NOVATECH

Engineers, Planners & Landscape Architects

Engineering

- Land / Site Development
- Municipal Infrastructure
- Environmental / Water Resources
- Traffic / Transportation
- Structural
- Recreational

Planning

- Land / Site Development
- Planning Application Management
- Municipal Planning Documents & Studies
- Expert Witness (OMB)
- Wireless Industry

Landscape Architecture

- Urban Design & Streetscapes
- Open Space, Parks & Recreation Planning
- Community & Residential Developments
- Commercial & Institutional Sites
- Environmental Restoration

34 Years

Kanata Lakes
Condominium Development – Block 3
124 Battersea Crescent, Ottawa

Noise Control Study

Engineering excellence. Planning precision. Inspired landscapes.

Kanata Lakes
124 Battersea Crescent
Noise Control Study – Block 3

Prepared By:

NOVATECH
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario
K2M 1P6

Submitted: December 20, 2016

Novatech File: 110105-1
Ref: R-2016-183

NOVATECH
Engineers, Planners & Landscape Architects

December 20, 2016

By Courier

City of Ottawa
Planning and Growth Management Department
Development Review Services: Suburban East
Infrastructure Approvals Division
110 Laurier Avenue West, 4th Floor
Ottawa, ON
K1P 1J1

Attention: **Ms. Kathy Rygus**
Development Review, Suburban Services

Reference: **Kanata Lakes, 124 Battersea Crescent – Block 3**
Noise Control Study
Our File No.: 110105-1

Enclosed for your review and approval are three (3) copies of the Noise Control Study – Block 3 for the Kanata Lakes site located at 124 Battersea Crescent adjacent to Kanata Avenue.

Please contact the undersigned should you have any questions or comments pertaining to the enclosed report.

Yours truly,

NOVATECH

Drew Blair

Drew Blair, P.Eng.
Project Manager

Cc: Jean-Luc Rivard – Brigil Homes

M:\2010\110105\DATA\Reports\Noise\2016\ 20161214-124BatterseaNCS-60kmh

TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 BACKGROUND 1

2.1 PROJECT DESCRIPTION 1
2.2 NOISE SOURCES 2

3.0 CITY OF OTTAWA NOISE CONTROL GUIDELINES 2

3.1 SOUND LEVEL CRITERIA 2
3.2 NOISE ATTENUATION REQUIREMENTS 3

4.0 PREDICTION OF OUTDOOR NOISE LEVELS 5

4.1 ROADWAY TRAFFIC 5
4.2 NOISE LEVEL ANALYSIS 5
4.3 NOISE LEVEL RESULTS 6
4.4 IMPLEMENTATION 6

5.0 CONCLUSIONS AND RECOMMENDATIONS 7

Appendices

Appendix A: Sound Level Calculations
Appendix B: Architectural Typical Condominium Dwelling
Appendix C: Excerpts from NPC-300 and City of Ottawa ENCG

Tables

Table 1: City of Ottawa – Outdoor Noise Level Criteria
Table 2: City of Ottawa – Indoor Noise Level Criteria
Table 3: City of Ottawa - Noise Attenuation Requirements
Table 4: Traffic and Roadway Parameters
Table 5: Noise Analysis Results
Table 6: Required Noise Attenuation Measures

Figures

Figure 1, 1b: Key Plan – Kanata Lakes
Figure 2: Site Plan – Kanata Lakes
Figure 3: Receiver Location Plan – Kanata Lakes
Figure 4 Noise Attenuation Measures Plan

Drawings

Grading Plan – 110105-GR
Notes, Legends & Details-110105-LEG

1.0 INTRODUCTION

This report is submitted on behalf of the developer, Brigil Homes, as part of the Site Plan Application and Zoning By-law Amendment Application process for the Kanata Avenue Site and to procure clearance of the noise study requirements from the City of Ottawa.

This study assesses the impact of traffic noise on the proposed development and outlines the recommended mitigation measures.

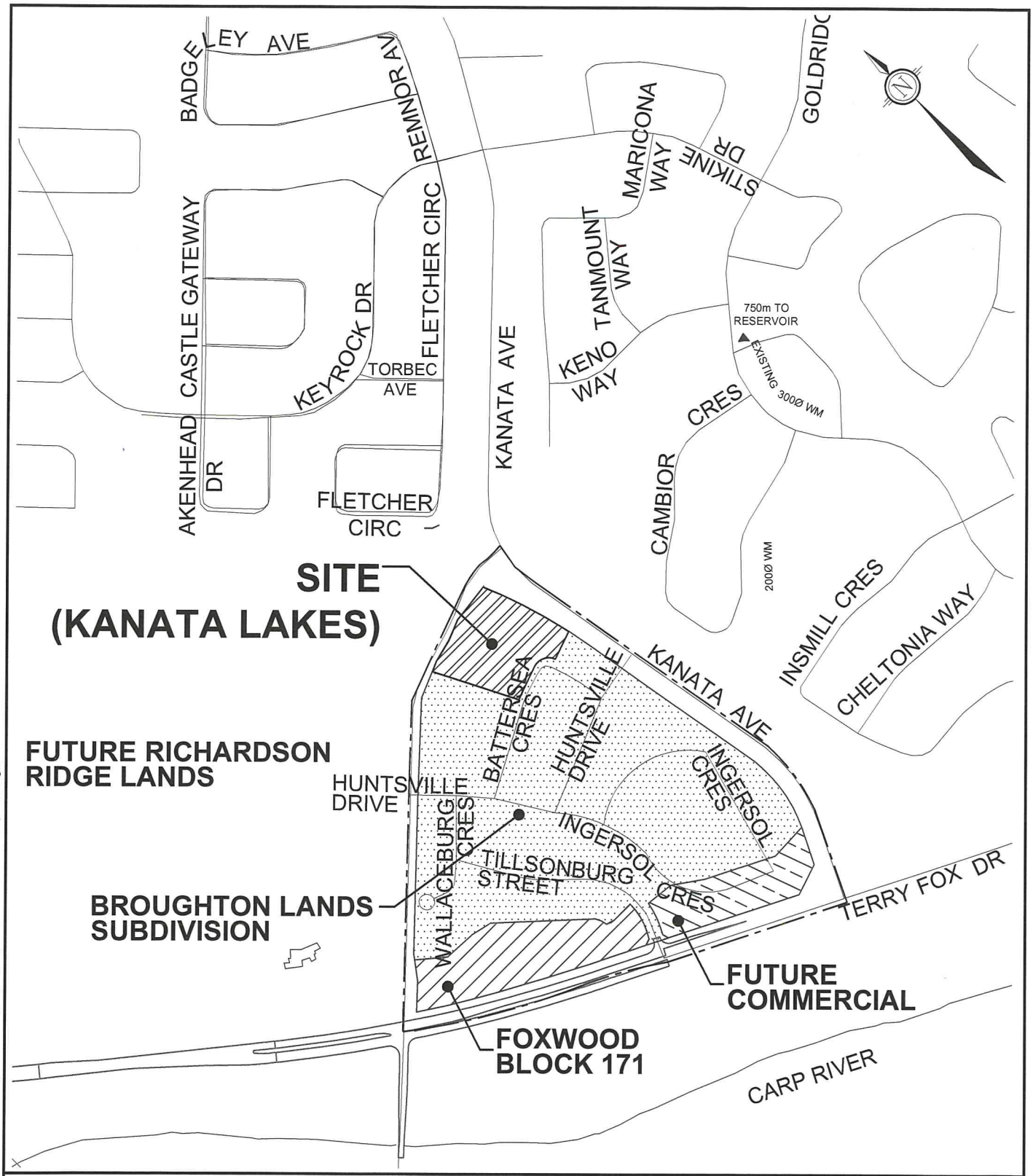
2.0 BACKGROUND

2.1 PROJECT DESCRIPTION

The proposed Kanata Lakes condominium site is within the Broughton Lands Subdivision as shown on the Key Plan (Figure 1 and 1b). The entire development will consist of four blocks, 2 existing buildings (16 units in one block, 12 units in one block), one block currently under construction (Block 4 - 79 units on 4 floors and underground parking level) and one proposed 79 unit block (Block 3 - 4 floors and underground parking level). Figure 2 illustrates the Site Plan.

Figure 1a – Key Plan

Block 4 and the existing blocks were previously approved under a separate site plan application, refer to *Heritage Hills, 124 Battersea Crescent, Noise Control Study, completed by Novatech, dated June 3, 2016, Ref. No.: R-2011-063* for details. For the purposes of this report, only Block 3 will be analysed.



NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6

Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

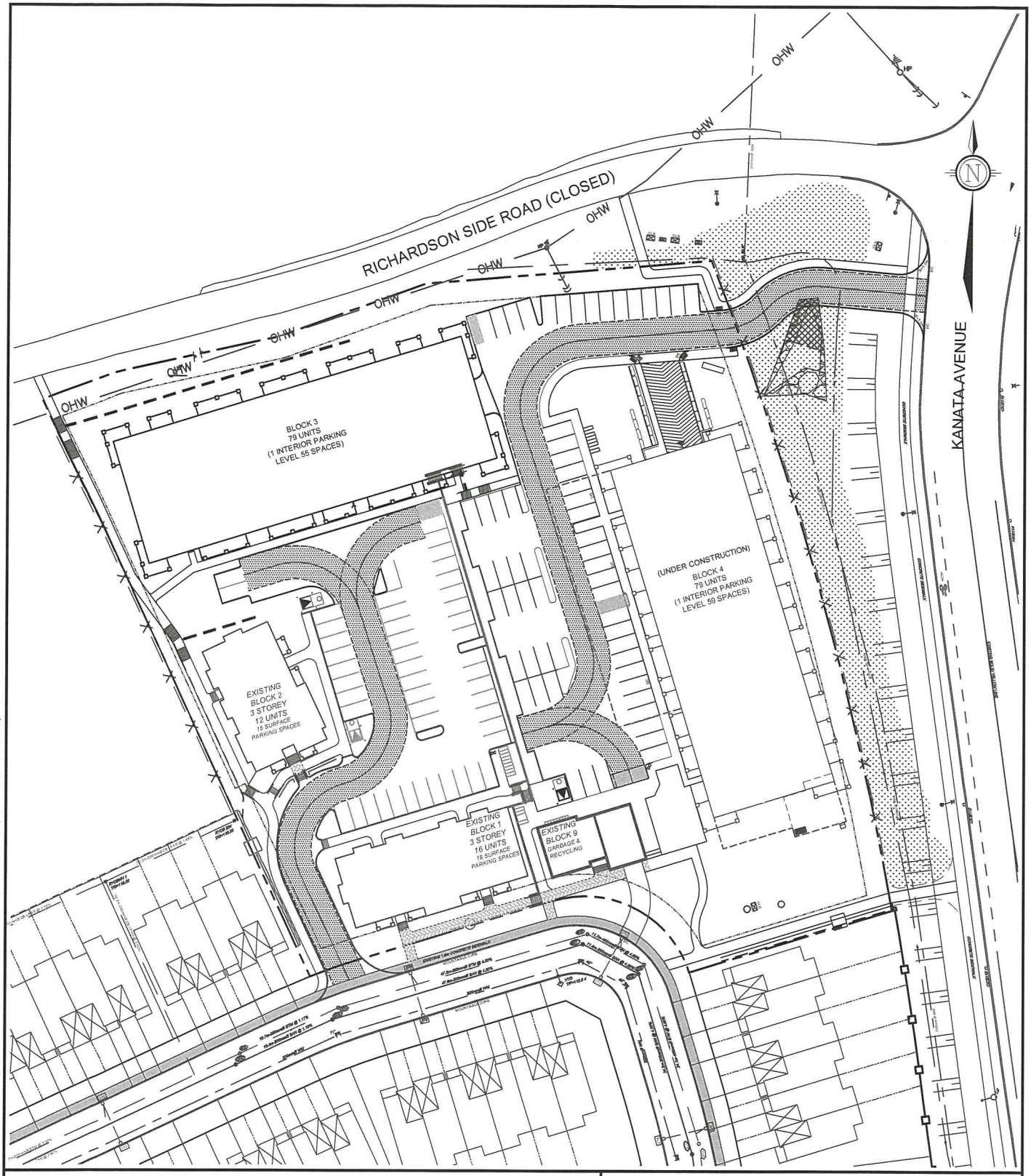
KANATA LAKES (124 BATTERSEA CRES., KANATA)

KEY PLAN

NTS | DEC 2016 | 110105 | FIGURE 1b

M:\2010\110105\CAD\Design\Figures\Design Brief\2016 - Block 3\Fig1-KPlan.dwg, Fig1b_KeyPlan, Dec 19, 2016 - 1:57pm, szorgel

SHT8X11.DWG - 216mmX278mm



NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6

Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

KANATA LAKES
(124 BATTERSEA CRES., KANATA)

SITE PLAN

NTS | DEC 2016 | 110105 | FIGURE 2

M:\2010\110105\CAD\Design\Figures\Design Brief\2016 - Block 3\Fig2-SPlan.dwg, Site Plan, Dec 19, 2016 - 1:41pm, (GETPROP ERROR)

SHT8X11.DWG - 216mmX278mm

2.2 NOISE SOURCES

The City of Ottawa Official Plan stipulates that a noise study shall be prepared when a new development is proposed within 100 metres of an arterial or major collector roadway, or a rapid-transit corridor.

For the purpose of this report Kanata Avenue will be considered the primary noise source for the Kanata Lakes site. It is understood that Richardson Side Road is to be closed in the future as per the City of Ottawa and will not be considered a noise source. The existing roadway infrastructure from Schedule E of the City of Ottawa Official Plan, Amendment 76, entitled *"Urban Road Network"* is as follows:

- Kanata Avenue: Right of Way Width (ROW) 26m. Consisting of a Northbound / Southbound two-way, two-lane roadway with no parking on both sides of the road, a posted speed of 60 km/hr and an AADT level of 12,000 veh/day.

There is no railway ROW within 250m that impacts the site.

There is no airport noise affecting this site.

There are no stationary noise sources that affect this site.

3.0 CITY OF OTTAWA NOISE CONTROL GUIDELINES

3.1 SOUND LEVEL CRITERIA

The City of Ottawa is concerned with noise from aircraft, roads, transitways and railways as expressed in the City of Ottawa Official Plan (May 2003) since it can affect the quality of life of residents. To protect residents from unacceptable levels of noise, the City of Ottawa has specific environmental noise control guidelines, which are based on the technical guidelines and recommendations prepared by the Ontario Ministry of Environment. The City of Ottawa's *Environmental Noise Control Guidelines (ENCG)*, January 2016 and the Ministry of Environment's *Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning, Publication NPC-300 (NPC-300)* have been used for the purpose of this report. As per section 2.2 of the City of Ottawa Noise Control Guidelines (2016), unless otherwise noted, developments should be consistent with NPC-300 (MOE publication, 2013).

The quantitative sound level criteria which, requires that specific outdoor and indoor living areas of residential developments meet certain energy equivalent sound levels (Leq), are summarized in Table 1 and Table 2, respectively. Compliance with the outdoor sound level criteria will generally ensure compliance with the indoor sound level criteria when normal construction materials are utilized.

Table 1: City of Ottawa Outdoor Noise Level Criteria

Time Period	Receiver Location	Noise Level Criteria (Leq)
Daytime (07:00 – 23:00)	Outdoor Living Area (OLA)	55 dBA
Daytime (07:00 – 23:00)	Plane of Window (POW) at Living/Dining Rooms	55 dBA
Nighttime (23:00 – 07:00)	Plane of Window (POW) at Bedrooms/Sleeping Quarter	50 dBA

The outdoor living area is defined as that part of an outdoor amenity area, which is provided for the quiet enjoyment of the outdoor environment during the daytime period. These amenity areas are typically backyards, gardens, terraces and patios. Balconies are only considered as an OLA if the criterion from the definition (OLA – Page 8, ENCG) are met, e.g. balcony has a minimum depth of 4.0m. For the purpose of this report, balconies on the exterior units of the building will not be considered as an outdoor living area. The rooftop common amenity area will be considered as an outdoor living area. Refer to Appendix B for roof plan details.

Table 2: City of Ottawa Indoor Noise Level Criteria

Time Period	Receiver Location	Noise Level Criteria (Leq)
Daytime (07:00 – 23:00)	Living/Dining Rooms of residential dwelling units, theatres, places of worship, school, individual or semi-private offices, conference rooms, reading rooms, classrooms, etc	45 dBA
Nighttime (23:00 – 07:00)	Sleeping quarters of residential units, hospitals, nursing homes, senior citizen homes, etc	40 dBA

3.2 NOISE ATTENUATION REQUIREMENTS

When sound levels are predicted to be less than the specified criteria for the daytime and nighttime conditions, no attenuation measures are required by the proponent. As the noise criteria is exceeded, a combination of attenuation measures are recommended by the City of Ottawa to modify the development environment. These attenuation measures may include:

- Construction of a noise barrier wall and/or berm;
- Installation of a forced air ventilation system with provision for central air conditioning;
- Installation of central air conditioning;
- Custom building design, construction and/or acoustical insulation

If noise levels are expected to exceed the applicable sound level criteria, the City of Ottawa recommends a warning clause be registered on title. This warning clause serves to alert potential buyers and/or renters of the possible noise condition and of any limitations that may exist on his/her property rights. The warning clause shall be registered on title and incorporated in the Condominium Agreement and in the Agreement of Purchase and Sale.

Noise attenuation requirements at the Outdoor Living Areas (OLA) and Plane of Window (POW) are outlined in Table 3, as recommended by the MOE's Environmental Noise Guidelines, Stationary and Transportation Sources – Approval and Planning, NPC-300.

Table 3: NPC-300 Noise Attenuation Requirements

Noise Level (dBA)				Noise Attenuation Requirements
Daytime (07:00-23:00)		Nighttime (23:00-07:00)		
Unattenuated	Attenuated	Unattenuated	Attenuated	
OUTDOOR LIVING AREA (OLA)				
OLA < 55				None
55 < OLA < 60				Noise Clause Type A*
OLA > 60	OLA < 55			Noise Barrier
OLA > 60	OLA > 55			Noise Barrier Noise Clause Type B*
PLANE OF WINDOW (POW)				
POW < 55		POW < 50		None
55 < POW < 65		50 < POW < 60		Forced Air Ventilation Noise Clause Type C*
POW > 65		POW > 60		Central Air Conditioning Noise Clause Type D* Building Façade Analysis

*Noise clauses are superceeded by The City of Ottawa's *Environmental Noise Control Guidelines (ENCG)*, January 2016.

As per section 2.2 of the City of Ottawa Noise Control Guidelines (2016), developments should be consistent with NPC-300 (MOE publication, 2013). As stated in section 7.1.2 and 7.1.3 of NPC-300, ventilation provisions and warning clauses are not required if the plane of window (daytime) noise level is below 55dBA and the plane of window (nighttime) sound level is below 50 dBA. Additionally, building components (such as windows, walls and doors) shall be designed so that the indoor sounds levels comply with the noise level criteria only when plane of window sound levels exceed 65 dBA for daytime and 60dBA for nighttime. Refer to **Appendix C** for excerpts from NCP-300. The Building Code construction requirements for building components (windows, walls, doors) exceed the minimum requirements to mitigate indoor noise levels. The Building Code required building

components generally mitigate noise levels up to 65 dBA for daytime and 60dBA for nighttime.

4.0 PREDICTION OF OUTDOOR NOISE LEVELS

4.1 ROADWAY TRAFFIC

The ultimate road and traffic data for Kanata Avenue has been used for noise prediction purposes, attained from Table 1.7 in the City of Ottawa's Environmental Noise Control Guidelines. The traffic and roadway parameters used for sound level predictions are shown in Table 4.

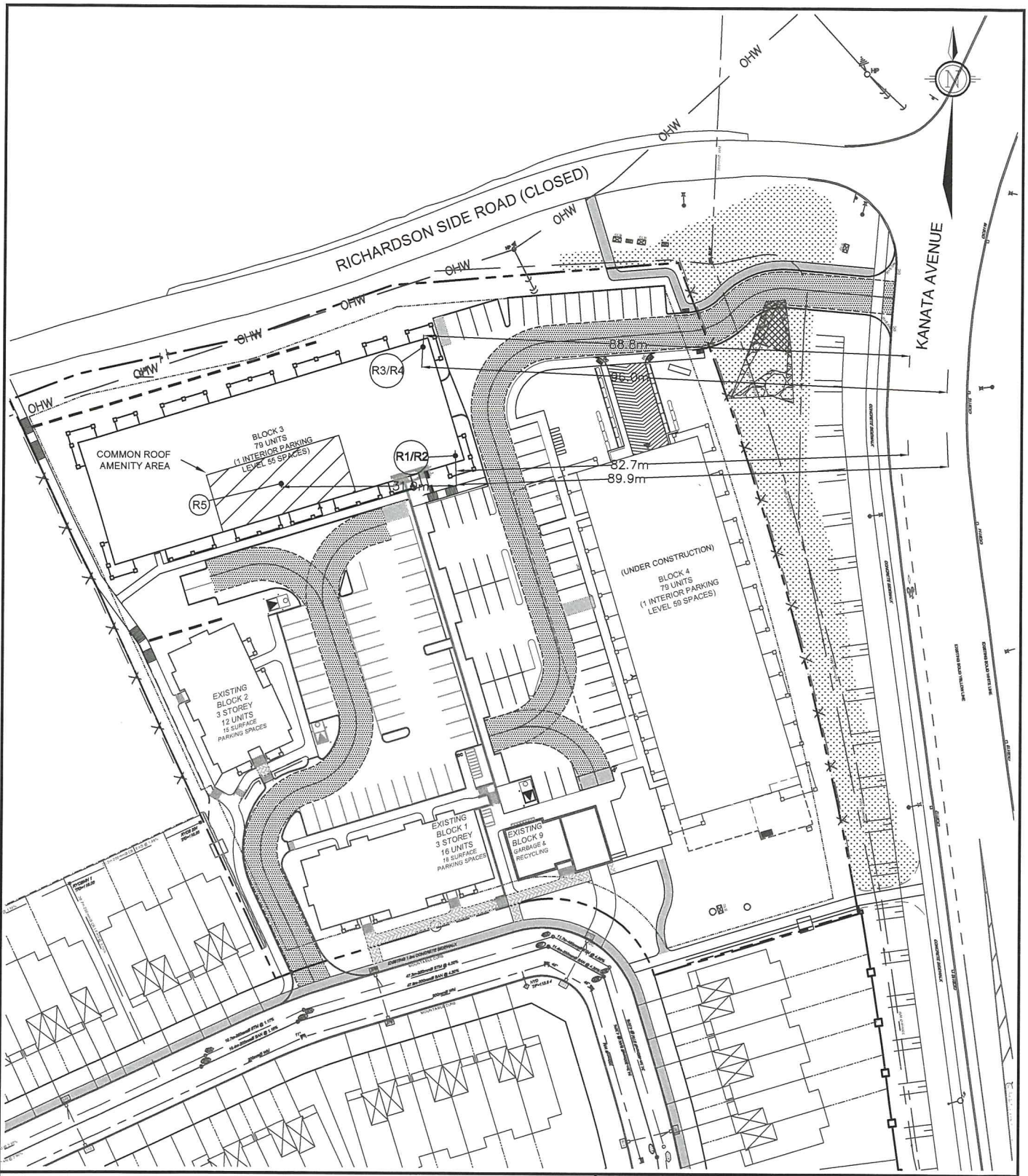
Table 4: Traffic and Roadway Parameters

	Kanata Avenue
Roadway Classification	2-Lane Major Collector – Undivided
Annual Average Daily Traffic (AADT)	12,000 veh/day
Day/Night Split (%)	92/8
Medium Trucks (%)	7
Heavy Trucks (%)	5
Posted Speed	60km/hr

4.2 NOISE LEVEL ANALYSIS

Noise levels were analysed using version 5.03 of the STAMSON computer program issued by the MOE and are included in **Appendix A**. Kanata Avenue slope gradients were required for the STAMSON software and were attained based on elevations provided in the Grading Plan, included in at the back of this report. Noise levels were generated for five receiver locations as shown on the Receiver Locations Plan (Figure 3) using the Kanata Avenue traffic and roadway parameters.

Condominium units facing Kanata Avenue (Block 3) will experience the highest sound levels due to their proximity to the Kanata Avenue noise source. Based on the layout of the condominiums and traffic parameters, a noise analysis was only conducted for the most easterly side of the building facade as this is the worst case scenario.



NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6

Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

KANATA LAKES (124 BATTERSEA CRES., KANATA) RECEIVER LOCATION PLAN - BLOCK 3

NTS | DEC 2016 | 110105 | FIGURE 3

M:\2010\110105\CAD\Design\Figures\Noise\2016 - Block 3\Fig3_RecLoc-NCPlan.dwg, Rec Loc Plan-S.S Amenity, Dec 19, 2016 - 1:19pm, szorgel

SHT8X11.DWG - 216mmX278mm

4.3 NOISE LEVEL RESULTS

Simulated noise levels for the units adjacent to Kanata Avenue exceed the allowable noise level criteria, resulting in the mitigation including a provision for the installation of forced air ventilation and a warning clause.

Simulated noise levels for the outdoor amenity on the rooftop fall within acceptable noise levels.

The predicted noise levels at the selected receiver locations within the development are illustrated in Table 5. Noise level analysis for the outdoor amenity area on the roof is based on a 1.07m high parapet wall being installed along the entire rooftop exterior to ensure acceptable noise levels.

Daytime and nighttime noise levels are shown.

Table 5 – Noise Analysis Results

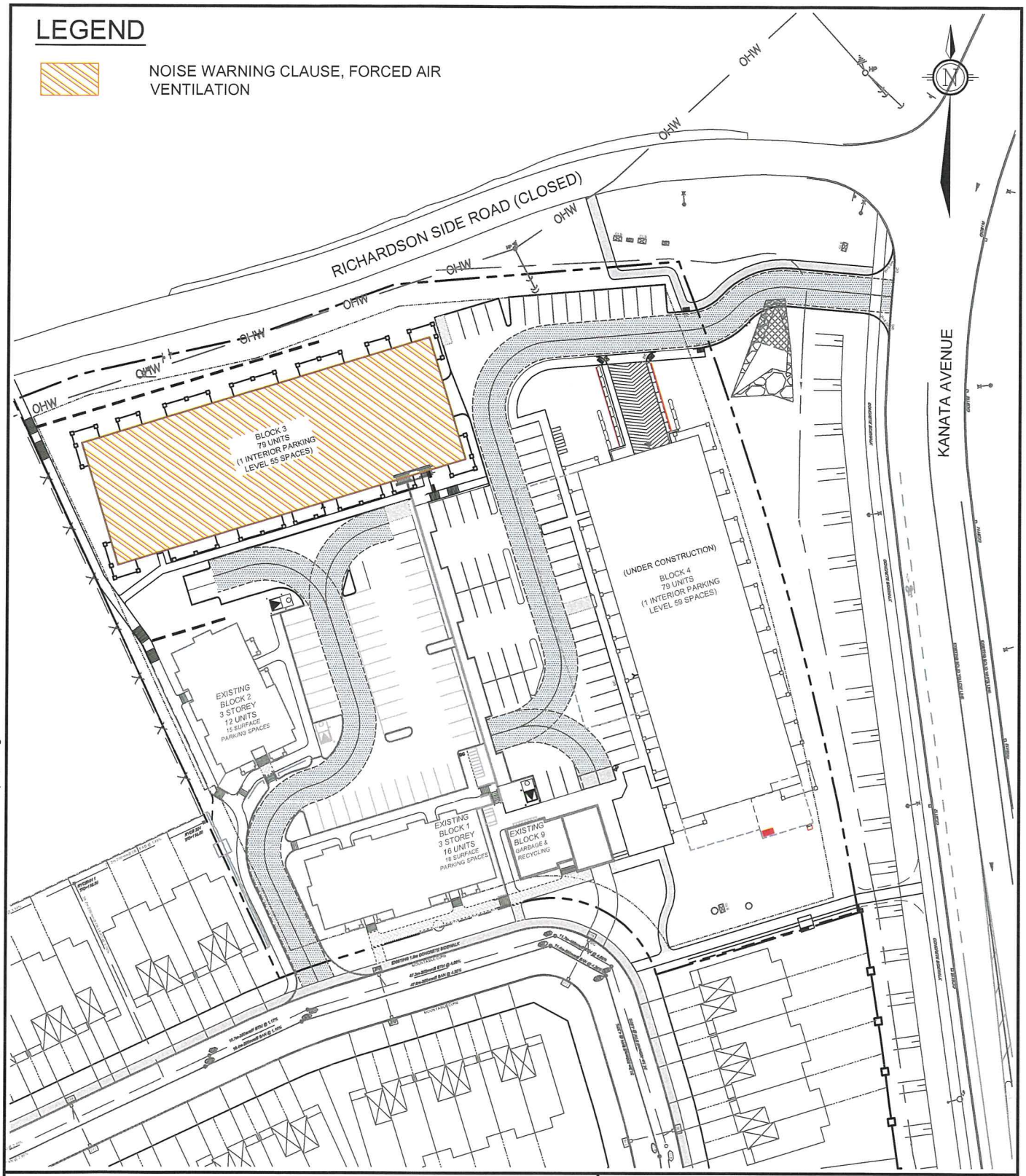
		Noise Levels Leq (dBA)	
Location	**File/Receiver Name**	**Daytime**	**Night-time**
Block 3 - Ground Floor – SE Corner	R1	58.94	51.36
Block 3 – 4th Floor – SE Corner	R2	59.21	51.62
Block 3 - Ground Floor – NE Corner	R3	59.45	51.86
Block 3 – 4th Floor – NE Corner	R4	59.61	52.02
Rooftop Common Amenity Area	R5	52.40	44.82

4.4 Implementation

The City of Ottawa ENCG requires that noise clauses be applied when noise levels are above minimum requirements outlined in Table 1 and 2, and wall & window construction be reviewed when noise levels exceed 65dBA.

The noise clauses that are to be included on title and in the Agreement of Purchase and Sale for the various dwelling units shall be as per Part 4, Appendix A of the City of Ottawa ENCG (2016). Refer to Appendix C of this report for details.

The attenuation measures required to satisfy the City of Ottawa noise criteria and the noise clauses that are to be included on title and in the Agreement of Purchase and Sale for the various dwelling units are summarized in Table 6. Noise attenuation measures can be seen for Block 3 in Figure 4 – Noise Attenuation Measures Plan.



NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6

Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

KANATA LAKES (124 BATTERSEA CRES., KANATA) NOISE ATTENUATION MEASURES PLAN - BLOCK 3

NTS | DEC 2016 | 110105 | FIGURE 4

M:\2010\110105\CAD\Design\Figures\Noise\2016 - Block 3\Fig4_NOISE_ATTEN.dwg, Noise Attenuation, Dec 19, 2016 - 1:19pm, szorgel

SHT8X11.DWG - 216mmX278mm

Table 6 - Required Noise Attenuation Measures

Buildings	Attenuation Measure	Notice on Title
Block 3	Forced Air Ventilation	Yes (as per ENCG, Appendix A)

5.0 CONCLUSIONS AND RECOMMENDATIONS

An analysis of the roadway traffic indicates that the City of Ottawa criteria for residential noise will be exceeded if the proponent does not undertake attenuation measures.

The following is a detailed list of required attenuation measures.

Block 3:

- Forced Air Ventilation
- Notice on title: As per Part 4, Appendix A of the City of Ottawa ENCG (2016). Refer to Appendix C of this report for details.

Respectfully submitted,

NOVATECH

Prepared by:

Steve Zorgel, E.I.T.
Project Coordinator

Reviewed by:

FOR REVIEW ONLY

LICENSED PROFESSIONAL ENGINEER
D. D. BLAIR
100122737
Dec. 20/16
PROVINCE OF ONTARIO

Drew Blair. P. Eng
Project Manager

APPENDIX A

SOUND LEVEL CALCULATIONS

STAMSON 5.0 SUMMARY REPORT Date: 08-12-2016 16:44:25
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r1.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Kanata Ave N (day/night)

Car traffic volume	:	4858/422 veh/TimePeriod	*
Medium truck volume	:	386/34 veh/TimePeriod	*
Heavy truck volume	:	276/24 veh/TimePeriod	*
Posted speed limit	:	60 km/h	
Road gradient	:	3 %	
Road pavement	:	1 (Typical asphalt or concrete)	

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

24 hr Traffic Volume (AADT or SADT)	:	6000
Percentage of Annual Growth	:	0.00
Number of Years of Growth	:	0.00
Medium Truck % of Total Volume	:	7.00
Heavy Truck % of Total Volume	:	5.00
Day (16 hrs) % of Total Volume	:	92.00

Data for Segment # 1: Kanata Ave N (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	:	89.90 / 89.90 m
Receiver height	:	1.50 / 1.50 m
Topography	:	4 (Elevated; with barrier)
Barrier angle1	:	-3.00 deg Angle2 : 90.00 deg
Barrier height	:	13.00 m
Elevation	:	5.65 m
Barrier receiver distance	:	22.00 / 22.00 m
Source elevation	:	111.56 m
Receiver elevation	:	117.21 m
Barrier elevation	:	114.83 m
Reference angle	:	0.00

Road data, segment # 2: Kanata Ave S (day/night)

Car traffic volume	:	4858/422 veh/TimePeriod
Medium truck volume	:	386/34 veh/TimePeriod
Heavy truck volume	:	276/24 veh/TimePeriod
Posted speed limit	:	60 km/h
Road gradient	:	3 %
Road pavement	:	1 (Typical asphalt or concrete)

Data for Segment # 2: Kanata Ave S (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  :  82.70 / 82.70  m
Receiver height           :   1.50 / 1.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            :  -3.00 deg   Angle2 : 90.00 deg
Barrier height            :  13.00 m
Elevation                 :   5.35 m
Barrier receiver distance :  22.00 / 22.00  m
Source elevation          : 111.86 m
Receiver elevation        : 117.21 m
Barrier elevation         : 114.83 m
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Kanata Ave N	1.50	55.75	55.75
2.Kanata Ave S	1.50	56.11	56.11
Total			58.94 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Kanata Ave N	1.50	48.17	48.17
2.Kanata Ave S	1.50	48.53	48.53
Total			51.36 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.94
(NIGHT): 51.36

STAMSON 5.0 SUMMARY REPORT Date: 08-12-2016 16:43:05
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r2.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Kanata Ave N (day/night)

Car traffic volume	: 4858/422	veh/TimePeriod
Medium truck volume	: 386/34	veh/TimePeriod
Heavy truck volume	: 276/24	veh/TimePeriod
Posted speed limit	: 60 km/h	
Road gradient	: 3 %	
Road pavement	: 1 (Typical asphalt or concrete)	

Data for Segment # 1: Kanata Ave N (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	: 89.90 / 89.90	m
Receiver height	: 1.50 / 1.50	m
Topography	: 4	(Elevated; with barrier)
Barrier angle1	: -3.00 deg	Angle2 : 90.00 deg
Barrier height	: 13.00 m	
Elevation	: 5.35 m	
Barrier receiver distance	: 22.00 / 22.00	m
Source elevation	: 111.56 m	
Receiver elevation	: 126.21 m	
Barrier elevation	: 114.83 m	
Reference angle	: 0.00	

Road data, segment # 2: Kanata Ave S (day/night)

Car traffic volume	: 4858/422	veh/TimePeriod
Medium truck volume	: 386/34	veh/TimePeriod
Heavy truck volume	: 276/24	veh/TimePeriod
Posted speed limit	: 60 km/h	
Road gradient	: 3 %	
Road pavement	: 1 (Typical asphalt or concrete)	

Data for Segment # 2: Kanata Ave S (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	: 82.70 / 82.70	m
Receiver height	: 1.50 / 1.50	m
Topography	: 4	(Elevated; with barrier)
Barrier angle1	: -3.00 deg	Angle2 : 90.00 deg

Barrier height : 13.00 m
Elevation : 5.65 m
Barrier receiver distance : 22.00 / 22.00 m
Source elevation : 111.86 m
Receiver elevation : 126.21 m
Barrier elevation : 114.83 m
Reference angle : 0.00

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Kanata Ave N	1.50	56.03	56.03
2.Kanata Ave S	1.50	56.36	56.36
Total			59.21 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Kanata Ave N	1.50	48.44	48.44
2.Kanata Ave S	1.50	48.77	48.77
Total			51.62 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.21
(NIGHT): 51.62

STAMSON 5.0 SUMMARY REPORT Date: 08-12-2016 17:08:57
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r3.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Kanata Ave N (day/night)

Car traffic volume : 4858/422 veh/TimePeriod *
Medium truck volume : 386/34 veh/TimePeriod *
Heavy truck volume : 276/24 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 3 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 6000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Kanata Ave N (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 : 96.00 / 96.00 m
Receiver height : 1.50 / 1.50 m
Topography : 4 (Elevated; with barrier)
Barrier angle1 : 15.00 deg Angle2 : 90.00 deg
Barrier height : 13.00 m
Elevation : 5.38 m
Barrier receiver distance : 30.00 / 30.00 m
Source elevation : 111.83 m
Receiver elevation : 117.21 m
Barrier elevation : 114.83 m
Reference angle : 0.00

Road data, segment # 2: Kanata Ave S (day/night)

Car traffic volume : 4858/422 veh/TimePeriod
Medium truck volume : 386/34 veh/TimePeriod
Heavy truck volume : 276/24 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 3 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Kanata Ave S (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  :  88.80 / 88.80  m
Receiver height           :   1.50 / 1.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            :  15.00 deg   Angle2 : 90.00 deg
Barrier height            :  13.00 m
Elevation                 :   5.07 m
Barrier receiver distance :  30.00 / 30.00  m
Source elevation          : 112.14 m
Receiver elevation        : 117.21 m
Barrier elevation         : 114.83 m
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Kanata Ave N	1.50	56.27	56.27
2.Kanata Ave S	1.50	56.60	56.60
Total			59.45 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Kanata Ave N	1.50	48.68	48.68
2.Kanata Ave S	1.50	49.02	49.02
Total			51.86 dBA

```
TOTAL Leq FROM ALL SOURCES (DAY): 59.45
                           (NIGHT): 51.86
```

STAMSON 5.0 SUMMARY REPORT Date: 08-12-2016 17:10:51
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r4.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Kanata Ave N (day/night)

Car traffic volume	:	4858/422	veh/TimePeriod *
Medium truck volume	:	386/34	veh/TimePeriod *
Heavy truck volume	:	276/24	veh/TimePeriod *
Posted speed limit	:	60 km/h	
Road gradient	:	3 %	
Road pavement	:	1 (Typical asphalt or concrete)	

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

24 hr Traffic Volume (AADT or SADT)	:	6000
Percentage of Annual Growth	:	0.00
Number of Years of Growth	:	0.00
Medium Truck % of Total Volume	:	7.00
Heavy Truck % of Total Volume	:	5.00
Day (16 hrs) % of Total Volume	:	92.00

Data for Segment # 1: Kanata Ave N (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	:	96.00 / 96.00	m
Receiver height	:	1.50 / 1.50	m
Topography	:	4	(Elevated; with barrier)
Barrier angle1	:	15.00 deg	Angle2 : 90.00 deg
Barrier height	:	13.00 m	
Elevation	:	5.38 m	
Barrier receiver distance	:	30.00 / 30.00	m
Source elevation	:	111.83 m	
Receiver elevation	:	126.21 m	
Barrier elevation	:	114.83 m	
Reference angle	:	0.00	

Road data, segment # 2: Kanata Ave S (day/night)

Car traffic volume	:	4858/422	veh/TimePeriod
Medium truck volume	:	386/34	veh/TimePeriod
Heavy truck volume	:	276/24	veh/TimePeriod
Posted speed limit	:	60 km/h	
Road gradient	:	3 %	
Road pavement	:	1 (Typical asphalt or concrete)	

Data for Segment # 2: Kanata Ave S (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  :  88.80 / 88.80  m
Receiver height           :   1.50 / 1.50   m
Topography                :      4        (Elevated; with barrier)
Barrier angle1            :  15.00 deg   Angle2 : 90.00 deg
Barrier height            :  13.00 m
Elevation                 :   5.07 m
Barrier receiver distance :  30.00 / 30.00  m
Source elevation          : 112.14 m
Receiver elevation        : 126.21 m
Barrier elevation         : 114.83 m
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Kanata Ave N	1.50	56.44	56.44
2.Kanata Ave S	1.50	56.75	56.75
Total			59.61 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Kanata Ave N	1.50	48.85	48.85
2.Kanata Ave S	1.50	49.17	49.17
Total			52.02 dBA

```
TOTAL Leq FROM ALL SOURCES (DAY): 59.61
                           (NIGHT): 52.02
```

STAMSON 5.0 SUMMARY REPORT Date: 15-12-2016 08:57:06
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: R5.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Kanata Ave N (day/night)

Car traffic volume	:	4858/422	veh/TimePeriod *
Medium truck volume	:	386/34	veh/TimePeriod *
Heavy truck volume	:	276/24	veh/TimePeriod *
Posted speed limit	:	60 km/h	
Road gradient	:	3 %	
Road pavement	:	1 (Typical asphalt or concrete)	

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

24 hr Traffic Volume (AADT or SADT)	:	6000
Percentage of Annual Growth	:	0.00
Number of Years of Growth	:	0.00
Medium Truck % of Total Volume	:	7.00
Heavy Truck % of Total Volume	:	5.00
Day (16 hrs) % of Total Volume	:	92.00

Data for Segment # 1: Kanata Ave N (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	:	121.80 / 121.80 m
Receiver height	:	1.50 / 1.50 m
Topography	:	4 (Elevated; with barrier)
Barrier angle1	:	-90.00 deg Angle2 : 90.00 deg
Barrier height	:	1.07 m
Elevation	:	5.65 m
Barrier receiver distance	:	17.30 / 17.30 m
Source elevation	:	111.56 m
Receiver elevation	:	129.21 m
Barrier elevation	:	129.21 m
Reference angle	:	0.00

Road data, segment # 2: Kanata Ave S (day/night)

Car traffic volume	:	4858/422	veh/TimePeriod
Medium truck volume	:	386/34	veh/TimePeriod
Heavy truck volume	:	276/24	veh/TimePeriod
Posted speed limit	:	60 km/h	
Road gradient	:	3 %	
Road pavement	:	1 (Typical asphalt or concrete)	

Data for Segment # 2: Kanata Ave S (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  : 114.60 / 114.60 m
Receiver height           :   1.50 / 1.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 90.00 deg
Barrier height            :   1.07 m
Elevation                 :   5.35 m
Barrier receiver distance :  17.30 / 17.30  m
Source elevation          : 111.86 m
Receiver elevation        : 129.21 m
Barrier elevation         : 129.21 m
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Kanata Ave N	1.50	49.38	49.38
2.Kanata Ave S	1.50	49.40	49.40
Total			52.40 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Kanata Ave N	1.50	41.80	41.80
2.Kanata Ave S	1.50	41.81	41.81
Total			44.82 dBA

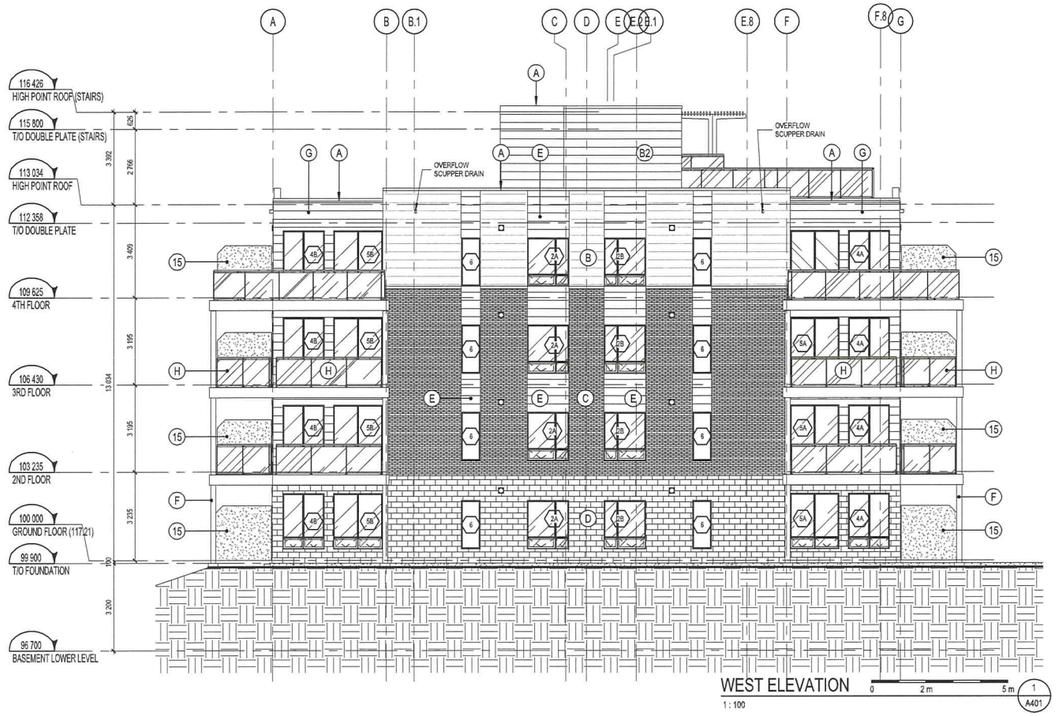
TOTAL Leq FROM ALL SOURCES (DAY): 52.40
(NIGHT): 44.82

APPENDIX B

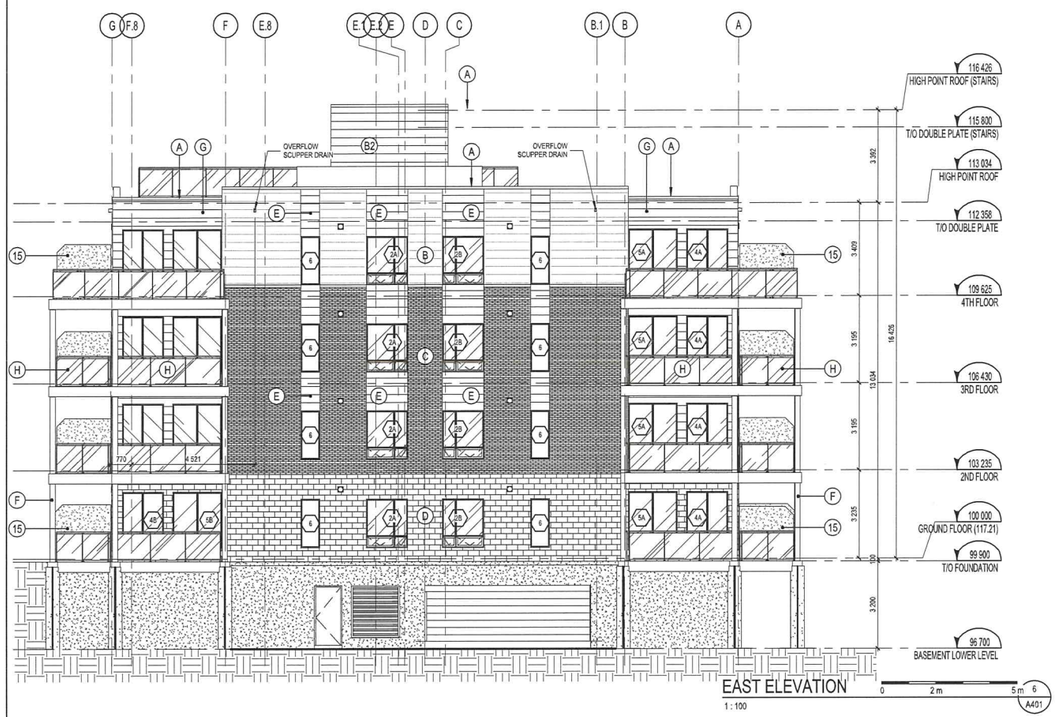
ARCHITECTURAL TYPICAL CONDOMINIUM DWELLING

Exterior finishes legend

A	FASCIAS, METAL WORK AT ROOF & PRE-BENT METAL TRIM AROUND DOORS AND WINDOWS; COLOUR: TO MATCH WALL FINISH	B	FIBER CEMENT LAP SIDING; COLOUR: LIGHT GREY	B2	FIBER CEMENT LAP SIDING; COLOUR: CHARCOAL	C	MASONRY VEENER; COLOUR: BEIGE (SIMILAR TO EXISTING BUILDING(S).	D	RECONSTRUCTED STONE VEENER; COLOUR: LIGHT GREY	E	PREPAINTED STEEL SIDING COLOUR: FAUX WOOD FINISH	F	PREPAINTED ALUMINUM BALCONY POST CLADDING COLOUR: CHARCOAL	G	PREPAINTED STEEL SIDING COLOUR: CHARCOAL	H	ALUMINUM GUARDRAIL WITH CLEAR GLASS INFILL	I	ACRYLIC POLYMER FINISH COLOUR: LIGHT GREY	J	MASONRY CONTROL JOINT COLOUR: MATCH AJACENT MASONRY



WEST ELEVATION
1 : 100
0 2 m 5 m
1 / A401



EAST ELEVATION
1 : 100
0 2 m 5 m
6 / A401

APPROVED ☐ REFUSED ☐

THIS ____ DAY OF _____, 20___

DERRICK MOODIE, ACTING MANAGER
DEVELOPMENT REVIEW, SUBURBAN SERVICES

CITY OF OTTAWA FILE NUMBER: D07-12-15-0150

C:\Fichiers Revit Locaux\10883.05_ARCHITECTURE_Central_abourassa.rvt

NOTES GÉNÉRALES General Notes

1. Ces documents d'architecture sont la propriété exclusive de NEUF architect(e)s et ne peuvent être utilisés, reproduits ou copiés sans autorisation écrite préalable. / These architectural documents are the exclusive property of NEUF architect(e)s and cannot be used, copied or reproduced without written pre-authorization
2. Les dimensions approximent aux documents devront être vérifiées par l'entrepreneur avant le début des travaux. / All dimensions which appear on the documents must be verify by the contractor before to start the work;
3. Veuillez aviser l'architecte de toute dimension erreur et/ou divergences entre ces documents et ceux des autres professionnels. / The architect must be notified of all errors, omissions and discrepancies between these documents and those of the others professionals.
4. Les dimensions sur ces documents doivent être lues et non mesurées. / The dimensions on these documents must be read and not measured.

ARCHITECTURE DE PAYSAGE Landscape Architect
Levstek Consultants
5971 Hugh Crescent, Ottawa ON K0A 2W0
T 613 826 0518 larocquelevstek.com

CIVIL Civil
Novatech Engineering Consultants Limited
240 Michael Cowpland Drive, Suite 200, Ottawa ON K2M 1P6
T 613 254 9643 novatech-eng.com

ARCHITECTES Architect
NEUF architect(e)s
630, boul. René-Lévesque O. 32e étages, Montréal QC H3B 1S6
T 514 947 1117 NEUFarchitectes.com

SCEAU / Seal

NEUF
ARCHITECT(E)S

CLIENT Client

BRIGIL

OUVRAGE Project
KANATA LAKES 124 BATTERSEA CRESCENT

EMPLACEMENT Location: OTTAWA
NO PROJET No.: 10883.05

NO	RÉVISION	DATE (aa-mm-jj)
A	Site Plan Pre-consultation	2016.12.08

Preliminary DO NOT USE FOR CONSTRUCTION

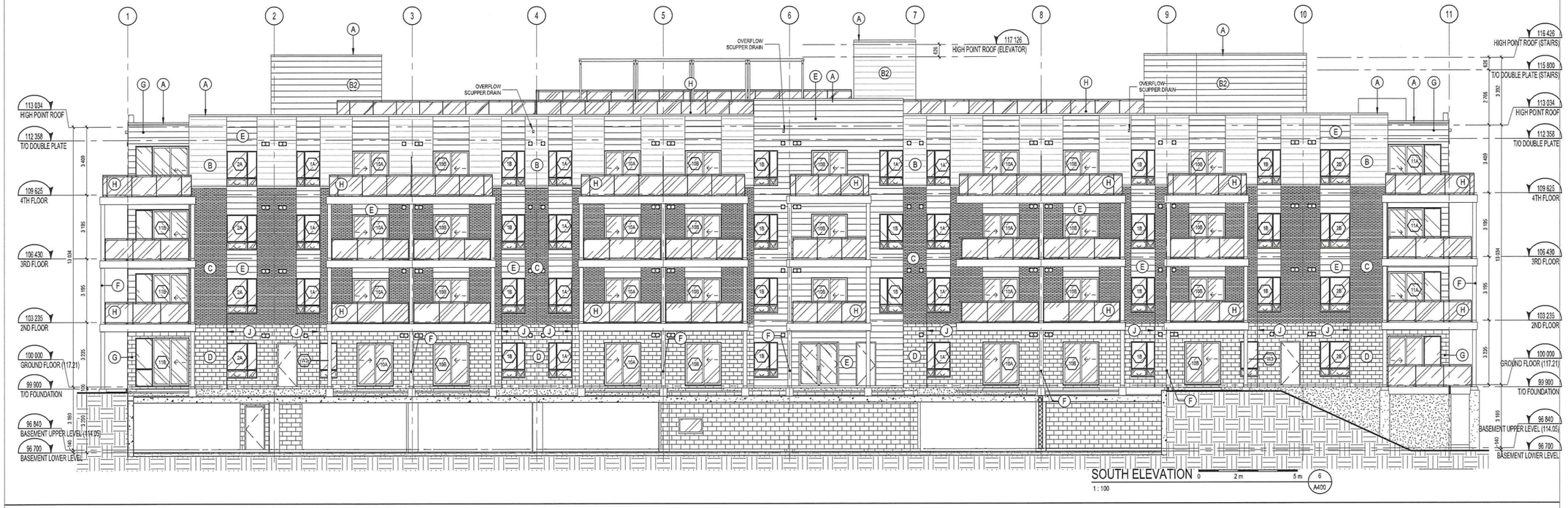
DESSINÉ PAR Drawn by: A.B./M.R./P.V.
VÉRIFIÉ PAR Checked by: Ant.C.
DATE (aa.mm.jj): 01/29/16
ÉCHELLE Scale: Comme indiqué

TITRE DU DESSIN Drawing Title
EAST & WEST ELEVATIONS

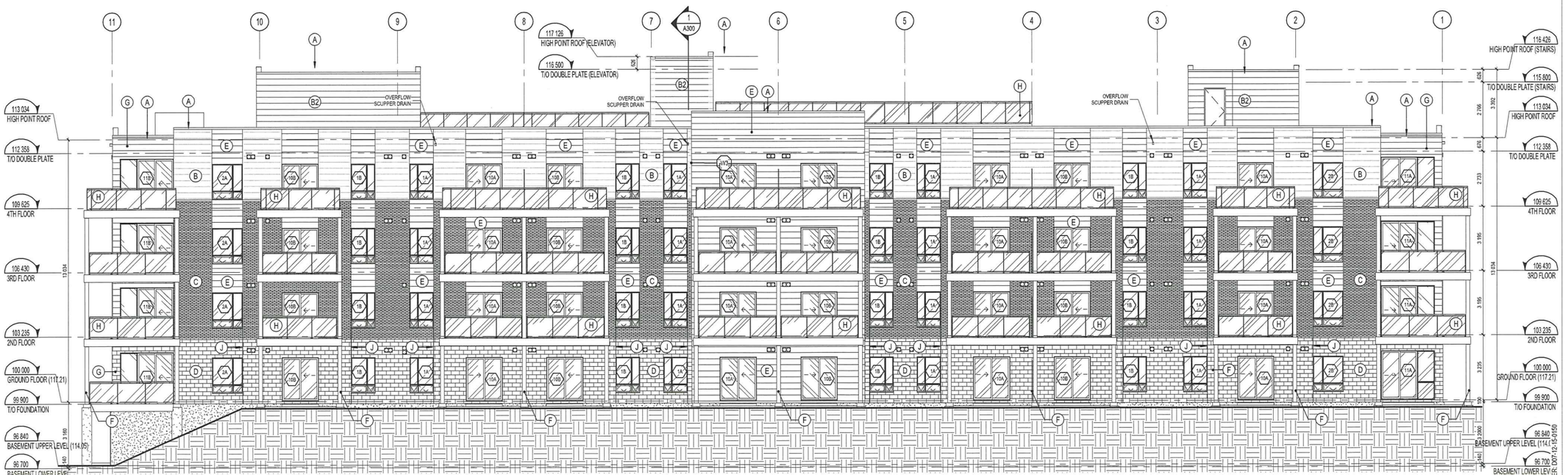
RÉVISION Revision: A
NO. DESSIN Dwg Number: A401

Exterior finishes legend

A	FASCIAS, METAL WORK AT ROOF & PRE-BENT METAL TRIM AROUND DOORS AND WINDOWS; COLOUR: TO MATCH WALL FINISH	B	FIBER CEMENT LAP SIDING; COLOUR: LIGHT GREY
B2	FIBER CEMENT LAP SIDING; COLOUR: CHARCOAL	C	MASONRY VEENER; COLOUR: BEIGE (SIMILAR TO EXISTING BUILDINGS).
D	RECONSTRUCTED STONE VEENER; COLOUR: LIGHT GREY	E	PREPAINTED STEEL SIDING COLOUR: FAUX WOOD FINISH
F	PREPAINTED ALUMINIUM BALCONY POST CLADDING COLOUR: CHARCOAL	G	PREPAINTED STEEL SIDING COLOUR: CHARCOAL
H	ALUMINIUM GUARDRAIL WITH CLEAR GLASS INFILL	I	ACRYLIC POLYMER FINISH COLOUR: LIGHT GREY
J	MASONRY CONTROL JOINT COLOUR: MATCH AJACENT MASONRY		



SOUTH ELEVATION 0 2 m 5 m 6 A400
1 : 100



NORTH ELEVATION 0 2 m 5 m 1 A400
1 : 100

APPROVED ☐ REFUSED ☐
THIS ____ DAY OF _____, 20___
DERRICK MOODIE, ACTING MANAGER
DEVELOPMENT REVIEW, SUBURBAN SERVICES

CITY OF OTTAWA FILE NUMBER: D07-12-15-0150

C:\Fichiers Revit Locaux\10883.05_ARCHITECTURE_Central_abourassa.rvt

NOTES GÉNÉRALES General Notes

1. Ces documents d'architecture sont la propriété exclusive de NEUF architect(e)s et ne pourront être utilisés, reproduits ou copiés sans autorisation écrite préalable. / These architectural documents are the exclusive property of NEUF architect(e)s and cannot be used, copied or reproduced without written pre-authorisation
2. Les dimensions apparaissant aux documents devront être vérifiées par l'entrepreneur avant le début des travaux. / All dimensions which appear on the documents must be verify by the contractor before to start the work.
3. Veuillez aviser l'architecte de toute dimension erreur et/ou divergences entre ces documents et ceux des autres professionnels. / The architect must be notified of all errors, omissions and discrepancies between these documents and those of the others professionnals.
4. Les dimensions sur ces documents doivent être lues et non mesurées. / The dimensions on these documents must be read and not measured.

ARCHITECTURE DE PAYSAGE Landscape Architect
Levstek Consultants
5671 Hugh Crescent, Ottawa ON K0A 2W0
T 613 826 0518 larocquelevstek.com

CIVIL Civil
Novatech Engineering Consultants Limited
240 Michael Cowpland Drive, Suite 200, Ottawa ON K2M 1P6
T 613 254 9643 novatech-eng.com

ARCHITECTES Architect
NEUF architect(e)s
630, boul. René-Lévesque O, 32e étages, Montréal QC H3B 1S6
T 514 847 1117 NEUFarchitectes.com

SCEAU / Seal

NEUF
ARCHITECT(E)S

CLIENT Client
BRIGIL

OUVRAGE Project
KANATA LAKES 124 BATTERSEA CRESCENT

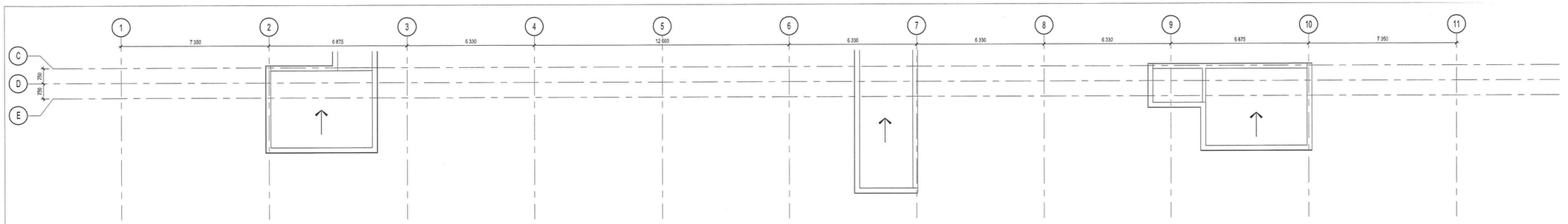
EMPLACEMENT Location: OTTAWA
NO PROJET No.: 10883.05

NO	RÉVISION	DATE (aa-mm-jj)
A	Site Plan Pre-consultation	2016.12.08

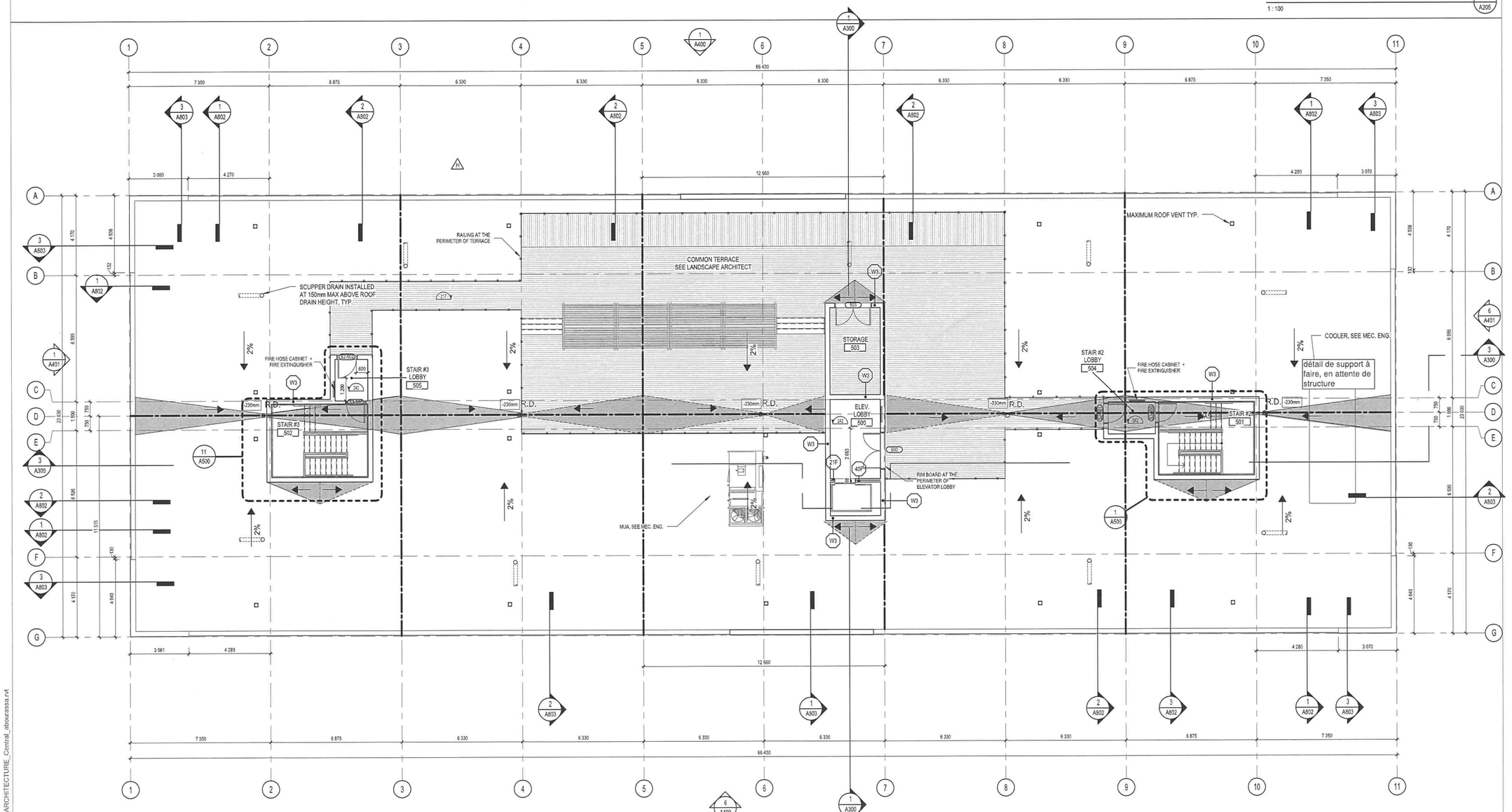
Preliminary DO NOT USE FOR CONSTRUCTION

DESSINÉ PAR Drawn by: A.B./M.R./P.V.
VÉRIFIÉ PAR Checked by: Ant.C.
DATE (aa.mm.jj): JUILLET 2015
ÉCHELLE Scale: Comme indiqué
TITRE DU DESSIN Drawing Title
NORTH & SOUTH ELEVATIONS

RÉVISION Revision: A
NO. DESSIN Dwg Number: A400



STAIR & ELEVATOR ROOF PLAN
1 : 100
2 A205



ROOFTOP TERRACE PLAN
1 : 100
1 A205

SEE A829 FOR ROOF DETAILS

FIRE STOP COMPARTMENTALIZATION REQUIREMENTS (SEE ROOF PLAN FOR PROPOSED POSITIONING):

- COMPARTMENTALIZATION MAY NOT TO EXCEED 300m² WITH NO DIMENSION GREATER THAN 20m.
- NO COMPARTMENTALIZATION MAY SPAN MORE THAN TWO DWELLING UNITS.
- COMPARTMENTALIZATION TO BE ACHIVED WITH WAFERBOARD NOT LESS THAN 12.5mm INSTALLED ON ROOF TRUSSES WITH SUPPORTED JOINTS. BLOCKING IS TO BE INSTALLED ON TRUSSES AT EVERY 610mm FOR PANEL SUPPORT.
- ADDITIONAL MATERIALS WHICH MAY TO BE USED IN FIRE STOP COMPARTMENTALIZATION ARE ANY MENTIONED IN THE CURRENT 3.1.11.7.(4) OF THE 2012 OBC.

NOTES:

- DRAIN ROOF DRAIN PROVIDED AND INSTALLED BY THE PLUMBER. COORDINATE WITH ROOFING CONTRACTOR FOR COMPATIBILITY WITH THE DRAIN AND ROOF SYSTEM. THE ROOFING CONTRACTOR IS RESPONSIBLE TO LOCATE THE ROOF DRAINS TO ENSURE LOW POINTS FOR GOOD DRAINAGE SLOPE.
- ROOF EQUIPMENT INFORMATION IS INDICATED FOR REFERENCE PURPOSES ONLY. ALL CONTRACTORS ARE RESPONSIBLE TO CONSULT ELEC./MEC. PLANS, PLUMBING, ELECTRICAL, STRUCTURE, FIRE PROTECTION, ETC., TO QUANTIFY EXACT AMOUNT OF EQUIPMENT INCLUDING VENTS, CHIMNEYS, FLUES, ETC. CONTRACTOR AND EACH SUB-CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE PROFESSIONALS INVOLVED BEFORE EXECUTION ON SITE PLAN. SEE ROOF DETAIL PAGE FOR SEALING OPENINGS AS REQUIRED.
- A SIGN WILL BE ADDED ON THE WALL OF THE ELEVATOR LOBBY STATING THE MAXIMUM OCCUPANT LOAD, 239 PEOPLE.

NOTES GÉNÉRALES General Notes

1. Ces documents d'architecture sont la propriété exclusive de NEUF architect(e)s et ne pourront être utilisés, reproduits ou copiés sans autorisation écrite préalable. / These architectural documents are the exclusive property of NEUF architect(e)s and cannot be used, copied or reproduced without written pre-authorisation
2. Les dimensions apparaissant aux documents devront être vérifiées par l'entrepreneur avant le début des travaux. / All dimensions which appear on the documents must be verify by the contractor before to start the work.
3. Veuillez aviser l'architecte de toute dimension erreur et/ou divergences entre ces documents et ceux des autres professionnels. / The architect must be notified of all errors, omissions and discrepancies between thèse documents and those of the others professionnals
4. Les dimensions sur ces documents doivent être lues et non mesurées. / The dimensions on these documents must be read and not measured.

ARCHITECTURE DE PAYSAGE Landscape Architect
Levstek Consultants
5671 Hugh Crescent, Ottawa ON K1A 2N5
T 613 826 0518 larocqueslevstek.com

CIVIL Civil
Novatech Engineering Consultants Limited
240 Michael Cowpland Drive, Suite 200, Ottawa ON K2M 1P6
T 613 254 9643 novatech-eng.com

ARCHITECTES Architect
NEUF architect(e)s
630, boul. René-Lévesque O. 32e étages, Montréal QC H3B 1S6
T 514 947 1117 NEUFarchitectes.com

SCEAU / Seal

ASSOCIATION OF ARCHITECTS ANDRÉ COUSINEAU LICENCE 6219

NEUF
ARCHITECT(E)S

CLIENT Client

BRIGIL

OUVRAGE Project

KANATA LAKES 124 BATTERSEA CRESCENT

EMPLACEMENT Location: OTTAWA
NO PROJET No.: 10883.00

NO	RÉVISION	DATE (aa-mm-jj)
A	Revision 1	2016.02.11
C	For Permit	2016.03.15
E	For Permit Resubmission	2016.08.15
H	For Coordination	2016.10.04

DESSINÉ PAR Drawn by: A.B./M.R./P.V.
VÉRIFIÉ PAR Checked by: Ant.C.
DATE (aa.mm.jj): JUILLET 2015
ÉCHELLE Scale: Comme indiqué
TITRE DU DESSIN Drawing Title: **ROOF PLAN**

RÉVISION Revision: H
NO. DESSIN Dwg Number: A205

C:\Fichiers Revit Locaux\10883_ARCHITECTURE_Central_abourassa.rvt

APPENDIX C

EXCERPTS FROM NPC-300 & CITY OF OTTAWA ENCG

Appendix A: Warning Clauses

Under the Official Plan and this guideline warning clauses may be required to be incorporated into development through development agreements, registration on title and inclusion in Agreements of Purchase and Sale. This requirement may be included in any development, regardless of whether it is considered a noise sensitive land use.

A warning clause provides recognition for the City, Province landowner or tenants that noise may be a concern, that noise may be audible at times or even quite loud, and, depending on the type of development, provincial guidelines for noise may be exceeded. Warning clauses also recognize that environmental noise is a potential health hazard that does impact people and neighbourhoods. It is for this reason that, unless a non-noise sensitive land use is established, a warning clause should also include noise mitigation.

A warning clause is not considered a form of noise mitigation. It is not acceptable therefore to use warning clauses in place of physical noise control measures to identify an excess over the MOE or City noise limits. The reason for a warning clause on all development is twofold. Firstly, it is important to note that a land use that although the development may not be considered noise sensitive it may include employees or tenants that are personally sensitive to noise. A warning clause provides protection against complaints to the ministry of Environment should provincial guidelines be exceeded. Secondly, a warning clause on title could obviate the need for a new noise study in the future. In a redevelopment scenario the warning clause would provide recognition of the extent noise conditions.

Given the variation in potential intensity and impact of noise it will often be necessary to amend warning clauses to recognize the site specific conditions in each development. Final wording of any warning clause is to be approved by the City.

The following subsections provide example text to be adapted into warning clauses.

Surface Transportation Warning Clauses

Table A1 Surface Transportation Warning Clauses

Type	Example	Notes
Generic	*Purchasers/tenants are advised that sound levels due to increasing road/rail/Light Rail/transitway traffic may occasionally interfere with some outdoor activities as the sound levels may exceed the sound level limits of the City and the Ministry of the Environment.* *To help address the need for sound attenuation this development has been designed so as to provide an outdoor amenity area and indoor environment that is within provincial guidelines. Measures for sound attenuation include:* • *A setback of buildings from the noise source,* • *A acoustic barrier owned and maintained in the City right of way (or condominium right of way)* *Additionally this development includes trees and shrubs to screen the source of noise from occupants.*	The generic warning clause outlines that MOE sound levels may be exceeded but the indoor environment and outdoor amenity areas are within guidelines. Mitigation measures are described including urban design features. Mention is also made of landscaping to screen the development visually from the source of noise.
Extensive mitigation of indoor and outdoor amenity area	*"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/rail/Light Rail/transitway traffic may, on occasion, interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the City and the Ministry of the Environment.* *To help address the need for sound*	The warning clause makes reference to MOE sound levels being exceeded from time to time and that there are sound attenuation features and landscaping within the development that should be maintained.

Table A1 Surface Transportation Warning Clauses

Type	Example	Notes
	attenuation this development includes: • *multi-pane glass;* • *double brick veneer;* • *an earth berm; and* • *a acoustic barrier which is owned and maintained by the City (condominium corporation).* *To ensure that provincial sound level limits are not exceeded it is important to maintain these sound attenuation features.* *This dwelling unit has also been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the City and the Ministry of the Environment.* *Additionally this development includes trees and shrubs to screen the source of noise from occupants.*	An option for air conditioning is noted as well as landscaping to screen the source of noise.
No outdoor amenity area	*Purchasers/tenants are advised that sound levels due to increasing road/rail/Light Rail/transitway traffic will interfere with outdoor activities as the sound levels exceed the sound level limits of the City and the Ministry of the Environment.* *To help address the need for sound attenuation this development includes:* • *multi-pane glass;* • *double brick veneer;* • *high sound transmission class walls.*	This warning clause notes that only an indoor environment is being provided for.

Table A1 Surface Transportation Warning Clauses

Type	Example	Notes
	To ensure that provincial sound level limits are not exceeded it is important to maintain these sound attenuation features. *This dwelling unit has been supplied with a central air conditioning system and other measures 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 City and the Ministry of the Environment*	

Stationary Source Warning Clauses

The Province notes that it is not acceptable to use warning clauses in place of physical noise control measures to identify an excess over the MOE sound level limits for stationary sources. The generic warning clause for stationary sources (called Type E in NPC-300) may identify a potential concern due to the proximity of the facility but it is not possible to justify exceeding the sound level limits.
The wording of the generic stationary noise warning clause may also be used as the basis for new development adjacent to areas licensed for mineral aggregate extraction.

Table A2 Stationary Source Warning Clauses

Type	Example	Notes
Generic – urban design features for outdoor amenity and shelter of indoor environment	*Purchasers/tenants are advised that due to the proximity of the adjacent industry (facility) (utility), noise from the industry (facility) (utility) may at times interfere with outdoor activities.* *To address potential impacts of noise from the adjacent industry (facility) (utility) this development has been designed to provide for specific outdoor amenity areas and a quieter indoor environment. Landscaping has also been provided to screen the source of noise.*	This stationary source warning clause is intended for new development in proximity to existing stationary noise sources where urban design features (blank walls, specifically located outdoor amenity areas) have been provided. The warning clause is based on the MOE Type

C7.1.2 Plane of a Window – Ventilation Requirements

C7.1.2.1 Daytime Period, 07:00 – 23:00 Hours

Noise control measures may not be required if the L_{eq} (16) daytime sound level in the plane of a bedroom or living/dining room window is less than or equal to 55 dBA. If the sound level in the plane of a bedroom or living/dining room window is greater than 55 dBA and less than or equal to 65 dBA, the dwelling should be designed with a provision for the installation of central air conditioning in the future, at the occupant's discretion. Warning clause Type C is also recommended.

If the daytime sound level in the plane of a bedroom or living/dining room window is greater than 65 dBA, installation of central air conditioning should be implemented with a warning clause Type D. In addition, building components including windows, walls and doors, where applicable, should be designed so that the indoor sound levels comply with the sound level limits in Table C-2. The location and installation of the outdoor air conditioning device should comply with sound level limits of Publication NPC-216, Reference [32], and guidelines contained in Environmental Noise Guidelines for Installation of Residential Air Conditioning Devices, Reference [6], or should comply with other criteria specified by the municipality.

C7.1.2.2 Nighttime Period, 23:00 – 07:00 Hours

Noise control measures may not be required if the L_{eq} (8) nighttime sound level in the plane of a bedroom or living/dining room window is less than or equal to 50 dBA. If the sound level in the plane of a bedroom or living/dining room window is greater than 50 dBA and less than or equal to 60 dBA, the dwelling should be designed with a provision for the installation of central air conditioning in the future, at the occupant's discretion. Warning clause Type C is also recommended.

If the nighttime sound level in the plane of a bedroom or living/dining room window is greater than 60 dBA, installation of central air conditioning should be implemented, with a warning clause Type D. In addition, building components including windows, walls and doors, where applicable, should be designed so that the indoor sound levels comply with the sound level limits in Table C-2. The location and installation of the outdoor air conditioning device should comply with sound level limits of Publication NPC-216, Reference [32], and guidelines contained in Environmental Noise Guidelines for Installation of Residential Air Conditioning Devices, Reference [6], or should comply with other criteria specified by the municipality.

C7.1.3 Indoor Living Areas – Building Components

If the nighttime sound level outside the bedroom or living/dining room windows exceeds 60 dBA or the daytime sound level outside the bedroom or living/dining area windows exceeds 65 dBA, building components including windows, walls and doors, where applicable, should be designed so that the indoor sound levels comply with the

sound level limits in Table C-2. The acoustical performance of the building components (windows, doors and walls) should be specified.

C7.2 Rail Noise Control Measures

C7.2.1 Outdoor Living Areas

Whistle noise is not included in the determination of the outdoor daytime sound level due to railway trains. All the provisions of Section C7.1.1 apply also to noise control requirements for rail noise.

C7.2.2 Plane of a Window – Ventilation Requirements

Whistle noise is not included in the determination of the sound level in the plane of a window. All the provisions of Section C7.1.2 apply also to noise control requirements for rail noise.

C7.2.3 Indoor Living Areas – Building Components

The sound level, L_{eq}, during the daytime (16-hour) and nighttime (8-hour) periods is determined using the prediction method STEAM, Reference [34], immediately outside the dwelling envelope. Whistle noise is included in the determination of the sound level.

If the nighttime sound level outside the bedroom or living/dining room windows exceeds 55 dBA or the daytime sound level outside the bedroom or living/dining area windows exceeds 60 dBA, building components including windows, walls and doors, where applicable, need to be designed so that the indoor sound levels comply with the sound level limits in Table C-2. The acoustical performance of the building components (windows, doors and walls) needs to be specified.

In addition, the exterior walls of the first row of dwellings next to railway tracks are to be built to a minimum of brick veneer or masonry equivalent construction, from the foundation to the rafters when the rail traffic L_{eq} (24-hour), estimated at a location of a nighttime receptor, is greater than 60 dBA, and when the first row of dwellings is within 100 metres of the tracks.

C7.3 Combination of Road and Rail Noise

The noise impact in the OLA and in the plane of a window, and the requirements for outdoor measures, ventilation measures and warning clauses, should be determined by combining road and rail traffic sound levels.

The assessment of the indoor sound levels and the resultant requirement for the acoustical descriptors of the building components should be done separately for road

DRAWINGS

- **GRADING PLAN – 110105-GR**
- **NOTES, LEGEND & DETAILS – 110105-LEG**

GENERAL NOTES:

1. COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
2. DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME RESPONSIBILITY FOR ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON THIS DRAWING.
3. OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OTTAWA BEFORE COMMENCING CONSTRUCTION.
4. BEFORE COMMENCING CONSTRUCTION OBTAIN AND PROVIDE PROOF OF COMPREHENSIVE, ALL RISK AND OPERATIONAL LIABILITY INSURANCE FOR $5,000,000.00. INSURANCE POLICY TO NAME OWNERS, ENGINEERS AND ARCHITECTS AS CO-INSURED.
5. RESTORE ALL DISTURBED AREAS ON-SITE AND OFF-SITE, INCLUDING TRENCHES AND SURFACES ON PUBLIC ROAD ALLOWANCES TO EXISTING CONDITIONS OR BETTER TO THE SATISFACTION OF THE CITY OF OTTAWA AND ENGINEER.
6. REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL, ORGANIC MATERIAL AND DEBRIS UNLESS OTHERWISE INSTRUCTED BY ENGINEER. EXCAVATE AND REMOVE FROM SITE ANY CONTAMINATED MATERIAL. ALL CONTAMINATED MATERIAL SHALL BE DISPOSED OF AT A LICENSED LANDFILL FACILITY.
7. ALL ELEVATIONS ARE GEODETIC.
8. REFER TO GEOTECHNICAL REPORT (No. 62970.01, DATED DECEMBER 20, 2016), PREPARED BY HOULE CHEVRIER FOR SUBSURFACE CONDITIONS, CONSTRUCTION RECOMMENDATIONS, AND GEOTECHNICAL INSPECTION REQUIREMENTS. THE GEOTECHNICAL CONSULTANT IS TO REVIEW ON-SITE CONDITIONS AFTER EXCAVATION PRIOR TO PLACEMENT OF THE GRANULAR MATERIAL.
9. REFER TO ARCHITECT'S AND LANDSCAPE ARCHITECT'S DRAWINGS FOR BUILDING AND HARDSURFACE AREAS AND DIMENSIONS.
10. ALL SIDEWALK ARE TO BE CONCRETE UNLESS OTHERWISE NOTED.
11. REFER TO STORMWATER MANAGEMENT REPORT(R-2016-182) PREPARED BY NOVATECH.
12. SAW CUT AND KEY GRIND ASPHALT AT ALL ROAD CUTS AND ASPHALT TIE IN POINTS AS PER CITY OF OTTAWA STANDARDS (R10).
13. PROVIDE LINE/PARKING PAINTING.
14. CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GENERAL PLAN OF SERVICES INDICATING ALL SERVICING AS-BUILT INFORMATION SHOWN ON THIS PLAN. AS-BUILT INFORMATION MUST INCLUDE: PIPE MATERIAL, SIZES, LENGTHS, SLOPES, INVERT AND T/G ELEVATIONS, STRUCTURE LOCATIONS, VALVE AND HYDRANT LOCATIONS, T/WM ELEVATIONS AND ANY ALIGNMENT CHANGES, ETC.
15. ALL MATERIALS AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STANDARDS AND SPECIFICATIONS AND ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS. ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS WILL APPLY WHERE NO CITY STANDARDS ARE AVAILABLE.
16. ALL PRIVATE APPROACHES MUST BE CONSTRUCTED AS PER CITY SPECIFICATION SC7.1.

SEWER NOTES:

1. SPECIFICATIONS:

ITEM	SPEC No.	REFERENCE
CATCHBASIN (600x600mm)	705.010	OPSD
STORM / SANITARY MANHOLE (1200Ø)	701.010	OPSD
CB, FRAME & COVER	S19.1, S22, S23, 400.020	CITY OF OTTAWA/OPSD
STORM / SANITARY MH FRAME & COVER	401.010	OPSD
SEWER TRENCH - BEDDING (GRANULAR A)	S6, S7	CITY OF OTTAWA/OPSD
COVER (GRANULAR A OR GRANULAR B TYPE I, WITH MAXIMUM PARTICLE SIZE = 25mm)	S6, S7	CITY OF OTTAWA/OPSD
CATCHBASIN LEAD PVC DR 35		
PERFORATED PIPE	S29	CITY OF OTTAWA
LANDSCAPE CB "T"	S30	CITY OF OTTAWA
LANDSCAPE CB "E"	S31	CITY OF OTTAWA
SEWER SERVICE CONNECTION - RIGID PIPE	S11	CITY OF OTTAWA
SEWER SERVICE ABANDONMENT	S11.4	CITY OF OTTAWA
STORM SEWER PVC DR 35		
SANITARY SEWER PVC DR 28		

2. INSULATE ALL SANITARY PIPES THAT HAVE LESS THAN 2.5m COVER AND ALL STORM PIPES WITH LESS THAN 2.0m COVER WITH 50mmX1200mm HI-40 INSULATION. PROVIDE 150mm CLEARANCE BETWEEN PIPE AND INSULATION.
3. SERVICES ARE TO BE CONSTRUCTED TO 1.0m FROM FACE OF BUILDING AT A MINIMUM SLOPE OF 1.0%.
4. PIPE BEDDING, COVER AND BACKFILL ARE TO BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. THE USE OF CLEAR CRUSHED STONE AS A BEDDING LAYER SHALL NOT BE PERMITTED.
5. FLEXIBLE CONNECTIONS ARE REQUIRED FOR CONNECTING PIPES TO MANHOLES USING APPROVED MATERIALS AS SPECIFIED IN CITY OF OTTAWA SPECIFICATION MS22.15.
6. THE OWNER SHALL REQUIRE THAT THE SITE SERVICING CONTRACTOR PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 410.07.16, 410.07.16.04 AND 407.07.24. DYE TESTING IS TO BE COMPLETED ON ALL SANITARY SERVICES TO CONFIRM PROPER CONNECTION TO THE SANITARY SEWER MAIN. THE FIELD TESTS SHALL BE PERFORMED IN THE PRESENCE OF A CERTIFIED PROFESSIONAL ENGINEER WHO SHALL SUBMIT A CERTIFIED COPY OF THE TEST RESULTS.
7. STORM MANHOLES AND CBMHS ARE TO HAVE 300mm SUMPS UNLESS OTHERWISE INDICATED.
8. CONTRACTOR TO TELEVISE (CCTV) ALL PROPOSED SEWERS, 200mmØ OR GREATER PRIOR TO BASE COURSE ASPHALT. UPON COMPLETION OF CONTRACT, THE CONTRACTOR IS RESPONSIBLE TO FLUSH AND CLEAN ALL SEWERS & APPURTENANCES.
9. REINSTATE ALL EXISTING PAVEMENT, CURB AND BOULEVARDS AS PER CITY OF OTTAWA R10.

WATERMAIN NOTES:

1. SPECIFICATIONS:

ITEM	SPEC. No.	REFERENCE
WATERMAIN TRENCHING	W17	CITY OF OTTAWA
HYDRANT INSTALLATION	W18&W19	CITY OF OTTAWA
THERMAL INSULATION IN SHALLOW TRENCHES	W22	CITY OF OTTAWA
WATERMAIN INSULATION	W23	CITY OF OTTAWA
VALVE BOX ASSEMBLY	W24	CITY OF OTTAWA
WATERMAIN CROSSING BELOW SEWER	W25	CITY OF OTTAWA
TYPICAL CONNECTION DETAIL	W25.1	CITY OF OTTAWA
WATERMAIN CROSSING ABOVE SEWER	W25.2	CITY OF OTTAWA
CONCRETE THRUST BLOCKS FOR PVC AND DI PIPE 400mm AND UNDER	W25.3	CITY OF OTTAWA
THRUST BLOCK DIMENSION TABLES FOR PVC AND DI PIPE 400mm AND UNDER	W25.4	CITY OF OTTAWA
RESTRAINING AND RETAINING RINGS FOR PVC AND DI PIPE 400mmØ AND UNDER	W25.5	CITY OF OTTAWA
TABLES OF RESTRAINED LENGTHS FOR PVC AND DI PIPE 400mm AND UNDER	W25.6	CITY OF OTTAWA
TYPICAL SERVICE LINE	W26	CITY OF OTTAWA
TRACER WIRE INSTALLATION	W36	CITY OF OTTAWA
SERVICE INSTALLATION AT SEWER CROSSING	W38	CITY OF OTTAWA
CATHODIC PROTECTION FOR PVC WATERMAIN SYSTEMS	W40	CITY OF OTTAWA
TYPICAL ANODE INSTALLATION PVC WATERMAIN	W42	CITY OF OTTAWA
WATERMAIN	PVC DR 18	CITY OF OTTAWA

2. SUPPLY AND CONSTRUCT ALL WATERMAINS AND APPURTENANCES IN ACCORDANCE WITH THE CITY OF OTTAWA STANDARDS AND SPECIFICATIONS. EXCAVATION, INSTALLATION, BACKFILL AND RESTORATION OF ALL WATERMAINS BY THE CONTRACTOR. CONNECTIONS AND SHUT-OFFS AT THE MAIN AND CHLORINATION OF THE WATER SYSTEM SHALL BE PERFORMED BY CITY OFFICIALS.
3. WATERMAIN SHALL BE MINIMUM 2.4m DEPTH BELOW GRADE UNLESS OTHERWISE INDICATED.
4. PROVIDE MINIMUM 0.50m CLEARANCE BETWEEN OUTSIDE OF PIPES AT ALL CROSSINGS WHEN WATERMAIN IS BELOW SEWER AND MINIMUM 0.25m CLEARANCE WHEN WATERMAIN IS ABOVE SEWERS.
5. WATER SERVICE IS TO BE CONSTRUCTED TO WITHIN 1.0m OF FOUNDATION WALL AND CAPPED, UNLESS OTHERWISE INDICATED.

GRADING NOTES:

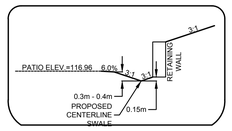
1. ALL TOPSOIL, ORGANIC OR DELETERIOUS MATERIAL MUST BE ENTIRELY REMOVED FROM BENEATH THE PROPOSED PAVED AREAS AS DIRECTED BY THE SITE ENGINEER OR GEOTECHNICAL ENGINEER.
2. EXPOSED SUBGRADES IN PROPOSED PAVED AREAS SHOULD BE PROOF ROLLED WITH A LARGE STEEL DRUM ROLLER AND INSPECTED BY THE GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF GRANULARS.
3. ANY SOFT AREAS EVIDENT FROM THE PROOF ROLLING SHOULD BE SUB-EXCAVATED AND REPLACED WITH SUITABLE MATERIAL THAT IS FROST COMPATIBLE WITH THE EXISTING SOILS AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
4. THE GRANULAR BASE SHOULD BE COMPACTED TO AT LEAST 100% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY VALUE. ANY ADDITIONAL GRANULAR FILL USED BELOW THE PROPOSED PAVEMENT SHOULD BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY VALUE.
5. MINIMUM OF 2% GRADE FOR ALL GRASS AREAS UNLESS OTHERWISE NOTED.
6. MAXIMUM TERRACING GRADE TO BE 3:1 UNLESS OTHERWISE NOTED.
7. ALL GRADES BY CURBS ARE EDGE OF PAVEMENT GRADES UNLESS OTHERWISE INDICATED.
8. ALL CURBS SHALL BE MONOLITHIC CONCRETE CURB AND SIDEWALK (150mm) UNLESS OTHERWISE NOTED AND CONSTRUCTED AS PER CITY OF OTTAWA STANDARDS (SC2).
9. REFER TO LANDSCAPE PLAN FOR PLANTING AND OTHER LANDSCAPE FEATURE DETAILS.
10. CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GRADING PLAN INDICATING AS-BUILT ELEVATIONS OF ALL DESIGN GRADES SHOWN ON THIS PLAN.
11. ALL RETAINING WALLS MUST HAVE A MINIMUM CLEARANCE OF 0.3m FROM ALL PROPERTY LINES.

EROSION AND SEDIMENT CONTROL NOTES :

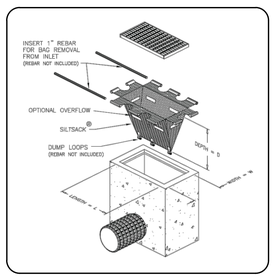
1. ALL EROSION AND SEDIMENT CONTROLS ARE TO BE INSTALLED TO THE SATISFACTION OF THE ENGINEER, THE MUNICIPALITY AND THE MISSISSIPPI VALLEY CONSERVATION AUTHORITY. THEY ARE TO BE APPROPRIATE TO THE SITE CONDITIONS, PRIOR TO UNDERTAKING ANY SITE ALTERATIONS (FILLING, GRADING, REMOVAL OF VEGETATION, ETC.) AND DURING ALL PHASES OF SITE PREPARATION AND CONSTRUCTION. THESE PRACTICES ARE TO BE IMPLEMENTED IN ACCORDANCE WITH THE CURRENT BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL AND SHOULD INCLUDE AS A MINIMUM THOSE MEASURES INDICATED ON THE PLAN.
2. TO PREVENT SURFACE EROSION FROM ENTERING THE DITCH OR STORM SYSTEM DURING CONSTRUCTION, CATCHBASIN INSERTS WILL BE PLACED UNDER GRATES OF ALL PROPOSED AND EXISTING CATCHBASINS AND STRUCTURES. (REFER TO CATCHBASIN INSERT DETAIL.) A LIGHT DUTY SILT FENCE BARRIER WILL ALSO BE INSTALLED ALONG THE PROPERTY LINES AND STRAW BALE BARRIERS WILL BE INSTALLED WITHIN THE OUTLET DITCHES. THESE CONTROL MEASURES WILL REMAIN IN PLACE UNTIL VEGETATION HAS BEEN ESTABLISHED AND CONSTRUCTION COMPLETE.
3. THE SEDIMENT CONTROL MEASURES SHALL ONLY BE REMOVED WHEN, IN THE OPINION OF THE ENGINEER, THE MEASURES ARE NO LONGER REQUIRED. NO CONTROL MEASURES MAY BE PERMANENTLY REMOVED WITHOUT PRIOR AUTHORIZATION FROM THE ENGINEER.
4. THE CONTRACTOR SHALL IMMEDIATELY REPORT TO THE ENGINEER ANY ACCIDENTAL DISCHARGES OF SEDIMENT MATERIAL INTO ANY DITCH OR STORM SEWER SYSTEM. APPROPRIATE RESPONSE MEASURES, INCLUDING ANY REPAIRS TO EXISTING CONTROL MEASURES OR THE IMPLEMENTATION OF ADDITIONAL CONTROL MEASURES, SHALL BE CARRIED OUT BY THE CONTRACTOR WITHOUT DELAY.
5. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
6. BATTERSEA CRESCENT, RICHARDSON SIDE ROAD AND KANATA AVENUE IS TO BE SWEPT AS REQUIRED OR AS DIRECTED BY THE ENGINEER AND/OR CITY OF OTTAWA.
7. THE CONTRACTOR SHALL ENSURE PROPER DUST CONTROL IS PROVIDED WITH THE APPLICATION OF WATER (AND IF REQUIRED, CALCIUM CHLORIDE) DURING DRY PERIODS.

ROCK EXCAVATION NOTES :

1. THE CONTRACTOR WILL NOT BE PERMITTED TO START ANY FORM OF BLASTING WORK UNTIL HE HAS HAD A PRE-CONSTRUCTION SURVEY AS PER OPSS 120 (VOL. 7) OF ALL THE BUILDINGS THAT ARE WITHIN THE PROXIMITY OF THE WORK AND IN CONFORMANCE WITH AGENCY REQUIREMENTS. OPSS 120 SPECIFIES A PRE-BLAST SURVEY SHALL BE PREPARED FOR ALL BUILDINGS, UTILITIES, STRUCTURES, WATER WELLS AND FACILITIES LIKELY TO BE AFFECTED BY THE BLAST AND THOSE WITHIN 75m OF THE LOCATION WHERE EXPLOSIVES ARE TO BE USED. A COPY OF THE REPORT ON THE PRE-CONSTRUCTION SURVEY SHALL BE PROVIDED TO THE OWNER PRIOR TO COMMENCEMENT OF BLASTING.
2. THE CONTRACTOR SHALL ESTABLISH A MONITORING PROGRAM DURING PRODUCTION BLASTING. OPSS 120 SPECIFIES DURING EACH BLAST, GROUND VIBRATION PPV AND THE PEAK SOUND PRESSURE LEVEL SHALL BE MONITORED 250m FROM THE BLAST OR AT THE CLOSEST PORTION OF ANY RESIDENCE. IT IS THEREFORE A CONDITION OF THIS CONTRACT THAT THE CONTRACTOR ENGAGES A REPUTABLE FIRM EXPERIENCED IN THIS TYPE OF WORK PRIOR TO ANY BLASTING BEING CARRIED OUT. THE OWNER SHALL APPROVE THE FIRM. COPIES OF DAILY RECORDS OUTLINING BLAST TIMES, AMOUNT OF CHARGE AND MONITORING REPORTS SHALL BE PROVIDED TO THE OWNER UPON REQUEST.
3. THE CONTRACTOR SHALL UNDERTAKE BLASTING OF THE BEDROCK FOR THE BUILDING TRENCHING, WHICH INCLUDES BUT IS NOT LIMITED TO, THE SANITARY, STORM, WATERMAIN AND UTILITY SERVICES. THE CONTRACTOR IS TO BLAST THE SERVICE TRENCHES TO 2.0m INSIDE THE BUILDING FOOTPRINT. THE CONTRACTOR SHALL COORDINATE THE EXACT LOCATION OF THE SERVICE TRENCHES WITH THE SITE ENGINEER, THE DEVELOPER, BUILDING CONTRACTOR AND THE APPROPRIATE UTILITY COMPANIES PRIOR TO THE START OF THE BLASTING OR HOE-RAM OPERATIONS.
4. THE CONTRACTOR MAY USE BLASTED ROCK IN THE LAST 0.50M IMMEDIATELY BELOW ROADWAY SUBGRADE ELEVATION TO PROVIDE A FIRM SUBGRADE CAP, IF AVAILABLE, AS DIRECTED BY THE GEOTECHNICAL ENGINEER.



SWALE TYPICAL CROSS SECTION
N.T.S.



CATCHBASIN INSERT DETAIL
N.T.S.

LEGEND

- SILT FENCE AS PER OPSD 219.110
- LIMIT OF CONSTRUCTION BOUNDARY
- STRAW BALE BARRIER AS PER OPSD 219.100
- 116.29 / 116.07 — PROPOSED ELEVATION / *EXISTING ELEVATION*
- 116.80 TW / 114.38 BW — PROPOSED TOP OF WALL ELEVATION / PROPOSED BOTTOM OF WALL ELEVATION
- 116.80 TRW / 114.38 BRW — PROPOSED TOP OF BLASTED ROCK WALL ELEVATION / PROPOSED BOTTOM OF BLASTED ROCK WALL ELEVATION
- 114.30(S) — PROPOSED SWALE ELEVATION
- 114.30(T/C) — PROPOSED TOP OF CURB ELEVATION
- 113.05 — PROPOSED TERRACE ELEVATION
- 2.0% — PROPOSED SLOPE DIRECTION AND GRADE
- SWALE WITH DIRECTION OF FLOW
- MAXIMUM 3:1 SIDESLOPING
- MAJOR OVERLAND FLOW ROUTE
- V&VB — PROPOSED VALVE & VALVE BOX LOCATION
- DMA — DISTRICT METERING AREA CHAMBER
- HYD T/F=103.15 — PROPOSED HYDRANT C/W VALVE, LEAD, AND TOP OF BOTTOM FLANGE ELEVATION
- SIAMESE CONNECTION
- PIPE INSULATION
- SANMH 101 — PROPOSED SANITARY MH & SEWER WITH DIRECTION OF FLOW
- STMMH 100 — PROPOSED STORM MH & SEWER WITH DIRECTION OF FLOW
- CB & T/G=113.20 — PROPOSED CATCH BASIN (C/W SUBDRAIN) WITH TOP OF GRATE ELEVATION
- CICB 1 — PROPOSED CURB INLET CATCH BASIN
- PROPOSED DITCH INLET CATCH BASIN
- RYCB 1 T/G=117.15 — PROPOSED REAR YARD CATCH BASIN WITH TOP OF GRATE ELEVATION
- CBMH 1 T/G=115.90 — PROPOSED CATCHBASIN MANHOLE WITH TOP OF GRATE ELEVATION
- PROPOSED TRENCH DRAIN
- PROPOSED CATCH BASIN LEAD WITH DIRECTION OF FLOW
- DC — PROPOSED DEPRESSED CURB
- PROPOSED TACTILE WALKING SURFACE INDICATOR (TWSI)
- PROPERTY BOUNDARY
- VERTICAL BLASTED ROCK RETAINING WALL C/W 1.8m CHAIN LINK FENCE
- VERTICAL BLASTED ROCK RETAINING WALL C/W 1.8m WOOD PRIVACY FENCE
- DECORATIVE STONE RETAINING WALL C/W 1.8m WOOD PRIVACY FENCE
- ARMOR STONE RETAINING WALL C/W ORNAMENTAL METAL FENCE
- DECORATIVE STONE RETAINING WALL C/W ORNAMENTAL METAL FENCE
- PROPOSED RETAINING WALL
- PROPOSED HANDRAIL
- PROPOSED HEAVY DUTY ASPHALT (FIRE ROUTE)
- PROPOSED UNIT PAVING (REFER TO LANDSCAPE PLAN L1.01)
- PROPOSED TOPSOIL AND HYDRO SEED
- PROPOSED ASPHALT SIDEWALK
- ROCK CUT AREA
- 12 — PIPE CROSSING (SEE PIPE CROSSING TABLE)
- PROPOSED HYDRO TRANSFORMER
- TP 7 EG=109.06m BR=105.36m — APPROXIMATE TEST PIT LOCATION
- BH 3 EG=109.29m BR=106.97m — APPROXIMATE BOREHOLE LOCATION
- V&VB — EXISTING VALVE & VALVE BOX LOCATION
- HYD — EXISTING HYDRANT C/W VALVE & LEAD
- 101 — EXISTING SANITARY MH & SEWER
- 100 — EXISTING STORM MH & SEWER
- 95 — EXISTING ROADSIDE CATCH BASIN
- CICB114 — EXISTING CURB INLET CATCH BASIN
- RYCB 2 — EXISTING REAR YARD CATCH BASIN
- CBMH 3 — EXISTING CATCHBASIN MANHOLE
- EXISTING LIGHT STANDARD
- OHW — EXISTING OVERHEAD WIRE
- EXISTING FENCE
- EXISTING DITCH
- X — REMOVAL

PAVEMENT STRUCTURE:

LIGHT DUTY
50mm SuperPave 12.5 (PG 58-34)
150mm GRAN "O"
300mm GRAN "B" TYPE II

HEAVY DUTY (FIRE ROUTE)
40mm Superpave 12.5 (PG 58-34)
50mm Superpave 19.0 (PG 58-34)
150mm GRAN "O"
450mm GRAN "B" TYPE II

SANITARY DRAINAGE AREA

AREA 1 / 815-813 / 3.81 / 85.1
- AREA ID
- MANHOLE TO MANHOLE
- POPULATION EQUIVALENT
- AREA IN HECTARES

SANITARY DRAINAGE AREA BOUNDARY

STORM DRAINAGE AREA

1.00 / 105-103 / 0.50
- DRAINAGE AREA (hectares)
- AREA IDENTIFICATION
- MANHOLE TO MANHOLE
- RUN-OFF COEFFICIENT

STORM DRAINAGE AREA BOUNDARY

APPROVED ☐ REFUSED ☐

THIS _____ DAY OF _____, 20____

DERRICK MOODIE, MANAGER
DEVELOPMENT REVIEW WEST
PLANNING, INFRASTRUCTURE AND ECONOMIC DEVELOPMENT DEPARTMENT, CITY OF OTTAWA

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

No.	DESCRIPTION	DATE
7	REVISED SITE PLAN APPLICATION	DEC 20/16
6	ISSUED FOR CONSTRUCTION	NOV 25/16
5	REISSUED FOR SITE PLAN APPROVAL	JUNE 24/16
4	ISSUED FOR SITE PLAN APPROVAL	JUNE 3/16
3	REISSUED FOR SITE PLAN APPLICATION	MAR 4/16
2	REISSUED FOR SITE PLAN APPLICATION	JAN 21/16
1	REVISED SITE PLAN APPLICATION	SEPT 4/15

REVISIONS:

ENGINEER'S STAMP:
LICENSED PROFESSIONAL ENGINEER — D.D. BLAIR — 100122737 — Dec. 20/16 — PROVINCE OF ONTARIO

NORTH ARROW:

FOR REVIEW ONLY

CLIENT:
LE GROUPE BRIGIL CONSTRUCTION

ARCHITECT:

ENGINEER:
NOVATECH
Engineers, Planners & Landscape Architects

PROJECT TITLE:
KANATA LAKES
124 BATTERSEA CRESCENT
OTTAWA ONTARIO

SHEET TITLE:
NOTES, LEGENDS & DETAILS

DRAWN:	CHECKED:
RBG	MSP
SCALE: 1:250	SHEET No. 110105-LEG2
PROJECT No. 110105	

D07-12-15-0150

M:\2016\110105\CAD\Design\110105-1Block 3\110105-1-LEG2.dwg, 110105-LEG, Dec 20, 2016 - 9:08am, rgraydon

RICHARDSON SIDE ROAD
(CLOSED)

BLOCK 3
79 UNITS
(1 INTERIOR PARKING
LEVEL 55 SPACES)
T/SLAB=114.05
USF=113.30
FF=117.21

BLOCK 4
79 UNITS
(1 INTERIOR PARKING
LEVEL 59 SPACES)
T/SLAB=111.67
USF=110.92
FF=114.83

EXISTING
BLOCK 2
3 STOREY
12 UNITS
15 SURFACE
PARKING SPACES
T/SLAB=116.16
USF=115.81

EXISTING
BLOCK 1
3 STOREY
16 UNITS
18 SURFACE
PARKING SPACES
T/SLAB=114.94
USF=114.60

EXISTING
BLOCK 9
GARBAGE &
RECYCLING
T/SLAB=114.57
USF=114.22

T/SLAB
HP=113.30
T/SLAB
LP=113.25
USF=112.90

MECHANICAL
ROOM

CONCRETE PAD
AND 1m HIGH WALL
FOR GAS METER

BATTERSEA CRESCENT

KANATA AVENUE

MATCH WALKWAY TO EXISTING ASPHALT

INSTALL CONCRETE STAIRS IN PATHWAY

RETAINING WALL

ROCK WALL TO BE BLASTED VERTICALLY

CBE 1 T/G=116.80

CBE 2 T/G=116.69

CB 1 T/G=116.55

CB 2 T/G=116.95

CBT 3 T/G=116.55

CBT 4 T/G=116.95

CBT 5 T/G=116.54

CB 6 T/G=116.52

SWALE @ 4.9%

MATCH TO EXISTING CURB

MATCH TO EXISTING ASPHALT

INSTALL CONCRETE STAIRS

MAXIMUM PONDING LIMITS
SURFACE PONDING DEPTH = 0.33m
SURFACE POND ELEVATION = 116.87m
SURFACE PONDING VOLUME = 65m³

STMMH 108 (RELOCATED) (1200mm) T/G=116.63

STMMH 109 (RELOCATED) (1200mm) T/G=116.61

CB 8 T/G=116.54

CB 10 T/G=114.19

CB 9 T/G=114.17

STMMH 105 T/G=116.20

STMMH 104 T/G=116.38

STMMH 102 T/G=116.62

STMMH 100 T/G=115.08

STMMH 107 T/G=116.76

STMMH 106 T/G=116.80

STMMH 204 (2400mm) T/G=114.24

STMMH 202 (1800mm) T/G=114.33

STMMH 203 T/G=114.37

SANMH 103 T/G=115.85

SANMH 101 T/G=115.06

SANMH 105 T/G=116.20

SANMH 201 (RELOCATED SANMH 113) T/G=113.63

SANMH 111 T/G=112.70

STMMH 112 T/G=112.48

STMMH 110 T/G=112.70

CB 7 T/G=112.70

CB 6 T/G=112.81

CB 4 T/G=115.08

CB 5 T/G=115.06

HYD T/F=117.18

HYD T/F=117.53

MAXIMUM PONDING LIMITS
SURFACE PONDING DEPTH = 0.34m
SURFACE POND ELEVATION = 114.30m
SURFACE PONDING VOLUME = 6m³

MAXIMUM PONDING LIMITS
SURFACE PONDING DEPTH = 0.07m
SURFACE POND ELEVATION = 114.28m
SURFACE PONDING VOLUME = 2m³

MAXIMUM PONDING LIMITS
SURFACE PONDING DEPTH = 0.025m
SURFACE POND ELEVATION = 114.25m
SURFACE PONDING VOLUME = 1m³

5YR PONDING LIMITS
SURFACE PONDING DEPTH = 0.16m
SURFACE POND ELEVATION = 116.70m
SURFACE PONDING VOLUME = 7m³

100YR PONDING LIMITS
SURFACE PONDING DEPTH = 0.30m
SURFACE POND ELEVATION = 116.84m
SURFACE PONDING VOLUME = 50m³

BUILDING CONTRACTOR RESPONSIBLE FOR INGRESS/EGRESS STAIRS TO BUILDING (TYPICAL)

DECORATIVE STONE RETAINING WALL

1.8m BLACK VINYL CHAIN LINK FENCE ON TOP OF VERTICAL BLASTED ROCK FACE WALL INSTALLED BY OTHERS

SITE WORKS CONTRACTOR RESPONSIBLE FOR PATHWAY AND STAIRS (TYPICAL).

LIMITS OF WOOD PRIVACY FENCE (BOARD ON BOARD) TO BE INSTALLED ON TOP OF VERTICAL BLASTED ROCK FACE WALL (REFER TO DETAIL SHEET)

DECORATIVE STONE RETAINING WALK C/W ORNAMENTAL METAL FENCE

EXISTING 1.8m CONCRETE SIDEWALK

MOUNTABLE CURB

DECORATIVE STONE RETAINING WALL C/W ORNAMENTAL METAL FENCE

INSTALL 34.0m OF 1.8m WOOD PRIVACY FENCE (BOARD ON BOARD) OFFSET BEHIND DECORATIVE STONE RETAINING WALL (REFER TO DETAIL SHEET)

EXISTING WIRE FENCE TO BE REMOVED

7.0m-600mmØ CSP CULVERT @ 1.0% INV.N=112.58

7.0m-600mmØ CSP CULVERT @ 1.0% INV.S=112.51

RE-ALIGNED SWALE @ 3.1%

16.1m-450mmØ CSP CULVERT @ 1.0% INV.N=111.21

150mm - 200mm CONCRETE BORDER AS PER SCP 3

MATCH INTO EXISTING GROUND USING A MAXIMUM 3:1 SIDESLOPE. EXACT TIE IN LIMITS TO BE DETERMINED PRIOR TO THE START OF CONSTRUCTION. SIDESLOPE TO BE TOP DRESSED WITH 100mm OF TOPSOIL AND HYDRO SEEDED.

AREA TO BE REGRADED TO TIE INTO EXISTING DITCH. TOP DRESSED WITH 100mm OF TOPSOIL AND HYDRO SEEDED.

REMOVE AND REPLACE ANY DAMAGED SIDEWALK AS A RESULT OF CONSTRUCTION WORKS COMPLETED.

16.1-1050mmØ CSP CULVERT @ 1.0% INV.N=111.20

EXISTING ROCK TO BE CUT BACK TO THE LANDSCAPE AREA AS REQUIRED TO ACCOMMODATE THE PROPOSED ENTRANCE AND DRAINAGE SWALE OUTLETTING TO EXISTING DITCH

AREA TO BE REGRADED TO TIE INTO EXISTING DITCH. TOP DRESSED WITH 100mm OF TOPSOIL AND HYDRO SEEDED.

ADJUST UTILITY STRUCTURES TO MATCH PROPOSED GRADING

PROPOSED ASPHALT PATHWAY (100mm GRANULAR 'A' AND 40mm SUPERPAVE 12.5mm) TO TIE INTO EXISTING SIDEWALK ON KANATA AVENUE

MATCH IN TO EXISTING GROUND USING A MAXIMUM 3:1 SIDESLOPE. EXACT TIE IN LIMITS TO BE DETERMINED PRIOR TO THE START OF CONSTRUCTION

17.5m-1250mmØ CSP CULVERT @ 3.4% INV.S=108.25

APPROVED ☐ REFUSED ☐

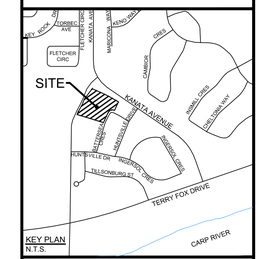
THIS _____ DAY OF _____, 20____

DERRICK MOODIE, MANAGER
DEVELOPMENT REVIEW WEST
PLANNING, INFRASTRUCTURE AND ECONOMIC DEVELOPMENT DEPARTMENT, CITY OF OTTAWA

REFER TO 110105-LEG2 FOR ADDITIONAL NOTES

D07-12-15-0150

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.



KEY PLAN
N.T.S.

GEODETIC BENCHMARK
HUNTLEY
IRON PIPE WITH BRASS CAP, IN EASTERN SECTION OF A CROSSROAD INTERSECTION ALONG HUNTLEY-MARCH TOWNSHIP ROAD, 8.1km SOUTHEAST FROM JUNCTION WITH HIGHWAY NO.17, 40.8m NORTHEAST FROM CENTRE OF INTERSECTION, 13.7m FROM MIDDLE OF ROAD, 60cm BELOW ROAD LEVEL.
UTM ZONE 18
N: 5017820
E: 452840
ELEV: 98.710

No.	DESCRIPTION	DATE
24	REVISED SITE PLAN APPLICATION	DEC 20/16
23	ISSUED FOR CONSTRUCTION	NOV 25/16
22	REISSUED FOR SITE PLAN APPROVAL	NOV 23/16
21	GRADING AND SERVICING REVISED PER CLIENT COMMENTS	NOV 18/16
20	REISSUED FOR SITE PLAN APPROVAL	JUNE 24/16
19	ISSUED FOR SITE PLAN APPROVAL	JUNE 3/16
18	REISSUED FOR SITE PLAN APPLICATION	MAR 4/16
17	REISSUED FOR SITE PLAN APPLICATION	JAN 21/16
16	REVISED SITE PLAN APPLICATION	SEPT 4/14
15	REVISED PHASING	AUG 14/14
14	REVISED CURB LAYOUT AND OSS LOCATION AT BLOCK 1 & PATHWAY LOCATION AND GRADES AT BLOCK 2	JULY 18/14
13	REVISED FLOOR ELEVATIONS BLOCKS 7 & 8 AND REVISED DEPRESSED CURB AT BLOCK 9	MAR 12/14
12	ISSUED FOR CONSTRUCTION	JULY 08/13
11	REVISED SERVICING AND USF ELEVATIONS	FEB 12/13
10	REVISED BLOCK 9 FOR APPROVAL	FEB 8/13
9	ISSUED FOR CONTACT EXECUTION/ CONSTRUCTION-BLASTING ONLY	JAN 09/13
8	CONSTRUCTION PHASING	DEC 14/12
7	ISSUED FOR ADDENDUM 2.0	FEB 15/12
6	FINAL ISSUE FOR SITE PLAN APPROVAL	FEB 01/12
5	ISSUED FOR TENDER	JAN 30/12
4	REVISED PER TRANSFORMER LOCATIONS	JAN 05/12
3	REVISED PER CITY COMMENTS	NOV 3/11
2	REVISED PER CITY COMMENTS	SEPT 07/11
1	ISSUED FOR SITE PLAN CONTROL APPLICATION	MAR 28/11

REVISIONS:

ENGINEER'S STAMP:
LICENSED PROFESSIONAL ENGINEER
D.D. BLAIR
100122737
Dec. 20/16
PROVINCE OF ONTARIO
FOR REVIEW ONLY

NORTH ARROW:

CLIENT:
BRIGIL CONSTRUCTION

ARCHITECT:

ENGINEER:
NOVATECH
Engineers, Planners & Landscape Architects

PROJECT TITLE:
KANATA LAKES
124 BATTERSEA CRESCENT
OTTAWA ONTARIO

SHEET TITLE:
GRADING PLAN

DRAWN:	CHECKED:
RBG	MSP
SCALE: 1:250	SHEET No. 110105-GR2
PROJECT No. 110105	

M:\2010\110105\CAD\Design\110105-150scx.3\110105-1-GR2.dwg, 110105-1-GR, Dec 20, 2016 - 11:29am, rgrayson