



SDK Environmental

Consulting & Services

June 2, 2021

Trevor Houghton, MCIP, RPP
Manager of Community Planning-Planning and Development Services
Town of The Blue Mountains
32 Mill Street, PO Box 310
Thornbury, Ontario N0H 2P0
thoughton@thebluemountains.ca

**REFERENCE: Manorwood Homes, Town of The Blue Mountains
Requirement for Noise Assessment
SDK Project P1206**

Dear Mr. Houghton,

1.0 Introduction

SDK Environmental Consulting & Services (SDK) has prepared this letter for the Town of the Blue Mountains to provide an update with respect to noise impacts for the Manorwood Homes Development. The Site Plan Approval Application was submitted by Manorwood Homes to the Town of the Blue Mountains in April of 2021. It is our understanding that residential zoning is already approved for the subject property and that the Town requires an update with regard to noise impacts to ensure continued compatibility.

A previous noise feasibility study was prepared by Valcoustics¹ in June of 2013 and had formal peer review by R. Bouwmeester & Associates² in May of 2014. It is also our understanding the assessments were to the satisfaction of the Town of the Blue Mountains for the previous development plans. For this assessment update, SDK Environmental has reviewed the past technical noise reports and peer review, visited the proposed development site, consulted the local Ministry of Environment, Conservation and Parks (MECP) office, conducted updated modelling and prepared this letter to document our findings.

¹ Environmental Noise Feasibility Study, Applewood June 27, 2013, Valcoustics.

² Noise Study Peer Review - Proposed Residential Development - Thornbury Gate – Peer Review, May 13, 2014, R. Bouwmeester & Associates.

2.0 Scope of Assessment (Noise Assessment Update)

SDK Environmental has performed the following tasks as part of this assignment:

- Reviewed the most recent development plan for the subject site;
- Reviewed Environmental Noise Feasibility Study, Applewood June 27, 2013, by Valcoustics;
- Reviewed Peer Review - Proposed Residential Development - Thornbury Gate – Peer Review, May 13, 2014, R. Bouwmeester & Associates;
- Reviewed environmental reports and permit documentation for the nearby commercial and industrial facilities: Thornbury Village Cider and Brew House, and Breaker Technology Ltd (BTL)
- Performed a detailed review the DRAFT Acoustic Assessment Report (Version 1.0) for the Thornbury Village Cider and Brew House, prepared by Arcadis, June 2019;
- Conducted a site visit on May 14, 2021 to the subject area to confirm and observe existing day time operations within proximity to the development with the potential for noise impact and to collect verifying sound-level measurements;
- Contacted the local Ministry of Environment District Office to identify if there are any recent noise complaints noise-related concerns in the area;
- Assessed transportation and stationary source noise impacts to the development, based on the updated site plans;
- Prepared this letter to provide an update as part of the air quality assessment.

3.0 Summary of Findings

The following presents the results of our findings:

Manorwood Homes Development Plan (2021)

The Manorwood Homes Development Plan proposes 42 townhouse units limited to 2-storeys in height. The proposed development is situated with a single entrance off of Elgin Street, and would be located between King Street (Hwy 26) and Huron Street.

The current 2021 development plan with respect to its physical location and maximum building heights is comparable with the previous 2013 plan, which had identified 45 units, also limited to 2-storeys. The following figures highlight the development plan differences in terms of unit positioning:

Figure 1 - Current 2021 Development Plan

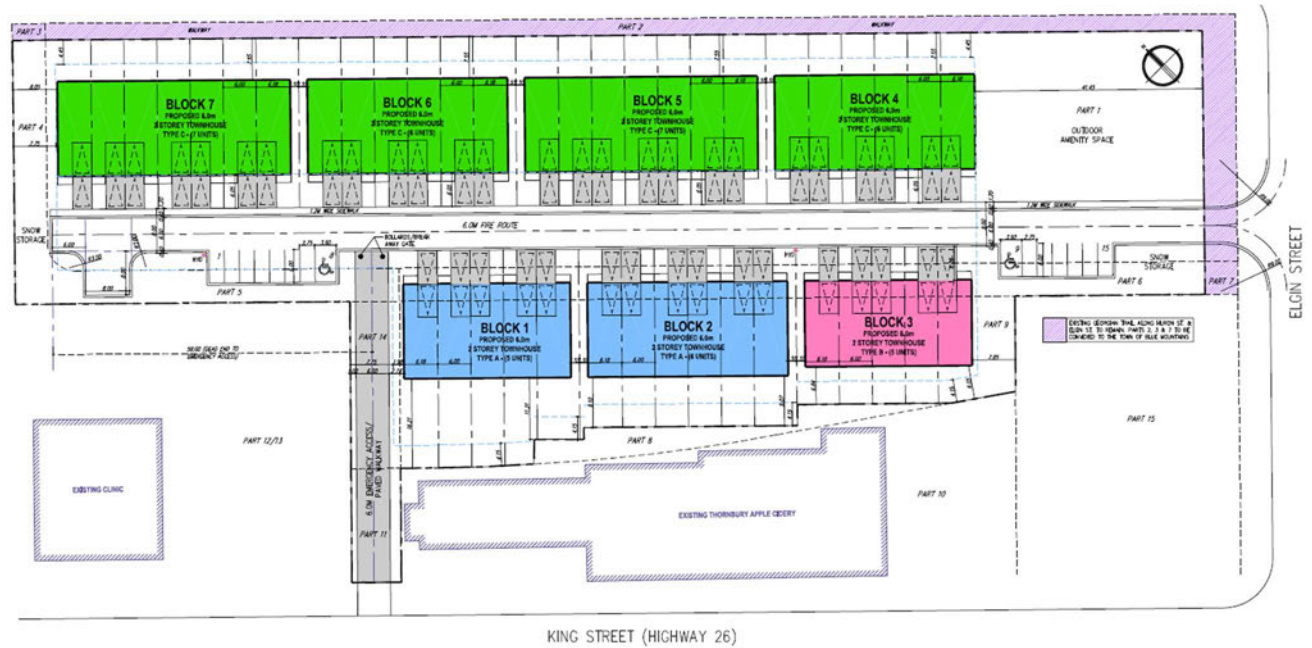
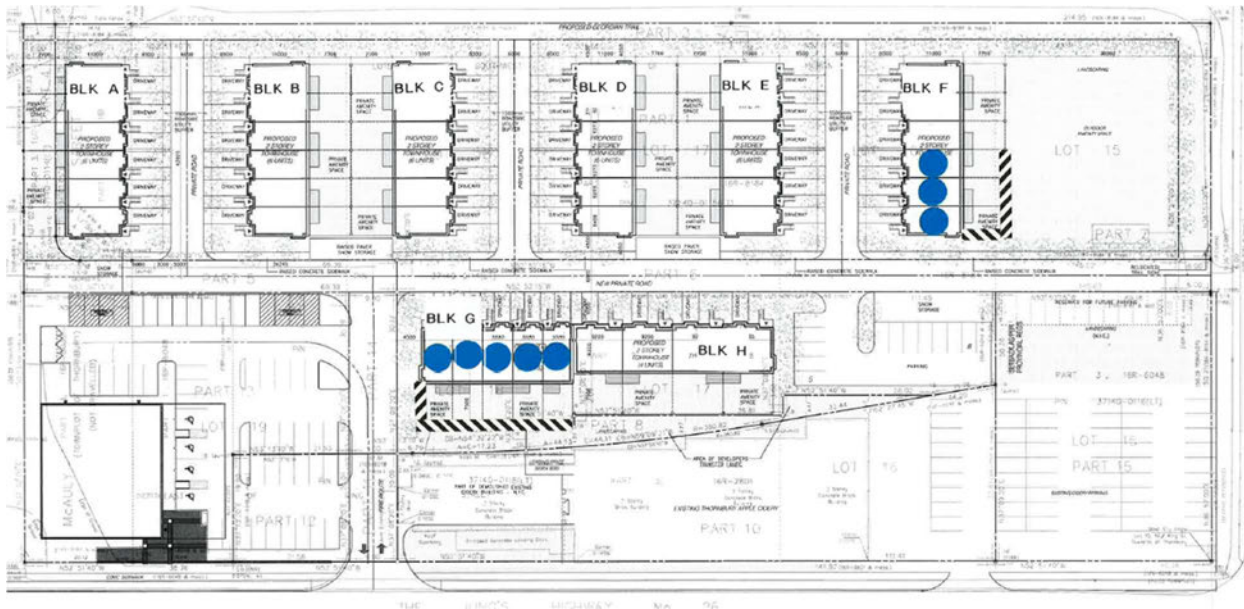


Figure 2 – Previous 2013/2014 Development Plan (Historical)



As shown the total unit count and building heights remains similar to the past design, but there are changes of potential significance for the newly positioned Block 3 (pink highlight in Fig 1). Block 3 would have potential sight lines to Hwy 26 (King St.) which we have further assessed using the same modelling approaches as conducted in past study and peer reviewed.

Site Visit Observations: May 14, 2021

In order to observe and confirm other nearby land-uses, SDK Environmental visited the site on May 14, 2021 between the hours of 9:30 AM and 2:00 PM. We toured the area encompassing the development which included:

- King Street (Hwy 26)
- Elgin Street
- Huron Street
- McAuley Street
- Arthur Street (across Hwy 26)

The weather conditions were favourable for observing potential noise concerns. May 14, 2021 was sunny with no precipitation and very light winds (≤ 12 km/h). The daytime temperature was approximately 17 degrees Celsius.

The following commercial and industrial sources of potential noise impacts were identified:

1. The Blue Mountains Community Health Centre (King Street, North of Development)
2. Thornbury Village Cider and Brew House (located at corner of King and Elgin)
3. Breaker Technology Ltd [BTL] (located on Elgin Street)

These three sites were also identified in the past noise reports for the subject lands.

During the tour of the area, with a specific focus on the commercial and industrial sources identified above, we did not identify any significant noises emitted from either commercial or industrial operation. This is consistent with past observations made for the area. Refer to Table 1 for a summary of sound level verification measurement data collected during the site visit.

However, we did note significant expansion activity at the Thornbury Village Cider and Brew House, which appeared to include an addition to the west side of the facility and the installation of several new stainless-steel vessels. This was explored in more detail during our review of the 2019 Acoustic Assessment Report prepared for the facility, addressed in detail later in this letter.

Table 1: Sound-level Verification Measurements (Daytime) - May 14, 2021

Location	Time	Reading, Leq (dBA)	Observations
Elgin and Huron (NE corner)	10:45 AM	45	BTL facility and Brew House were inaudible. Distant lawn mower and sounds of nature (birds) audible.
Huron at North Edge of Brew House near McAuley	10:50 AM	44	BTL facility inaudible. Distant lawn mower and sounds of nature (birds) audible.
Parking Entrance of Health Centre	11:00 AM	45	Health Centre inaudible. Brew House inaudible. Distant lawn mower and sounds of nature (birds) audible
Hwy 26 with traffic passes SW Corner of King-Elgin	11:00 AM	55 - 75	Truck passes dominated up to 75 dBA. Light cars varied 50 to 60 dBA.
Hwy 26 without traffic	11:15 AM	48	Sounds of nature (birds) audible

Based on the verification measurements SDK concludes, consistent with past study, that noise from the nearby facilities is not elevated under current conditions. However, it was not possible to determine the level of operation at each facility during field measurements, and the Thornbury Village Cider and Brew House had not yet fully completed its expansion activities.

Updated Transportation Noise Impact Assessment

Updated traffic counts were obtained from MTO for the same stretch of road as previously assessed (Hwy 26).

The previous MTO data showed an Annual Average Daily Traffic (AADT) = 8100 vehicles for 2008, and modelled out to the year 2022 (Projected AADT = 9312). Based on peer review comments, the AADT was subsequently adjusted to the Summer Average Daily Traffic (SADT) = 9800, and projected out to 2022, with which we are in agreement.

The new MTO data set from 2016 gives an SADT of 10500, which SDK projected out to 2031 (i.e. estimating traffic 15 years into the future; Projected SADT = 12190).

In the past acoustical study, an annual growth rate of 1%, day/night split of 85%/15% and percent of medium duty (MD) trucks (4%) and heavy duty (HD) trucks (6%) was used. SDK consider these projections reasonable and assumed they would remain unchanged. The newly modelled acoustical impact results from Hwy 26 on the development are summarized in Table 2.

Table 2 – Updated Hwy 26 Impacts on Proposed Development

Location in 2021 Development Plan ¹	Source	Distance (m) ²	Leq Day (dBA)	Leq Night (dBA)
SE-Most Unit in Block 3	Highway 26	46	61	56
E-most unit in Block 4	Highway 26	82	57	53
SW-Most Unit in Block 1	Highway 26	45	58	53
Last 2 E units in Block 7	Highway 26	82	54	49

Notes:

1: Refer to Figure 3

2: Distance from road centerline to OLA.

Refer to Table 3 and Figure 3 for updated minimum noise abatement measures for the proposed development based on the impacts from Hwy 26 on the proposed development.

Table 3 – Updated Minimum Noise Abatement Measures

Location in 2021 Development Plan ¹	Air Conditioning ²	Exterior Walls ³	Window STC Rating ³	Sound Barrier ⁴	MECP Warning Clauses
Three most E Units in Block 3	Provision for adding	Ontario Building Code	Ontario Building Code	1.9 m high	B + C + F
Two most W Units in Block 3	Provision for adding	Ontario Building Code	Ontario Building Code	No	B + C + F
Three most E Units in Block 7	Provision for adding	Ontario Building Code	Ontario Building Code	1.9 m high	B + C + F
Two Most W Units in Block 1	Provision for adding	Ontario Building Code	Ontario Building Code	1.8 m high	B + C + F
All Other Units	--	Ontario Building Code	Ontario Building Code	No	F

Notes:

1: Refer to Figure 3

2: Dwelling should be designed with a provision for the installation of central air conditioning in the future, at the occupant's discretion.

3. Since modelled sound level impacts are less than 60 dBA/65 dBA day/night at plane of window, standard construction meeting the minimum non-acoustical requirements of the Ontario Building Code should provide adequate sound isolation.

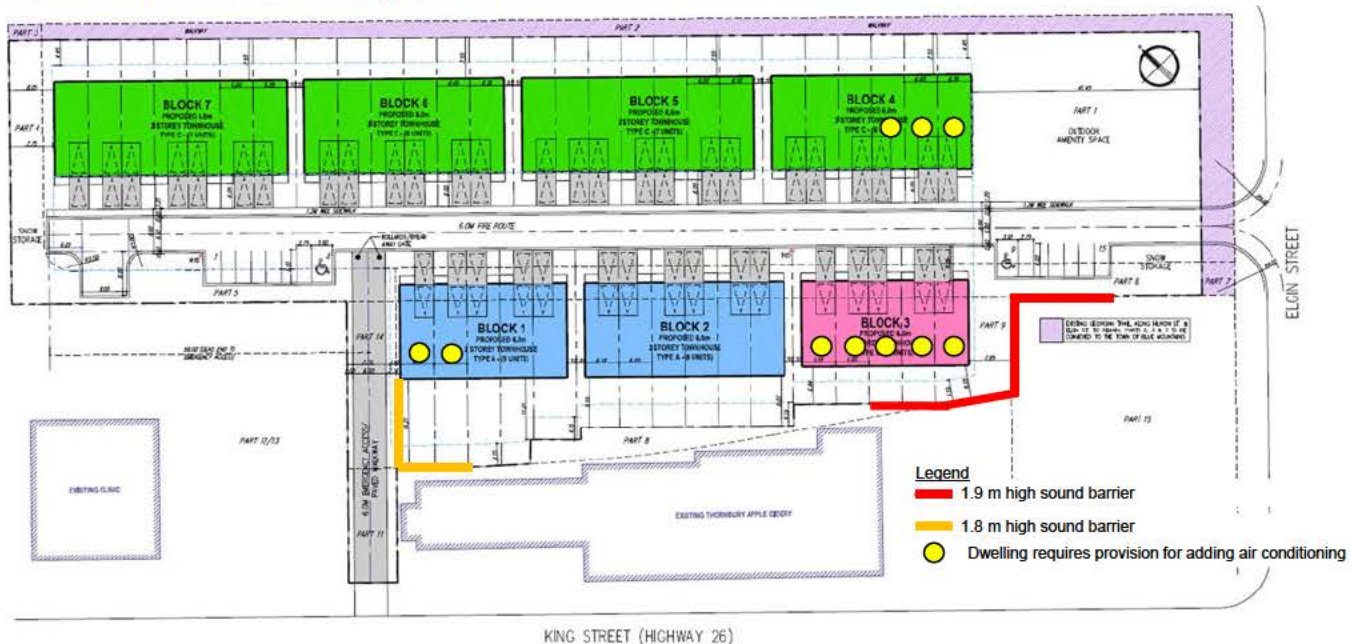
4. Sound barriers must be of solid construction having a minimum face density of 20 kg/m² with no gaps or cracks. Earthen berms, solid fences or combinations of berms/fences are acceptable.

Final sound barrier requirements should be reviewed once detailed grading plans are available.

Warning clauses to be registered on title and to be included in Offers of Purchase and Sale for designated lots are as follows (per MECP Publication NPC-300):

- **Type B:** "Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road traffic may on occasions interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment."
- **Type C:** "This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant in low and medium density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."
- **Type F:** Purchasers/tenants are advised that due to the proximity of the adjacent commercial and industrial facilities, noise from the facilities may at times be audible.

Figure 3 – Noise Mitigation Requirements



Updated Stationary Noise Impact Assessment

As noted above, three (3) stationary sources were identified in the vicinity of the proposed development, which remain consistent with the previous noise feasibility study.

1. The Blue Mountains Community Health Centre
2. Thornbury Village Cider & Brew House
3. Breaker Technology Ltd

The Blue Mountains Community Health Centre

Potential noise sources identified with The Blue Mountains Community Health Centre were roof-top HVAC units and vehicle activity in the adjacent parking lot. The roof-top units were acoustically shielded by the existing roof structure and were inaudible. The adjacent parking lot is small, and can accommodate approximately 30 vehicles. Adverse noise impact from this limited number of vehicles is not anticipated at the proposed development.

Thornbury Village Cider & Brew House

The Thornbury Village Cider & Brew House is a brewery undergoing an expansion. Facility activities include the production of beer, cider and the repackaging of wine produced off-site. In addition, the facility houses a retail store as well as a party venue.

Limited observations from the property line did not identify any noise sources of concern at the facility, however, construction and expansion activity was noted at the site.

A copy of a DRAFT Emissions Summary & Dispersion Modelling (ESDM) Report prepared for the facility by Arcadis in support of an EASR Registration was found on the Town of Blue Mountains website regarding the facility expansion. A DRAFT Acoustic Assessment Report dated June 2019, prepared by Arcadis, was also provided for review upon request by Tatham Engineering.

Refer to Figure 4 for a noise source location plan (post expansion) and Figure 5 for a noise source summary table, taken from the DRAFT Acoustic Assessment Report. In the table, 'S' stands for 'Steady', 'O' stands for 'Located/Installed Outside of Building' and 'U' stands for 'Uncontrolled'.



Figure 4 – Thornbury Village Cider & Brew House Noise Source Location Plan

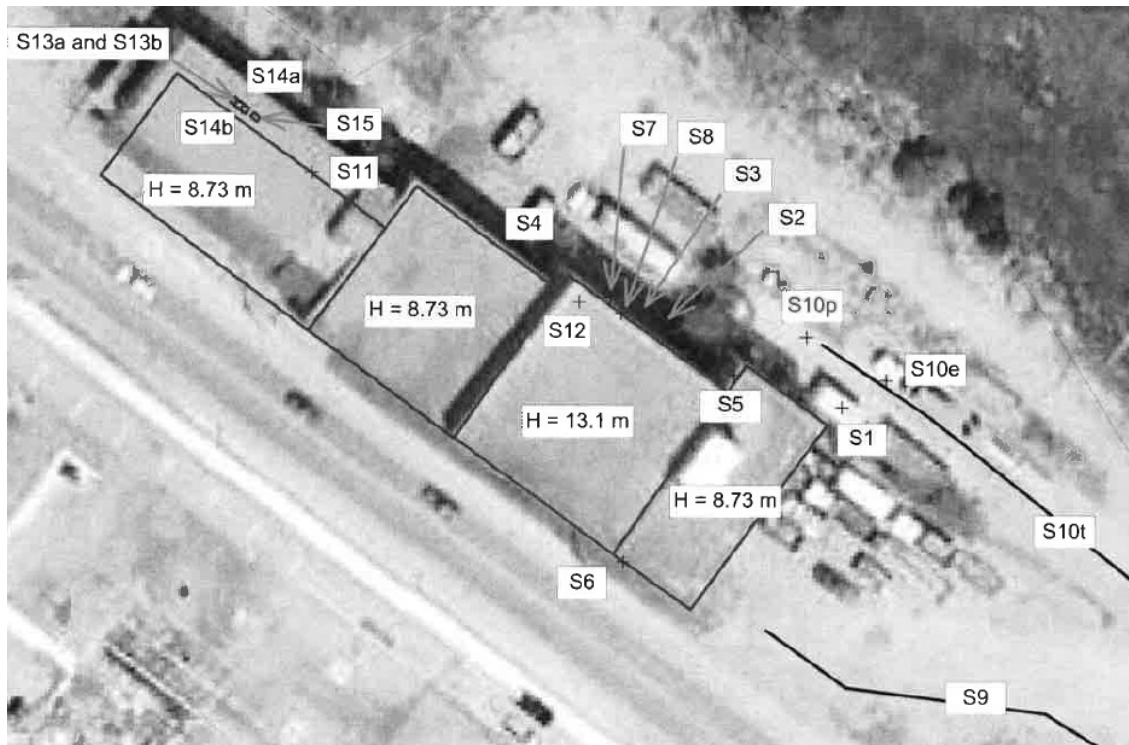


Figure 5 – Thornbury Village Cider & Brew House Noise Source Summary

Cadna A ID	Source Description	Sound Power Level (1) (dBA)	Sound Characteristics (2)	Source Location (3)	Noise Control Measures (4)
Steady State Sources					
S1	Production Area Chillers (2)	87.0 dBA	S	O	U
S2	Cider Area Chiller 1 (KeepRite)	71.0 dBA	S	O	U
S3	Cider Area Chiller 2 (KeepRite)	71.0 dBA	S	O	U
S4	Brewery Area Chiller 1 (KeepRite)	78.7 dBA	S	O	U
S5	Retail Space Condenser	78.0 dBA	S	O	U
S6	Ozone generator vent	64.1 dBA	S	O	U
S7	Brewery Area Chiller 3 (York)	72.7 dBA	S	O	U
S8	Pilot Batch Exhaust	7.0 dBA	S	O	U
S9	Product and Can Delivery Truck Traffic	78.2 dBA	S	O	U
S10t	CO2 Delivery Truck Path	79.0 dBA	S	O	U
S10p	CO2 Truck Unloading (pump)	109.0 dBA	S	O	U
S10e	CO2 Truck Unloading (engine)	108.3 dBA	S	O	U
S11	Brewery Floor - Open door	68.0 dBA	S	O	U
S12	Elevator Motor	90.5 dBA	S	O	U
S13a	Brewery Condenser Fan 1	76.8 dBA	S	O	U
S13b	Brewery Condenser Fan 2	76.8 dBA	S	O	U
S14a	Brewery Condenser Cooler 1	89.5 dBA	S	O	U
S14b	Brewery Condenser Cooler 2	89.5 dBA	S	O	U
S15	Brewery Condenser	85.5 dBA	S	O	U

Many of the sources identified in the table are chillers located outside of the facility, along the north façade of the building and immediately adjacent to the proposed development. These chillers have a sound power level up to 89.5 dBA. These would be considered to be loud and significant sources.

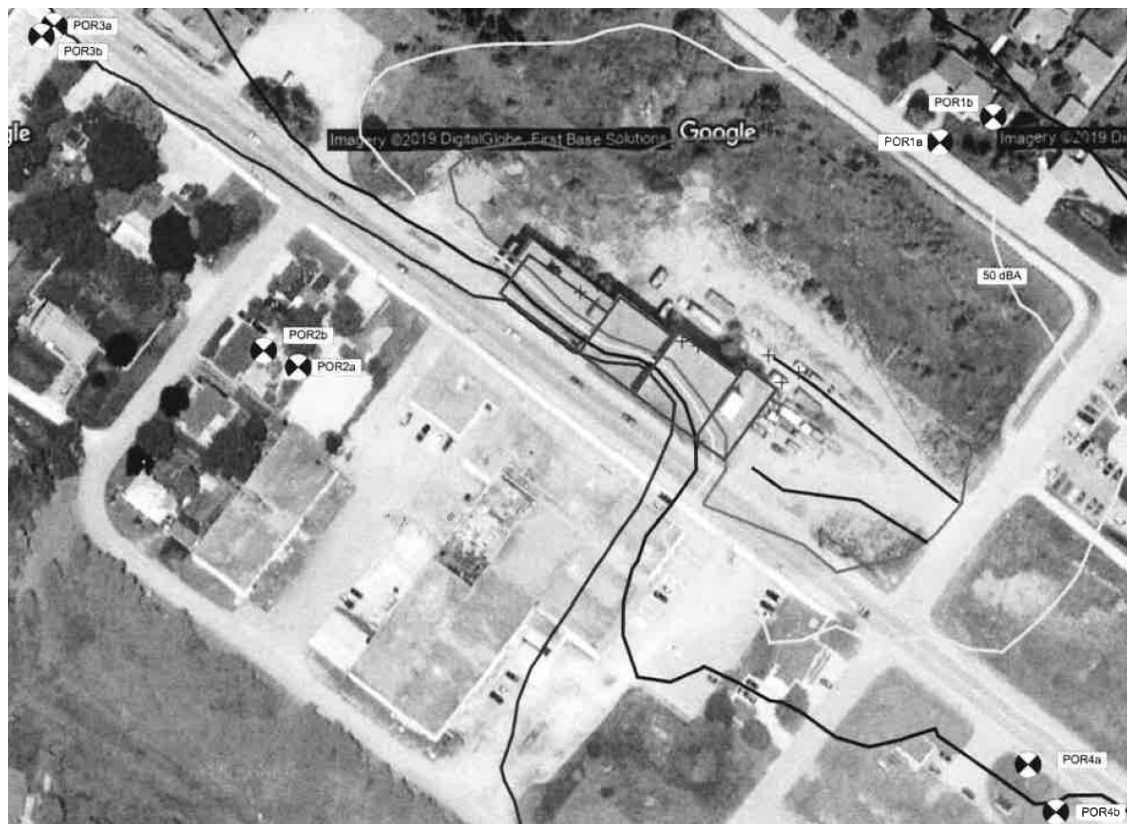
In addition, the report states that CO₂ is used to package some beverage products. Bulk CO₂ deliveries are made by truck and the equipment used to off-load bulk CO₂ is inherently loud. Bulk CO₂ unloading was listed as having a sound power level of 109 dBA.

Tonality was not identified for the CO₂ unloading activity. From our experience truck unloading of compressed gas is considered tonal and would require adding a +5 dB tonal penalty to the noise source. Tonal noise is any sound that has a pronounced audible tonal quality such as a whine, screech, buzz, or hum.

The CO₂ unloading source is currently positioned to be approximately 10 m from the proposed residential units and would have a potential noise impact above 80 dBA at the proposed units. Bulk CO₂ calculations in the report used a reduction of 10 dB due to a reduced operating time (running 6 minutes for any given hour) which should be confirmed since the report also stated the source operates continuously (60 minutes for any given hour).

The DRAFT Acoustic Assessment Report assessed noise impacts at four (4) existing residential properties located near the facility as identified in Figure 6. Notably the report did not assess compliance at the proposed development.

Figure 6 – Thornbury Village Cider & Brew House Sensitive Points of Reception



The vacant land which represents the subject property for the proposed development was not assessed in the noise report, which is a critical omission. The official Thornbury zoning plan, included in the DRAFT Acoustic Assessment Report, clearly identifies the plot of land of the proposed Manorwood Homes development as residential. EASR guidance states that vacant land zoned for residential use must be considered a point of reception for noise evaluation.

The report misidentified the appropriate noise criteria for the area. The Class 1 noise criteria is not reasonable and should be identified as Class 2, or otherwise confirmed with a detailed traffic study to justify Class 1 (which is intended for large urban areas). The 2013 Noise Feasibility Study and associated Peer Review both concurred on the Class 2 designation.

The source heights for some of the noise sources are unrealistically short in elevation, sometimes only 1.0 m or less above grade. This will under predict the potential for impact.

In consideration of these findings, significant revisions are warranted for the DRAFT Acoustic Assessment Report to ensure compliance is achieved at the proposed development.

Breaker Technology Ltd

Breaker Technology Ltd (BTL) manufactures a range of mine, quarry, construction and demolition equipment. Processes at the facility include raw material preparation, machining, fabrication, welding, sandblasting, degreasing and painting. The facility's offices are located adjacent to Elgin Street. The manufacturing facility is located east of the offices. Loading and outdoor storage areas are located at the east end of the facility and were well screened from Elgin St by the building itself.

Based on field observations, the main noise sources of potential concern at BTL include:

- Two (2) roof-top HVAC units located on the roof of the office portion of the building;
- Three (3) residential-style air cooled condenser units mounted on the exterior wall of the north side of the office portion of the building, and
- Four (4) process exhaust stacks located on the roof of the northern manufacturing area of the facility that appear to be typical of exhausts associated with paint booths.

Refer to Figure 7 for locations of the identified noise sources.

Figure 7 – BTL Noise Source Locations



The previous noise feasibility study identified the same HVAC units and residential-style air cooled condenser units. These were deemed to have sound power levels of 84 dBA and 78 dBA respectively. Field observations confirmed that these estimates remain reasonable. Based on experience at another mine, quarry, construction and demolition equipment manufacturing facility, paint booth exhaust stacks have sound power levels in the range of 82 dBA to 90 dBA.

Predicted unmitigated sound level impacts at the NE corner of Block 7 of the proposed development (i.e. the location with greatest exposure to the facility) were approximately 38 dBA and 43 dBA at 1.5 m and 4.5 m above grade (representing an open second floor window) respectively. This is consistent with field observations where sounds from the facility were inaudible at the proposed development site due to existing ambient sound levels generated from traffic on Highway 26.

In addition, Breaker Technology Ltd was found to have an Environmental Compliance Approval on the MECP Access Environment website (ECA# 9855-99AL95, issued March 28, 2014). The ECA identifies that an Acoustic Assessment Report was prepared for the facility. A Noise Abatement Action Plan was not mentioned or included in the ECA, therefore the facility is considered to be meeting MECP noise limits at

existing sensitive receptors. Since many of the existing sensitive receptors (i.e. residents) are located closer to BTL than the proposed development, it is anticipated that the facility will not generate noise impacts above the applicable noise limits at the proposed development.

Consultation with local MECP District Office

SDK connected with the MECP District Office on Monday May 17, 2021 and spoke with Cara Salustro, Senior Environmental Officer (Acting) from the MECP Owen Sound District Office. Cara Salustro is the Environmental Officer with specific responsibility for Town of Thornbury.

The District Office did not identify any concerns specific to Thornbury Village Cider Brew House or Breaker Technology Limited pertaining to noise.

Regulatory Updates since 2013

The previous noise feasibility study relied on Publication LU-131 *“Noise Assessment Criteria in Land Use Planning”*. The Peer Review noted that MECP adopted NPC-300 *“Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning”* in October 2013 which replaced LU-131, but noted that since the report was prepared prior to October 2013, the applicable guidelines were those found in LU-131. Therefore, in this noise assessment update, SDK Environmental relied on NPC-300 as the primary acoustical guidance for environmental permitting and land-use planning, as previously identified in the peer review.

Specific to the Thornbury Village Cider and Brew House expansion, MECP introduced a new compliance requirement under O.Reg.1/17: Registration Under Part II.2 of the Act – Activities Requiring Assessment of Air Emissions. The noise limits applying to the facility are included in Chapter 3 of MECP Publication Environmental Activity & Sector Registry – Limits and Other Requirements. The facility must demonstrate compliance to these limits prior to the installation of equipment.

4.0 Conclusions

Based on our updated modelling assessment and technical review we conclude that significant changes have occurred pertaining to the Thornbury Village Cider and Brew House expansion. If not addressed, the equipment additions - as presented in the DRAFT Acoustic Assessment Report prepared by Arcadis dated June 2019 - would lead to adverse noise impacts to the proposed development.

SDK has found deficiencies in the DRAFT Acoustic Assessment Report which must be addressed by the Thornbury Village Cider and Brew House. The facility is required to demonstrate compliance to the

vacant residentially zoned land (i.e. the location of the proposed development) based on their environmental obligations under O.Reg.1/17 Environmental Activity and Sector Registry and the Ontario Environmental Protection Act. SDK Environmental was unable to a copy of the facility's EASR registration on the MECP Access Environmental database.

The following items presented in the DRAFT Acoustic Assessment Report need to be addressed:

- The vacant land which represents the subject property for the proposed development was not assessed in the noise report, which is a critical omission.
- The official Thornbury zoning plan included in the DRAFT Acoustic Assessment Report clearly identifies the plot of land of the proposed Manorwood Homes development as residential. EASR guidance states that vacant land zoned as residential use must be considered a point of reception for noise evaluation.
- The Class 1 noise criteria is not reasonable and should be identified as Class 2, or otherwise confirmed with a detailed traffic study to justify Class 1 (which is intended for large urban areas). The 2013 Noise Feasibility Study and associated Peer Review both concurred on the Class 2 designation.
- Bulk CO₂ used a reduction of 10 dB for a reduced operating time (running 6 minutes for any given hour) which should be confirmed.
- Bulk CO₂ unloading would be within 10 m of proposed residential units and have a potential noise impact of more than 80 dBA at the units (based on a sound power level of 109 dBA).
- Tonality not identified for the CO₂ unloading. From our experience truck unloading of compressed gas is considered tonal and would require adding a +5 dB tonal penalty to the noise source. Tonal noise is any sound that has a pronounced audible tonal quality such as a whine, screech, buzz, or hum.
- The source heights for some of the sources are unrealistically short in elevation, sometimes only 1.0 m or less above grade. This will under predict the potential for impact.

All noise sources presented in the DRAFT Acoustic Assessment Report were identified as “outdoor” and “unmitigated”. Upon review it is unlikely that the facility can demonstrate compliance to the EASR publication criteria at the proposed development without significant mitigation measures for the outdoor sources.

If you have any questions or comments, please do not hesitate to contact us at your convenience.

Yours truly,
SDK Environmental



Stephen Kuchma, P.Eng.
Stephen@sdkenvironmental.ca
416-992-4116



Chris Scullion, B.E.Sc (Civil Engineering)
Chris@sdkenvironmental.ca
647-381-3080

cc:
Colin Travis, Travis & Associates

