

NOISE IMPACT STUDY

Proposed Residential Development

“Summit View Phase 3”

Town of Collingwood
County of Simcoe

Prepared for:

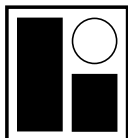
Poplar Developments I Inc.

Prepared by:

Ralph Bouwmeester, P. Eng.



May 31, 2023



R. BOUWMEESTER & ASSOCIATES
165 Browning Trail
Barrie, Ontario, Canada L4N 5E7
tel: (705) 726-3392 fax: (705) 726-3392

RBA File: A23014

EXECUTIVE SUMMARY

R. BOUWMEESTER & ASSOCIATES has been retained to assess future traffic noise impacts on residential uses within a proposed Draft Plan of Subdivision located in the north-west quadrant of Poplar Sideroad and High Street in the Town of Collingwood.

The goals and objectives of this study are four-fold, namely:

1. To identify noise sources and noise-sensitive land uses.
2. To recommend mitigation measures, if and where required.
3. To identify those areas, if any, requiring more detailed studies.
4. To satisfy the development approval requirements of the Town of Collingwood.

The noise source of concern is future traffic on Poplar Sideroad and High Street. No other significant noise sources have been identified.

Traffic data were obtained from a Traffic Impact Study (draft) dated March 23, 2023, by Tatham Engineering Limited. Future traffic volumes apply to Year 2035 thereby providing the 10-year projection window required by the MECP.

Roadway noise from cars and medium and heavy trucks has been accounted for in this analysis.

The predicted equivalent outdoor sound levels at the subject site resulting from future road traffic exceed the limits established by the MECP. Mitigation measures are required to bring day and night-time sound levels down to acceptable levels.

Generally speaking, dwellings on residential lots/blocks nearest Poplar Sideroad or High Street (see Figure 3) require:

1. forced air heating systems sized for the future installation of central air conditioning at the dwelling owners' option and expense, and
2. warning clauses registered on title and included in the Subdivision Agreement and all Agreements of Purchase and Sale or Lease.

The noise control requirements are summarized in Section 7 and Table 4 and Figure 3.

See notes following Table 4 for suggested warning clause wording.

In summary, based on the configuration of the subject Draft Plan, the MECP transportation noise guidelines (NPC-300) can be met in all dwelling units and outdoor living areas with the incorporation of the recommendations contained herein.

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1. INTRODUCTION

R. BOUWMEESTER & ASSOCIATES has been retained to assess future traffic noise impacts on residential uses within a proposed Draft Plan of Subdivision located in the north-west quadrant of Poplar Sideroad and High Street in the Town of Collingwood. See Figure 1.

Our analysis is based on a Draft Plan, dated February 28, 2023, by MHBC Planning, showing 38 semi-detached units and 97 townhouse units in 19 Blocks along with Blocks for walkways, parks, road widening, etc. See Appendix 'C'.

2. GOALS AND OBJECTIVES

The goals and objectives of this study are four-fold, namely:

1. To identify noise sources and noise-sensitive land uses.
2. To recommend mitigation measures, if and where required.
3. To identify those areas, if any, requiring more detailed studies.
4. To satisfy the development approval requirements of the Town of Collingwood.

3. NOISE SOURCES

The noise source of concern is future traffic on Poplar Sideroad and High Street.

Traffic data were obtained from a Traffic Impact Study (draft) dated March 23, 2023, by Tatham Engineering Limited. See Appendix 'A'.

4. GUIDELINES AND CRITERIA

Reference is made to Ministry of the Environment (MECP) publication, Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning (Publication NPC-300, Aug 2013 ver. #22) which recommends various sound level limits for indoor and outdoor settings, under different time scenarios, and differing uses.

4.1 Sound Level Limits

The following NPC-300 sound level limits apply to road traffic:

TABLE 1 - Sound Level Limits (Leq)

Location	Time Period		Limit (dBA)
<u>Outdoor</u>			
Outdoor Living Area	Day	0700-2300 hrs	55
<u>Indoor</u>			
Living/Dining Room	All	0700-0700 hrs	45
Bedroom (day)	Day	0700-2300 hrs	45
Bedroom (night)	Night	2300-0700 hrs	40

4.2 Noise Control Measures

NPC-300 states that *“Noise control measures are not required if the sound level estimated in the OLA is 55 dBA or less during the daytime and 50 dBA or less in the plane of bedroom windows during either daytime or nighttime”*.

4.2.1 Outdoor Living Areas

The above-noted outdoor limit of 55 dBA applies to a protected Outdoor Living Area (OLA) of at least 56 m² (600 sq. ft.) in the case of single-family detached homes, 46 m² (500 sq. ft.) in the case of semi-detached units, and 37 m² (400 sq. ft.) in the case of row or townhouse units.

The MECP guidelines indicate that *“Noise control measures are not required if the sound level estimated in the OLA is 55 dBA or less during the daytime”*.

The guidelines state that if the sound level is greater than 55 dBA and less than or equal to 60 dBA, *“noise control measures may be applied to reduce the sound level to 55 dBA. If measures are not provided, prospective purchasers or tenants should be informed of potential noise problems by a warning clause Type A”*.

The guidelines further state that if the sound level in the Outdoor Living Area is greater than 60 dBA, *“noise control measures should be implemented to reduce the level to 55 dBA. Only in cases where the required noise control measures are not feasible for technical, economic or administrative reasons would an excess above the limit (55 dBA) be acceptable with a warning clause Type B. In the above situations, any excess above the limit will not be acceptable if it exceeds 5 dBA.”* Acoustic barriers typically provide the mitigation needed, and warning clauses are required to be registered on title against the affected units.

4.2.2 Plane of Window - Ventilation Requirements

Ventilation requirements to reduce indoor sound levels, by allowing windows to remain closed if so desired by the occupants, include the following:

- For outdoor daytime sound levels in the plane of living/dining/bedroom windows greater than 55 dBA and less than or equal to 65 dBA, dwelling units must be equipped with forced air heating systems with ducting sized for the future installation of central air conditioning. Window, wall, and door components meeting normal Ontario Building Code requirements are typically adequate under these conditions, although a warning clause (Type C) must be registered on title against the affected dwelling units.
- For outdoor daytime sound levels in the plane of living/dining/bedroom windows greater than 65 dBA, dwelling units must be equipped with central air conditioning. A warning clause (Type D) must be registered on title against the affected units.

Ventilation requirements under night-time conditions are similar to the above except that 50 and 60 dBA are used in place of 55 dBA and 65 dBA, respectively.

The location and installation of the outdoor air conditioning device should comply with sound level limits of Publication NPC-216 and guidelines contained in Environmental Noise Guidelines for Installation of Residential Air Conditioning Devices or should comply with other criteria specified by the municipality.

4.2.3 Indoor Living Areas - Building Component Requirements

If day-time sound levels outside living/dining/bedroom windows exceed 65 dBA (or night-time levels exceed 60 dBA) building components including windows, walls and doors must be designed so that the indoor sound levels meet the sound level limits quoted in Table 1.

The above sound level limits and mitigation requirements can be summarized as follows:

TABLE 2 - Sound Level Limits and Standard Mitigation Requirements

	<u>Outdoor Sound Level Limits (dBA)</u>		
	<u>Plane of Window</u>		OLA
	Day	Night	
Do nothing	≤55	≤50	≤55
Noise barrier or Warning Clause A			56 - 60
Mandatory noise barrier *			>60
Provision for future A/C **	56 - 65	51 - 60	
Mandatory A/C **	>65	>60	
Special building component design			
Road	>65	>60	

Notes:

* Warning Clause B is required if the net resultant sound level is 56-60 dBA (to the maximum allowable 60 dBA).

** Warning clauses required (A, B and C for future central air conditioning; A, B and D for mandatory central air).

5. ANALYSIS PROCEDURES

5.1 Surroundings and Site Characteristics

The 6.89 ha site is located in the northwest quadrant of Poplar Sideroad and High Street. See Figure 1. Approved residential subdivisions are located immediately north and west of the subject site and across High Street to the east. Rural residential lots are located south of Poplar Sideroad.

The subject lands have frontage along both Poplar Sideroad and High Street although the frontages do not extend to the intersection; there are existing pockets of land not included in the Draft Plan. See Appendix 'C'.

The lands are vacant and relatively flat.

The proposed development calls for 135 dwelling units (38 semis and 97 towns) along with Blocks for walkways, parks, road widening, etc.

5.2 Noise Sources

The noise source of concern is future traffic on Poplar Sideroad and High Street.

No other significant noise sources have been identified.

Roadway noise from cars and medium and heavy trucks has been accounted for in this analysis. The noise source heights used are per MECP criteria.

We have assumed that the terrain between the road and the proposed receivers is non-reflective. The noise levels given in Table 3 take into account building orientation and shielding; shielding by vegetation has not been accounted for.

It is assumed that Poplar Sideroad is of infinite length. High Street ends at Poplar Sideroad (in a roundabout).

5.3 Traffic Data

The traffic report provided by Tatham Engineering Limited indicates that High Street is an arterial road under the jurisdiction of the Town of Collingwood, while Poplar Sideroad, also known as County Road 32, is a primary arterial road under the jurisdiction of the County of Simcoe. Both are currently two-lane roads although there are plans to widen High Street to four lanes by Year 2025.

The Year 2035 traffic projections are 5,910 AADT for Poplar Sideroad and 7,140 AADT for High Street. These figures provide the 10-year projection window required by MECP.

Commercial traffic consists of 8% medium and 1% heavy trucks on Poplar Sideroad adjacent to the subject lands, and 6% medium and 1% heavies on High Street.

Both streets are relatively flat (<2% grade).

The MECP-recommended percentage splits for day and night time traffic volumes were used in this study (i.e. 90/10 for arterial roads).

The posted speed limits are 60 kph on Poplar Sideroad and 50 kph on High Street.

See Appendix 'A' for further road traffic details.

5.4 Study Periods

The key study periods, as per MECP guidelines, are the 16-hour day-time period between 7:00 am and 11:00 pm, and the 8-hour night-time period between 11:00 pm and 7:00 am.

5.5 Sound Level Prediction Model

Noise level calculations were carried out per MECP guidelines (Environmental Noise Assessment in Land Use Planning, Training Manual, 1987) and through the use of their road noise model ORNAMENT. See References.

5.6 Correction Factors

The corrections required by the MECP to be applied to the noise levels have been taken into account where applicable. Some examples include:

- a) Road segment lengths
- b) Ground surface type
- c) Source - receiver distance
- d) Height of elevated source/receiver, and
- e) Day/night split in traffic volumes.

6. CALCULATED EQUIVALENT SOUND LEVELS

Indoor sound levels are typically estimated by calculating outdoor levels along the face of a wall exposed to the noise source (i.e. in the plane of windows). Under NPC-300, day and night-time receiver heights are set at bedroom windows which are typically 4.5 m above grade in a typical single or semi-detached house or townhouse.

We have assumed 7.5 m rear yard setbacks and 4.5 m front yards.

OLA sound levels are typically calculated for receivers 3.0 m from the rear wall of a dwelling at a height of 1.5 m above the finished grade.

Decks and balconies are exempt from the MECP outdoor noise limits unless they are the only outdoor living area available to the resident, and they are at least 4.0 m deep, outside the building façade, and unenclosed.

Ground attenuation was taken into account as per MECP guidelines.

Our analysis includes a sampling of noise levels that can be expected based on the configuration of the Draft Plan. It considers noise levels along the building facades and in the outdoor living areas as described above. These noise level predictions were used to flag those areas requiring mitigation.

A summary of predicted outdoor daytime and night-time sound levels for representative receptor locations is presented in Table 3. See Figure 2 for receptor test locations and Appendix 'B' for sample calculations.

TABLE 3 - Predicted Outdoor Sound Levels (dBA)

Outdoor Equivalent Sound Levels (Leq) Due to Road Traffic (unmitigated)				
Receptor	Noise Source	Day	Night	OLA
1	Poplar/High	-	-	51
2	Poplar/High	-	-	55
3	Poplar/High	58	51	-
4	Poplar/High	56	49	-
5	Poplar/High	58	51	-
6	Poplar/High	-	-	56
7	Poplar/High	55	48	-
8	Poplar/High	52	45	-
9	Poplar/High	58	51	-
10	Poplar/High	-	-	58
11	Poplar/High	-	-	59

The results shown in Table 3 confirm that mitigation measures are required to ensure that the day and night-time sound levels meet the MECP criteria.

The following summarizes typical acoustic requirements and describes how they apply to this proposed development.

Warning clauses must be registered on title and included in Development Agreements and in all Agreements of Purchase and Sale or Lease where the sound level limits are exceeded. Based on the predicted noise levels, warning clauses are required for certain lots. See Table 4 and notes following the table for affected lots and suggested wording.

Central air conditioning is required where the outdoor sound level due to road traffic exceeds 65 dBA daytime in the plane of a living/dining/bedroom window (or 60 dBA night-time). Central air conditioning is not meant to be a sound mitigating measure, although it does provide the dwelling occupants with the option of closing windows if so desired. Based on the predicted noise levels at the building faces, central air is not required for any dwelling units.

Special building component design, to ensure that indoor sound levels due to road traffic meet the limits specified in Section 4, is required for residential units where the daytime outdoor sound level in the plane of a living/dining/bedroom window exceeds 65 dBA (or 60 dBA night-time). Based on the predicted noise levels at the building faces, special building component design is not required for any dwelling units.

Forced air heating systems, with ductwork sized to accommodate the future installation of central air conditioning, are required for certain dwelling units where the daytime outdoor sound level in the plane of a living/dining/bedroom window exceeds 55 dBA (or 50 dBA night-time). See Table 4. Building components meeting the requirements of the Ontario Building Code will provide adequate acoustic insulation for these dwellings.

Acoustic barriers, to protect outdoor living areas, are required where the daytime outdoor sound level in an OLA exceeds 60 dBA. The MECP sound level objective for outdoor living areas is 55 dBA, however, when noise controls are not provided, sound level excesses of up to 5 dBA are permitted with an appropriate warning clause (Type A).

Residual noise levels (above 55 dBA) resulting from reduced noise barrier heights must be covered through the use of an appropriately worded warning clause (Type B).

Based on the configuration of the proposed Draft Plan, acoustic barriers are not required.

7. **RECOMMENDATIONS**

1. Lot 1 and Blocks 19, 20, 24, 33 and 34 require warning clauses registered on title and included in the Subdivision Agreement and all Agreements of Purchase and Sale or Lease. See Table 4 and Notes to Table 4 for wording.
2. Lot 1 and Blocks 19, 20, 24, 33 and 34 require forced air heating systems sized for the future installation of central air conditioning at the dwelling owners' option and expense.

8. **CONCLUSIONS**

In summary, based on the configuration of the subject Draft Plan, the MECP transportation noise guidelines (NPC-300) can be met in all dwelling units and outdoor living areas with the incorporation of the recommendations contained herein.

Respectfully submitted,

R. BOUWMEESTER & ASSOCIATES



Ralph Bouwmeester, P. Eng.
Principal

TABLE 4 - Summary of Noise Controls

Lot / Block	Central Air Conditioning	Exterior Windows, Walls and Doors	Acoustic Barrier	Warning Clauses¹
1, 19, 20 24, 33, 34	Provision for Adding	OBC	No	A + B + C
2 – 18, 21 – 23 25 – 32, 35 – 38	No acoustic requirements			
39 – 46	Not residential			

Notes:

1. See Notes to Table 4 on the following page for wording.

NOTES TO TABLE 4

1. Air-cooled condenser units should be located in a noise-insensitive location.
2. 'OBC' indicates that construction meeting the minimum non-acoustical requirements of the Ontario Building Code will provide adequate sound insulation. 'Special' indicates that exterior building components such as windows, walls and doors have to be determined by an acoustic consultant when house plans are available and before building permit issuance.
3. Acoustic barriers shall be of solid construction with no cracks, holes or gaps, and have a surface density of no less than 20 kg/sm. Any gaps under the noise barrier that are necessary for drainage purposes must be minimized and localized, and must not deteriorate the acoustical performance. A barrier may consist of a berm, a fence, or both.
4. The following warning clauses must be registered on title and included in the Subdivision Agreement and all Agreements of Purchase and Sale or Lease for those lots and blocks as specified in Table 4:

TYPE A: *"Purchasers/tenants are advised that sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment, Conservation and Parks."*

TYPE B: *"Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road traffic may on occasions interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment, Conservation and Parks."*

TYPE C: *"This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant in low and medium density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment, Conservation and Parks."*

TYPE D: *"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 sound level limits of the Municipality and the Ministry of the Environment, Conservation and Parks."*

5. Conventional ventilated attic roof construction meeting OBC requirements is satisfactory.
6. All exterior doors must be fully weather-stripped.

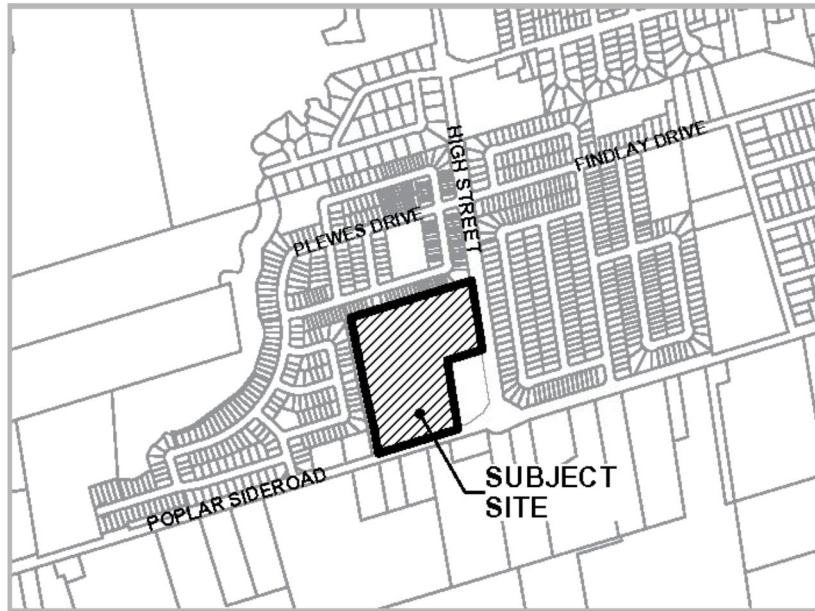
REFERENCES

1. Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning (MECP Publication NPC-300, Aug 2013 ver. #22)
2. Environmental Noise Assessment in Land Use Planning (MECP Training Manual, 1987)
3. Road and Rail Noise: Effects on Housing (CMHC, Rev. 1981)
4. ORNAMENT (Ontario Road Noise Analysis Method for Environment and Transportation) (MECP, October 1989)
5. Traffic Impact Study (draft) (Tatham Engineering Limited, March 23, 2023)

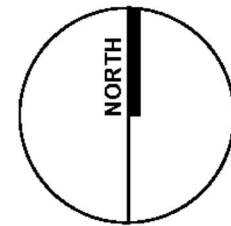
FIGURES

Figure 1 - Location Plan
Figure 2 - Receptor Plan
Figure 3 - Noise Control Plan

KEY PLAN



 Subject Site



SCALE



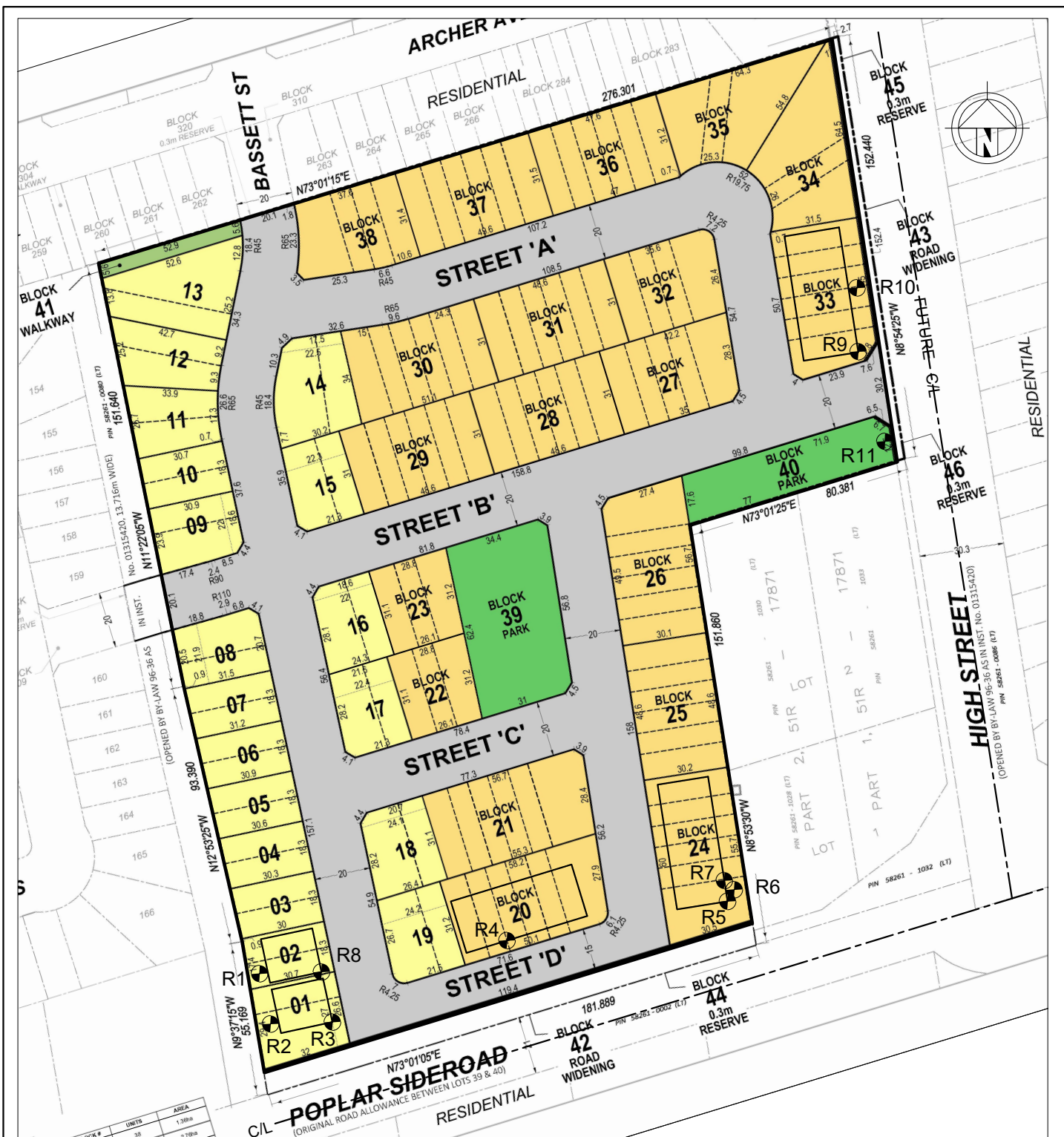
Location Plan

Scale: as shown

FIG. 1

May 2023

R. Bouwmeester & Associates



LEGEND



Building envelope and Receptor Location

Receptor Plan

Scale: 1 : 2000

FIG. 2

May 2023

R. Bouwmeester & Associates

Draft Plan source: MHBC Planning

Draft Plan source: MHBC Planning

APPENDICES

- A. Road Traffic Data
- B. Sample Sound Level Calculations
- C. Draft Plan of Subdivision

APPENDIX 'A'

ROAD TRAFFIC DATA

Tatham Engineering Limited

The following data were derived from a *Traffic Impact Study (draft)* dated March 23, 2023, by Tatham Engineering Limited:

Poplar Sideroad

- Year 2035 AADT 5,910
- Number of lanes 2
- Percent trucks M / H 8 / 1
- Posted Speed 60 kph
- Road Grade <2%

High Street

- Year 2035 AADT 7,140
- Number of lanes 2 (4 future, by Year 2025)
- Percent trucks M / H 6 / 1
- Posted Speed 50 kph
- Road Grade <2%

Ministry of the Environment, Conservation and Parks

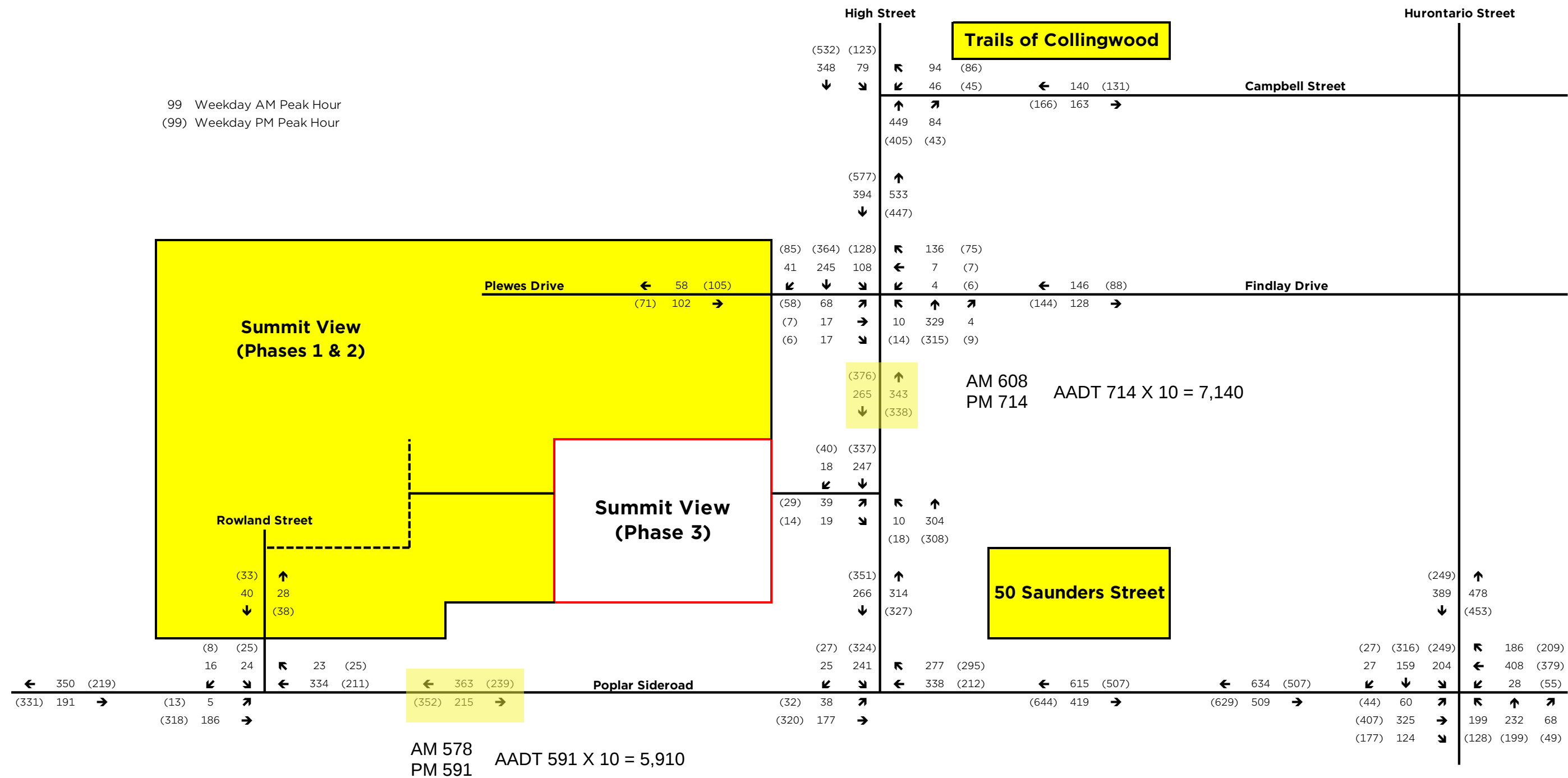
The MECP recommended splits for day/night traffic are:

- arterial roads 90/10

SUMMARY OF DATA USED IN THIS STUDY

For this noise assessment, the following Year 2035 data apply:

	Poplar	High
Traffic volume (AADT)	5,910	7,140
Day/night split (%)	90 / 10	90 / 10
Percent trucks M / H	8 / 1	6 / 1
Posted Speed	60 kph	50 kph
Number of lanes	2	2 (4 future)
ROW width (m)	19.7	30
Road Grade (%) *	<2%	<2%
Pavement Type	normal asphalt	normal asphalt



SUMMIT VIEW - PHASE 3
Figure 14: Total Traffic Volumes - 2035



APPENDIX 'B'

SAMPLE SOUND LEVEL CALCULATIONS

STAMSON 5.0 NORMAL REPORT Date: 31-05-2023 12:10:37
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: a23014r1.te Time Period: 16 hours
Description: R1 OLA

Road data, segment # 1: High St

Car traffic volume : 5976 veh/TimePeriod *
Medium truck volume : 386 veh/TimePeriod *
Heavy truck volume : 64 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: High St

Angle1 Angle2 : -90.00 deg 3.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1
House density : 95 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 269.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Poplar SDRD

Car traffic volume : 4840 veh/TimePeriod *
Medium truck volume : 426 veh/TimePeriod *
Heavy truck volume : 53 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Poplar SDRD

Angle1 Angle2 : -90.00 deg -3.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1
House density : 95 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 53.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: Poplar SDRD

Car traffic volume : 4840 veh/TimePeriod *

Medium truck volume : 426 veh/TimePeriod *
 Heavy truck volume : 53 veh/TimePeriod *
 Posted speed limit : 60 km/h
 Road gradient : 0 %
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: Poplar SDRD

 Angle1 Angle2 : -3.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 53.00 m
 Receiver height : 1.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Results segment # 1: High St

 Source height = 1.00 m

ROAD (0.00 + 29.23 + 0.00) = 29.23 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	3	0.66	62.00	0.00	-20.81	-4.27	0.00	-7.69	0.00	29.23

Segment Leq : 29.23 dBA

Results segment # 2: Poplar SDRD

 Source height = 1.00 m

ROAD (0.00 + 40.16 + 0.00) = 40.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-3	0.66	63.50	0.00	-9.10	-4.67	0.00	-9.56	0.00	40.16

Segment Leq : 40.16 dBA

Results segment # 3: Poplar SDRD

 Source height = 1.00 m

ROAD (0.00 + 50.13 + 0.00) = 50.13 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-3	90	0.66	63.50	0.00	-9.10	-4.27	0.00	0.00	0.00	50.13

Segment Leq : 50.13 dBA

Total Leq All Segments: 50.58 dBA

TOTAL Leq FROM ALL SOURCES: 50.58

Filename: a23014r2.te Time Period: 16 hours
 Description: R2 OLA

Road data, segment # 1: High St

 Car traffic volume : 5976 veh/TimePeriod *
 Medium truck volume : 386 veh/TimePeriod *
 Heavy truck volume : 64 veh/TimePeriod *
 Posted speed limit : 50 km/h
 Road gradient : 0 %
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: High St

 Angle1 Angle2 : -90.00 deg -1.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 1
 House density : 95 %
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 268.00 m
 Receiver height : 1.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Road data, segment # 2: Poplar SDRD

 Car traffic volume : 4840 veh/TimePeriod *
 Medium truck volume : 426 veh/TimePeriod *
 Heavy truck volume : 53 veh/TimePeriod *
 Posted speed limit : 60 km/h
 Road gradient : 0 %
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Poplar SDRD

 Angle1 Angle2 : -90.00 deg -32.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 1
 House density : 95 %
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 34.00 m
 Receiver height : 1.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Road data, segment # 3: Poplar SDRD

 Car traffic volume : 4840 veh/TimePeriod *
 Medium truck volume : 426 veh/TimePeriod *
 Heavy truck volume : 53 veh/TimePeriod *
 Posted speed limit : 60 km/h
 Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: Poplar SDRD

Angle1 Angle2 : -32.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 34.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: High St

Source height = 1.00 m

ROAD (0.00 + 28.99 + 0.00) = 28.99 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-1	0.66	62.00	0.00	-20.78	-4.54	0.00	-7.70	0.00	28.99

Segment Leq : 28.99 dBA

Results segment # 2: Poplar SDRD

Source height = 1.00 m

ROAD (0.00 + 40.28 + 0.00) = 40.28 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-32	0.66	63.50	0.00	-5.90	-7.31	0.00	-10.01	0.00	40.28

Segment Leq : 40.28 dBA

Results segment # 3: Poplar SDRD

Source height = 1.00 m

ROAD (0.00 + 54.84 + 0.00) = 54.84 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-32	90	0.66	63.50	0.00	-5.90	-2.76	0.00	0.00	0.00	54.84

Segment Leq : 54.84 dBA

Total Leq All Segments: 55.00 dBA

TOTAL Leq FROM ALL SOURCES: 55.00

Filename: a23014r3.te Time Period: Day/Night 16/8 hours
Description: R3 day/night at wall

Road data, segment # 1: High St (day/night)

Car traffic volume : 5976/664 veh/TimePeriod *
Medium truck volume : 386/43 veh/TimePeriod *
Heavy truck volume : 64/7 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): 7140
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 6.00
Heavy Truck % of Total Volume : 1.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: High St (day/night)

Angle1 Angle2 : -90.00 deg -8.00 deg
Wood depth : 0 (No woods.)
No of house rows : 2 / 2
House density : 95 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 246.00 / 246.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Poplar SDRD (day/night)

Car traffic volume : 4840/538 veh/TimePeriod *
Medium truck volume : 426/47 veh/TimePeriod *
Heavy truck volume : 53/6 veh/TimePeriod *
Posted speed limit : 60 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): 5910
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 8.00
Heavy Truck % of Total Volume : 1.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Poplar SDRD (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 : 29.00 / 29.00 m
Receiver height       :  4.50 / 4.50 m
Topography           :      1           (Flat/gentle slope; no barrier)
Reference angle       :      0.00

```

Road data, segment # 3: High St (day/night)

```

-----
Car traffic volume   : 5976/664   veh/TimePeriod *
Medium truck volume  : 386/43     veh/TimePeriod *
Heavy truck volume   : 64/7       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): 7140
Percentage of Annual Growth         : 0.00
Number of Years of Growth           : 0.00
Medium Truck % of Total Volume      : 6.00
Heavy Truck % of Total Volume       : 1.00
Day (16 hrs) % of Total Volume      : 90.00

```

Data for Segment # 3: High St (day/night)

```

-----
Angle1   Angle2           : -8.00 deg   -2.00 deg
Wood depth           :      0           (No woods.)
No of house rows     :      2 / 2
House density        :     95 %
Surface              :      1           (Absorptive ground surface)
Receiver source distance : 246.00 / 246.00 m
Receiver height       :  4.50 / 4.50 m
Topography           :      1           (Flat/gentle slope; no barrier)
Reference angle       :      0.00

```

Results segment # 1: High St (day)

Source height = 1.00 m

ROAD (0.00 + 28.57 + 0.00) = 28.57 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-8	0.59	62.00	0.00	-19.26	-4.90	0.00	-9.28	0.00	28.57

Segment Leq : 28.57 dBA

Results segment # 2: Poplar SDRD (day)

Source height = 1.00 m

ROAD (0.00 + 57.63 + 0.00) = 57.63 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.59	63.50	0.00	-4.54	-1.33	0.00	0.00	0.00	57.63

Segment Leq : 57.63 dBA

Results segment # 3: High St (day)

Source height = 1.00 m

ROAD (0.00 + 18.69 + 0.00) = 18.69 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-8	-2	0.59	62.00	0.00	-19.26	-14.78	0.00	-9.28	0.00	18.69

Segment Leq : 18.69 dBA

Total Leq All Segments: 57.64 dBA

Results segment # 1: High St (night)

Source height = 1.00 m

ROAD (0.00 + 22.03 + 0.00) = 22.03 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-8	0.59	55.46	0.00	-19.26	-4.90	0.00	-9.28	0.00	22.03

Segment Leq : 22.03 dBA

Results segment # 2: Poplar SDRD (night)

Source height = 1.00 m

ROAD (0.00 + 51.10 + 0.00) = 51.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	56.97	0.00	-4.54	-1.33	0.00	0.00	0.00	51.10

Segment Leq : 51.10 dBA

Results segment # 3: High St (night)

Source height = 1.00 m

ROAD (0.00 + 12.14 + 0.00) = 12.14 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-8	-2	0.59	55.46	0.00	-19.26	-14.78	0.00	-9.28	0.00	12.14

Segment Leq : 12.14 dBA

Total Leq All Segments: 51.11 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 57.64
(NIGHT): 51.11

Filename: a23014r4.te Time Period: Day/Night 16/8 hours
Description: R4 day/night at wall

Road data, segment # 1: High St (day/night)

Car traffic volume : 5976/664 veh/TimePeriod *
Medium truck volume : 386/43 veh/TimePeriod *
Heavy truck volume : 64/7 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): 7140
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 6.00
Heavy Truck % of Total Volume : 1.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: High St (day/night)

Angle1 Angle2 : -90.00 deg -1.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 95 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 180.00 / 180.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: High St (day/night)

Car traffic volume : 5976/664 veh/TimePeriod *
Medium truck volume : 386/43 veh/TimePeriod *
Heavy truck volume : 64/7 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): 7140
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 6.00
Heavy Truck % of Total Volume : 1.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: High St (day/night)

```

-----
Angle1   Angle2           :  -1.00 deg    4.00 deg
Wood depth           :      0          (No woods.)
No of house rows     :      0 / 0
Surface              :      1          (Absorptive ground surface)
Receiver source distance : 180.00 / 180.00 m
Receiver height       :      4.50 / 4.50 m
Topography           :      1          (Flat/gentle slope; no barrier)
Reference angle       :      0.00

```

Road data, segment # 3: Poplar SDRD (day/night)

```

-----
Car traffic volume : 4840/538   veh/TimePeriod  *
Medium truck volume : 426/47    veh/TimePeriod  *
Heavy truck volume  : 53/6      veh/TimePeriod  *
Posted speed limit  : 60 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): 5910
Percentage of Annual Growth         : 0.00
Number of Years of Growth           : 0.00
Medium Truck % of Total Volume      : 8.00
Heavy Truck % of Total Volume       : 1.00
Day (16 hrs) % of Total Volume      : 90.00

```

Data for Segment # 3: Poplar SDRD (day/night)

```

-----
Angle1   Angle2           :  -90.00 deg   -83.00 deg
Wood depth           :      0          (No woods.)
No of house rows     :      1 / 1
House density        :     95 %
Surface              :      1          (Absorptive ground surface)
Receiver source distance : 38.00 / 38.00 m
Receiver height       :      4.50 / 4.50 m
Topography           :      1          (Flat/gentle slope; no barrier)
Reference angle       :      0.00

```

Road data, segment # 4: Poplar SDRD (day/night)

```

-----
Car traffic volume : 4840/538   veh/TimePeriod  *
Medium truck volume : 426/47    veh/TimePeriod  *
Heavy truck volume  : 53/6      veh/TimePeriod  *
Posted speed limit  : 60 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): 5910
Percentage of Annual Growth         : 0.00
Number of Years of Growth           : 0.00
Medium Truck % of Total Volume      : 8.00
Heavy Truck % of Total Volume       : 1.00

```

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 4: Poplar SDRD (day/night)

Angle1 Angle2 : -83.00 deg 82.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 38.00 / 38.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 5: Poplar SDRD (day/night)

Car traffic volume : 4840/538 veh/TimePeriod *
Medium truck volume : 426/47 veh/TimePeriod *
Heavy truck volume : 53/6 veh/TimePeriod *
Posted speed limit : 60 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): 5910
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 8.00
Heavy Truck % of Total Volume : 1.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 5: Poplar SDRD (day/night)

Angle1 Angle2 : 82.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 95 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 38.00 / 38.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: High St (day)

Source height = 1.00 m

ROAD (0.00 + 32.29 + 0.00) = 32.29 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-1	0.59	62.00	0.00	-17.11	-4.41	0.00	-8.20	0.00	32.29

Segment Leq : 32.29 dBA

Results segment # 2: High St (day)

Source height = 1.00 m

ROAD (0.00 + 29.33 + 0.00) = 29.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-1	4	0.59	62.00	0.00	-17.11	-15.56	0.00	0.00	0.00	29.33

Segment Leq : 29.33 dBA

Results segment # 3: Poplar SDRD (day)

Source height = 1.00 m

ROAD (0.00 + 25.74 + 0.00) = 25.74 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-83	0.59	63.50	0.00	-6.40	-21.45	0.00	-9.91	0.00	25.74

Segment Leq : 25.74 dBA

Results segment # 4: Poplar SDRD (day)

Source height = 1.00 m

ROAD (0.00 + 55.67 + 0.00) = 55.67 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-83	82	0.59	63.50	0.00	-6.40	-1.43	0.00	0.00	0.00	55.67

Segment Leq : 55.67 dBA

Results segment # 5: Poplar SDRD (day)

Source height = 1.00 m

ROAD (0.00 + 26.66 + 0.00) = 26.66 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
82	90	0.59	63.50	0.00	-6.40	-20.53	0.00	-9.91	0.00	26.66

Segment Leq : 26.66 dBA

Total Leq All Segments: 55.71 dBA

Results segment # 1: High St (night)

Source height = 1.00 m

ROAD (0.00 + 25.75 + 0.00) = 25.75 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-1	0.59	55.46	0.00	-17.11	-4.41	0.00	-8.20	0.00	25.75

Segment Leq : 25.75 dBA

Results segment # 2: High St (night)

Source height = 1.00 m

ROAD (0.00 + 22.79 + 0.00) = 22.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-1	4	0.59	55.46	0.00	-17.11	-15.56	0.00	0.00	0.00	22.79

Segment Leq : 22.79 dBA

Results segment # 3: Poplar SDRD (night)

Source height = 1.00 m

ROAD (0.00 + 19.21 + 0.00) = 19.21 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-83	0.58	56.97	0.00	-6.40	-21.44	0.00	-9.91	0.00	19.21

Segment Leq : 19.21 dBA

Results segment # 4: Poplar SDRD (night)

Source height = 1.00 m

ROAD (0.00 + 49.15 + 0.00) = 49.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-83	82	0.58	56.97	0.00	-6.40	-1.42	0.00	0.00	0.00	49.15

Segment Leq : 49.15 dBA

Results segment # 5: Poplar SDRD (night)

Source height = 1.00 m

ROAD (0.00 + 20.13 + 0.00) = 20.13 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
82	90	0.58	56.97	0.00	-6.40	-20.53	0.00	-9.91	0.00	20.13

Segment Leq : 20.13 dBA

Total Leq All Segments: 49.19 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.71
(NIGHT): 49.19

Filename: a23014r5.te Time Period: Day/Night 16/8 hours
 Description: R5 day/night at wall

Road data, segment # 1: High St (day/night)

```
-----
Car traffic volume   : 5976/664   veh/TimePeriod  *
Medium truck volume : 386/43    veh/TimePeriod  *
Heavy truck volume  : 64/7      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): 7140
Percentage of Annual Growth         : 0.00
Number of Years of Growth           : 0.00
Medium Truck % of Total Volume      : 6.00
Heavy Truck % of Total Volume       : 1.00
Day (16 hrs) % of Total Volume      : 90.00
```

Data for Segment # 1: High St (day/night)

```
-----
Angle1  Angle2      : -90.00 deg  -68.00 deg
Wood depth          : 0          (No woods.)
No of house rows    : 1 / 1
House density       : 95 %
Surface            : 1          (Absorptive ground surface)
Receiver source distance : 100.00 / 100.00 m
Receiver height     : 4.50 / 4.50 m
Topography          : 1          (Flat/gentle slope; no barrier)
Reference angle     : 0.00
```

Road data, segment # 2: High St (day/night)

```
-----
Car traffic volume   : 5976/664   veh/TimePeriod  *
Medium truck volume : 386/43    veh/TimePeriod  *
Heavy truck volume  : 64/7      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): 7140
Percentage of Annual Growth         : 0.00
Number of Years of Growth           : 0.00
Medium Truck % of Total Volume      : 6.00
Heavy Truck % of Total Volume       : 1.00
Day (16 hrs) % of Total Volume      : 90.00
```

Data for Segment # 2: High St (day/night)

```

-----
Angle1   Angle2           : -68.00 deg    8.00 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       :      4.50 / 4.50 m
Topography           :      1          (Flat/gentle slope; no barrier)
Reference angle       :      0.00

```

Road data, segment # 3: Poplar SDRD (day/night)

```

-----
Car traffic volume   : 4840/538    veh/TimePeriod  *
Medium truck volume  : 426/47     veh/TimePeriod  *
Heavy truck volume   : 53/6       veh/TimePeriod  *
Posted speed limit   : 60 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): 5910
Percentage of Annual Growth         : 0.00
Number of Years of Growth           : 0.00
Medium Truck % of Total Volume      : 8.00
Heavy Truck % of Total Volume       : 1.00
Day (16 hrs) % of Total Volume      : 90.00

```

Data for Segment # 3: Poplar SDRD (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 : 29.00 / 29.00 m
Receiver height       :      4.50 / 4.50 m
Topography           :      1          (Flat/gentle slope; no barrier)
Reference angle       :      0.00

```

Results segment # 1: High St (day)

Source height = 1.00 m

ROAD (0.00 + 26.49 + 0.00) = 26.49 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-68	0.59	62.00	0.00	-13.06	-13.59	0.00	-8.87	0.00	26.49

Segment Leq : 26.49 dBA

Results segment # 2: High St (day)

Source height = 1.00 m

ROAD (0.00 + 44.61 + 0.00) = 44.61 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-68	8	0.59	62.00	0.00	-13.06	-4.33	0.00	0.00	0.00	44.61

Segment Leq : 44.61 dBA

Results segment # 3: Poplar SDRD (day)

Source height = 1.00 m

ROAD (0.00 + 57.63 + 0.00) = 57.63 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.59	63.50	0.00	-4.54	-1.33	0.00	0.00	0.00	57.63

Segment Leq : 57.63 dBA

Total Leq All Segments: 57.84 dBA

Results segment # 1: High St (night)

Source height = 1.00 m

ROAD (0.00 + 19.94 + 0.00) = 19.94 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-68	0.59	55.46	0.00	-13.06	-13.59	0.00	-8.87	0.00	19.94

Segment Leq : 19.94 dBA

Results segment # 2: High St (night)

Source height = 1.00 m

ROAD (0.00 + 38.07 + 0.00) = 38.07 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-68	8	0.59	55.46	0.00	-13.06	-4.33	0.00	0.00	0.00	38.07

Segment Leq : 38.07 dBA

Results segment # 3: Poplar SDRD (night)

Source height = 1.00 m

ROAD (0.00 + 51.10 + 0.00) = 51.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.58	56.97	0.00	-4.54	-1.33	0.00	0.00	0.00	51.10

Segment Leq : 51.10 dBA

Total Leq All Segments: 51.31 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 57.84
(NIGHT): 51.31

Filename: a23014r6.te Time Period: 16 hours
 Description: R6 OLA

Road data, segment # 1: High St

 Car traffic volume : 5976 veh/TimePeriod *
 Medium truck volume : 386 veh/TimePeriod *
 Heavy truck volume : 64 veh/TimePeriod *
 Posted speed limit : 50 km/h
 Road gradient : 0 %
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: High St

 Angle1 Angle2 : -90.00 deg 11.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 97.00 m
 Receiver height : 1.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Road data, segment # 2: Poplar SDRD

 Car traffic volume : 4840 veh/TimePeriod *
 Medium truck volume : 426 veh/TimePeriod *
 Heavy truck volume : 53 veh/TimePeriod *
 Posted speed limit : 60 km/h
 Road gradient : 0 %
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Poplar SDRD

 Angle1 Angle2 : -90.00 deg 47.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 32.00 m
 Receiver height : 1.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Road data, segment # 3: Poplar SDRD

 Car traffic volume : 4840 veh/TimePeriod *
 Medium truck volume : 426 veh/TimePeriod *
 Heavy truck volume : 53 veh/TimePeriod *
 Posted speed limit : 60 km/h
 Road gradient : 0 %
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: Poplar SDRD

```

-----
Angle1   Angle2       :  47.00 deg   90.00 deg
Wood depth :           0       (No woods.)
No of house rows :           1
House density :          95 %
Surface :           1       (Absorptive ground surface)
Receiver source distance :  32.00 m
Receiver height :          1.50 m
Topography :           1       (Flat/gentle slope; no barrier)
Reference angle :          0.00

```

Results segment # 1: High St

Source height = 1.00 m

ROAD (0.00 + 44.76 + 0.00) = 44.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	11	0.66	62.00	0.00	-13.46	-3.78	0.00	0.00	0.00	44.76

Segment Leq : 44.76 dBA

Results segment # 2: Poplar SDRD

Source height = 1.00 m

ROAD (0.00 + 55.81 + 0.00) = 55.81 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	47	0.66	63.50	0.00	-5.46	-2.22	0.00	0.00	0.00	55.81

Segment Leq : 55.81 dBA

Results segment # 3: Poplar SDRD

Source height = 1.00 m

ROAD (0.00 + 38.62 + 0.00) = 38.62 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
47	90	0.66	63.50	0.00	-5.46	-9.36	0.00	-10.05	0.00	38.62

Segment Leq : 38.62 dBA

Total Leq All Segments: 56.21 dBA

TOTAL Leq FROM ALL SOURCES: 56.21

Filename: a23014r7.te Time Period: Day/Night 16/8 hours
Description: R7 day/night at wall

Road data, segment # 1: High St (day/night)

Car traffic volume : 5976/664 veh/TimePeriod *
Medium truck volume : 386/43 veh/TimePeriod *
Heavy truck volume : 64/7 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): 7140
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 6.00
Heavy Truck % of Total Volume : 1.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: High St (day/night)

Angle1 Angle2 : -90.00 deg 12.00 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 : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Poplar SDRD (day/night)

Car traffic volume : 4840/538 veh/TimePeriod *
Medium truck volume : 426/47 veh/TimePeriod *
Heavy truck volume : 53/6 veh/TimePeriod *
Posted speed limit : 60 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): 5910
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 8.00
Heavy Truck % of Total Volume : 1.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Poplar SDRD (day/night)

Angle1 Angle2 : -90.00 deg 8.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 36.00 / 36.00 m
 Receiver height : 4.50 / 4.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Road data, segment # 3: Poplar SDRD (day/night)

 Car traffic volume : 4840/538 veh/TimePeriod *
 Medium truck volume : 426/47 veh/TimePeriod *
 Heavy truck volume : 53/6 veh/TimePeriod *
 Posted speed limit : 60 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): 5910
 Percentage of Annual Growth : 0.00
 Number of Years of Growth : 0.00
 Medium Truck % of Total Volume : 8.00
 Heavy Truck % of Total Volume : 1.00
 Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 3: Poplar SDRD (day/night)

 Angle1 Angle2 : 8.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 1 / 1
 House density : 95 %
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 36.00 / 36.00 m
 Receiver height : 4.50 / 4.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Results segment # 1: High St (day)

Source height = 1.00 m

ROAD (0.00 + 45.33 + 0.00) = 45.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	12	0.59	62.00	0.00	-13.06	-3.62	0.00	0.00	0.00	45.33

Segment Leq : 45.33 dBA

Results segment # 2: Poplar SDRD (day)

Source height = 1.00 m

ROAD (0.00 + 53.63 + 0.00) = 53.63 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	8	0.59	63.50	0.00	-6.03	-3.85	0.00	0.00	0.00	53.63

Segment Leq : 53.63 dBA

Results segment # 3: Poplar SDRD (day)

Source height = 1.00 m

ROAD (0.00 + 42.61 + 0.00) = 42.61 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
8	90	0.59	63.50	0.00	-6.03	-4.90	0.00	-9.96	0.00	42.61

Segment Leq : 42.61 dBA

Total Leq All Segments: 54.52 dBA

Results segment # 1: High St (night)

Source height = 1.00 m

ROAD (0.00 + 38.78 + 0.00) = 38.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	12	0.59	55.46	0.00	-13.06	-3.62	0.00	0.00	0.00	38.78

Segment Leq : 38.78 dBA

Results segment # 2: Poplar SDRD (night)

Source height = 1.00 m

ROAD (0.00 + 47.10 + 0.00) = 47.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	8	0.58	56.97	0.00	-6.03	-3.85	0.00	0.00	0.00	47.10

Segment Leq : 47.10 dBA

Results segment # 3: Poplar SDRD (night)

Source height = 1.00 m

ROAD (0.00 + 36.09 + 0.00) = 36.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
8	90	0.58	56.97	0.00	-6.03	-4.90	0.00	-9.96	0.00	36.09

Segment Leq : 36.09 dBA

Total Leq All Segments: 47.99 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.52
(NIGHT): 47.99

Filename: a23014r8.te Time Period: Day/Night 16/8 hours
 Description: R8 day/night at wall

Road data, segment # 1: High St (day/night)

```
-----
Car traffic volume   : 5976/664   veh/TimePeriod  *
Medium truck volume : 386/43    veh/TimePeriod  *
Heavy truck volume  : 64/7      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): 7140
Percentage of Annual Growth         : 0.00
Number of Years of Growth           : 0.00
Medium Truck % of Total Volume      : 6.00
Heavy Truck % of Total Volume       : 1.00
Day (16 hrs) % of Total Volume      : 90.00
```

Data for Segment # 1: High St (day/night)

```
-----
Angle1  Angle2      : -90.00 deg  1.00 deg
Wood depth          : 0          (No woods.)
No of house rows    : 1 / 1
House density       : 95 %
Surface             : 1          (Absorptive ground surface)
Receiver source distance : 247.00 / 247.00 m
Receiver height     : 4.50 / 4.50 m
Topography          : 1          (Flat/gentle slope; no barrier)
Reference angle     : 0.00
```

Road data, segment # 2: Poplar SDRD (day/night)

```
-----
Car traffic volume   : 4840/538   veh/TimePeriod  *
Medium truck volume : 426/47    veh/TimePeriod  *
Heavy truck volume  : 53/6      veh/TimePeriod  *
Posted speed limit  : 60 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): 5910
Percentage of Annual Growth         : 0.00
Number of Years of Growth           : 0.00
Medium Truck % of Total Volume      : 8.00
Heavy Truck % of Total Volume       : 1.00
Day (16 hrs) % of Total Volume      : 90.00
```

Data for Segment # 2: Poplar SDRD (day/night)

```

-----
Angle1   Angle2           : -90.00 deg   -81.00 deg
Wood depth :              0       (No woods.)
No of house rows :          1 / 1
House density :          95 %
Surface :              1       (Absorptive ground surface)
Receiver source distance :  47.00 / 47.00 m
Receiver height :          4.50 / 4.50 m
Topography :              1       (Flat/gentle slope; no barrier)
Reference angle :          0.00

```

Road data, segment # 3: Poplar SDRD (day/night)

```

-----
Car traffic volume :  4840/538   veh/TimePeriod  *
Medium truck volume :  426/47    veh/TimePeriod  *
Heavy truck volume :   53/6      veh/TimePeriod  *
Posted speed limit :    60 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):  5910
Percentage of Annual Growth :         0.00
Number of Years of Growth :         0.00
Medium Truck % of Total Volume :        8.00
Heavy Truck % of Total Volume :        1.00
Day (16 hrs) % of Total Volume :       90.00

```

Data for Segment # 3: Poplar SDRD (day/night)

```

-----
Angle1   Angle2           : -81.00 deg   5.00 deg
Wood depth :              0       (No woods.)
No of house rows :          0 / 0
Surface :              1       (Absorptive ground surface)
Receiver source distance :  47.00 / 47.00 m
Receiver height :          4.50 / 4.50 m
Topography :              1       (Flat/gentle slope; no barrier)
Reference angle :          0.00

```

Road data, segment # 4: Poplar SDRD (day/night)

```

-----
Car traffic volume :  4840/538   veh/TimePeriod  *
Medium truck volume :  426/47    veh/TimePeriod  *
Heavy truck volume :   53/6      veh/TimePeriod  *
Posted speed limit :    60 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):  5910
Percentage of Annual Growth :         0.00
Number of Years of Growth :         0.00
Medium Truck % of Total Volume :        8.00
Heavy Truck % of Total Volume :        1.00

```

Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 4: Poplar SDRD (day/night)

Angle1 Angle2 : 5.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 95 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 47.00 / 47.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 5: High St (day/night)

Car traffic volume : 5976/664 veh/TimePeriod *
Medium truck volume : 386/43 veh/TimePeriod *
Heavy truck volume : 64/7 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): 7140
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 6.00
Heavy Truck % of Total Volume : 1.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 5: High St (day/night)

Angle1 Angle2 : 1.00 deg 3.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 247.00 / 247.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: High St (day)

Source height = 1.00 m

ROAD (0.00 + 30.67 + 0.00) = 30.67 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	1	0.59	62.00	0.00	-19.28	-4.27	0.00	-7.77	0.00	30.67

Segment Leq : 30.67 dBA

Results segment # 2: Poplar SDRD (day)

Source height = 1.00 m

ROAD (0.00 + 26.22 + 0.00) = 26.22 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-81	0.59	63.50	0.00	-7.86	-19.72	0.00	-9.70	0.00	26.22

Segment Leq : 26.22 dBA

Results segment # 3: Poplar SDRD (day)

Source height = 1.00 m

ROAD (0.00 + 51.49 + 0.00) = 51.49 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-81	5	0.59	63.50	0.00	-7.86	-4.14	0.00	0.00	0.00	51.49

Segment Leq : 51.49 dBA

Results segment # 4: Poplar SDRD (day)

Source height = 1.00 m

ROAD (0.00 + 41.25 + 0.00) = 41.25 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
5	90	0.59	63.50	0.00	-7.86	-4.68	0.00	-9.70	0.00	41.25

Segment Leq : 41.25 dBA

Results segment # 5: High St (day)

Source height = 1.00 m

ROAD (0.00 + 23.18 + 0.00) = 23.18 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
1	3	0.59	62.00	0.00	-19.28	-19.54	0.00	0.00	0.00	23.18

Segment Leq : 23.18 dBA

Total Leq All Segments: 51.93 dBA

Results segment # 1: High St (night)

Source height = 1.00 m

ROAD (0.00 + 24.13 + 0.00) = 24.13 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	1	0.59	55.46	0.00	-19.29	-4.27	0.00	-7.77	0.00	24.13

Segment Leq : 24.13 dBA

Results segment # 2: Poplar SDRD (night)

Source height = 1.00 m

ROAD (0.00 + 19.69 + 0.00) = 19.69 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-81	0.58	56.97	0.00	-7.86	-19.72	0.00	-9.70	0.00	19.69

Segment Leq : 19.69 dBA

Results segment # 3: Poplar SDRD (night)

Source height = 1.00 m

ROAD (0.00 + 44.97 + 0.00) = 44.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-81	5	0.58	56.97	0.00	-7.86	-4.14	0.00	0.00	0.00	44.97

Segment Leq : 44.97 dBA

Results segment # 4: Poplar SDRD (night)

Source height = 1.00 m

ROAD (0.00 + 34.73 + 0.00) = 34.73 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
5	90	0.58	56.97	0.00	-7.86	-4.68	0.00	-9.70	0.00	34.73

Segment Leq : 34.73 dBA

Results segment # 5: High St (night)

Source height = 1.00 m

ROAD (0.00 + 16.63 + 0.00) = 16.63 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
1	3	0.59	55.46	0.00	-19.29	-19.54	0.00	0.00	0.00	16.63

Segment Leq : 16.63 dBA

Total Leq All Segments: 45.41 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 51.93
(NIGHT): 45.41

Filename: a23014r9.te Time Period: Day/Night 16/8 hours
Description: R9 day/night at wall

Road data, segment # 1: High St (day/night)

Car traffic volume : 5976/664 veh/TimePeriod *
Medium truck volume : 386/43 veh/TimePeriod *
Heavy truck volume : 64/7 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): 7140
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 6.00
Heavy Truck % of Total Volume : 1.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: High St (day/night)

Angle1 Angle2 : -90.00 deg 83.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.00 / 24.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Poplar SDRD (day/night)

Car traffic volume : 4840/538 veh/TimePeriod *
Medium truck volume : 426/47 veh/TimePeriod *
Heavy truck volume : 53/6 veh/TimePeriod *
Posted speed limit : 60 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): 5910
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 8.00
Heavy Truck % of Total Volume : 1.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Poplar SDRD (day/night)

Angle1 Angle2 : -90.00 deg 30.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 202.00 / 202.00 m
 Receiver height : 4.50 / 4.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Road data, segment # 3: Poplar SDRD (day/night)

 Car traffic volume : 4840/538 veh/TimePeriod *
 Medium truck volume : 426/47 veh/TimePeriod *
 Heavy truck volume : 53/6 veh/TimePeriod *
 Posted speed limit : 60 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): 5910
 Percentage of Annual Growth : 0.00
 Number of Years of Growth : 0.00
 Medium Truck % of Total Volume : 8.00
 Heavy Truck % of Total Volume : 1.00
 Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 3: Poplar SDRD (day/night)

 Angle1 Angle2 : 30.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 1 / 1
 House density : 95 %
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 202.00 / 202.00 m
 Receiver height : 4.50 / 4.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Results segment # 1: High St (day)

Source height = 1.00 m

ROAD (0.00 + 57.40 + 0.00) = 57.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	83	0.59	62.00	0.00	-3.24	-1.37	0.00	0.00	0.00	57.40

Segment Leq : 57.40 dBA

Results segment # 2: Poplar SDRD (day)

Source height = 1.00 m

ROAD (0.00 + 42.85 + 0.00) = 42.85 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	30	0.59	63.50	0.00	-17.90	-2.75	0.00	0.00	0.00	42.85

Segment Leq : 42.85 dBA

Results segment # 3: Poplar SDRD (day)

Source height = 1.00 m

ROAD (0.00 + 30.68 + 0.00) = 30.68 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
30	90	0.59	63.50	0.00	-17.90	-6.86	0.00	-8.05	0.00	30.68

Segment Leq : 30.68 dBA

Total Leq All Segments: 57.56 dBA

Results segment # 1: High St (night)

Source height = 1.00 m

ROAD (0.00 + 50.85 + 0.00) = 50.85 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	83	0.59	55.46	0.00	-3.24	-1.37	0.00	0.00	0.00	50.85

Segment Leq : 50.85 dBA

Results segment # 2: Poplar SDRD (night)

Source height = 1.00 m

ROAD (0.00 + 36.32 + 0.00) = 36.32 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	30	0.58	56.97	0.00	-17.90	-2.75	0.00	0.00	0.00	36.32

Segment Leq : 36.32 dBA

Results segment # 3: Poplar SDRD (night)

Source height = 1.00 m

ROAD (0.00 + 24.16 + 0.00) = 24.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
30	90	0.58	56.97	0.00	-17.90	-6.86	0.00	-8.05	0.00	24.16

Segment Leq : 24.16 dBA

Total Leq All Segments: 51.01 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 57.56
(NIGHT): 51.01

Filename: 23014r10.te Time Period: 16 hours
 Description: R10 OLA

Road data, segment # 1: High St

```
-----
Car traffic volume : 5976 veh/TimePeriod *
Medium truck volume : 386 veh/TimePeriod *
Heavy truck volume : 64 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
```

Data for Segment # 1: High St

```
-----
Angle1 Angle2 : -90.00 deg 85.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 21.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
```

Road data, segment # 2: Poplar SDRD

```
-----
Car traffic volume : 4840 veh/TimePeriod *
Medium truck volume : 426 veh/TimePeriod *
Heavy truck volume : 53 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
```

Data for Segment # 2: Poplar SDRD

```
-----
Angle1 Angle2 : -90.00 deg 16.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 224.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
```

Road data, segment # 3: Poplar SDRD

```
-----
Car traffic volume : 4840 veh/TimePeriod *
Medium truck volume : 426 veh/TimePeriod *
Heavy truck volume : 53 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
```

Data for Segment # 3: Poplar SDRD

```

-----
Angle1   Angle2       :   16.00 deg   90.00 deg
Wood depth :           0       (No woods.)
No of house rows :           1
House density :          95 %
Surface :           1       (Absorptive ground surface)
Receiver source distance : 224.00 m
Receiver height :          1.50 m
Topography :           1       (Flat/gentle slope; no barrier)
Reference angle :           0.00

```

Results segment # 1: High St

Source height = 1.00 m

ROAD (0.00 + 58.10 + 0.00) = 58.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	85	0.66	62.00	0.00	-2.43	-1.48	0.00	0.00	0.00	58.10

Segment Leq : 58.10 dBA

Results segment # 2: Poplar SDRD

Source height = 1.00 m

ROAD (0.00 + 40.50 + 0.00) = 40.50 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	16	0.66	63.50	0.00	-19.49	-3.51	0.00	0.00	0.00	40.50

Segment Leq : 40.50 dBA

Results segment # 3: Poplar SDRD

Source height = 1.00 m

ROAD (0.00 + 30.40 + 0.00) = 30.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
16	90	0.66	63.50	0.00	-19.49	-5.70	0.00	-7.91	0.00	30.40

Segment Leq : 30.40 dBA

Total Leq All Segments: 58.18 dBA

TOTAL Leq FROM ALL SOURCES: 58.18

Filename: 23014r11.te Time Period: 16 hours
 Description: R11 Park

Road data, segment # 1: High St

 Car traffic volume : 5976 veh/TimePeriod *
 Medium truck volume : 386 veh/TimePeriod *
 Heavy truck volume : 64 veh/TimePeriod *
 Posted speed limit : 50 km/h
 Road gradient : 0 %
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: High St

 Angle1 Angle2 : -90.00 deg 83.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 20.00 m
 Receiver height : 1.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Road data, segment # 2: Poplar SDRD

 Car traffic volume : 4840 veh/TimePeriod *
 Medium truck volume : 426 veh/TimePeriod *
 Heavy truck volume : 53 veh/TimePeriod *
 Posted speed limit : 60 km/h
 Road gradient : 0 %
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Poplar SDRD

 Angle1 Angle2 : -90.00 deg 36.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 169.00 m
 Receiver height : 1.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Road data, segment # 3: Poplar SDRD

 Car traffic volume : 4840 veh/TimePeriod *
 Medium truck volume : 426 veh/TimePeriod *
 Heavy truck volume : 53 veh/TimePeriod *
 Posted speed limit : 60 km/h
 Road gradient : 0 %
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: Poplar SDRD

```

-----
Angle1  Angle2      : 36.00 deg  90.00 deg
Wood depth      :      0      (No woods.)
No of house rows :      1
House density    :     95 %
Surface         :      1      (Absorptive ground surface)
Receiver source distance : 169.00 m
Receiver height  :     1.50 m
Topography      :      1      (Flat/gentle slope; no barrier)
Reference angle  :     0.00
  
```

Results segment # 1: High St

Source height = 1.00 m

ROAD (0.00 + 58.44 + 0.00) = 58.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	83	0.66	62.00	0.00	-2.07	-1.49	0.00	0.00	0.00	58.44

Segment Leq : 58.44 dBA

Results segment # 2: Poplar SDRD

Source height = 1.00 m

ROAD (0.00 + 43.43 + 0.00) = 43.43 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	36	0.66	63.50	0.00	-17.46	-2.61	0.00	0.00	0.00	43.43

Segment Leq : 43.43 dBA

Results segment # 3: Poplar SDRD

Source height = 1.00 m

ROAD (0.00 + 29.97 + 0.00) = 29.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
36	90	0.66	63.50	0.00	-17.46	-7.79	0.00	-8.27	0.00	29.97

Segment Leq : 29.97 dBA

Total Leq All Segments: 58.58 dBA

TOTAL Leq FROM ALL SOURCES: 58.58

APPENDIX 'C'

Draft Plan of Subdivision

LAND USE SUMMARY			
LAND USE	LOT / BLOCK #	UNITS	AREA
SEMI DETACHED - 9.15m UNITS	01-19	38	1.36ha
TOWNHOUSE - 7.5m UNITS	20-38	97	2.78ha
PARK	39, 40		0.35ha
WALKWAY	41		0.03ha
ROAD WIDENING	42, 43		0.19ha
0.3m RESERVE	44-46		0.01ha
20m ROAD	A, B, C		2.19ha
15m WINDOW ROAD	D		
TOTALS		135	6.89ha

POPLAR SIDEROAD
(ORIGINAL ROAD ALLOWANCE BETWEEN LOTS 39 & 40)

BLOCK 42
ROAD
WIDENING

BLOCK 44
0.3m
RESERVE

LEGAL DESCRIPTION

PART OF LOT 40, CONCESSION 10
GEOGRAPHIC TOWNSHIP OF NOTTAWASAGA
TOWN OF COLLINGWOOD
COUNTY OF SIMCOE

OWNER'S CERTIFICATE

I HEREBY AUTHORIZE MACNAUGHTON HERMSEN BRITTON CLARKSON PLANNING LIMITED
TO SUBMIT THIS PLAN FOR APPROVAL.

DATE: _____

CHARLIE KUIJEN - PRESIDENT
POPLAR DEVELOPMENTS I INC.

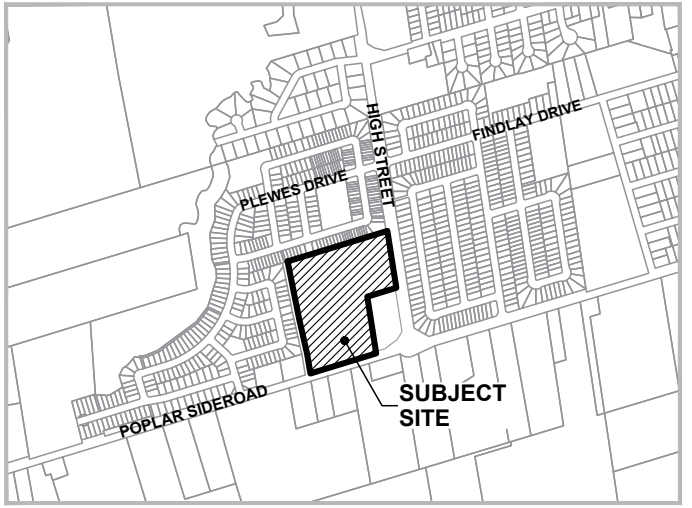
SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED ON THIS PLAN
AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATELY AND CORRECTLY
SHOWN.

DATE: _____

JAMES M. LAWS - O.L.S.
VAN HARTEN SURVEYING INC.

KEY PLAN



Subject Site

NORTH

SCALE
0 200 400 600 800
METRES

LEGEND

--- BOUNDARY LINE

--- RIGHT OF WAY LINE

--- BLOCK LINE

--- UNIT LINE

--- PARCEL FABRIC

REVISION No.	DATE	ISSUED / REVISION	BY
ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT R.S.O. 1990 C.P.13 AS AMENDED			
A. AS SHOWN	F. AS SHOWN	K. ALL SERVICES AS REQUIRED	
B. AS SHOWN	G. AS SHOWN	L. AS SHOWN	
C. AS SHOWN	H. MUNICIPAL WATER SUPPLY		
D. AS SHOWN	I. SANDY SILT		
E. AS SHOWN	J. AS SHOWN		



PLANNING
URBAN DESIGN
& LANDSCAPE
ARCHITECTURE
MHBC PLANNING

113 COLLIER STREET
BARRIE, ON, L4M 1H2
P: 705 728 0045 F: 705 728 2010
WWW.MHBCPLAN.COM

STAMP

DATE
FEB. 28, 2023

FILE No.
Y2191

SCALE
1:700
(ARCH D)

DRAWN BY
M.M. & R.K.

CHECKED BY

OTHER

PROJECT

**SUMMITVIEW
PHASE 3**
POPLAR DEVELOPMENTS I INC.
5-167 JOLLIFFE AVENUE
P.O. BOX 760
ROCKWOOD, ON N0B 2K0

NORTH

FILE NAME

**DRAFT
PLAN OF SUBDIVISION**

DWG No.
1 of 1

SCALE BAR

0 5 10 15 20 25 37.5 50

MEASUREMENTS SHOWN ON THIS PLAN ARE IN METRES AND CAN BE
CONVERTED TO FEET BY DIVIDING BY 0.3048

N:\Collingwood\Charleston Homes - Collingwood Phase 3 - Y2191\Drawings\Draft Plan\CAD\Y2191 - Draft
Plan - 2023-02-28.dwg