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MEMORANDUM

TO: Stefano Ferrante	DATE: November 10, 2020
FROM: Steve Taylor, P.Eng./Darcie Dillon, P.Eng.	PROJECT #: 20-019
PROJECT: King Street Gananoque – Proposed Residential Development	
SUBJECT: Noise Assessment	

1. INTRODUCTION

The purpose of this technical memorandum is to review the noise impacts from vehicular sources on a proposed residential development consisting of 22 townhouses to be located between 755 King Street West (vacant lot) and 819 King Street West (Gateway Motel) in Gananoque, Ontario. There are no rail or air sources of noise. The site location is shown on



Figure 1. A site plan is included in **Appendix A.**



Figure 1: Site Location

The proposed development will be built on King Street West within the Town of Gananoque. Apartment buildings are considered noise sensitive land uses and require an acoustic assessment to determine the effects of vehicular traffic noise on the residents.

2. METHODOLOGY

The assessment was conducted within the Study Area to determine the impact to noise sensitive areas (NSA's) and what mitigations measures, if any, should be incorporated into the site plan design.

The assessment was completed in accordance with the Ministry of the Environment, Conservation and Park's (MECP's) Noise Assessment Criteria, which are used for the planning of noise sensitive lands uses. These guidelines specify the equivalent sound level criteria for indoor and outdoor amenity areas.

STAMSON 2.5 was used to calculate the noise levels for the Outdoor Living Area (OLA).

3. TRAFFIC INPUT DATA

Traffic volumes for King Street West (County Road 2) were provided by the Town of Gananoque. The volumes were used to assess impacts of the earliest planned construction of the new apartment buildings. The AADT volumes and estimated truck volumes (1% medium and 5% heavy) are illustrated in **Table 1**. A 90/10 daytime/nighttime split for traffic volumes was used.

Table 1: Traffic Input Data

	AADT		
	2020 (Existing)	2030 (Without the Project)	2030 (With the Project)
King Street West (County Road 2)	4812	5315	5427

Additional input to the STAMSON model included:

- The intermediate ground surface (hard surface reflects sound, soft surface absorbs sound);
- Distance, in metres, from the source to the receiver, using the centreline of the road as the source;
- The angle at which the receiver (apartment) intercepts the source (roadway), measured relative to the perpendicular line between the source and the receiver;
- Receiver height (standard is 1.5 m above ground level during the daytime and 4.5 m above ground level during the nighttime);
- Posted speed limit – the posted speed limit for King Street West (County Road 2) is 50 km/h within the study limits;
- Depth of woods (0-30 m, 30-60 m, 60 m or more);
- Roadway grade (slope);
- Topography (hills, flatlands); and
- Existing attenuation due to shielding from barriers (natural or man-made).

County Road 2 is a 2-lane arterial roadway with a posted speed of 50 km/h near the site.

4. ANALYSIS OF SOUND LEVELS

Year 2020 16-hour equivalent daytime sound levels and 8-hour nighttime sound levels for the receiver site, calculated using the STAMSON noise software program, are shown in **Table 2**. Year 2030 16-hour equivalent daytime sound levels and 8-hour nighttime sound levels for the receiver site with and without the project are shown in **Table 3**.

Table 2: Existing Sound Levels from Traffic Sources

Receiver Site	Year 2020 Day-time (16 h) Sound Level, Leq (dBA)	Year 2020 Night-time (8 h) Sound Level, Leq (dBA)
R1	54.35	49

Table 3: Future Projected Sound Levels from Traffic Sources With and Without the Project

Receiver Site	Year 2030 Day-time (16 h) (Without the Project)	Year 2030 Night-time (8 h) (Without the Project)	Year 2030 Day-time (16 h) (With the Project)	Year 2030 Night-time (8 h) (With the Project)
R1	54.79	49.34	54.88	49.38

Outdoor Sound Level Criteria (Traffic Noise)

The significance of a noise impact for day-time noise levels is assessed by using the objective of 55 dBA (7 a.m. to 11 p.m.) for the road sources. These levels are established as acceptable noise levels for outdoor recreation areas of developments adjacent to transportation noise (roads, transit, light rail, and rail).

Plane of Window (Sleeping Quarters) (Traffic Noise)

Outdoor night-time (8 hr) roadway noise levels at the plane of a bedroom (typically a 2nd storey; however, this development includes bedrooms on the first storey) window must not exceed 60 dBA, otherwise air conditioning is required.

5. CONCLUSIONS

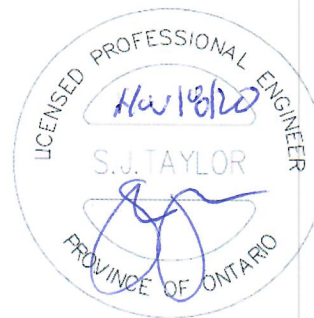
Based on the calculated sound levels, the noise level in the daytime OLA is less than 55 dBA and the night-time plane of window noise level is less than 60 dBA; therefore, no mitigation is required.

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King Street Site Plan Sketch

Part Lot 11, Concession 1

Parts 1 - 5, Plan 28R - 5002

Parts 1 - 3, Plan 28R - 9972

Town of Gananoque

COUNTIES of LEEDS & GRENVILLE

Zoning Table (Townhouse Dwelling Provisions)		
Site Provisions (per unit)	Requirements	Proposed
Lot Area (min)	4,840m ² (220m ² / unit)	4,985m ²
Lot Coverage (max)	40%	15.0%
Lot Frontage (min)	132m (6m/unit)	86.9m
Front Yard (min)	6.0m	6.0m
Exterior Side Yard Build Within (min)	N/A	N/A
Interior Side Yard End Unit (min)	1.2m	1.2m, 8.0m
Rear Yard (min)	9.0m	9.0m
Height (max)	11.0m	7.62m
Parking Spaces (min)	28 (1.25 / unit)	28
Amenity Space (min)	440m ² (20m ² / unit)	645m ²
Percentage At-Grade Parking (max)	40%	10.8% (24.8% including all driveways)

Key Map

N.T.S.



Legend

- Proposed Amenity Area
- Existing Easement (Access)
- Existing Easement (Services)
- Fire Route
- Overhead Wires
- Utility Pole
- Anchor

Notes:

1. Location of the overhead wires and utility poles are approximate based on available aerial photography.
2. Boundary and dimensions of the subject property and the location of the existing easements derived from Plan 28R - 5002.
3. Location of the new easement running along the front and west side lot lines derived from Plan 28R - 9972 completed by Collett Surveying Ltd. in September of 1998.

