PRELIMINARY NOISE AND VIBRATION STUDY

"SMITHVILLE, WEST LINCOLN DEVELOPMENT CONCEPT"

Located at
NORTHEAST CORNER OF WEST STREET AND SOUTH GRIMSBY ROAD 6
TOWNSHIP OF WEST LINCOLN,
NIAGARA REGION

Prepared for:

Elite Smithville Developments Inc.
102-3410 South Service Road
Burlington, ON
L7N 3T2

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September 2024
Our File No: 24-2006

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1.0 INTRODUCTION

dBA Acoustical Consultants Inc. has been retained to conduct a preliminary noise and vibration study for the proposed "Smithville, West Lincoln Development Concept" in Smithville, ON, on behalf of Elite Smithville Developments Inc. The purpose of the noise and vibration study is to determine the noise and vibration impact for OPA/ZBA approval of the nearby Canadian Pacific Railway (CP) Grimsby Subdivision Principal Rail Line and traffic volumes for Regional Road 20.

Vehicular traffic from local area roadways, other than Regional Road 20 (West Street), are not considered in this report due to low traffic volumes and distance separation from the proposed site. This study will detail noise and vibration impacts at the proposed development and recommend noise and vibration control measures necessary (if applicable) to meet Ministry of Environment Conservation and Parks (MECP) Publication NPC-300, Stationary & Transportation Sources-Approval & Planning and CP guidelines, while satisfying the planning requirements of the Town of West Lincoln and the Regional Municipality of Niagara.

2.0 SITE DESCRIPTION

Proposed for the residential development are two 6-storey residential buildings which will have an estimated 176 units. Also proposed are forty-one 3-storey townhouses. In total 217 units are proposed for this development.

The proposed development site is located north of Regional Road 20 (West Street) and west of Grimsby Road 5, West Lincoln, ON. To the immediate north of the subject lands is a CP Rail Principal Main Line with 2 tracks running east to west along the subject site. To the southeast, on the opposite side of Regional Road 20 is St Martin Catholic Elementary School. To the northeast are lands slated for residential development by another builder

Regional Road 20 is the major traffic noise source in the subject area. Local streets have no acoustical impact on the site development due to low-speed limits and low traffic volumes.

3.0 NOISE IMPACT ASSESSMENT

3.1 NOISE CRITERIA

The MECP specifies limits for road and rail noise relative to new residential developments. The MECP Publication NPC-300, Stationary & Transportation Sources-Approval & Planning, specifies the criteria, summarized as follows:

TABLE 1- Road Traffic Sound Levels Limits	
Time Period	Leq (dBA)
07:00 – 23:00 (16 hr.)	55 Outdoor Living area
07:00 – 23:00 (16 hr.)	55 Plane of Window
23:00 – 07:00 (8 hr.)	50 Plane of Bedroom window

The OLA refers to an outdoor patio, a backyard, a terrace or other area where outdoor passive recreation is expected to occur on the residential property. As this is considered a daytime use (07:00 - 23:00) noise levels are calculated at the upper storey bedroom window to represent nighttime (23:00 - 07:00) periods.

Where noise levels estimated in the Outdoor Living Area (OLA) and at an upper storey window are equal to or less than the values listed in Table 1, no noise control measures are required. CP also publishes specific requirements for land use development next to their principle main line tracks (attached in Appendix "A"). The MECP and CP noise criteria are the same.

Where noise levels exceed Table 1 values, the following action is required:

TABLE 2 –Noise Control Requirements		
Time Period	Noise Level Leq (dBA)	Action Required
07:00 - 23:00 Daytime (OLA)	55 to 60	Barrier or Warning Clause Type "A"
07:00 - 23:00 Daytime (OLA)	> 60	Barrier & Warning Clause Type "B"
07:00 – 23:00 Daytime (POW)	>55	Provision for A/C, Warning Clause "C"
07:00 – 23:00 Daytime (POW)	>65	Central A/C, Warning Clause "D"
07:00 – 23:00 Daytime (POW)	>65	Building Component Specification
23:00 to 07:00 Nighttime (POW)	> 50-60	Provision for A/C and Warning Clause Type "C"
23:00 to 07:00 Nighttime (POW)	> 60	Building Component Specification
	> 60	Central Air Conditioning and Warning Clause Type "D"

Where nighttime noise levels exceed 60 dBA, building components must be designed to meet the following Table 3 indoor sound level limits.

TABLE 3 - Indoor Road/Rail Sound Levels Limits		
Indoor Location	Leq(dBA)	
	Road	Rail
Living/Dining 7:00 – 23:00	45	40
Bedroom 23:00 - 07:00	40	35

3.2 ROAD NOISE - BUILDINGS A & B

Predicted road traffic noise levels were calculated for Regional Road 20, the major road noise source in the site area. Road traffic volumes were supplied via email from Manny Rataul, C. Tech., rcji, Road Safety Technician, Transportation Services Division, Niagara Region for both 2017 and 2020 and we were advised to use the higher 2017 data as 2020 data was taken during the COVID pandemic. The MECP computer program STAMSON version 5.04 was used to carry out prediction calculations (See Appendix "A"). Traffic data is summarized in Table 4. South Grimsby Road 6 and area roadway traffic volumes are below MECP requirements and not considered in this report.

The daytime/nighttime volume ratio relative to Regional Road 20 is typically calculated using a 90/10 split as required by the MECP. The maximum posted speeds for all vehicles are 50 km/hr. However, the speed decreases to 40 km/hr when lights are flashing, due to the nearby school. We have used 50 km/hr in our calculations for the worst-case scenario. The percentage of annual growth for Regional Road 20 was figured at 2% over 27 years The AADT (Annual Average Daily Traffic) volumes were used reflective of the worst-case scenario.

Truck volumes were factored at 2% medium and 4% heavy of the total vehicle volumes for Regional Road 20.

TABLE 4 – Future Road Traffic Volumes (2044)			
Regional Road 20 (West Street)	AADT 13997 Vehicles		
	Cars	Medium Trucks	Heavy Trucks
Day	11841	252	504
Night	1316	28	56

The following Table 5 summarizes the "free field" Regional Road 20 traffic noise prediction results, modeled at 8 receptor locations representing all facades of Buildings A and B.

TABLE 5- Predicted Traffic Noise Levels-Free Field (Regional Road 20)		
Location	L_{eq} (dBA)	
	07:00 - 23:00	23:00 - 07:00
R1 – Building A & B South Façade 1st Floor Residential (2m)	66 dBA	60 dBA
R2 – Building A & B South Façade 6th Floor Residential (17.5m)	66 dBA	60 dBA
R3 – Building A West Façade 1st Floor Residential (2m)	62 dBA	56 dBA
R4 – Building A West Façade 5th Floor Residential (14.5m)	62 dBA	56 dBA
R5 – Building B East Façade 1st Floor Residential (2m)	62 dBA	56 dBA
R6 – Building B East Façade 5th Floor Residential (14.5m)	62 DBA	56 dBA
R7 – Building A & B North Façade 1st Floor Residential (2m)	60 dBA	54 dBA
R8 – Building A & B North Façade 6th Floor Residential (17.5m)	60 dBA	54 dBA

3.3 RAIL NOISE - BUILDINGS A & B

It should be noted that CP Rail no longer provides any train traffic data (email attached in Appendix "A") therefore, on-site train counts and verification at the CP Rail Kinnard Yard, Hamilton Ontario (September 2022) was utilized for this noise study and carried out prediction calculations using the MECP "Stamson, Version 5.04" computer program. CP train traffic data is summarized in Table 6.

The CP Rail property line is located north approximately 75m from the nearest residential façades. Site Plan is attached as Figure 1.

TABLE 6 – CPR Train Traffic Data	
Type	Freight
Number of Trains 07:00 - 23:00 23:00 - 07:00	4 2
Number of Cars per Train	140
Number of Locomotives per Train	4
Maximum Train Speed (km/hr.)	80 km

Calculations were performed for both daytime and nighttime periods. Receiver heights of 2m for the first floor and 14.5m for the fifth floor and 17.5m for the sixth floor were used. An annual growth factor of 2.5% per annum was projected over 10 years.

The following Table 6A summarizes the predicted "free field" CP Rail noise prediction results modeled at 8 receptor locations representing all facades of Buildings A and B.

TABLE 6A - Predicted Rail Traffic Noise Levels-Free Field		
Location from CP Rail	L_{eq} (dBA)	
	07:00 - 23:00	23:00 - 07:00
R1 – Building A & B South Façade 1st Floor Residential (2m)	49 dBA	49 dBA
R2 – Building A & B South Façade 6th Floor Residential (17.5m)	55 dBA	55 dBA
R3 – Building A West Façade 1st Floor Residential (2m)	46 dBA	46 dBA
R4 – Building A West Façade 5th Floor Residential (14.5m)	51 dBA	51 dBA
R5 – Building B East Façade 1st Floor Residential (2m)	46 dBA	46 dBA
R6 – Building B East Façade 5th Floor Residential (14.5m)	51 dBA	51 dBA
R7 – Building A & B North Façade 1st Floor Residential (2m)	52 dBA	52 dBA
R8 – Building A & B North Façade 6th Floor Residential (17.5m)	58 dBA	58 dBA

The following Table 6B summarizes the COMBINED "free field" Regional Road 20 traffic noise prediction results as well as the CN Rail "free field" rail noise predictions, modeled at 8 receptor locations representing all facades of Buildings A and B.

TABLE 6B - Predicted Rail and Traffic Noise Levels-Free Field COMBINED		
Location from CP Rail	L_{eq} (dBA)	
	07:00 - 23:00	23:00 - 07:00
R1 – Building A & B South Façade 1st Floor Residential (2m)	66 dBA	60 dBA
R2 – Building A & B South Façade 6th Floor Residential (17.5m)	67 dBA	61 dBA
R3 – Building A West Façade 1st Floor Residential (2m)	62 dBA	56 dBA
R4 – Building A West Façade 5th Floor Residential (14.5m)	62 dBA	57 dBA
R5 – Building B East Façade 1st Floor Residential (2m)	62 dBA	56 dBA
R6 – Building B East Façade 5th Floor Residential (14.5m)	62 dBA	57 dBA
R7 – Building A & B North Façade 1st Floor Residential (2m)	61 dBA	56 dBA
R8 – Building A & B North Façade 6th Floor Residential (17.5m)	62 dBA	59 dBA

3.4 ROAD NOISE - 3-STOREY TOWNHOUSES

The following Table 7 summarizes the "free field" Regional Road 20 traffic noise prediction results, modeled at 6 receptor locations representing various façades of the 3-storey townhouses.

TABLE 7- Predicted Traffic Noise Levels-Free Field (Regional Road 20)		
Location	L_{eq} (dBA)	
	07:00 - 23:00	23:00 - 07:00
R9 – Block 1 Lot 1West Façade and OLA	48 dBA (1.5m)	43 dBA (7.5m)
R10 – Block 1 Lot 7 West Façade and OLA	46 dBA (1.5m)	41 dBA (7.5m)
R11 – Block 4 Lot 24 East Façade and OLA	44 dBA (1.5m)	39 dBA (7.5m)
R12 – Block 4 Lot 27 East Façade and OLA	42 dBA (1.5m)	37 dBA (7.5m)
R13 – Block 6 Lot 37 North Façade and OLA	42 dBA (1.5m)	37 dBA (7.5m)
R14 – Block 7 Lot 41 North Façade and OLA	43 dBA (1.5m)	38 dBA (7.5m)

3.5 RAIL NOISE – 3-STOREY TOWNHOUSES

The following Table 8 summarizes the "free field" Regional Road 20 traffic noise prediction results, modeled at 6 receptor locations representing various façades of the 3-storey townhouses.

TABLE 8- Predicted Rail Traffic Noise Levels-Free Field (CP Rail)		
Location	L_{eq} (dBA)	
	07:00 - 23:00	23:00 - 07:00
R9 – Block 1 Lot 1West Façade and OLA	50 dBA (1.5m)	53 dBA (7.5m)
R10 – Block 1 Lot 7 West Façade and OLA	53 dBA (1.5m)	55 dBA (7.5m)
R11 – Block 4 Lot 24 East Façade and OLA	53 dBA (1.5m)	55 dBA (7.5m)
R12 – Block 4 Lot 27 East Façade and OLA	56 dBA (1.5m)	58 dBA (7.5m)
R13 – Block 6 Lot 37 North Façade and OLA	58 dBA (1.5m)	60 dBA (7.5m)
R14 – Block 7 Lot 41 North Façade and OLA	53 dBA (1.5m)	55 dBA (7.5m)

The following Table 8B summarizes the COMBINED "free field" Regional Road 20 traffic noise prediction results as well as the CN Rail "free field" rail noise predictions, modeled at 8 receptor locations representing various facades of the 3-storey townhouses.

TABLE 8B- Predicted COMBINED Rail and Traffic Noise Levels-Free Field		
Location	L_{eq} (dBA)	
	07:00 - 23:00	23:00 - 07:00
R9 – Block 1 Lot 1West Façade and OLA	52 dBA (1.5m)	53 dBA (7.5m)
R10 – Block 1 Lot 7 West Façade and OLA	53 dBA (1.5m)	55 dBA (7.5m)
R11 – Block 4 Lot 24 East Façade and OLA	53 dBA (1.5m)	55 dBA (7.5m)
R12 – Block 4 Lot 27 East Façade and OLA	56 dBA (1.5m)	58 dBA (7.5m)
R13 – Block 6 Lot 37 North Façade and OLA	58 dBA (1.5m)	60 dBA (7.5m)
R14 – Block 7 Lot 41 North Façade and OLA	54 dBA (1.5m)	55 dBA (7.5m)

4.0 RECOMMENDATIONS - NOISE CONTROL

4.1 OUTDOOR LIVING AREAS - BUILDINGS A & B

Calculated rail noise levels exceed the 55 dBA criteria outlined in Table 1. The preliminary draft plan for the proposed residential development does not include outdoor living areas. Balconies are proposed however they are less than 4m in depth and not considered as OLA's.

4.2 OUTDOOR LIVING AREAS – 3-STOREY TOWNHOUSES

Calculated rail noise levels exceed the 55 dBA criteria outlined in Table 1 for R12 & R13 only. The draft plan for the proposed residential development includes outdoor living areas. Mitigation to reduce outdoor noise levels is required. In lieu of a noise barrier Warning Clause "A" can be used for these two receptors, therefore a noise barrier would not be required.

4.3 INDOOR NOISE LEVELS - BUILDINGS A & B

Specific building components (walls, windows etc.) must be designed and constructed to achieve indoor sound levels within the noise criteria. Predicted noise levels at the outside facade of Buildings A & B were used to determine the appropriate building components to satisfy MECP & CP Rail indoor sound level limits. The building components were specified using the STC (Sound Transmission Class) method.

Building design specifications were not available at report time, therefore, STC calculations summarized in Table 9 following with minimum window, door, and wall construction specified for specific blocks. Assessment was conservative from a noise impact perspective with worst-case design options modeled to satisfy MECP requirements for indoor sound levels. The draft STC value was calculated for each room type, based on typical window to floor ratios of 20% for bedrooms and 30% for living areas. Wall to floor ratio was factored at 100%. A maximum of two components were factored per room. Should final building designs include greater window and wall to floor ratios, current STC values calculations may not satisfy the criteria for noise reduction.

All windows are to be acoustically tested for STC rated compliance. CP requirements for exterior wall construction indicate a maximum requirement of STC-54 construction, brick veneer, or acoustically tested masonry material or equivalent for all buildings within 100m south (Blocks 6 & 7) of the CP Rail property line.

4.4 INDOOR NOISE LEVELS – 3-STOREY TOWNHOUSES

TABLE 9 –Door and Window Construction Requirements			
LOCATION	Window STC To Be	Patio Door STC Construction	Exterior Walls STC
6-Storey Buildings	Examples	Examples	Examples
Bedrooms	STC-35	STC-35	STC-37
Living rooms	STC-35	STC-35	STC-37
3-Storey Townhouses Blocks 6 & 7 Only	Example	Example	Example
Bedrooms	STC-35	STC-35	STC-54
Living rooms	STC-35	STC-35	STC-54
3-Storey Townhouses Blocks 1, 2, 3, 4 & 5	Example	Example	Example
Bedrooms	STC-35	STC-35	STC-37
Living rooms	STC-35	STC-35	STC-37

Recommendations assume windows are well-fitted, weather-stripped units that can be opened.

5.0 VENTILATION / WARNING CLAUSES

Ventilation and Warning Clause requirements are required for this project as noted in Table 10.

TABLE 10 - Ventilation and Warning Clause Requirements		
LOCATION	VENTILATION	WARNING CLAUSE
Buildings A & B	Central Air Conditioning	Type “D” & CP Rail
Block 4 Lot 27 & Block 6 Lot 37	Provisions for Air Conditioning	Type “A”, Type “C” & CP Rail
Blocks 1, 2, 3, 4 & 5	Provisions for Air Conditioning	Type “C” & CP Rail

All residential units within 300m of the CP Rail property line requires the CP Rail Warning Clause. It is recommended that the appropriate warning clauses be inserted into all Offers and Agreements of Purchase and Sale or Lease. See Table 10.

See the following for specific warning clause wording:

TYPE A: (Block 4 Lot 27 and Block 6 Lot 37 only)

> “Purchasers/tenants are advised that sound levels due to increasing road and/or rail traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the Municipality’s and the Ministry of the Environment’s noise criteria.”

TYPE C: (R9, R10, R11, R12, R13 & R14)

"This dwelling unit had been fitted with a forced air heating system and the ducting, etc. was sized to accommodate central air conditioning. Installation of central air conditioning by the occupant will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the Municipality's and the MECP's noise criteria. (Note: The location and installation of the outdoor air conditioning device should be done so as to comply with noise criteria of MECP Publication NPC-216, Residential Air Conditioning Devices and thus minimize the noise impacts both on and in the immediate vicinity of the subject property.)"

TYPE D: (R1, R2, R3, R4, R5, R6, R7 & R8)

"This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the Municipality's and the MECP's noise criteria."

CPR requires the following warning clause be inserted into all Offers and Agreements of Purchase and Sale or Lease throughout the development:

CPR Warning Clause: Building A & B and all Townhouse Units

*"Warning: Canadian Pacific Railway Company or its assigns or successors in interest have a right-of-way within **300m** from the land the subject hereof. There may be alterations to, or exceptions of, the railway facilities on such rights-of-way in the future including the possibility that the railway or its assigns or successors as aforesaid may expand its operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwelling(S). CPR will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid rights-of-way."*

6.0 SUMMARY OF RECOMMENDATIONS

The following noise control measures or equivalent are required to satisfy the indoor and outdoors noise level criterion:

- Specific window, wall and door construction as recommended in Table 9.
- Buildings A & B require Central Air Conditioning as recommended in Table 10.
- Blocks 1 – 7 require Provisions for Air Conditioning as recommended in Table 10.
- Blocks 6 & 7 require Registered Warning Clause "A" registered on title (Table 10).
- All residential units require CP Rail Warning Clause registered on title (Table 10).
- Brick Veneer or Masonry Equivalent from foundation to rafters for Blocks 6 & 7.
- A letter from the window supplier is required to ensure that the proposed windows meet the STC values as noted in Table 9.

It is recommended that a qualified acoustical consultant certify that the required noise control measures have been incorporated into the builder's plans prior to issuance of a building permit.

Prior to issuance of an occupancy permit, it is recommended the qualified acoustical consultant certify that the approved noise control measures have been professionally installed.

7.0 CONCLUSIONS

dBA Acoustical Consultants Inc. has conducted a preliminary noise and vibration study for the proposed "Smithville, West Lincoln Development Concept" in Smithville, ON, on behalf of Elite Smithville Developments Inc. The purpose of the noise and vibration study was to determine the noise and vibration impact for OPA/ZBA approval of the nearby Canadian Pacific Railway (CP) Grimsby Subdivision Principal Rail Line and traffic volumes for Regional Road 20.

Vehicular traffic from local area roadways, other than Regional Road 20 (West Street), are not considered in this report due to low traffic volumes and distance separation from the proposed site. This study detailed noise and vibration impacts at the proposed development and recommended noise and vibration control measures necessary to meet Ministry of Environment Conservation and Parks (MECP) Publication NPC-300, Stationary & Transportation Sources-Approval & Planning and CP guidelines, while satisfying the planning requirements of the Town of West Lincoln and the Regional Municipality of Niagara.

FIGURE 1
KEY MAP

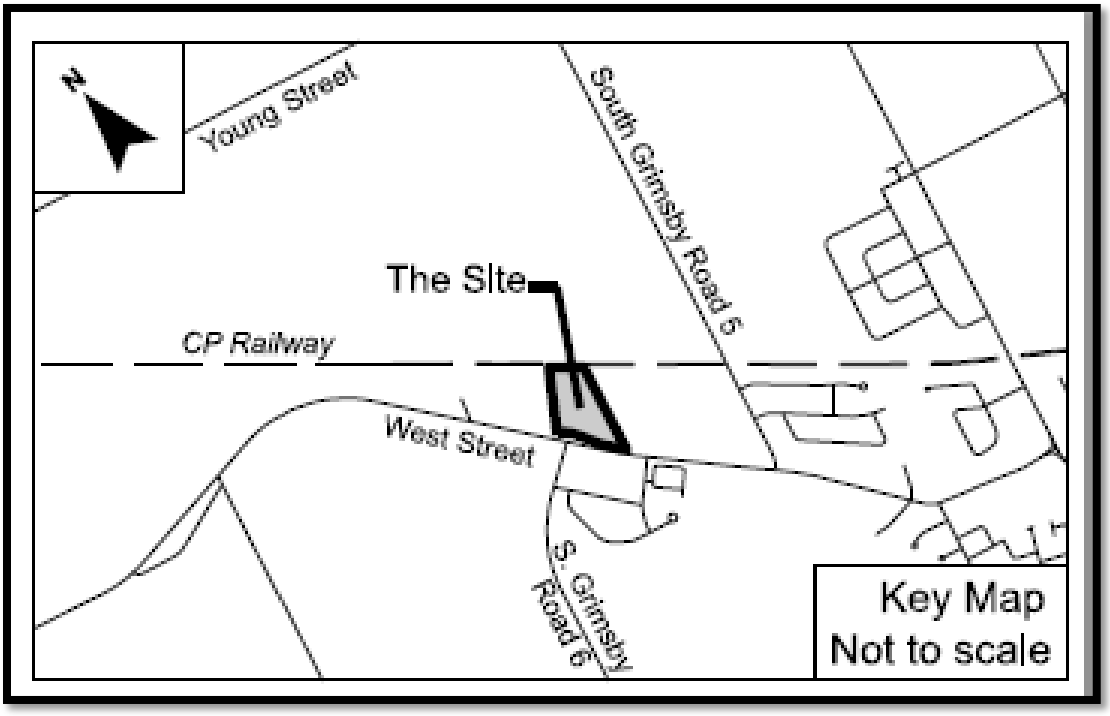

FIGURE 2
SITE PLAN

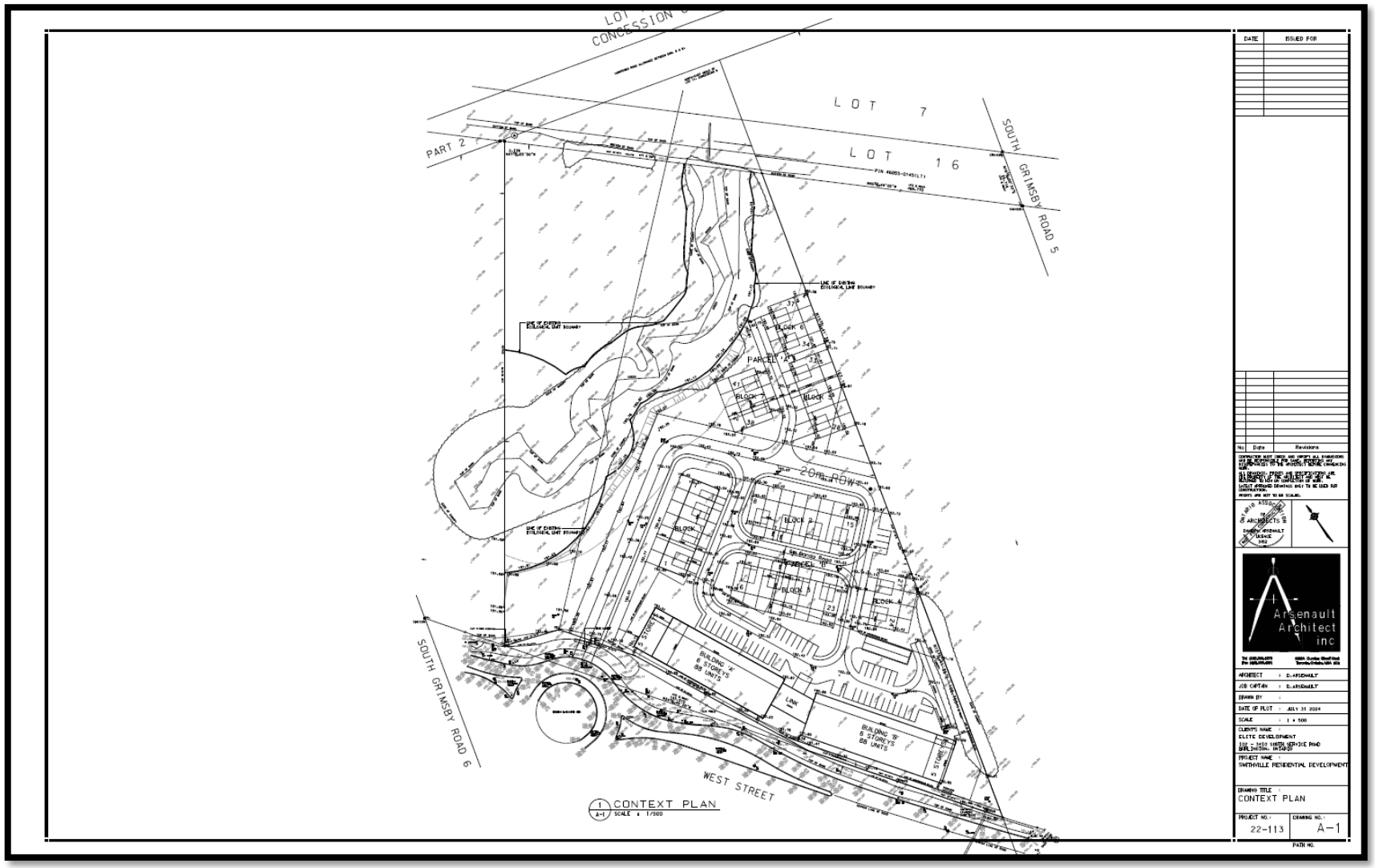

FIGURE 3
RECEPTOR LOCATIONS

APPENDIX “A”

NIAGARA REGION
2017 AADT REGIONAL ROAD 20 (WEST STREET)

Hello Nicole,

We have two recorded AADT values from 2017 and 2020, I advise that the 2020 value not be used as we saw substantial decrease in traffic during the pandemic.

Regional Road 20 (West Street) at the roundabout near South Grimsby Road 6.

- 2017 – 9,700
- 2020 – 8,300

Regards,
Manny Rataul, C.E.T., rcji
Project Manager Road Safety
Transportation Services Division, Niagara Region

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Mobile: 905-401-8193
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www.niagararegion.ca

CP RAIL EMAIL

Good Morning Frank, Wed 2020-12-16 12:50 PM

Per our phone call conversation this morning, please note that CP Real Estate has changed its position regarding the sharing of train information and will no longer provide Rail Data information.

We appreciate that this is a change to what was previously provided by our group.

CP freight trains operate 24/7 and scheduled/volumes are subject to change.

The attached link provides some basic information related to train information for any given corridor.

To be clear, CP is not in favour of residential uses adjacent to its rail facilities and/or operations. Recommend a clause be inserted in all offers of purchase and sale or lease and in the title deed or lease of **each dwelling within 300m of the railway right of way**, warning prospective purchasers or tenants of the existence of the Railway's operating right-of-way; the possibility of alterations including the possibility that the Railway may expand its operations, which expansion may affect the living environment of the residents notwithstanding the inclusion of noise and vibration attenuating measures in the design of the subdivision and the individual units, and that the Railway will not be responsible for complaints or claims arising from the use of its facilities and/or operations.

Sincerely,

Frank Gulas
Manager Real Estate –
Ontario & Manitoba
O 403-319-3436
F 403-319-3727
7550 Ogden Dale Road SE
Calgary AB T2C 4X9

CANADIAN PACIFIC RAILWAY

PRINCIPAL MAIN LINE REQUIREMENTS

1. Berm, or combination berm and noise attenuation fence, having extensions or returns at the ends, to be erected on adjoining property, parallel to the railway right-of-way with construction according to the following:

   a) Minimum total height 5.5 metres above top-of-rail;
   b) Berm minimum height 2.5 metres and side slopes not steeper than 2.5 to 1.
   c) Fence, or wall, to be constructed without openings and of a durable material weighing not less than 20 kg. per square metre (4 lb/sq.ft.) of surface area.

   No part of the berm/noise barrier is to be constructed on railway property.

   A clause should be inserted in all offers of purchase and sale or lease, and be registered on title or included in the lease for each dwelling affected by any noise and vibration attenuation measures, advising that any berm, fencing, or vibration isolation features implemented are not to be tampered with or altered, and further that the owner shall have the sole responsibility for and shall maintain these features.

   Dwellings must be constructed such that the interior noise levels meet the criteria of the appropriate Ministry. A noise study should be carried out by a professional noise consultant to determine what impact, if any, railway noise would have on residents of proposed subdivisions and to recommend mitigation measures, if required. The Railway may consider other measures recommended by the study.

2. Setback of dwellings from the railway right-of-way to be a minimum of 30 metres. While no dwelling should be closer to the right-of-way than the specified setback, an unoccupied building, such as a garage, may be built closer. The 2.5 metre high earth berm adjacent to the right-of-way must be provided in all instances.

3. Ground vibration transmission to be estimated through site tests. If in excess of the acceptable levels, all dwellings within 75 metres of the nearest track should be protected. The measures employed may be:

   a) Support the building on rubber pads between the foundation and the occupied structure so that the maximum vertical natural frequency of the structure on the pads is 12 Hz;
   b) Insulate the building from the vibration originating at the railway tracks by an intervening discontinuity or by installing adequate insulation outside the building, protected from the compaction that would reduce its effectiveness so that vibration in the building became unacceptable; or
   c) Other suitable measures that will retain their effectiveness over time.

4. A clause should be inserted in all offers of purchase and sale or lease and in the title deed or lease of each dwelling within 300m of the railway right-of-way, warning prospective purchasers or tenants of the existence of the Railway's operating right-of-way; the possibility of alterations including the possibility that the Railway may expand its operations, which expansion may affect the living environment of the residents notwithstanding the inclusion of noise and vibration attenuating measures in the design of the subdivision and individual units, and that the Railway will not be responsible for complaints or claims arising from the use of its facilities and/or operations.

5. Any proposed alterations to the existing drainage pattern affecting railway property must receive prior concurrence from the Railway, and be substantiated by a drainage report to be reviewed by the Railway.

6. A 1.83 metre high chain link security fence be constructed and maintained along the common property line of the Railway and the development by the developer at his expense, and the developer is made aware of the necessity of including a covenant running with the lands, in all deeds, obliging the purchasers of the land to maintain the fence in a satisfactory condition at their expense.

7. Any proposed utilities under or over railway property to serve the development must be approved prior to their installation and be covered by the Railway's standard agreement.

STAMSON CALCULATIONS

```
STAMSON 5.04        SUMMARY REPORT        Date: 03-09-2024 11:32:35
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r1smith.te           Time Period: Day/Night 16/8 hours
Description: R1 South Facade Apartments 1st floor
                  TOTAL Leq FROM ALL SOURCES              (DAY): 66.33
                                                         (NIGHT): 60.07

Rail data, segment # 1: CP Rail (day/night)
-------------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
* 1. CP Rail     !   5.1/2.6   !  80.0 !  4.0 !140.0 !Diesel! Yes

* The identified number of trains have been adjusted for
  future growth using the following parameters:

Train type:         ! Unadj. ! Annual % ! Years of !
 No  Name           ! Trains ! Increase !  Growth  !
--------------------+--------+----------+----------+
  1. CP Rail        !   4.0/2.0   !    2.50  !   10.00  !

Data for Segment # 1: CP Rail (day/night)
-----------------------------------------
Angle1   Angle2           : -45.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 225.00 / 225.00 m
Receiver height           :   1.50 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

Result summary (day)
--------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    48.08 !    40.56 !       -- !       -- !    48.79
--------------------+----------+----------+----------+----------+---------
                      Total                                      48.79 dBA

Result summary (night)
----------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    48.34 !    40.64 !       -- !       -- !    49.02
--------------------+----------+----------+----------+----------+---------
                      Total                                      49.02 dBA
```

```
Road data, segment # 1: Hwy 20 (day/night)
------------------------------------------
Car traffic volume  : 11841/1316  veh/TimePeriod  *
Medium truck volume :   252/28    veh/TimePeriod  *
Heavy truck volume  :   504/56    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):   8200
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  27.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   4.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Hwy 20 (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  17.00 / 17.00  m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    66.25 !    66.25
---------------------+----------+----------+----------
                       Total                  66.25 dBA

Result summary (night)
----------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    59.71 !    59.71
---------------------+----------+----------+----------
                       Total                  59.71 dBA
```

```
STAMSON 5.04        SUMMARY REPORT        Date: 04-09-2024 12:33:09
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r2smith.te           Time Period: Day/Night 16/8 hours
Description: R2 South Facade Apartments 6th floor
                  TOTAL Leq FROM ALL SOURCES              (DAY): 66.54
                                                          (NIGHT): 60.90

Rail data, segment # 1: CP Rail (day/night)
-------------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
* 1. CP Rail     !   5.1/2.6   !  80.0 !  4.0 !140.0 !Diesel! Yes

* The identified number of trains have been adjusted for
  future growth using the following parameters:

Train type:         ! Unadj. ! Annual % ! Years of !
 No  Name           ! Trains ! Increase !  Growth  !
--------------------+--------+----------+----------+
  1. CP Rail        !   4.0/2.0   !    2.50  !   10.00  !

Data for Segment # 1: CP Rail (day/night)
-----------------------------------------
Angle1   Angle2           : -45.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 225.00 / 225.00 m
Receiver height           :  17.50 / 17.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

Result summary (day)
--------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    53.94 !    46.06 !       -- !       -- !    54.60
--------------------+----------+----------+----------+----------+---------
                      Total                                      54.60 dBA

Result summary (night)
----------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    54.03 !    46.14 !       -- !       -- !    54.68
--------------------+----------+----------+----------+----------+---------
                      Total                                      54.68 dBA
```

```
Road data, segment # 1: Hwy 20 (day/night)
------------------------------------------
Car traffic volume  : 11841/1316  veh/TimePeriod  *
Medium truck volume :   252/28    veh/TimePeriod  *
Heavy truck volume  :   504/56    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):   8200
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  27.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   4.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Hwy 20 (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  17.00 / 17.00  m
Receiver height           :  17.50 / 17.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    66.25 !    66.25
---------------------+----------+----------+----------
                       Total                  66.25 dBA

Result summary (night)
----------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    59.71 !    59.71
---------------------+----------+----------+----------
                      Total                  59.71 dBA
```

```
STAMSON 5.04        SUMMARY REPORT        Date: 04-09-2024 12:57:16
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r3smith.te           Time Period: Day/Night 16/8 hours
Description: R3 West Facade Apartments 1st floor
                  TOTAL Leq FROM ALL SOURCES              (DAY): 62.23
                                                         (NIGHT): 56.05

Rail data, segment # 1: CP Rail (day/night)
-------------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
* 1. CP Rail     !   5.1/2.6   !  80.0 !  4.0 !140.0 !Diesel! Yes

* The identified number of trains have been adjusted for
  future growth using the following parameters:

Train type:         ! Unadj. ! Annual % ! Years of !
 No  Name           ! Trains ! Increase !  Growth  !
--------------------+--------+----------+----------+
  1. CP Rail        !   4.0/2.0   !    2.50  !   10.00  !

Data for Segment # 1: CP Rail (day/night)
-----------------------------------------
Angle1   Angle2           :  -0.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 220.00 / 220.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

Result summary (day)
--------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    45.40 !    37.71 !       -- !       -- !    46.08
--------------------+----------+----------+----------+----------+---------
                      Total                                      46.08 dBA

Result summary (night)
----------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    45.49 !    37.80 !       -- !       -- !    46.17
--------------------+----------+----------+----------+----------+---------
                      Total                                      46.17 dBA
```

```
Road data, segment # 1: Hwy 20 (day/night)
------------------------------------------
Car traffic volume  : 11841/1316  veh/TimePeriod  *
Medium truck volume :   252/28    veh/TimePeriod  *
Heavy truck volume  :   504/56    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):   8200
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  27.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   4.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Hwy 20 (day/night)
----------------------------------------
Angle1   Angle2           :  -0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  22.00 / 22.00  m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    62.12 !    62.12
---------------------+----------+----------+----------
                       Total                  62.12 dBA

Result summary (night)
----------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    55.58 !    55.58
---------------------+----------+----------+----------
                       Total                  55.58 dBA
```

```
STAMSON 5.04       SUMMARY REPORT        Date: 04-09-2024 13:06:42
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r4smith.te           Time Period: Day/Night 16/8 hours
Description: R4 West Facade Apartments 5th floor
                  TOTAL Leq FROM ALL SOURCES              (DAY): 62.42
                                                         (NIGHT): 56.80

Rail data, segment # 1: CP Rail (day/night)
-------------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
* 1. CP Rail     !   5.1/2.6   !  80.0 !  4.0 !140.0 !Diesel! Yes

* The identified number of trains have been adjusted for
  future growth using the following parameters:

Train type:         ! Unadj. ! Annual % ! Years of !
 No  Name           ! Trains ! Increase !  Growth  !
--------------------+--------+----------+----------+
  1. CP Rail        !   4.0/2.0   !    2.50  !   10.00  !

Data for Segment # 1: CP Rail (day/night)
-----------------------------------------
Angle1   Angle2           :  -0.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 220.00 / 220.00 m
Receiver height           :  14.50 / 14.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

Result summary (day)
--------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    49.95 !    42.07 !       -- !       -- !    50.61
--------------------+----------+----------+----------+----------+---------
                      Total                                      50.61 dBA

Result summary (night)
----------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    50.03 !    42.16 !       -- !       -- !    50.69
--------------------+----------+----------+----------+----------+---------
                      Total                                      50.69 dBA
```

```
Road data, segment # 1: Hwy 20 (day/night)
------------------------------------------
Car traffic volume  : 11841/1316  veh/TimePeriod  *
Medium truck volume :   252/28    veh/TimePeriod  *
Heavy truck volume  :   504/56    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):   8200
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  27.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   4.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Hwy 20 (day/night)
----------------------------------------
Angle1   Angle2           :  -0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  22.00 / 22.00  m
Receiver height           :  14.50 / 14.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    62.12 !    62.12
---------------------+----------+----------+----------
                       Total                  62.12 dBA

Result summary (night)
----------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    55.58 !    55.58
---------------------+----------+----------+----------
                       Total                  55.58 dBA
```

```
STAMSON 5.04        SUMMARY REPORT        Date: 04-09-2024 13:23:39
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r5smith.te           Time Period: Day/Night 16/8 hours
Description: R5 East Facade 1st floor
                  TOTAL Leq FROM ALL SOURCES              (DAY): 62.23
                                                          (NIGHT): 56.05

Rail data, segment # 1: CP Rail (day/night)
-------------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
* 1. CP Rail     !   5.1/2.6   !  80.0 !  4.0 !140.0 !Diesel! Yes

* The identified number of trains have been adjusted for
  future growth using the following parameters:

Train type:         ! Unadj. ! Annual % ! Years of !
 No  Name           ! Trains ! Increase !  Growth  !
--------------------+--------+----------+----------+
  1. CP Rail        !   4.0/2.0   !    2.50  !   10.00  !

Data for Segment # 1: CP Rail (day/night)
-----------------------------------------
Angle1   Angle2           :  -0.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 220.00 / 220.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

Result summary (day)
--------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    45.40 !    37.71 !       -- !       -- !    46.08
--------------------+----------+----------+----------+----------+---------
                      Total                                      46.08 dBA

Result summary (night)
----------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    45.49 !    37.80 !       -- !       -- !    46.17
--------------------+----------+----------+----------+----------+---------
                      Total                                      46.17 dBA
```

```
Road data, segment # 1: Hwy 20 (day/night)
------------------------------------------
Car traffic volume  : 11841/1316  veh/TimePeriod  *
Medium truck volume :   252/28    veh/TimePeriod  *
Heavy truck volume  :   504/56    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):   8200
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  27.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   4.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Hwy 20 (day/night)
----------------------------------------
Angle1   Angle2           :  -0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  22.00 / 22.00  m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    62.12 !    62.12
---------------------+----------+----------+----------
                       Total                  62.12 dBA

Result summary (night)
----------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    55.58 !    55.58
---------------------+----------+----------+----------
                       Total                  55.58 dBA
```

```
STAMSON 5.04        SUMMARY REPORT        Date: 04-09-2024 13:31:21
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r6smith.te           Time Period: Day/Night 16/8 hours
Description: R6 East Facade 5th floor
                  TOTAL Leq FROM ALL SOURCES              (DAY): 62.42
                                                          (NIGHT): 56.80

Rail data, segment # 1: CP Rail (day/night)
-------------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
* 1. CP Rail     !   5.1/2.6   !  80.0 !  4.0 !140.0 !Diesel! Yes

* The identified number of trains have been adjusted for
  future growth using the following parameters:

Train type:         ! Unadj. ! Annual % ! Years of !
 No  Name           ! Trains ! Increase !  Growth  !
--------------------+--------+----------+----------+
  1. CP Rail        !   4.0/2.0   !    2.50  !   10.00  !

Data for Segment # 1: CP Rail (day/night)
-----------------------------------------
Angle1   Angle2           :  -0.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 220.00 / 220.00 m
Receiver height           :  14.50 / 14.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

Result summary (day)
--------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    49.95 !    42.07 !       -- !       -- !    50.61
--------------------+----------+----------+----------+----------+---------
                      Total                                      50.61 dBA

Result summary (night)
----------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    50.03 !    42.16 !       -- !       -- !    50.69
--------------------+----------+----------+----------+----------+---------
                      Total                                      50.69 dBA
```

```
Road data, segment # 1: Hwy 20 (day/night)
------------------------------------------
Car traffic volume  : 11841/1316  veh/TimePeriod  *
Medium truck volume :   252/28    veh/TimePeriod  *
Heavy truck volume  :   504/56    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):   8200
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  27.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   4.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Hwy 20 (day/night)
----------------------------------------
Angle1   Angle2           :  -0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  22.00 / 22.00  m
Receiver height           :  14.50 / 14.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    62.12 !    62.12
---------------------+----------+----------+----------
                       Total                  62.12 dBA

Result summary (night)
----------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    55.58 !    55.58
---------------------+----------+----------+----------
                              Total                  55.58 dBA
```

```
STAMSON 5.04        SUMMARY REPORT        Date: 04-09-2024 13:45:36
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r7smith.te           Time Period: Day/Night 16/8 hours
Description: R7 North Facade 1st floor
                  TOTAL Leq FROM ALL SOURCES              (DAY): 60.69
                                                          (NIGHT): 55.78

Rail data, segment # 1: CP Rail (day/night)
-------------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
* 1. CP Rail     !   5.1/2.6   !  80.0 !  4.0 !140.0 !Diesel! Yes

* The identified number of trains have been adjusted for
  future growth using the following parameters:

Train type:         ! Unadj. ! Annual % ! Years of !
 No  Name           ! Trains ! Increase !  Growth  !
--------------------+--------+----------+----------+
  1. CP Rail        !   4.0/2.0   !    2.50  !   10.00  !

Data for Segment # 1: CP Rail (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 200.00 / 200.00 m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

Result summary (day)
--------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    51.04 !    43.27 !       -- !       -- !    51.71
--------------------+----------+----------+----------+----------+---------
                      Total                                      51.71 dBA

Result summary (night)
----------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    51.12 !    43.35 !       -- !       -- !    51.79
--------------------+----------+----------+----------+----------+---------
                      Total                                      51.79 dBA
```

```
Road data, segment # 1: Hwy 20 (day/night)
------------------------------------------
Car traffic volume  : 11841/1316  veh/TimePeriod  *
Medium truck volume :   252/28    veh/TimePeriod  *
Heavy truck volume  :   504/56    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):   8200
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  27.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   4.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Hwy 20 (day/night)
----------------------------------------
Angle1   Angle2           : -45.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  35.00 / 35.00  m
Receiver height           :   2.00 / 2.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    60.10 !    60.10
---------------------+----------+----------+----------
                       Total                  60.10 dBA

Result summary (night)
----------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    53.57 !    53.57
---------------------+----------+----------+----------
                       Total                  53.57 dBA
```

```
STAMSON 5.04        SUMMARY REPORT        Date: 04-09-2024 13:53:54
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r8smith.te           Time Period: Day/Night 16/8 hours
Description: R8 North Facade 6th floor
                  TOTAL Leq FROM ALL SOURCES              (DAY): 62.15
                                                          (NIGHT): 59.33

Rail data, segment # 1: CP Rail (day/night)
-------------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
* 1. CP Rail     !   5.1/2.6   !  80.0 !  4.0 !140.0 !Diesel! Yes

* The identified number of trains have been adjusted for
  future growth using the following parameters:

Train type:         ! Unadj. ! Annual % ! Years of !
 No  Name           ! Trains ! Increase !  Growth  !
--------------------+--------+----------+----------+
  1. CP Rail        !   4.0/2.0   !    2.50  !   10.00  !

Data for Segment # 1: CP Rail (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 200.00 / 200.00 m
Receiver height           :  17.50 / 17.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

Result summary (day)
--------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    57.27 !    49.23 !       -- !       -- !    57.90
--------------------+----------+----------+----------+----------+---------
                      Total                                      57.90 dBA

Result summary (night)
----------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    57.36 !    49.31 !       -- !       -- !    57.99
--------------------+----------+----------+----------+----------+---------
                      Total                                      57.99 dBA
```

```
Road data, segment # 1: Hwy 20 (day/night)
------------------------------------------
Car traffic volume  : 11841/1316  veh/TimePeriod  *
Medium truck volume :   252/28    veh/TimePeriod  *
Heavy truck volume  :   504/56    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):   8200
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  27.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   4.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Hwy 20 (day/night)
----------------------------------------
Angle1   Angle2           : -45.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  35.00 / 35.00  m
Receiver height           :  17.50 / 17.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    60.10 !    60.10
---------------------+----------+----------+----------
                       Total                  60.10 dBA

Result summary (night)
----------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    53.57 !    53.57
---------------------+----------+----------+----------
                       Total                  53.57 dBA
```

```
STAMSON 5.09        SUMMARY REPORT        Date: 04-09-2024 14:33:41
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r9smith.te           Time Period: Day/Night 16/8 hours
Description: R9 Block 1 Lot 1 Towns West Facade and OLA
                  TOTAL Leq FROM ALL SOURCES              (DAY): 52.40
                                                         (NIGHT): 53.12

Rail data, segment # 1: CP Rail (day/night)
-------------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
* 1. CP Rail     !   5.1/2.6   !  80.0 !  4.0 !140.0 !Diesel! Yes

* The identified number of trains have been adjusted for
  future growth using the following parameters:

Train type:         ! Unadj. ! Annual % ! Years of !
 No  Name           ! Trains ! Increase !  Growth  !
--------------------+--------+----------+----------+
  1. CP Rail        !   4.0/2.0   !    2.50  !   10.00  !

Data for Segment # 1: CP Rail (day/night)
-----------------------------------------
Angle1   Angle2           :  -0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 151.00 / 151.00 m
Receiver height           :   1.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

Result summary (day)
--------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    49.76 !    42.28 !       -- !       -- !    50.47
--------------------+----------+----------+----------+----------+---------
                      Total                                      50.47 dBA

Result summary (night)
----------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    51.99 !    44.13 !       -- !       -- !    52.65
--------------------+----------+----------+----------+----------+---------
                      Total                                      52.65 dBA
```

```
Road data, segment # 1: Hwy 20 (day/night)
------------------------------------------
Car traffic volume  : 11841/1316  veh/TimePeriod  *
Medium truck volume :   252/28    veh/TimePeriod  *
Heavy truck volume  :   504/56    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):   8200
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  27.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   4.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Hwy 20 (day/night)
----------------------------------------
Angle1   Angle2           :  -0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 110.00 / 110.00 m
Receiver height           :   1.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    47.96 !    47.96
---------------------+----------+----------+----------
                       Total                  47.96 dBA

Result summary (night)
----------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    43.27 !    43.27
---------------------+----------+----------+----------
                       Total                  43.27 dBA
```

```
STAMSON 5.04        SUMMARY REPORT        Date: 04-09-2024 14:54:54
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r10smith.te          Time Period: Day/Night 16/8 hours
Description: R10 Block 1 Lot 7 Towns West Facade and OLA
                  TOTAL Leq FROM ALL SOURCES              (DAY): 53.47
                                                         (NIGHT): 54.80

Rail data, segment # 1: CP Rail (day/night)
-------------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
* 1. CP Rail     !   5.1/2.6   !  80.0 !  4.0 !140.0 !Diesel! Yes

* The identified number of trains have been adjusted for
  future growth using the following parameters:

Train type:         ! Unadj. ! Annual % ! Years of !
 No  Name           ! Trains ! Increase !  Growth  !
--------------------+--------+----------+----------+
  1. CP Rail        !   4.0/2.0   !    2.50  !   10.00  !

Data for Segment # 1: CP Rail (day/night)
-----------------------------------------
Angle1   Angle2           :  -0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 110.00 / 110.00 m
Receiver height           :   1.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

Result summary (day)
--------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    51.94 !    44.57 !       -- !       -- !    52.67
--------------------+----------+----------+----------+----------+---------
                      Total                                      52.67 dBA

Result summary (night)
----------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    53.92 !    46.21 !       -- !       -- !    54.60
--------------------+----------+----------+----------+----------+---------
                      Total                                      54.60 dBA
```

```
Road data, segment # 1: Hwy 20 (day/night)
------------------------------------------
Car traffic volume  : 11841/1316  veh/TimePeriod  *
Medium truck volume :   252/28    veh/TimePeriod  *
Heavy truck volume  :   504/56    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):   8200
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  27.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   4.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Hwy 20 (day/night)
----------------------------------------
Angle1   Angle2           :  -0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 150.00 / 150.00 m
Receiver height           :   1.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    45.72 !    45.72
---------------------+----------+----------+----------
                       Total                   45.72 dBA

Result summary (night)
----------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    41.28 !    41.28
---------------------+----------+----------+----------
                       Total                   41.28 dBA
```

```
STAMSON 5.04        SUMMARY REPORT        Date: 04-09-2024 15:19:08
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r11smith.te          Time Period: Day/Night 16/8 hours
```
Description: R11 Block 4 Lot 24 Towns East Facade and OLA
TOTAL Leq FROM ALL SOURCES (DAY): 53.21
(NIGHT): 54.72

```
Rail data, segment # 1: CP Rail (day/night)
-------------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
* 1. CP Rail     !   5.1/2.6   !  80.0 !  4.0 !140.0 !Diesel! Yes

* The identified number of trains have been adjusted for
  future growth using the following parameters:

Train type:         ! Unadj. ! Annual % ! Years of !
 No  Name           ! Trains ! Increase !  Growth  !
--------------------+--------+----------+----------+
  1. CP Rail        !   4.0/2.0   !    2.50  !   10.00  !

Data for Segment # 1: CP Rail (day/night)
-----------------------------------------
Angle1   Angle2           :  -0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 110.00 / 110.00 m
Receiver height           :   1.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

Result summary (day)
--------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    51.94 !    44.57 !       -- !       -- !    52.67
--------------------+----------+----------+----------+----------+---------
                      Total                                      52.67 dBA

Result summary (night)
----------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    53.92 !    46.21 !       -- !       -- !    54.60
--------------------+----------+----------+----------+----------+---------
                      Total                                      54.60 dBA
```

```
Road data, segment # 1: Hwy 20 (day/night)
------------------------------------------
Car traffic volume  : 11841/1316  veh/TimePeriod  *
Medium truck volume :   252/28    veh/TimePeriod  *
Heavy truck volume  :   504/56    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):   8200
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  27.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   4.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Hwy 20 (day/night)
----------------------------------------
Angle1   Angle2           :  -0.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 150.00 / 150.00 m
Receiver height           :   1.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    43.86 !    43.86
---------------------+----------+----------+----------
                       Total                  43.86 dBA

Result summary (night)
----------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    39.19 !    39.19
---------------------+----------+----------+----------
                       Total                  39.19 dBA
```

```
STAMSON 5.04        SUMMARY REPORT        Date: 04-09-2024 15:40:14
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r12smith.te          Time Period: Day/Night 16/8 hours
Description: R12 Block 4 Lot 27 Towns East Facade and OLA
                  TOTAL Leq FROM ALL SOURCES              (DAY): 56.36
                                                         (NIGHT): 57.93

Rail data, segment # 1: CP Rail (day/night)
-------------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
* 1. CP Rail     !   5.1/2.6   !  80.0 !  4.0 !140.0 !Diesel! Yes

* The identified number of trains have been adjusted for
  future growth using the following parameters:

Train type:         ! Unadj. ! Annual % ! Years of !
 No  Name           ! Trains ! Increase !  Growth  !
--------------------+--------+----------+----------+
  1. CP Rail        !   4.0/2.0   !    2.50  !   10.00  !

Data for Segment # 1: CP Rail (day/night)
-----------------------------------------
Angle1   Angle2           : -45.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  90.00 / 90.00  m
Receiver height           :   1.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

Result summary (day)
--------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    55.47 !    48.19 !       -- !       -- !    56.21
--------------------+----------+----------+----------+----------+---------
                      Total                                      56.21 dBA

Result summary (night)
----------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    57.19 !    49.63 !       -- !       -- !    57.89
--------------------+----------+----------+----------+----------+---------
                      Total                                      57.89 dBA
```

```
Road data, segment # 1: Hwy 20 (day/night)
------------------------------------------
Car traffic volume  : 11841/1316  veh/TimePeriod  *
Medium truck volume :   252/28    veh/TimePeriod  *
Heavy truck volume  :   504/56    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):   8200
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  27.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   4.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Hwy 20 (day/night)
----------------------------------------
Angle1   Angle2           :  -0.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 200.00 / 200.00 m
Receiver height           :   1.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    41.79 !    41.79
---------------------+----------+----------+----------
                       Total                  41.79 dBA

Result summary (night)
----------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    37.33 !    37.33
---------------------+----------+----------+----------
                       Total                  37.33 dBA
```

```
STAMSON 5.04        SUMMARY REPORT        Date: 04-09-2024 16:09:29
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r13smith.te          Time Period: Day/Night 16/8 hours
Description: R13 Block 6 Lot 37 Towns East Facade and OLA
                  TOTAL Leq FROM ALL SOURCES              (DAY): 58.44
                                                         (NIGHT): 60.00

Rail data, segment # 1: CP Rail (day/night)
-------------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
* 1. CP Rail     !   5.1/2.6   !  80.0 !  4.0 !140.0 !Diesel! Yes

* The identified number of trains have been adjusted for
  future growth using the following parameters:

Train type:         ! Unadj. ! Annual % ! Years of !
 No  Name           ! Trains ! Increase !  Growth  !
--------------------+--------+----------+----------+
  1. CP Rail        !   4.0/2.0   !    2.50  !   10.00  !

Data for Segment # 1: CP Rail (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  75.00 / 75.00  m
Receiver height           :   1.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

Result summary (day)
--------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    57.59 !    50.34 !       -- !       -- !    58.34
--------------------+----------+----------+----------+----------+---------
                      Total                                      58.34 dBA

Result summary (night)
----------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    59.27 !    51.74 !       -- !       -- !    59.98
--------------------+----------+----------+----------+----------+---------
                      Total                                      59.98 dBA
```

```
Road data, segment # 1: Hwy 20 (day/night)
------------------------------------------
Car traffic volume  : 11841/1316  veh/TimePeriod  *
Medium truck volume :   252/28    veh/TimePeriod  *
Heavy truck volume  :   504/56    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):   8200
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  27.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   4.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Hwy 20 (day/night)
----------------------------------------
Angle1   Angle2           :  -0.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 200.00 / 200.00 m
Receiver height           :   1.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    41.79 !    41.79
---------------------+----------+----------+----------
                       Total                  41.79 dBA

Result summary (night)
----------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    37.33 !    37.33
---------------------+----------+----------+----------
                       Total                  37.33 dBA
```

```
STAMSON 5.04        SUMMARY REPORT        Date: 04-09-2024 16:23:40
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r14smith.te          Time Period: Day/Night 16/8 hours
Description: R13 Block 7 Lot 41 Towns East Facade and OLA
                  TOTAL Leq FROM ALL SOURCES              (DAY): 53.69
                                                         (NIGHT): 55.29

Rail data, segment # 1: CP Rail (day/night)
-------------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
* 1. CP Rail     !   5.1/2.6   !  80.0 !  4.0 !140.0 !Diesel! Yes

* The identified number of trains have been adjusted for
  future growth using the following parameters:

Train type:         ! Unadj. ! Annual % ! Years of !
 No  Name           ! Trains ! Increase !  Growth  !
--------------------+--------+----------+----------+
  1. CP Rail        !   4.0/2.0   !    2.50  !   10.00  !

Data for Segment # 1: CP Rail (day/night)
-----------------------------------------
Angle1   Angle2           :  -0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 100.00 / 100.00 m
Receiver height           :   1.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

Result summary (day)
--------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    52.60 !    45.25 !       -- !       -- !    53.33
--------------------+----------+----------+----------+----------+---------
                      Total                                      53.33 dBA

Result summary (night)
----------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+---------
 1.CP Rail          !    54.51 !    46.84 !       -- !       -- !    55.20
--------------------+----------+----------+----------+----------+---------
                      Total                                      55.20 dBA
```

```
Road data, segment # 1: Hwy 20 (day/night)
------------------------------------------
Car traffic volume  : 11841/1316  veh/TimePeriod  *
Medium truck volume :   252/28    veh/TimePeriod  *
Heavy truck volume  :   504/56    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):   8200
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  27.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   4.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Hwy 20 (day/night)
----------------------------------------
Angle1   Angle2           :  -0.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 175.00 / 175.00 m
Receiver height           :   1.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    42.75 !    42.75
---------------------+----------+----------+----------
                       Total                  42.75 dBA

Result summary (night)
----------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !    (m)   !  (dBA)   !  (dBA)
---------------------+----------+----------+----------
 1.Hwy 20            !     1.41 !    38.19 !    38.19
---------------------+----------+----------+----------
                       Total                  38.19 dBA
```

EXTERIOR WALL STC RATINGS

EXTERIOR WALL STC RATINGS

Wall Configuration	EW1	EW2	EW3	EW4	EW1R	EW2R	EW3R	EW5	EW4R	EW6	EW7 EW5R	EW8
STC Rating	**38**	**40**	**43**	**46**	**47**	**48**	**49**	**54**	**55**	**57**	**58**	**62**

Source: National Research Council, Division of Building Research

NOTES:

1 The common structure of walls EW1 to EW5 is composed of 12.7mm gypsum board, vapour barrier and 38x89 mm studs with 50 mm (or thicker) mineral wool or glass fibre batts in inter-stud cavities.

- EW1 denotes the common structure, plus sheathing, plus wood siding or metal siding and fibre backer board
- EW2 denotes the common structure, plus rigid insulation (25 to 30 mm), and wood siding or metal siding and fibre backer board.
- EW3 denotes simulated mansard with the common structure, plus sheathing, 28 X89 mm framing, sheathing and asphalt roofing material
- EW4 denotes the common structure, plus sheathing and 20 mm stucco.
- EW5 denotes the common structure, plus sheathing, 25 mm air space, 100mm brick veneer.
- EW6 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25 to 50 mm), 100 mm back-up block 100 mm face brick.
- EW7 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25 to 50 mm), 140mm back-up block, 100 mm face brick.
- EW8 denotes exterior wall composed of 12.7 mm gypsum board, rigid insulation (25 to 50 mm), 200 mm concrete.

2 R signifies the mounting of the interior gypsum board on resilient clips.

3 An exterior wall conforming to rainscreen design principles and composed of 12.7 mm gypsum board, 100 mm concrete block, rigid insulation (25 to 50 mm), 25 mm air space, and 100 mm brick veneer has the same STC as EW6.

4 An exterior wall described in EW1 with the addition of rigid insulation (25 to 50 mm) between the sheathing and the external finish has the same STC as EW2.