate from the northwest as well as east and east-southeast with winds from the south and northeast less frequent.



It is our understanding that the MECP is unable to provide complaint-related information directly and such inquiries are to be directed via the Ministry’s Freedom of Information (FOI) office. While complaint history for the area is a helpful tool in the initial screening of industries, due to the length of time to complete the process as well as the existing character of the study area, we did not consider this task to be essential in completing the assessment for this site. An online search was conducted for complaints in the area, but no such articles or reports were found.

## 4 RESULTS

The review considered the influence of the conversion request and potential future residential development on industrial uses in the surrounding industrial areas, including any proposed expansions or intensifications that are known. Potential future industrial uses in the industrial areas that are not currently proposed are also considered. Transportation routes in the area are not expected to be a cause of significant air or noise emissions at the subject lands so were not assessed. The results of the review are outlined below.

### 4.1 Existing and Proposed Industrial Uses

**Table B-1** in **Appendix B** lists all identified Class I, II, and III industries within 1000 m. In addition, non-industrial sites that have the potential for significant air or noise emission impacts on the subject lands are noted. **Figure 3** shows all facilities within 300 m and any facilities beyond 300 m that have potential zones of influence large enough to affect the subject lands.

There were no Class II or Class III facilities identified within 1000 m of the subject lands. Class I industries without a MECP ECA or EASR located beyond 300 m were not documented as their potential influence areas fall far short of the subject lands. Facilities of that nature are considered low-risk and have small areas of influence. In addition to a review of available permits, a review of satellite images was conducted to verify there are no significant small industrial facilities that are not subject to environmental permits. **Table 4** lists the permitted facilities that were identified within close proximity of the subject lands and reviewed to ensure the activity at the site would not impact the proposed development.

**Table 4: Facilities with Potential to Impact the Subject Lands**

Industry Class	Industry	Potential Influence Area	Actual Separation Distance <sup>[1]</sup>
I	Avery Construction Limited	70 m	0 m (adjacent)

1. Unless stated in the above table, separation distance is from the property line of the subject lands to the property line of the industry.

#### 4.1.1 Avery Construction Limited – 940 and 948 Second Line West

The site is the location of a construction company that provides a variety of services such as forest access road building, land clearing and grubbing, industrial land development, commercial land development, municipal road construction, demolition, earth works and pipe works. The facility also provides transportation services for the haulage of materials such as logs from harvested areas and steel from the local mill as well as haulage of heavy





equipment to various sites. The main operation at this site includes the storage of vehicles and a general outdoor storage area of bulk materials for civil construction industry and associated facilities (i.e. metal piping, tires, concrete civil works, etc.). Site buildings include an office and a maintenance shop. The facility does not have an ECA for air or noise emissions. The facility's Industrial Sewage Works ECA is for the proper containment and stormwater management for the general outdoor storage area.

The facility's Waste Management ECA indicates that there are no hazardous, liquid industrial, biomedical or asbestos wastes at the site with wood waste as the only waste indicated as transported by the approved waste management system. The outdoor general storage area appears to be solid bulk materials with no significant potential for fugitive dust or odour. The storage yard does have unpaved travelled areas that could potentially contribute to fugitive dust. However, the site was contacted, and it was indicated that the drop off and pick-up of material in the rear of the site is rare and therefore the potential impact of fugitive dust from the activity is not expected to be significant. Therefore, the impact of the operation on air quality at the subject lands is expected to be insignificant.

RWDI contacted the facility on Wednesday, April 19, 2023. Per site staff, the main activity occurring on-site is truck activity when drivers pick up their trucks to go to their respective work sites. Nighttime truck activities, due primarily to logging trucks, are at a maximum of three per hour. Daytime truck activities, due primarily to haul trucks, are a maximum of five per hour. On rare occasions, there is a drop-off or pick-up of material in the rear of the site, where material stockpiles are located. The truck activities are significant sources of noise. Detailed modelling of the truck movements was completed to evaluate the potential for incompatibility as discussed further below.

Sound from the truck movements was modelled in Cadna/A, a commercially available sound propagation model, to predict sound level effects from the Avery Construction Ltd. identified through the D-6 assessment. RWDI proxy data were used to define the sound power level of truck movements at the facility. The predicted power level is presented in **Table 5**. The assumed truck routes are illustrated in **Figure 6**.

**Table 5: Truck Sound Power Level Assumptions**

Source	Proxy Data / Calculation	Sound Power Level (dBA)	Worst-Case Number of Trucks Per Hour	
			Daytime and Evening (0700h - 2300h)	Nighttime (2300h - 0700h)
<b>Truck Route North</b> <sup>1</sup>	Proxy Data	104	1	1
<b>Truck Route South</b>	Proxy Data	104	5	3

1. One truck movement per hour along the north truck route in the rear of the site represents the worst-case scenario.

Stationary source noise modelling was carried out using the Cadna/A implementation of the ISO 9613 (ISO, 1994 and ISO, 1996) algorithms. The predicted sound levels are assessed against the Class 1 Area limits as presented in **Table 6**.



**Table 6: Predicted Sound Levels at Worst-case Receptor Locations - Truck**

POR	Time Period	Predicted 1-hour L <sub>EQ</sub>	Sound Level Limit	Meets Criteria?
			Class 1 L <sub>EQ-1hr</sub>	
Facade	Daytime-Evening 0700-2300h	42 dBA	50 dBA	Yes
	Nighttime 2300-0700h	42 dBA	45 dBA	Yes
Outdoor	Daytime-Evening 0700-2300h	39 dBA	50 dBA	Yes

As shown in **Table 6**, the daytime-evening and nighttime continuous sound levels meet the Class 1 sound level criteria.

## 4.2 Future Industrial Uses

The zoning map (SSM 2019) for the surrounding area is provided in **Figure 4**. Medium industrial and institutional zones can be found to the south of the subject lands. Residential zones are located to the east of the subject lands. Environmental management and rural area zones are to the north and west of the subject lands.

The subject lands are currently zoned Rural Area, with current permitted uses allowing the construction of sensitive receptors such as single detached dwellings, group homes, and places of worship. Therefore, construction of the proposed development on the subject lands would not place any additional air or noise restrictions on surrounding facilities beyond what is already applicable.

Therefore, the future development on the subject lands is not expected to have a significant effect on the ability of new or intensified industrial uses to be located in the surrounding industrial zones.

The Sault Ste. Marie official plan shows the subject lands as residential land use (**Figure 5**) surrounded by mainly residential, institutional, parks, and rural land uses. Industrial areas are also shown in this figure and these appear to be relatively small in size and are surrounded by residential and rural land uses. This provides further indication that significant industrial expansion is not expected in the area in the future.

## 4.3 Transportation Facilities

The subject lands are located in an area where significant transportation corridors are distant or not significant emitters of air and noise emissions. There are also no rail corridors within 1000 m of the subject lands. Therefore, transportation facilities are not considered to be a concern for air, noise or vibration impacts at the subject lands.

# 5 CONCLUSIONS

The proposed residential development on the subject lands is compatible with surrounding employment uses and the transportation corridors.



## 6 REFERENCES

1. Government of Ontario 2024, *Provincial Policy Statement, 2024*, Government of Ontario, Toronto, viewed 22 January 2025, <<https://www.ontario.ca/files/2024-10/mmah-provincial-planning-statement-en-2024-10-23.pdf>>.
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4. MOE—See Ministry of the Environment.
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6. Ministry of the Environment 1995, *Guideline D-6: Compatibility Between Industrial Facilities and Sensitive Land Uses*, Ministry of the Environment, Toronto, viewed 20 January 2023, <<https://www.ontario.ca/page/d-6-compatibility-between-industrial-facilities>>.
7. SSM—See City of Sault Ste. Marie.
8. City of Sault Ste. Marie 2019, *Zoning By-Law 2005-150: Text – Office Consolidation April 2019*, City of Sault Ste. Marie, Sault Ste. Marie, viewed 11 April 2023, <[https://saultstemarie.ca/Cityweb/media/Legal/BL/2005-150-\(Zoning\).pdf](https://saultstemarie.ca/Cityweb/media/Legal/BL/2005-150-(Zoning).pdf)>.



## 7 STATEMENT OF LIMITATIONS

This report entitled 0 Chippewa Street – Land-Use Compatibility/Mitigation Study (Air Quality and Noise) was prepared by Rowan Williams Davies & Irwin Inc. (“RWDI”) for RPD Studio (“Client”). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein (“Project”). The conclusions and recommendations contained in this report are based on the information available to RWDI when this report was prepared. Because the contents of this report may not reflect the final design of the Project or subsequent changes made after the date of this report, RWDI recommends that it be retained by Client during the final stages of the project to verify that the results and recommendations provided in this report have been correctly interpreted in the final design of the Project.

The conclusions and recommendations contained in this report have also been made for the specific purpose(s) set out herein. Should the Client or any other third party utilize the report and/or implement the conclusions and recommendations contained therein for any other purpose or project without the involvement of RWDI, the Client or such third party assumes any and all risk of any and all consequences arising from such use and RWDI accepts no responsibility for any liability, loss, or damage of any kind suffered by Client or any other third party arising therefrom.

Finally, it is imperative that the Client and/or any party relying on the conclusions and recommendations in this report carefully review the stated assumptions contained herein and to understand the different factors which may impact the conclusions and recommendations provided.