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Palladium Terrace
425 Culdaff Road, Ottawa

Noise Impact Feasibility Report

Palladium Terrace

425 Culdaff Road

City of Ottawa

Noise Impact Feasibility Report

Prepared By:

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

Novatech File: 123194
Ref: R-2024-103

Submitted: October 17,2024

NOVATECH
Engineers, Planners & Landscape Architects

October 17, 2024

City of Ottawa
Planning, Real Estate and Economic Development Department
Planning and Infrastructure Approvals Branch
110 Laurier Avenue West, 4th Floor
Ottawa ON, K1P 1J1

Attention: **Colette Gorni, MCIP RPP, Planner II, Development Review West**

Reference: **425 Culdaff Road**
Noise Impact Feasibility Report
Our File No.: 123194

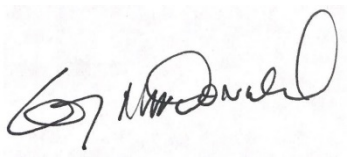
Please find enclosed the 'Noise Impact Feasibility Report' for the above-noted development located at 425 Culdaff Road in the City of Ottawa. This report is being submitted in support of a site plan application for the proposed development.

This report evaluates the environmental impact of noise from traffic and assesses the feasibility of mitigation measures to attenuate noise to acceptable levels.

Please contact the undersigned should you have any questions or comments on this report.

Yours truly,

NOVATECH



Greg MacDonald, P. Eng.
Director, Land Development and Public Sector Infrastructure

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Appendices

Tables

Figures

1.0 INTRODUCTION

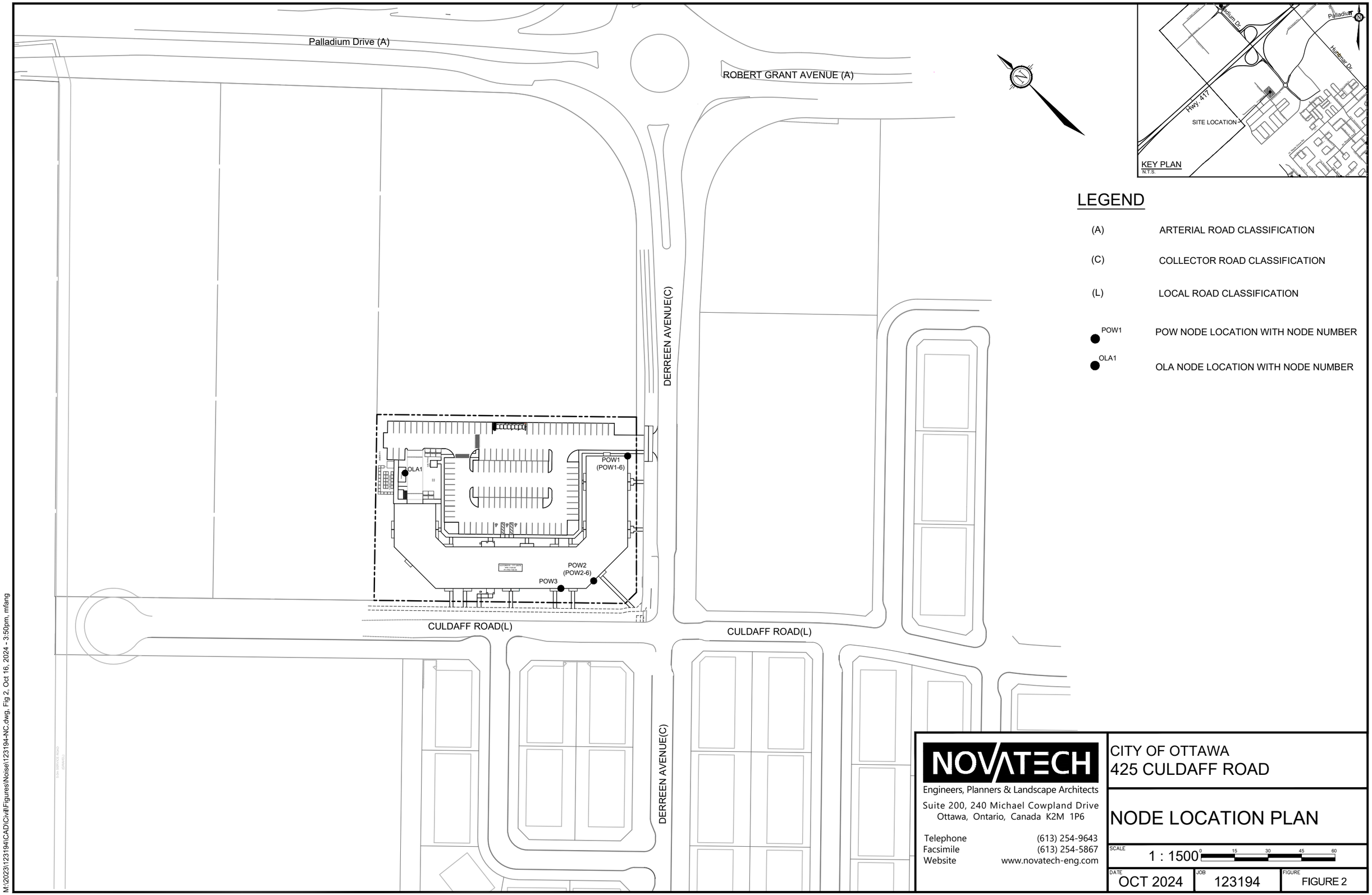
Novatech has been retained to prepare a Noise Impact Feasibility Report on behalf of Broadstreet Properties to assess the impact of noise from traffic for the proposed site plan located at 425 Culdaff Road within the City of Ottawa. The report is in support of a site plan application for the subject development and predict and mitigate excess noise. **Figure 1 - Key Plan** shows the site location.

An aerial of the subject site is provided in **Figure 1 – Key Plan – 425 Culdaff Road.**

Figure 1: Key Plan – 425 Culdaff Road

The proposed 0.973 ha development includes 177 residential units in a six (6) storey apartment building complete with above and under ground parking. The building has a 2722.57 m^2 footprint and total 214 parking stalls. The locations of all nodes used to confirm the noise levels at the building are included in **Figure 2 – Receiver Location Plan**.

This report follows recommendations of the City of Ottawa's Environmental Nosie Control Guidelines (ENCG) and MOEE NPC-300 Environmental Noise Guideline.



LEGEND

(A)	ARTERIAL ROAD CLASSIFICATION
(C)	COLLECTOR ROAD CLASSIFICATION
(L)	LOCAL ROAD CLASSIFICATION
POW1	POW NODE LOCATION WITH NODE NUMBER
OLA1	OLA NODE LOCATION WITH NODE NUMBER

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

CITY OF OTTAWA
425 CULDAFF ROAD

NODE LOCATION PLAN

SCALE 1 : 1500 (0, 15, 30, 45, 60)

DATE	JOB	FIGURE
OCT 2024	123194	FIGURE 2

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2.0 NOISE CRITERIA, NOISE SOURCES AND NOISE ATTENATION METHODS

The City of Ottawa criteria for noise from aircraft, roads, transitways, and railways is outlined in **Tables 2.2a: Sound Level Limit for Outdoor Living Areas – Road and Rail, Table 2.2b: Sound Level Limit for Indoor Living Areas Road and Rail,** and **Table 2.2c: Supplementary Sound Level Limits for Indoor Spaces – Road and Rail of the ENCG**. The maximum suggested sound levels for outdoor and indoor living areas between 7am and 11pm are 55 dBA and 45 dBA, respectively. The maximum suggested sound levels for indoor bedrooms is 40 dBA between 11pm and 7am. For reference, **Tables 2.2a, 2.2b and 2.2c of the ENCG** are included in **Appendix A**.

Outdoor Living Area and Plane of Window receivers are defined as:

- **Outdoor Living Area (OLA)**: The outdoor amenity area provided for quiet enjoyment of the outdoor environment during the daytime period (i.e., backyards, terraces, and patios). OLA noise levels are considered 3.0m from the building façade and 1.5m above grade.

- **Plane of Window (POW)**: The indoor living space where the sound levels will affect the living room area during daytime hours and bedrooms during nighttime hours. POW noise levels are considered inside the building 1.5m above the floor level.

The noise level criteria are summarized in **Table 1:**

Table 1: 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	45 dBA
Nighttime (23:00 – 07:00)	Plane of Window (POW) at Bedrooms/Sleeping Quarter	40 dBA

2.1 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, major collector or collector roadway, or a rapid-transit corridor. There are no railway, airport, or stationary noise sources that affect this site. Derreen Avenue is the only noise source which needs to be considered. Derreen Avenue is classified as an urban collector roadway with 26m ROW in the City of Ottawa Transportation Master Plan and Official Plan. Refer to **Appendix A** for the excerpt from the Official Plan and TMP. **Table 2** outlines the road noise sources for the site.

Table 2: Traffic and Roadway Parameters

	Derreen Avenue
Roadway Classification	2-Lane Urban Collector Undivided
Annual Average Daily Traffic (AADT)	8,000 vehicles/day
Day/Night Split (%)	92/8
Medium Trucks (%)	7
Heavy Trucks (%)	5
Posted Speed	50 km/hr

2.2 Methods for Noise Attenuation

When OLA or POW sound levels are predicted to be approximately equal to or less than the maximum suggested levels in ENCG (Table 1) attenuation measures are not required. If the predicted noise levels are found to exceed the limits, noise mitigation and /or warning clauses are required. Warning clauses are discussed in section 2.5. The City of Ottawa's preferred noise mitigation methods are:

- Increasing the amount of soft ground between the noise sources and noise receptor,
- Inserting noise insensitive land between the noise source and the noise receptor,
- Orientate the building to provide shelter to noise sensitive areas,
- Install acoustic (noise) barriers,
- Install air conditioning and forced air ventilation, and
- Enhance construction techniques and construction quality.

2.3 Noise Barrier Requirements

Acoustic (noise) barriers are typically the most effective noise mitigation measure listed in Section 2.2. However, acoustic barriers are also typically visually unappealing and expensive to install and maintain. Acoustic barriers are typically only considered when all other noise mitigation techniques listed in Section 2.2 are not sufficient to reduce predicted noise levels below the maximum allowable. Only noise mitigation measures that are economically and administratively feasible will be considered.

Acoustic barriers, if required, must conform to Part 3 of the City of Ottawa's Environmental Noise Control Guidelines (2016), and include the following characteristics:

- Minimum height of 2.2m
- Maximum height of 2.5m, unless approved by the City
- Located 0.30m inside the private property line
- Have a surface mass density of not less than 20kg/sq.m
- Have no holes or gaps.

2.4 Ventilation Requirements

A forced air heating system with provision for a central air conditioning system is required if the plane of window daytime noise level is between 55 dBA and 65 dBA and/or the nighttime noise level is between 50 dBA and 60 dBA.

The installation of a central air conditioning system is required when the daytime noise level exceeds 65 dBA and/or the nighttime noise level exceeds 60 dBA.

2.5 Warning Clauses

When predicted noise levels exceed the specified criteria, the City of Ottawa and the MOE recommend warning clauses be registered as a notice on title and incorporated into the lease/rental/sale agreements to warn potential purchaser/buyers/tenants of the possible elevated noise levels.

Typical warning clauses should be registered as shown below. Warning clauses are extracted from **Part 4, Appendix A the City of Ottawa ENCG** and excerpts have been provided in **Appendix A** of this report**.** As stated in the City of Ottawa ENCG, due to the variation of noise impacts for any given site, it may be necessary to amend the example warning clauses to recognize the site conditions in each development.

Type A

"Purchasers/tenants are advised that sound levels due to increasing road traffic may occasionally interfere with some outdoor activities as the sound levels may exceed the sound level limits of the City and 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:

- An acoustic barrier"

"To ensure that provincial sound level limits are not exceeded it is important to maintain sound attenuation features."

"The acoustic barrier shall be maintained and kept in good repair by the property owner. Any maintenance, repair or replacement is the responsibility of the owner and shall be with the same material or to the same standards, having the same colour, appearance and function of the original."

Additionally, if a tolerance of 5 dBA is being considered in some areas, it is recommended an additional noise clause be registered on title and incorporated into the agreement of purchase and sales:

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/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 by up to 5 dBA."

"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. The outdoor amenity area (OLA1) is partially shield from noise by the existing building itself, which acts as an acoustical barrier.

Type C

"Purchasers/tenants are advised that sound levels due to increasing road traffic may occasionally interfere with some outdoor activities as the sound levels may exceed the sound level limits of the City and 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 may include:

- Multi-pane glass
- Double brick veneer"

"To ensure that provincial sound level limits are not exceeded it is important to maintain 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"

Type D

"Purchasers/tenants are advised that sound levels due to increasing road traffic may occasionally interfere with some outdoor activities as the sound levels may exceed the sound level limits of the City and 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 may include:

- Multi-pane glass
- Double brick veneer
- High sound transmission class walls"

"To ensure that provincial sound level limits are not exceeded it is important to maintain sound attenuation features."

"This dwelling unit has also 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"

For units with multiple types of warning clauses, similar/identical wording can be combined as to not duplicate wording/information.

2.6 Building Component Assessment

When plane of window noise levels exceeds 65 dBA (daytime) or 60 dBA (nighttime) the exterior cladding system of the building envelope must be acoustically assessed to ensure indoor sound criteria are achieved. This includes analysis of the exterior wall, door, and/or glazing system specifications as appropriate.

The NRC research document entitled "*Acoustic Insulation Factor: A Rating for the Insulation of Buildings against Noise* (June 1980, JD Quirt)" is used to assess the building components and the required acoustic insulation factor (AIF). This method is recognized by the City of Ottawa.

The required AIF is based on the Outside L_{eq}, Indoor L_{eq} required, and the number of exterior façade components.

Minimum Required AIF = Outside L_{eq} – Indoor L_{eq} + 10 $\log_{10}$ (Number of Components) + 2dB

Where, N = Number of components (walls and windows)

L = Sound Level expressed on a common decibel scale.

2.7 Summary of Attenuation Requirements

Table 3 summarizes the required noise attenuation measures and warning clauses should sound criteria be exceeded. Excerpts from the MOE NPC-300 and City of Ottawa ENCG documents are included in **Appendix A** for reference.

Table 3: Noise Attenuation Measure Requirements

Assessment Location	L_{eq} (dBA)	Outdoor Control Measures	Indoor Control Measures		Warning Clause
			Ventilation Requirements	Building Components	
Outdoor Living Area (OLA)	Less than 55	None required	N/A	N/A	None required
	Between 55 and 60	Control measures (barriers) may not be required but should be considered	N/A	N/A	Required if resultant L_{eq} exceeds 55 dBA Type A* or Type B**
	More than 60	Barriers required	N/A	N/A	Required if resultant L_{eq} exceeds 55 dBA Type A* or Type B*
Plane of Living Room Window (POW)	Less than 55	N/A	None Required	None Required	None Required
	Between 55 and 65	N/A	Forced air heating with provision for central air conditioning	None Required	Required Type C
	More Than 65	N/A	Central Air Conditioning	Acoustical performance of the windows and walls should be specified	Required Type D
Plane of Bedroom Window (POW)	Less than 50	N/A	None Required	None Required	None Required
	Between 50 and 60	N/A	Forced air heating with provision for central air conditioning	None Required	Required Type C
	More than 60	N/A	Central Air Conditioning	Acoustical performance of the windows and walls should be specified	Required Type D

*Type A warning clause refers to units requiring a noise barrier that mitigates noise below 55dBA.
**Type B warning clause refers to units requiring a noise barrier but is technically or economically not feasible to reduce levels below 55dBA and a tolerance of up to 5dBA can be granted by the City.

3.0 PREDICTED NOISE LEVELS

Noise levels were analyzed using Version 5.03 of the STAMSON computer program. OLA is for the amenity area. For POW, the units facing Derreen Avenue are selected. The predicted noise levels are listed in **Table 4 and Table 5** bellow.

Table 4: Simulation Results – Outdoor Living Areas

Receiver Location*	Calculated Noise Level (dBa) 7:00-23:00		Outdoor Mitigation Method
	Un-attenuated	Attenuated	
OLA 1	46.28	-	N/A

*Locations found on **Figure 2 – Receiver Location Plan**

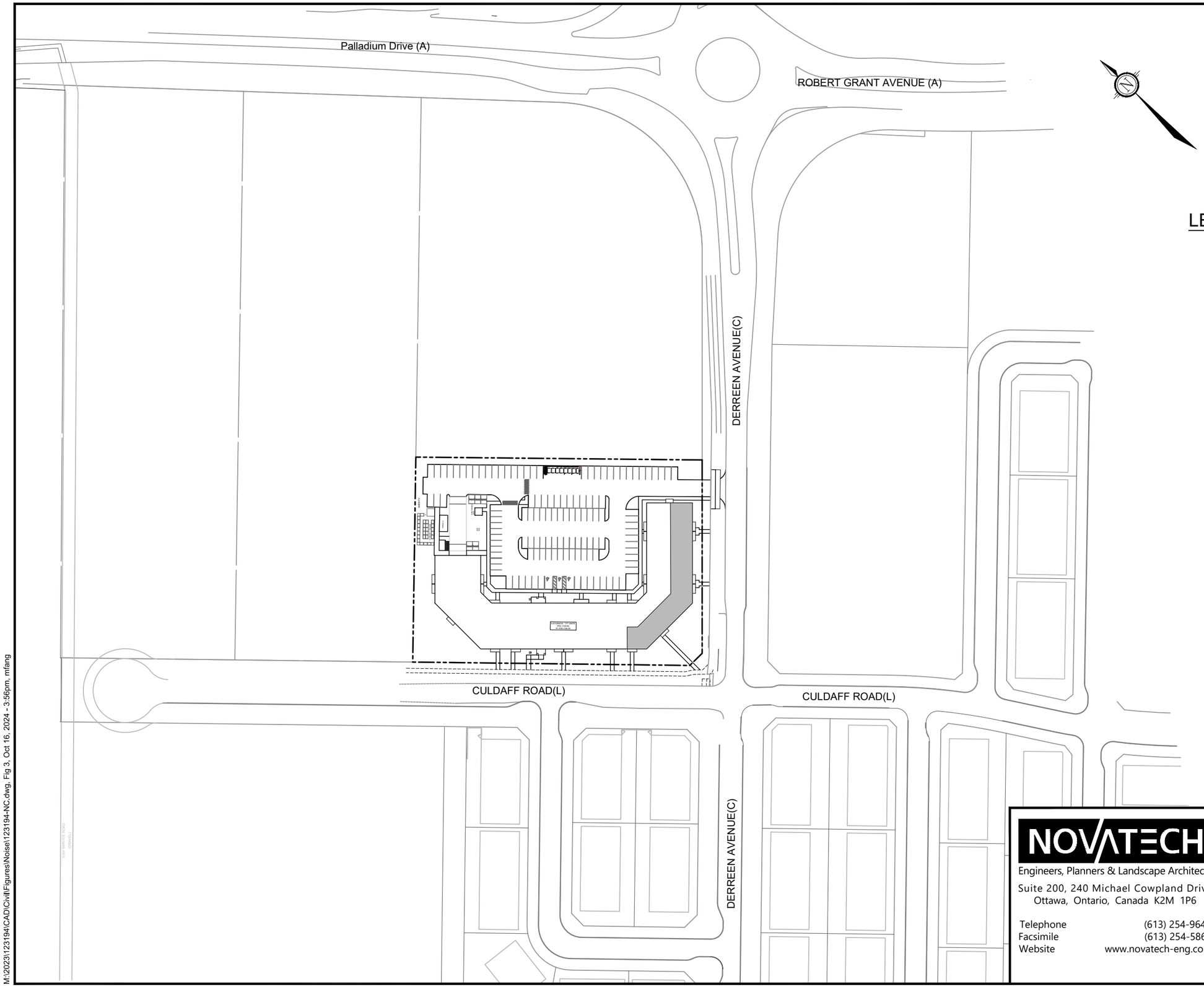
From **Table 4**, Noise level of OLA1 is lower than 55dBA and therefore no attenuated measures are required. Refer to **Appendix B** for noise calculations.

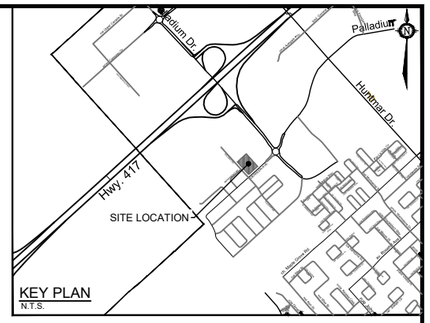
Table 5: Simulation Results – Plane of Window

Receiver Location *	Predicted Noise Level 7:00-23:00 (dBa)	Predicted Noise Level 23:00-7:00 (dBa)	Mitigation Method
	Un-attenuated	Un-attenuated	
POW1 (First Floor)	62.97	55.38	• Installation of Forced Air Heating with provision for Air Conditioning • Warning Clause Type C
POW1-6 (Sixth Floor)	64.09	56.50	• Installation of Forced Air Heating with provision for Air Conditioning • Warning Clause Type C
POW2 (First Floor)	57.81	50.22	• Installation of Forced Air Heating with provision for Air Conditioning • Warning Clause Type C
POW2-6 (Sixth Floor)	59.91	52.32	• Installation of Forced Air Heating with provision for Air Conditioning • Warning Clause Type C
POW3-6 (Sixth Floor)	54.81	48.11	N/A

*Locations found on **Figure 2 – Receiver Location Plan**

Based on the results above, we recommend Forced Air Heating with provision for Central Air Conditioning and the inclusion of Noise Clause Type C be registered as a notice on title and incorporated into the lease/rental/sale agreements of the 24 units, which are all Unit 20,22,24,26,28, and 30 from first floor to sixth floor. Refer to 425 Culdaff Road Architect Floor Plans in **Appendix A** for the units' locations. Refer to **Figure 3 – Noise Attenuation Measures Plan** for all proposed noise mitigation measures. Refer to **Appendix B** for noise calculation.





LEGEND

MITIGATION METHODS INCLUDE:

- INSTALLATION OF FORCED AIR HEATING WITH PROVISION FOR CENTRAL AIR CONDITIONING
- WARNING CLAUSE TYPE C TO BE REGISTERED ON TITLE AND INCORPORATED INTO THE AGREEMENT OF LEASE/RENTAL/SALE
- THE UNITS INCLUDE 20,22,24,26,28,AND 30 FROM FIRST FLOOR TO SIXTH FLOOR

(A) ARTERIAL ROAD CLASSIFICATION

(C) COLLECTOR ROAD CLASSIFICATION

(L) LOCAL ROAD CLASSIFICATION

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

CITY OF OTTAWA
425 CULDAFF ROAD

NOISE MITIGATION PLAN

SCALE 1 : 1500 (0, 15, 30, 45, 60)

DATE OCT 2024 | JOB 123194 | FIGURE FIGURE 3

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4.0 CONCLUSION

This report recommends:

- The inclusion of Forced Air Heating with provision for Central Air Conditioning and Warning Clause Type C to be registered as a notice on title and incorporated into the lease/rental/sale agreements for 24 units which are facing or partially facing Derreen Avenue listing bellow in the proposed development.
    - Unit 120, 122, 124, 126, 128, and 130.
    - Unit 220, 222, 224, 226, 228, and 230.
    - Unit 320, 322, 324, 326, 328, and 330.
    - Unit 420, 422, 424, 426, 428, and 430.
    - Unit 520, 522, 524, 526, 528, and 530.
    - Unit 620, 622, 624, 626, 628, and 630.

NOVATECH ENGINEERING CONSULTANTS LTD.

Report By:

Ming Fang, C.E.T., B.Eng
Design Technologist

Reviewed By:

Anthony Mestwarp, P. Eng.
Project Manager - Land Development Engineering

Reviewed By:

Greg MacDonald, P. Eng.
Director - Land Development and
Public Sector Infrastructure

APPENDIX A:

EXCERPTS FROM THE CITY OF OTTAWA ENVIRONMENTAL NOISE CONTROL GUIDELINES, THE MOE'S NPC-300, THE CITY OF OTTAWA'S TRANSPORTATION MASTER PLAN AND OFFICIAL PLAN, AND ARCHITECT SITE PLAN

PLANNING AND GROWTH MANAGEMENT
URBANISME ET GESTION DE LA CROISSANCE

ENVIRONMENTAL NOISE CONTROL GUIDELINES: Introduction and Glossary

January 2016

Table 2.2a: Sound Level Limit for Outdoor Living Areas - Road and Rail
(from NPC-300, 2013 Table C-1)

Time Period	Required L_{eq} (16) (dBA)
16-hour, 07:00 – 23:00	55

Table 2.2b: Sound Level Limit for Indoor Living Areas Road and Rail
(from NPC-300, 2013 Table C-2)

		Required L_{eq} (dBA)	
Type of Space	Time Period	Road	Rail
Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	07:00 – 23:00	45	40
Living/dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres)	23:00 – 07:00	45	40
Sleeping quarters	07:00 – 23:00	45	40
	23:00 – 07:00	40	35

The Province also provides for supplementary indoor sound level limits for land uses not generally considered noise sensitive (see Table 2.2c below). These good practice design objectives should be addressed in any noise study prepared for the City. These supplementary sound level limits are based on the windows and doors to an indoor space being closed.

Table 2.2c: Supplementary Sound Level Limits for Indoor Spaces - Road and Rail (adapted from NPC-300 Table C-9)

		Required L_{eq} (dBA)	
Type of Space	Time Period	Road	Rail
General offices, reception areas, retail stores, etc.	16 hours between 07:00 – 23:00	50	45
Theatres, places of worship, libraries, individual or semi- private offices, conference rooms, reading rooms, etc.	16 hours between 07:00 – 23:00	45	40
Sleeping quarters of hotels/motels	8 hours between 23:00 – 07:00	45	40
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	8 hours between 23:00 – 07:00	40	35

Appendix B: Table of Traffic and Road Parameters To Be Used For Sound Level Predictions

Table B1 Traffic And Road Parameters To Be Used For Sound Level Predictions

Row Width (m)	Implied Roadway Class	AADT Vehicles/Day	Posted Speed Km/Hr	Day/Night Split %	Medium Trucks %	Heavy Trucks % [1]
NA [2]	Freeway, Queensway, Highway	18,333 per lane	100	92/8	7	5
37.5-44.5	6-Lane Urban Arterial-Divided (6 UAD)	50,000	50-80	92/8	7	5
34-37.5	4-Lane Urban Arterial-Divided (4-UAD)	35,000	50-80	92/8	7	5
23-34	4-Lane Urban Arterial-Undivided (4-UAU)	30,000	50-80	92/8	7	5
23-34	4-Lane Major Collector (4-UMCU)	24,000	40-60	92/8	7	5
30-35.5	2-Lane Rural Arterial (2-RAU)	15,000	50-80	92/8	7	5
20-30	2-Lane Urban Arterial (2-UAU)	15,000	50-80	92/8	7	5
20-30	2-Lane Major Collector (2-UMCU)	12,000	40-60	92/8	7	5
30-35.5	2-Lane Outer Rural Arterial (near the extremities of the City) (2-RAU)	10,000	50-80	92/8	7	5
20-30	2-Lane Urban Collector (2-UCU)	8,000	40-50	92/8	7	5

[1] The MOE Vehicle Classification definitions should be used to estimate automobiles, medium trucks and heavy trucks.

[2] The number of lanes is determined by the future mature state of the roadway.

Environmental Noise Guideline

Stationary and Transportation Sources – Approval and Planning

Publication NPC-300

Ontario

Table C-10
Supplementary Indoor Aircraft Noise Limits
(Applicable over 24-hour period)

Type of Space	Indoor NEF/NEP*
General offices, reception areas, retail stores, etc.	15
Individual or semi-private offices, conference rooms, etc.	10
Living/dining areas of residences, sleeping quarters of hotels/motels, theatres, libraries, schools, daycare centres, places of worship, etc.	5
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	0

* The indoor NEF/NEP values listed in Table C-10 are not obtained from NEF/NEP contour maps. The values are representative of the indoor sound levels and are used as assessment criteria for the evaluation of acoustical insulation requirements.

C7 Noise Control Measures

The following sections provide MOE guidance for appropriate noise control measures. These sections constitute requirements that are applied to MOE approvals for stationary sources. This information is also provided as guidance which land use planning authorities may consider adopting.

The definition in Part A describes the various types and application of noise control measures. All the noise control measures described in the definition are appropriate to address the impact of noise of transportation sources (road, rail and aircraft) on planned sensitive land uses. Only some of the noise control measures described in the definition are appropriate to address the noise impact of stationary sources on planned sensitive land uses.

C7.1 Road Noise Control Measures

C7.1.1 Outdoor Living Areas

If the 16-Hour Equivalent Sound Level, L_{eq} (16) in the OLA 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.

If the 16-Hour Equivalent Sound Level, L_{eq} (16) in the OLA 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.

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

In Class 4 areas, where windows for noise sensitive spaces are assumed to be closed, the use of central air conditioning may be acceptable if it forms an essential part of the overall building designs.

C7.9 Verification of Noise Control Measures

It is recommended that the implementation of noise control measures be verified by qualified individuals with experience in environmental acoustics.

C8 Warning Clauses

The use of warning clauses or easements in respect of noise are recommended when circumstances warrant. Noise warning clauses may be used to warn of potential annoyance due to an existing source of noise and/or to warn of excesses above the sound level limits. Direction on the use of warning clauses should be included in agreements that are registered on title to the lands in question. The warning clauses would be included in agreements of Offers of Purchase and Sale, lease/rental agreements and condominium declarations. Alternatively, the use of easements in respect of noise may be appropriate in some circumstances. Additional guidance on the use of noise warning clauses is provided in Section C7.1.1, Section C7.1.2.1, Section C7.1.2.2, Section C7.3 and Section C7.4.

C8.1 Transportation Sources

The following warning clauses may be used individually or in combination:

TYPE A: (see Section C7.1.1)

> "Purchasers/tenants are advised that sound levels due to increasing road traffic (rail traffic) (air 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."

TYPE B: (see Section C7.1.1 and Section C7.4)

> "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 (rail traffic) (air traffic) may on occasions interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment."

TYPE C: (see Section C7.1.2.1, Section C7.1.2.2 and Section C7.4)

> "This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of

central air conditioning by the occupant in low and medium density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."

TYPE D: (see Section C7.1.2.1, Section C7.1.2.2 and Section C7.4)

"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."

C8.2 Stationary Sources

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. Warning clause (Type E) for stationary sources may identify a potential concern due to the proximity of the facility but it is not acceptable to justify exceeding the sound level limits.

TYPE E: (see Section C7.6)

"Purchasers/tenants are advised that due to the proximity of the adjacent industry (facility) (utility), noise from the industry (facility) (utility) may at times be audible."

C8.3 Class 4 Area Notification

TYPE F: (see Section B9.2 and Section C4.4.2)

"Purchasers/tenants are advised that sound levels due to the adjacent industry (facility) (utility) are required to comply with sound level limits that are protective of indoor areas and are based on the assumption that windows and exterior doors are closed. This dwelling unit has been supplied with a ventilation/air conditioning system which will allow windows and exterior doors to remain closed."

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 that is within provincial guidelines. Measures for sound attenuation include:* • *A setback of buildings from the noise source and* • *An acoustic barrier.* *To ensure that provincial sound level limits are not exceeded it is important to maintain sound attenuation features.* *The acoustic barrier shall be maintained and kept in good repair by the property owner. Any maintenance, repair or replacement is the responsibility of the owner and shall be with the same material or to the same standards, having the same colour, appearance and function of the original.* *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	*"Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units,*	The warning clause makes reference to MOE sound levels

Table A1 Surface Transportation Warning Clauses

Type	Example	Notes
outdoor amenity area	*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 attenuation this development includes:* • *multi-pane glass;* • *double brick veneer;* • *an earth berm; and* • *an acoustic barrier.* *To ensure that provincial sound level limits are not exceeded it is important to maintain these sound attenuation features.* *The acoustic barrier shall be maintained and kept in good repair by the property owner. Any maintenance, repair or replacement is the responsibility of the owner and shall be with the same material or to the same standards, having the same colour, appearance and function of the original.* *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.*	being exceeded from time to time and that there are sound attenuation features and landscaping within the development that should be maintained. An option for air conditioning is noted as well as landscaping to screen the source of noise.

Table A1 Surface Transportation Warning Clauses

Type	Example	Notes
	Additionally this development includes trees and shrubs to screen the source of noise from occupants.	
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.* *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*	This warning clause notes that only an indoor environment is being provided for.

Stationary Source Warning Clauses

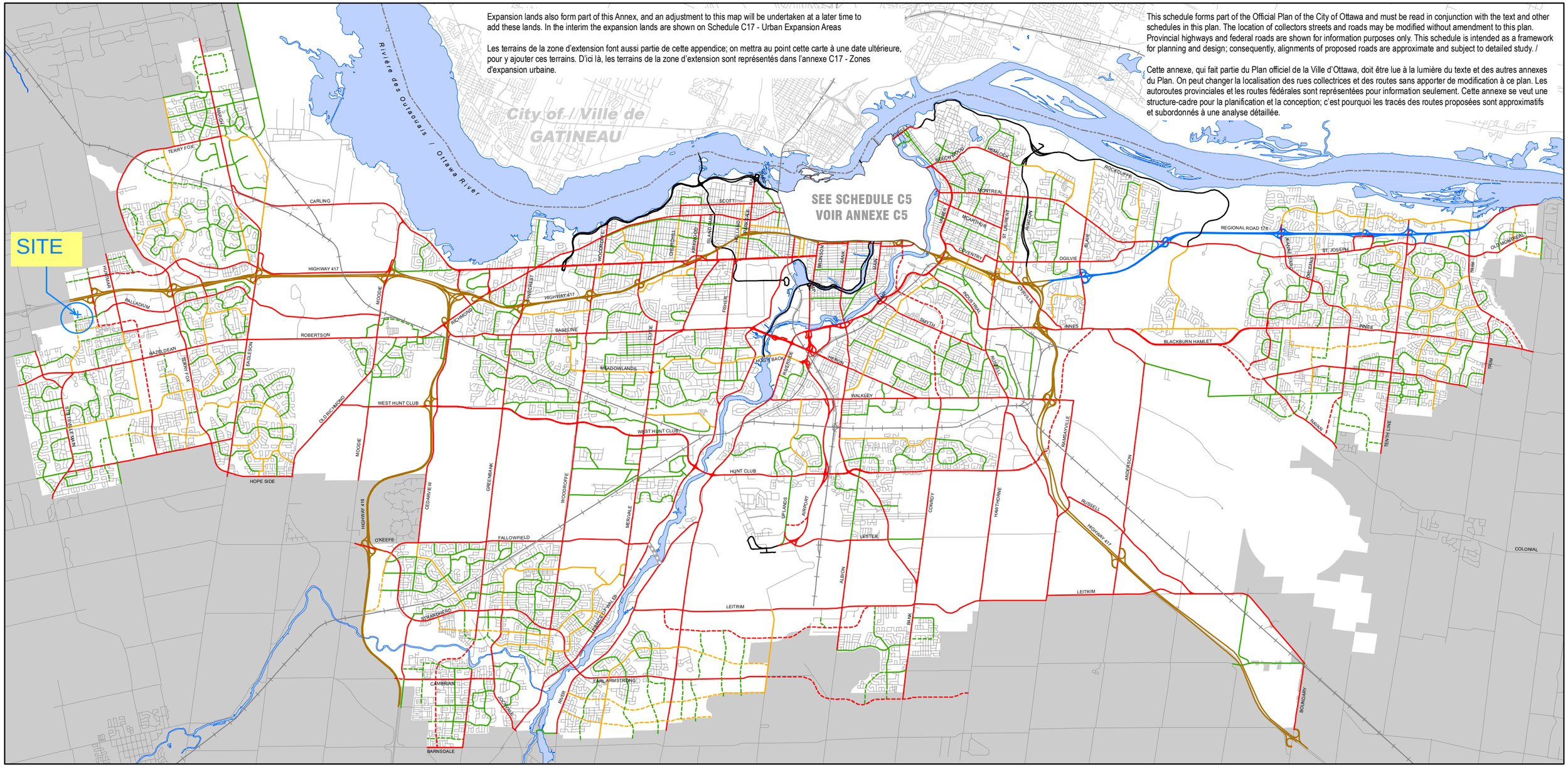
The Province notes that it is not acceptable to use warning clauses in place of physical noise control measures to identify an excess over the MOE sound level limits for stationary sources. The generic warning clause for stationary sources (called Type E in NPC-300) may identify a potential concern due 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.

Expansion lands also form part of this Annex, and an adjustment to this map will be undertaken at a later time to add these lands. In the interim the expansion lands are shown on Schedule C17 - Urban Expansion Areas

Les terrains de la zone d'extension font aussi partie de cette appendice; on mettra au point cette carte à une date ultérieure, pour y ajouter ces terrains. D'ici là, les terrains de la zone d'extension sont représentés dans l'annexe C17 - Zones d'expansion urbaine.

This schedule forms part of the Official Plan of the City of Ottawa and must be read in conjunction with the text and other schedules in this plan. The location of collectors streets and roads may be modified without amendment to this plan. Provincial highways and federal roads are shown for information purposes only. This schedule is intended as a framework for planning and design; consequently, alignments of proposed roads are approximate and subject to detailed study. /

Cette annexe, qui fait partie du Plan officiel de la Ville d'Ottawa, doit être lue à la lumière du texte et des autres annexes du Plan. On peut changer la localisation des rues collectrices et des routes sans apporter de modification à ce plan. Les autoroutes provinciales et les routes fédérales sont représentées pour information seulement. Cette annexe se veut une structure-cadre pour la planification et la conception; c'est pourquoi les tracés des routes proposées sont approximatifs et subordonnés à une analyse détaillée.



Arterial - Existing	Artère - Établie	Provincial Highway	Route provinciale
Arterial - Future (alignment defined)	Artère - Future (alignement déterminée)	Federally Owned Road	Chemins de propriété fédéral
Major Collector - Existing	Grande collectrice - Établie	City Freeway	Autoroute municipale
Major Collector - Future	Grande collectrice - Future		
Collector - Existing	Collectrice - Établie		
Collector - Future	Collectrice - Future		
River Crossing (corridor undefined)	Traversée de rivière (couloir non défini)		

Official Plan / Plan officiel

Schedule C4 - Urban Road Network
Annexe C4 Réseau routier urbain

Approved on November 4, 2022
Approuvé le 4 novembre 2022

Consolidation and Amendments / Consolidation et amendements

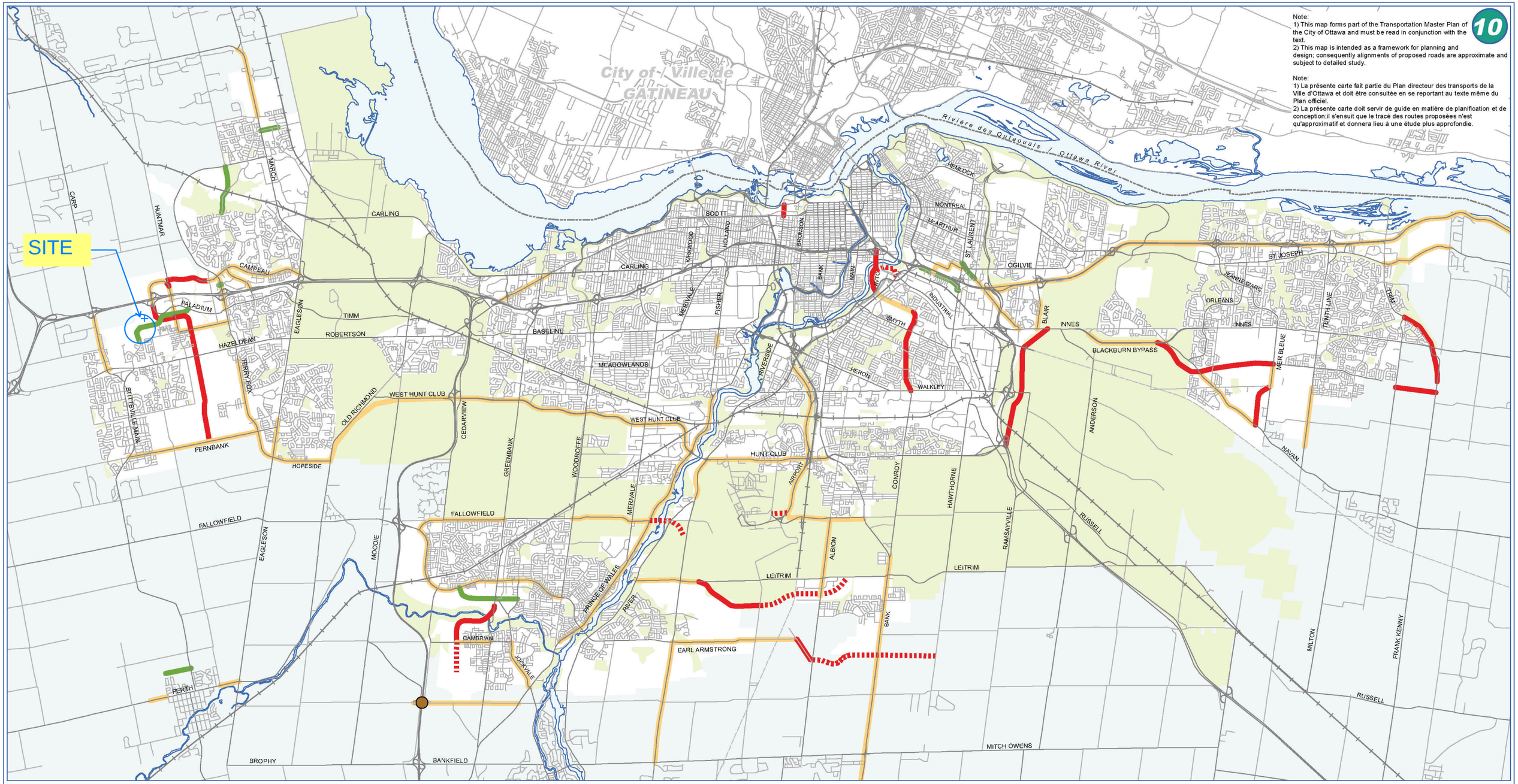
0 0.5 1 2 3 4 5 km

Planning, Infrastructure and Economic Development Department, Geospatial Analytics, Technology and Solutions
Services de la planification, de l'infrastructure et du développement économique, Analyse géospatiale, technologie et solutions

10

Note:
1) This map forms part of the Transportation Master Plan of the City of Ottawa and must be read in conjunction with the text.
2) This map is intended as a framework for planning and design; consequently alignments of proposed roads are approximate and subject to detailed study.

Note:
1) La présente carte fait partie du Plan directeur des transports de la Ville d'Ottawa et doit être consultée en se reportant au texte même du Plan officiel.
2) La présente carte doit servir de guide en matière de planification et de conception;il s'ensuit que le tracé des routes proposées n'est qu'approximatif et donnera lieu à une étude plus approfondie.



Ottawa

1 0.5 0 1 2 3 km

Prepared by: Planning and Growth Management Department, Mapping & Graphics Unit, 2015 Revision
Préparé par: Service de l'urbanisme et de la gestion de la croissance, Unité de la cartographie et des graphiques, Révision 2015

New Arterials	Nouvelles artères
Widened Arterial	Artères élargies
Conceptual Arterial	Conception d'artères
New or Widened Collector	Artères élargies ou nouvelles
New Interchange	Nouvel échangeur

TRANSPORTATION MASTER PLAN - Map 10
ROAD NETWORK – 2031 NETWORK CONCEPT

PLAN DIRECTEUR DES TRANSPORTS - Carte 10
RÉSEAU ROUTIER - CONCEPT DU RÉSEAU 2031

PALLADIUM TERRACE

425 CULDAFF RD
OTTAWA, ON

LIST OF DRAWINGS

VICINITY MAP

VICINITY MAP IS ONLY AN APPROXIMATION OF PROJECT LOCATION

PROJECT TEAM:

APPLICANT:

BROADSTREET PROPERTIES LTD.
100 St Anns, Campbell River, B.C.
(T)250.286.8045 (F)250.286.8046
www.broadstreet.ca

CONSTRUCTION:

SEYMOUR PACIFIC DEVELOPMENTS LTD.
100 St Anns, Campbell River, B.C.
(T)250.286.8045 (F)250.286.8046
www.seymourpacific.ca

STRUCTURAL ENGINEERING:

-

CIVIL ENGINEERING:

NOVATECH
240 Michael Cowpland Drive
Suite 200, Ottawa, ON
K2M 1P6
613.254.9643

LANDSCAPE ARCHITECT:

-

MECHANICAL & ELECTRICAL ENGINEERING:

-

ARCHITECT:

ABELEARCHITECTURE
Thomas Abele, Architect AAA
2001 – 1755 Haro Street
Vancouver, B.C. V6G 1H2
604-682-6818

SITE INFORMATION

PROJECT DESCRIPTION	1 - MULTIFAMILY RESIDENTIAL APARTMENT (6 STOREY)		
TOTAL UNITS	177 UNITS		
CIVIC ADDRESS	425 CULDAFF RD.		
MUNICIPALITY	CITY OF OTTAWA		
ZONING	GM		
LEGAL DESCRIPTION	-		
LOT AREA	9,728.16 m^2	2.40 ACRES	0.973 HECTARES
BUILDING AREA	16,335.42	m^2	
DENSITY	74.2 DU/ACRE		
FLOOR SPACE INDEX (FSI)	1.68		

ZONING SUMMARY

	REQUIRED		PROPOSED	
MAX. BUILDING HEIGHT	18 m		18 m	
MIN. FRONT YARD S.B.	3.0	m	7.0	m
MIN. REAR YARD S.B.	7.5	m	7.5	m
MIN. INTERIOR SIDE YARD S.B.	3.0	m	3.0	m
MIN. CORNER SIDE YARD S.B.	3.0	m	3.0	m
MIN. LOT AREA	No minimum	m^2	-	m^2
MIN. LOT WIDTH	No minimum	m	-	m

VEHICULAR PARKING

	REQUIRED	UNITS/AREA	REQUIRED	PROPOSED
APARTMENT - REGULAR	1.2 / UNIT	177	212	177
VISITORS	0.2 / UNIT	177	35	35
TOTAL PARKING STALLS			**247**	**212 ***
OTHER PARKING PROVISIONS				
SMALL CAR	MAX 50%		MAX 107	75
ACCESSIBLE TYPE A			3	3

*** SUBJECT TO VARIANCE**

BUILDING INFORMATION

BUILDING	STOREYS	UNIT COUNT	FOOTPRINT	GROSS BUILDING AREA
A	**6**	**177**	2722.57 m^2	16,335.42 m^2

UNIT BREAKDOWN

	BUILDING A	
TOTAL PER BUILDING	177	
TOTAL		
		%
STUDIO	24	**13%**
1 BED / 1BATH	24	**13%**
2 BED / 1 BATH	6	**3%**
2 BED / 2 BATH	87	**51%**
3 BED / 2 BATH	36	**20%**
TOTAL	**177 UNITS**	

LANDSCAPE

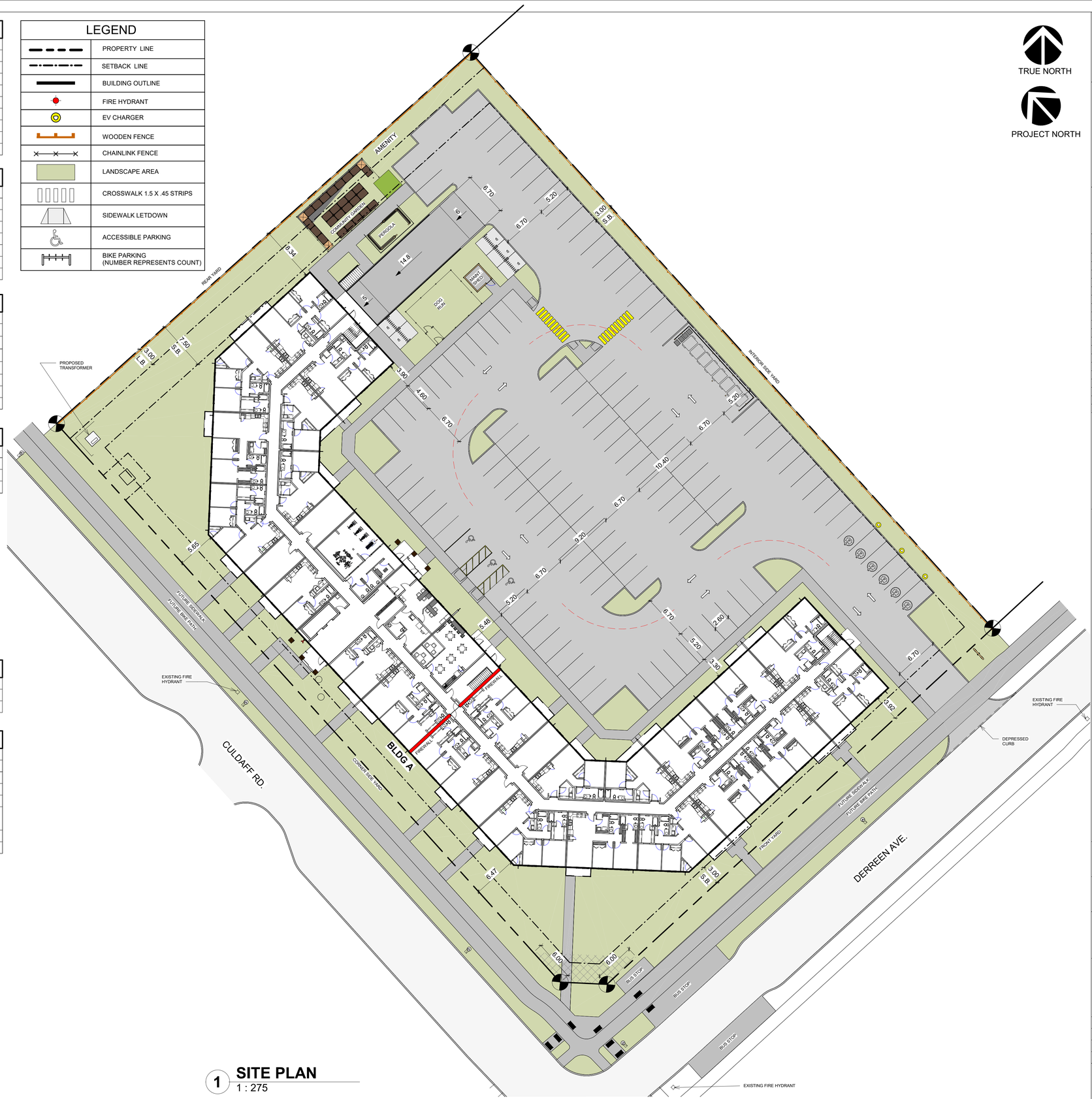
	REQUIRED	PROPOSED
PERCENTAGE OF LOT AREA		35%
m^2		3387 m^2

BICYCLE PARKING

	RATE	UNITS/AREA	REQUIRED	PROPOSED
APARTMENT BUILDING	0.5 / UNIT	177	89	108
TOTAL BICYCLE			**89**	**108**
OTHER BICYCLE PROVISIONS				
MAX BIKE STALLS IN LANDSCAPED AREA	50%	-	45	40
MIN HORIZONTAL BIKE STALL	50%	-	45	48
MIN SECURED BIKE STALLS	25%	-	22	68

LEGEND

	PROPERTY LINE
	SETBACK LINE
	BUILDING OUTLINE
	FIRE HYDRANT
	EV CHARGER
	WOODEN FENCE
	CHAINLINK FENCE
	LANDSCAPE AREA
	CROSSWALK 1.5 X .45 STRIPS
	SIDEWALK LETDOWN
	ACCESSIBLE PARKING
	BIKE PARKING (NUMBER REPRESENTS COUNT)



1 SITE PLAN
1 : 275

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SITE MAP:

PROJECT STATUS:

DEVELOPMENT PERMIT

Revision Schedule

No.	Description	Revision Date
1	ISSUED FOR D.P.	OCT 8, 2024

SEAL: **ABELE**ARCHITECTURE
THOMAS C. ABELE, ARCHITECT OAA, T: 604.682-6818

PROJECT NAME:
PALLADIUM TERRACE

PROJECT NUMBER:
VP 2402

ADDRESS:
425 CULDAFF RD
OTTAWA, ON

DRAWING TITLE:
SITE PLAN

DRAWN BY:	EC
CHECKED BY:	CG
DATE:	OCT 8, 2024
SCALE:	As indicated
DRAWING #:	A1.00
REV #:	A

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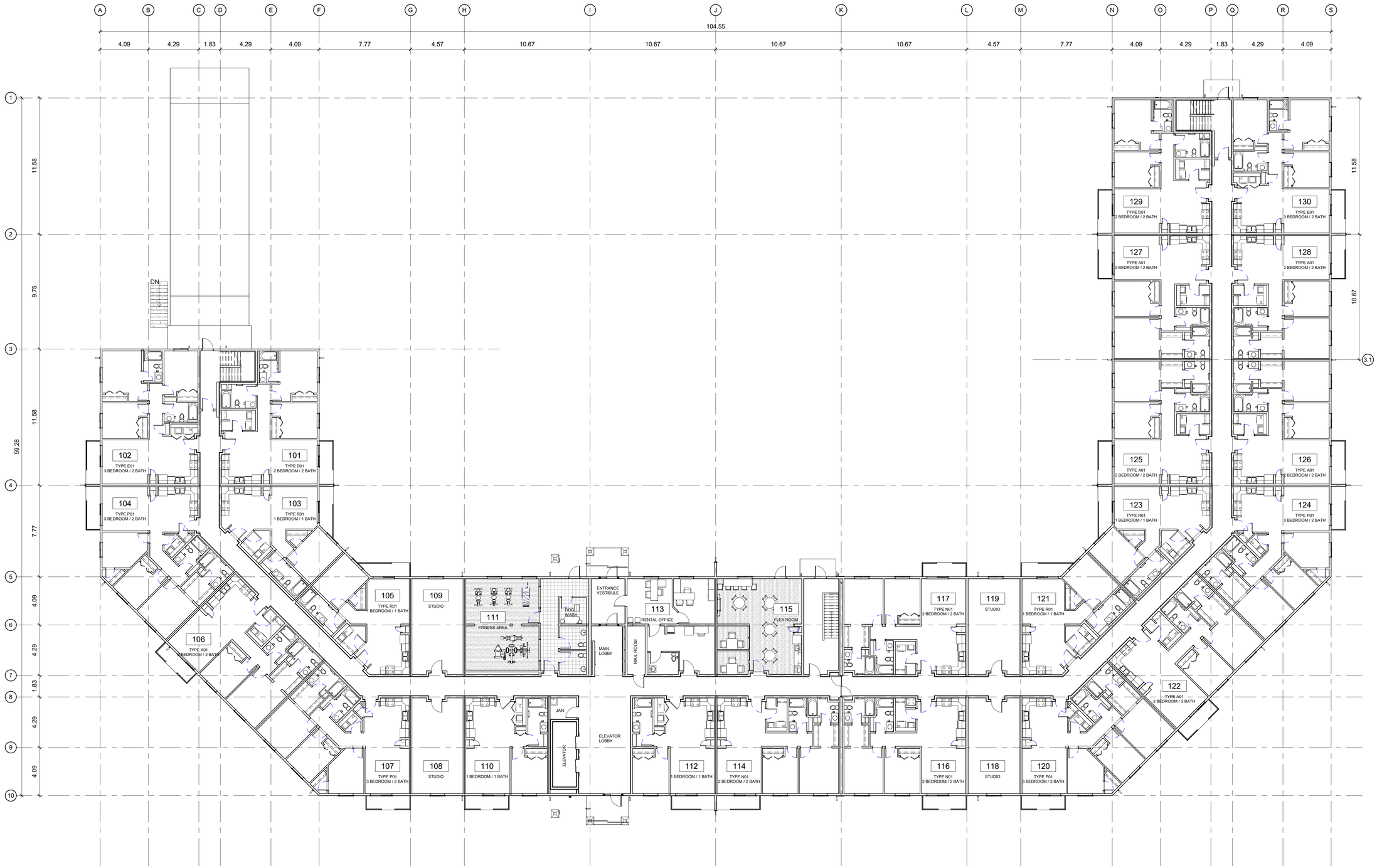

1 FIRST FLOOR PLAN
1 : 150

TOTAL FLOOR AREA	**= 2737.68 m²**
FIREWALL FLOOR AREA BREAKDOWN	
LEFT SIDE FLOOR AREA	**= 1384.84 m²**
RIGHT SIDE FLOOR AREA	**= 1384.84 m²**

09/20/2024 1:42:47 PM

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SITE MAP:

PROJECT STATUS:
DEVELOPMENT PERMIT

Revision Schedule

No.	Description	Revision Date
1	ISSUED FOR D.P.	OCT 8, 2024

SEAL: **ABELE**ARCHITECTURE
THOMAS C. ABELE, ARCHITECT OAA, T: 604.682-6818

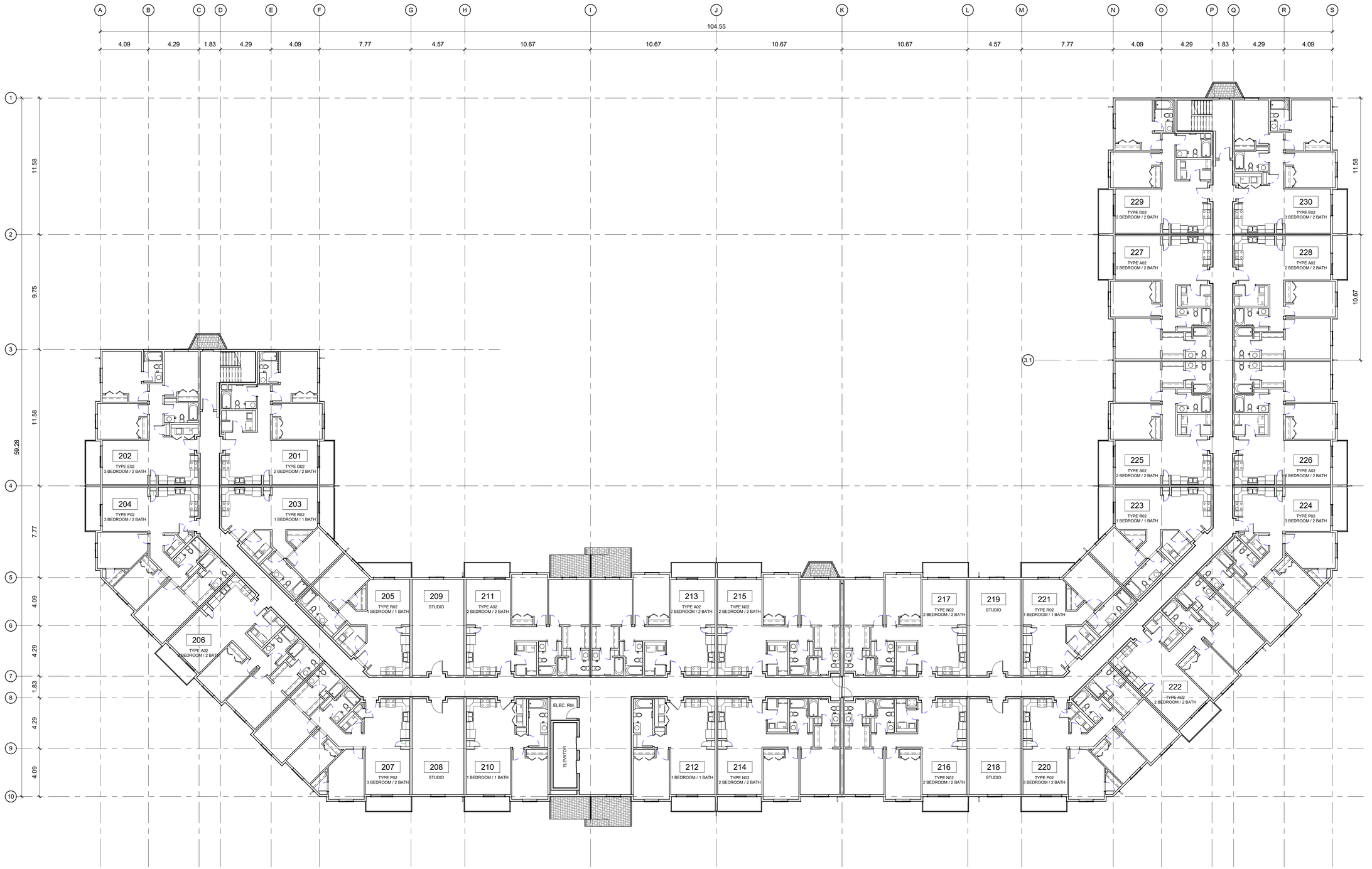
PROJECT NAME:
PALLADIUM TERRACE

PROJECT NUMBER:
VP 2402

ADDRESS:
425 CULDAFF RD
OTTAWA, ON

DRAWING TITLE:
FIRST FLOOR PLAN

DRAWN BY:	EC
CHECKED BY:	CG
DATE:	OCT 8, 2024
SCALE:	1 : 150
DRAWING #:	A2.01
REV #:	1



1 SECOND FLOOR PLAN
1 : 150

TOTAL FLOOR AREA	**= 2774.61 m²**
FIREWALL FLOOR AREA BREAKDOWN	
LEFT SIDE FLOOR AREA	**= 1387.58 m²**
RIGHT SIDE FLOOR AREA	**= 1387.03 m²**

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PROJECT STATUS:

DEVELOPMENT PERMIT

Revision Schedule

No.	Description	Revision Date
1	ISSUED FOR D.P.	OCT 8, 2024

SEAL: **ABELE**ARCHITECTURE
THOMAS C. ABELE, ARCHITECT OAA, T: 604.682-6818

PROJECT NAME:
PALLADIUM TERRACE

PROJECT NUMBER:
VP 2402

ADDRESS:
425 CULDAFF RD
OTTAWA, ON

DRAWING TITLE:
SECOND FLOOR PLAN

DRAWN BY:	EC
CHECKED BY:	CG
DATE:	OCT 8, 2024
SCALE:	1 : 150
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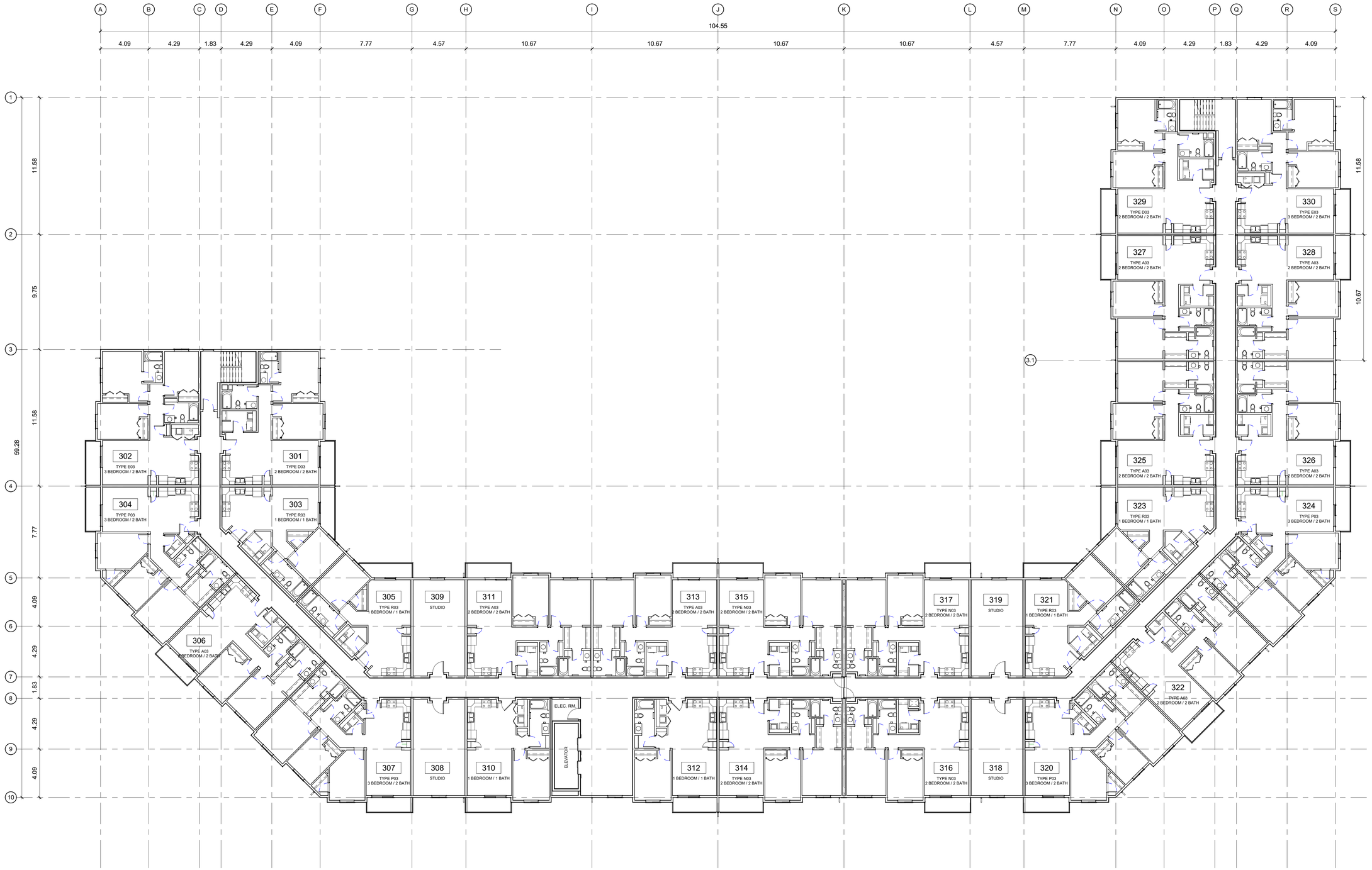
REV #:	1



1 THIRD FLOOR PLAN
1 : 150

TOTAL FLOOR AREA = 2774.61 m²

FIREWALL FLOOR AREA BREAKDOWN
LEFT SIDE FLOOR AREA = 1387.58 m²
RIGHT SIDE FLOOR AREA = 1387.03 m²

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PROJECT STATUS:
DEVELOPMENT PERMIT

Revision Schedule

No.	Description	Revision Date
1	ISSUED FOR D.P.	OCT 8, 2024

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THOMAS C. ABELE, ARCHITECT OAA, T: 604.682-6818

PROJECT NAME:
PALLADIUM TERRACE

PROJECT NUMBER:
VP 2402

ADDRESS:
425 CULDAFF RD
OTTAWA, ON

DRAWING TITLE:
THIRD FLOOR PLAN

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CHECKED BY:	CG
DATE:	OCT 8, 2024
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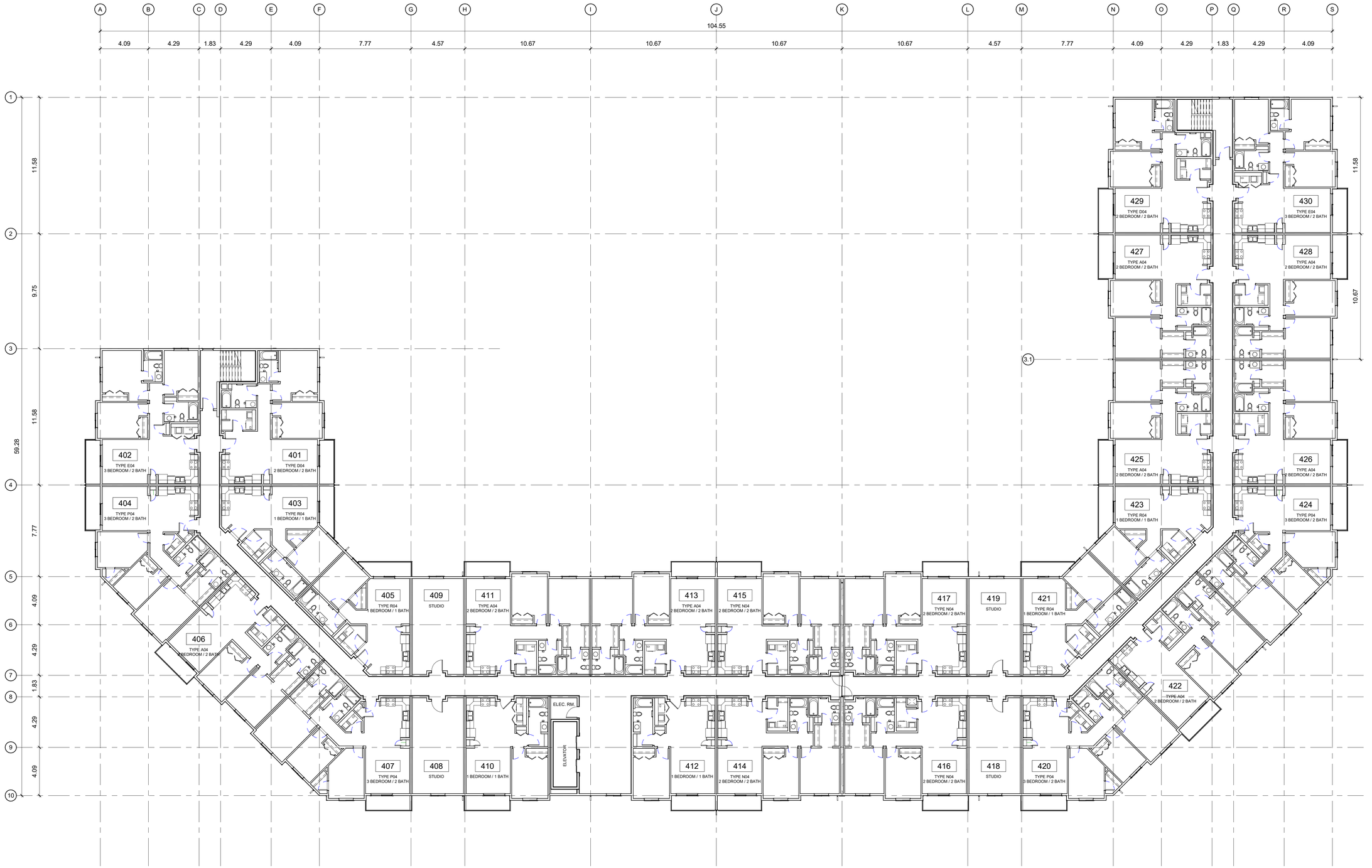
REV #:	1



1 FOURTH FLOOR PLAN
1 : 150

TOTAL FLOOR AREA = 2774.61 m²

FIREWALL FLOOR AREA BREAKDOWN
LEFT SIDE FLOOR AREA = 1387.58 m²
RIGHT SIDE FLOOR AREA = 1387.03 m²

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SITE MAP:

PROJECT STATUS:
DEVELOPMENT PERMIT

Revision Schedule

No.	Description	Revision Date
1	ISSUED FOR D.P.	OCT 8, 2024

SEAL: **ABELE**ARCHITECTURE
THOMAS C. ABELE, ARCHITECT OAA, T: 604.682-6818

PROJECT NAME:
PALLADIUM TERRACE

PROJECT NUMBER:
VP 2402

ADDRESS:
425 CULDAFF RD
OTTAWA, ON

DRAWING TITLE:
FOURTH FLOOR PLAN

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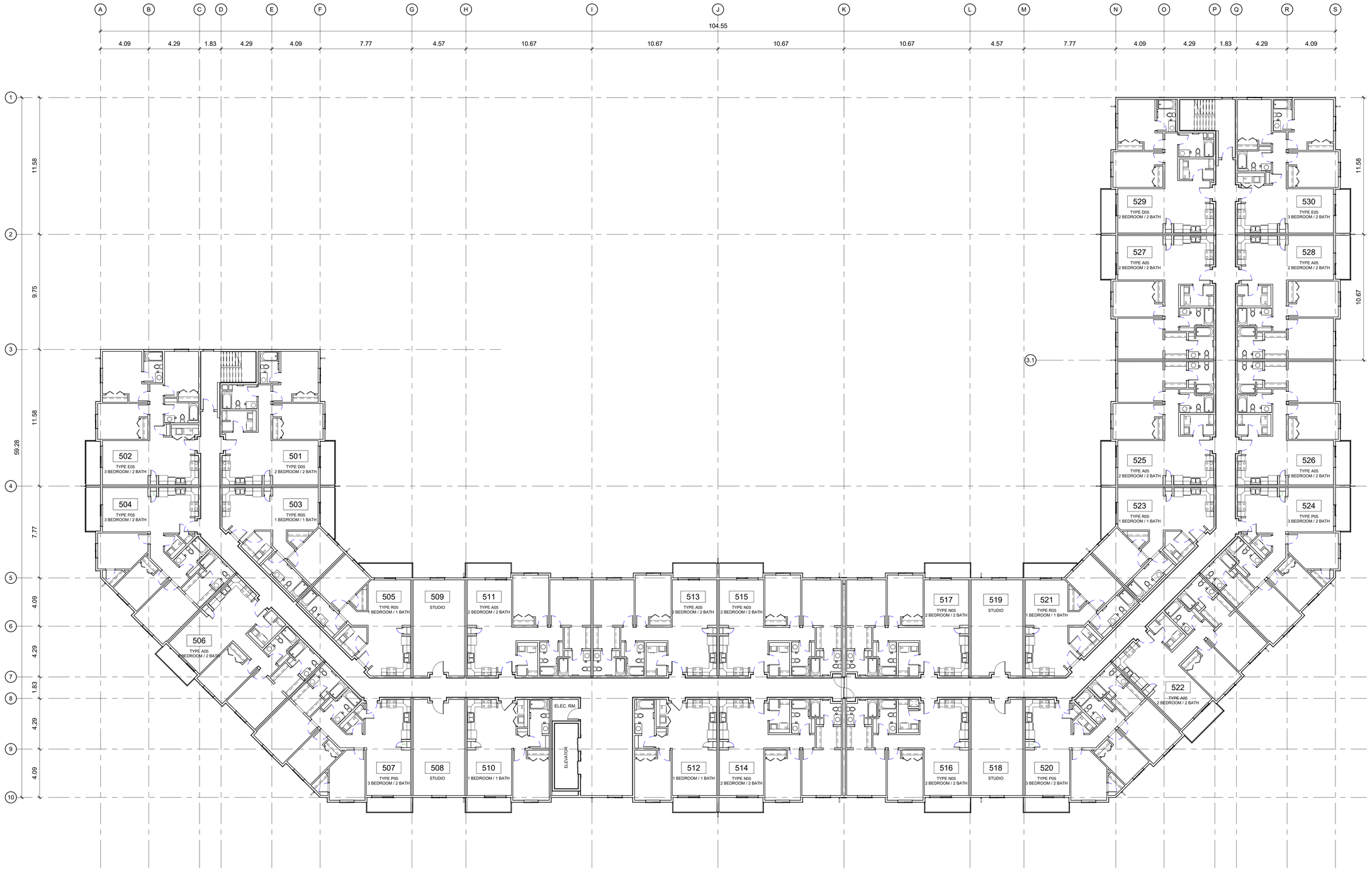
DATE:	OCT 8, 2024
SCALE:	1 : 150
DRAWING #:	A2.04
REV #:	1



1 FIFTH FLOOR PLAN

1 : 150

TOTAL FLOOR AREA = 2774.61 m²

FIREWALL FLOOR AREA BREAKDOWN

LEFT SIDE FLOOR AREA = 1387.58 m²

RIGHT SIDE FLOOR AREA = 1387.03 m²

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PROJECT STATUS:

DEVELOPMENT PERMIT

Revision Schedule

No.	Description	Revision Date
1	ISSUED FOR D.P.	OCT 8, 2024

SEAL:

ABELEARCHITECTURE
THOMAS C. ABELE, ARCHITECT OAA, T: 604.682-6818

PROJECT NAME:
PALLADIUM TERRACE

PROJECT NUMBER:
VP 2402

ADDRESS:
425 CULDAFF RD
OTTAWA, ON

DRAWING TITLE:
FIFTH FLOOR PLAN

DRAWN BY:	EC
CHECKED BY:	CG
DATE:	OCT 8, 2024
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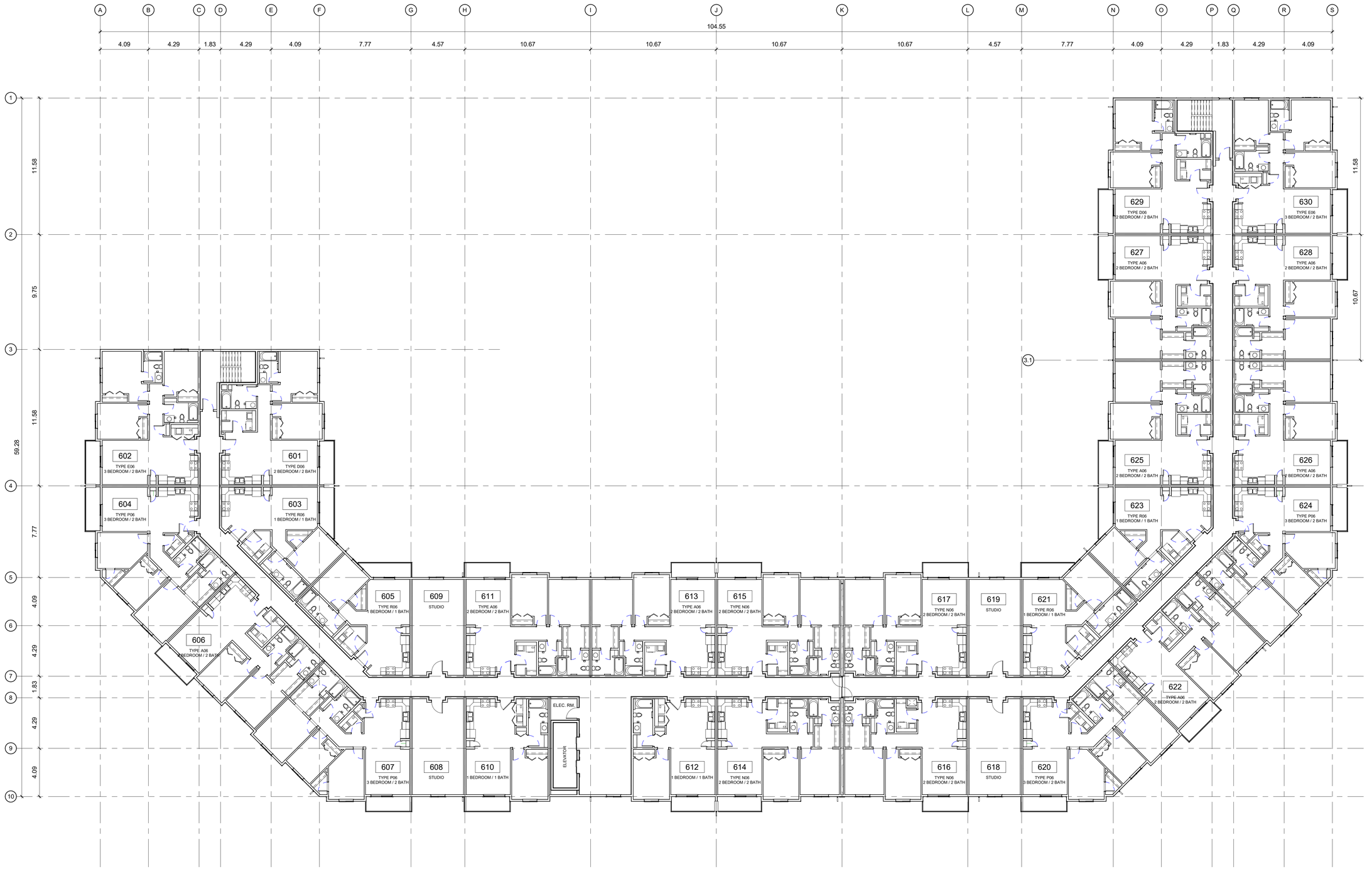
DRAWING #:	A2.05
REV #:	1



1 SIXTH FLOOR PLAN
1 : 150

TOTAL FLOOR AREA = 2774.61 m²

FIREWALL FLOOR AREA BREAKDOWN
LEFT SIDE FLOOR AREA = 1387.58 m²
RIGHT SIDE FLOOR AREA = 1387.03 m²

09/20/2024 1:43:12 PM

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SITE MAP:

PROJECT STATUS:
DEVELOPMENT PERMIT

Revision Schedule

No.	Description	Revision Date
1	ISSUED FOR D.P.	OCT 8, 2024

SEAL: **ABELE**ARCHITECTURE
THOMAS C. ABELE, ARCHITECT OAA, T: 604.682-6818

PROJECT NAME:
PALLADIUM TERRACE

PROJECT NUMBER:
VP 2402

ADDRESS:
425 CULDAFF RD
OTTAWA, ON

DRAWING TITLE:
SIXTH FLOOR PLAN

DRAWN BY:	EC
CHECKED BY:	CG
DATE:	OCT 8, 2024
SCALE:	1 : 150
DRAWING #:	A2.06
REV #:	1

1 EAST
1 : 150

2 NORTH
1 : 150

1	PLANK - CEDARMILL (IRON GREY)	8	EASY TRIM / BUILDING NUMBERING - STANDARD CLEAR ANODIZED
2	PLANK - CEDARMILL (TIMBER BARK)	9	CULTURED STONE - TBC
3	PANEL - SMOOTH (NAVAJO BEIGE)	10	LED WALL SCONCE
4	TRIM - SMOOTH (ARTIC WHITE)	11	WINDOW - SLIDER - WHITE
5	TIMBER - STAIN TBD	12	WINDOW - FIXED - WHITE
6	ALUMINUM RAILING - WELDED SYSTEM - BLACK	13	PATIO DOOR - SLIDER - WHITE
7	3 PANEL CLASSIC SOFFIT - WHITE	14	ENTRY DOOR - SWING - ALUMINUM

09/20/2024 1:43:36 PM

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DEVELOPMENT PERMIT

Revision Schedule

No.	Description	Revision Date
1	ISSUED FOR D.P.	OCT 8, 2024

SEAL: **ABELE**ARCHITECTURE
THOMAS C. ABELE, ARCHITECT OAA, T: 604.682-6818

PROJECT NAME:
PALLADIUM TERRACE

PROJECT NUMBER:
VP 2402

ADDRESS:
425 CULDAFF RD
OTTAWA, ON

DRAWING TITLE:
ELEVATION - COLOUR

DRAWN BY:	EC
CHECKED BY:	CG
DATE:	OCT 8, 2024
SCALE:	As indicated
DRAWING #:	A3.00
REV #:	A

1 WEST
1 : 150

2 SOUTH
1 : 150

1	PLANK - CEDARMILL (IRON GREY)	8	EASY TRIM / BUILDING NUMBERING - STANDARD CLEAR ANODIZED
2	PLANK - CEDARMILL (TIMBER BARK)	9	CULTURED STONE - TBC
3	PANEL - SMOOTH (NAVAJO BEIGE)	10	LED WALL SCONCE
4	TRIM - SMOOTH (ARTIC WHITE)	11	WINDOW - SLIDER - WHITE
5	TIMBER - STAIN TBD	12	WINDOW - FIXED - WHITE
6	ALUMINUM RAILING - WELDED SYSTEM - BLACK	13	PATIO DOOR - SLIDER - WHITE
7	3 PANEL CLASSIC SOFFIT - WHITE	14	ENTRY DOOR - SWING - ALUMINUM

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SITE MAP:

PROJECT STATUS:
DEVELOPMENT PERMIT

Revision Schedule

No.	Description	Revision Date
1	ISSUED FOR D.P.	OCT 8, 2024

SEAL: **ABELE**ARCHITECTURE
THOMAS C. ABELE, ARCHITECT OAA, T: 604.682-6818

PROJECT NAME:
PALLADIUM TERRACE

PROJECT NUMBER:
VP 2402

ADDRESS:
425 CULDAFF RD
OTTAWA, ON

DRAWING TITLE:
ELEVATION - COLOUR

DRAWN BY:	Author
CHECKED BY:	CG
DATE:	OCT 8, 2024
SCALE:	As indicated
DRAWING #:	A3.01
REV #:	1

09/20/2024 1:44:56 PM

APPENDIX B

Sound Level Calculations

STAMSON 5.0 SUMMARY REPORT Date: 12-08-2024 14:24:18
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola1.te Time Period: Day/Night 16/8 hours
Description: Outdoor Amenity

Road data, segment # 1: Derreen Ave. (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
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: Derreen Ave. (day/night)

Angle1 Angle2 : -90.00 deg 19.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 117.00 / 117.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -6.00 deg Angle2 : 19.00 deg
Barrier height : 19.43 m
Barrier receiver distance : 80.70 / 80.70 m
Source elevation : 108.40 m
Receiver elevation : 109.50 m
Barrier elevation : 109.00 m
Reference angle : 0.00

↟
Road data, segment # 2: Derreen Ave. (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 1 %

```
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    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 # 2: Derreen Ave. (day/night)
-----------------------------------------------
Angle1   Angle2           :  19.00 deg   32.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 117.00 / 117.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  19.00 deg   Angle2 : 32.00 deg
Barrier height            :  19.30 m
Barrier receiver distance :  90.00 / 90.00  m
Source elevation          : 108.40 m
Receiver elevation        : 109.05 m
Barrier elevation         : 109.00 m
Reference angle           :   0.00

♠
Road data, segment # 3: Derreen Ave. (day/night)
-----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    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 # 3: Derreen Ave. (day/night)
-----------------------------------------------
Angle1   Angle2           :  32.00 deg   74.00 deg
```

```
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 117.00 / 117.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  32.00 deg   Angle2 : 74.00 deg
Barrier height            :  19.43 m
Barrier receiver distance :  46.00 / 46.00  m
Source elevation          : 108.40 m
Receiver elevation        : 109.05 m
Barrier elevation         : 109.00 m
Reference angle           :   0.00
```



```
Road data, segment # 4: Derreen Ave. (day/night)
-----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    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 # 4: Derreen Ave. (day/night)
----------------------------------------------
Angle1   Angle2           :  74.00 deg   77.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 117.00 / 117.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  74.00 deg   Angle2 : 77.00 deg
Barrier height            :  19.43 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          : 108.40 m
Receiver elevation        : 109.05 m
Barrier elevation         : 109.00 m
Reference angle           :   0.00
```

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Derreen Ave.	1.50	46.12	46.12
2.Derreen Ave.	1.50	25.42	25.42
3.Derreen Ave.	1.50	30.52	30.52
4.Derreen Ave.	1.50	19.05	19.05
Total			46.28 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Derreen Ave.	1.50	38.53	38.53
2.Derreen Ave.	1.50	17.82	17.82
3.Derreen Ave.	1.50	22.92	22.92
4.Derreen Ave.	1.50	11.45	11.45
Total			38.69 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 46.28
(NIGHT): 38.69

STAMSON 5.0 SUMMARY REPORT Date: 09-08-2024 10:32:31
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow1.te Time Period: Day/Night 16/8 hours
Description: POW1 - First Floor

Road data, segment # 1: Derreen Ave. (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
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: Derreen Ave. (day/night)

Angle1 Angle2 : -90.00 deg 88.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 18.00 / 18.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary (day)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Derreen Ave.	1.50	62.97	62.97
Total			62.97 dBA

Result summary (night)

---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Derreen Ave.	1.50	55.38	55.38
Total			55.38 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.97
(NIGHT): 55.38

STAMSON 5.0 SUMMARY REPORT Date: 09-08-2024 13:19:00
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: POW16.te Time Period: Day/Night 16/8 hours
Description: POW16 - Sixth Floor

Road data, segment # 1: Derreen Ave. (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
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: Derreen Ave. (day/night)

Angle1 Angle2 : -90.00 deg 88.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 18.00 / 18.00 m
Receiver height : 15.24 / 15.24 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Result summary (day)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Derreen Ave.	1.50	64.09	64.09
Total			64.09 dBA

Result summary (night)

---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Derreen Ave.	1.50	56.50	56.50
Total			56.50 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.09
(NIGHT): 56.50

STAMSON 5.0 SUMMARY REPORT Date: 15-08-2024 14:40:25
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow2.te Time Period: Day/Night 16/8 hours
Description: POW2 - First Floor

Road data, segment # 1: Derreen Ave. (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
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: Derreen Ave. (day/night)

Angle1 Angle2 : -47.00 deg 85.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 32.00 / 32.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 69.00 deg Angle2 : 85.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 108.40 m
Receiver elevation : 109.00 m
Barrier elevation : 109.00 m
Reference angle : 0.00

Result summary (day)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)

1.Derreen Ave.	1.50	57.81	57.81
	Total		57.81 dBA

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Derreen Ave.	1.50	50.22	50.22
	Total		50.22 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 57.81
(NIGHT): 50.22

STAMSON 5.0 SUMMARY REPORT Date: 15-08-2024 14:46:05
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow26.te Time Period: Day/Night 16/8 hours
Description: POW2 - Sixth Floor

Road data, segment # 1: Derreen Ave. (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
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: Derreen Ave. (day/night)

Angle1 Angle2 : -47.00 deg 85.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 32.00 / 32.00 m
Receiver height : 15.24 / 15.24 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 69.00 deg Angle2 : 85.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 108.40 m
Receiver elevation : 109.00 m
Barrier elevation : 109.00 m
Reference angle : 0.00

Result summary (day)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)

1.Derreen Ave.	1.50	59.91	59.91 *
	Total		59.91 dBA

* Bright Zone !

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Derreen Ave.	1.50	52.32	52.32 *
	Total		52.32 dBA

* Bright Zone !

TOTAL Leq FROM ALL SOURCES (DAY): 59.91
(NIGHT): 52.32

STAMSON 5.0 SUMMARY REPORT Date: 15-08-2024 14:56:24
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: pow36.te Time Period: Day/Night 16/8 hours
Description: POW3 - Sixth Floor

Road data, segment # 1: Derreen Ave. (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
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: Derreen Ave. (day/night)

Angle1 Angle2 : 0.00 deg 83.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 47.00 / 47.00 m
Receiver height : 15.24 / 15.24 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 52.00 deg Angle2 : 83.00 deg
Barrier height : 6.00 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 108.40 m
Receiver elevation : 109.00 m
Barrier elevation : 109.00 m
Reference angle : 0.00

Result summary (day)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)

1.Derreen Ave.	1.50	54.81	54.81 *
	Total		54.81 dBA

* Bright Zone !

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Derreen Ave.	1.50	48.11	48.11 *
	Total		48.11 dBA

* Bright Zone !

TOTAL Leq FROM ALL SOURCES (DAY): 54.81
(NIGHT): 48.11

Palladium Drive (A)

ROBERT GRANT AVENUE (A)

DERREEN AVENUE(C)

CULDAFF ROAD(L)

CULDAFF ROAD(L)

DERREEN AVENUE(C)

OLA1

-90 Derreen

117 m

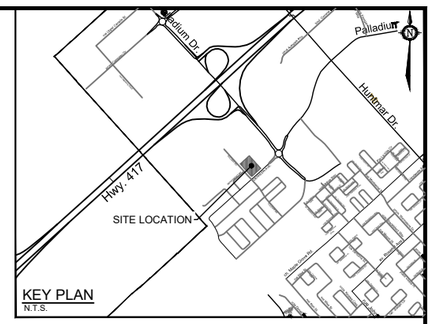
-6 Derreen

19 Derreen

32 Derreen

74 Derreen

77 Derreen



KEY PLAN
N.T.S.

LEGEND

OLA

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

CITY OF OTTAWA
425 CULDAFF ROAD

OLA1 ANGLES AND DISTANCES

SCALE 1 : 1500 (0, 15, 30, 45, 60)

DATE AUG 2024 | JOB 123194 | FIGURE FIG - OLA1

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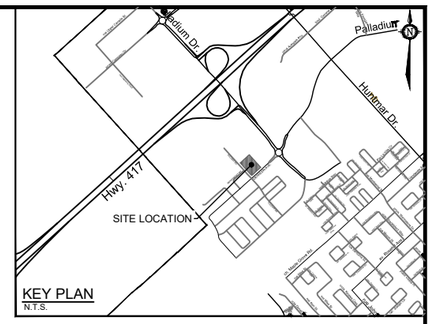
SHT11X17.DWG - 279mmX432mm

Palladium Drive (A)

ROBERT GRANT AVENUE (A)



LEGEND

POW

-90 Derreen

DERREEN AVENUE(C)

18 m

POW1-6

POW1

CULDAFF ROAD(L)

CULDAFF ROAD(L)

88 Derreen

DERREEN AVENUE(C)

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

CITY OF OTTAWA
425 CULDAFF ROAD

POW1 ANGLES AND DISTANCES

SCALE 1 : 1500 (0, 15, 30, 45, 60)

DATE AUG 2024 | JOB 123194 | FIGURE FIG - POW1

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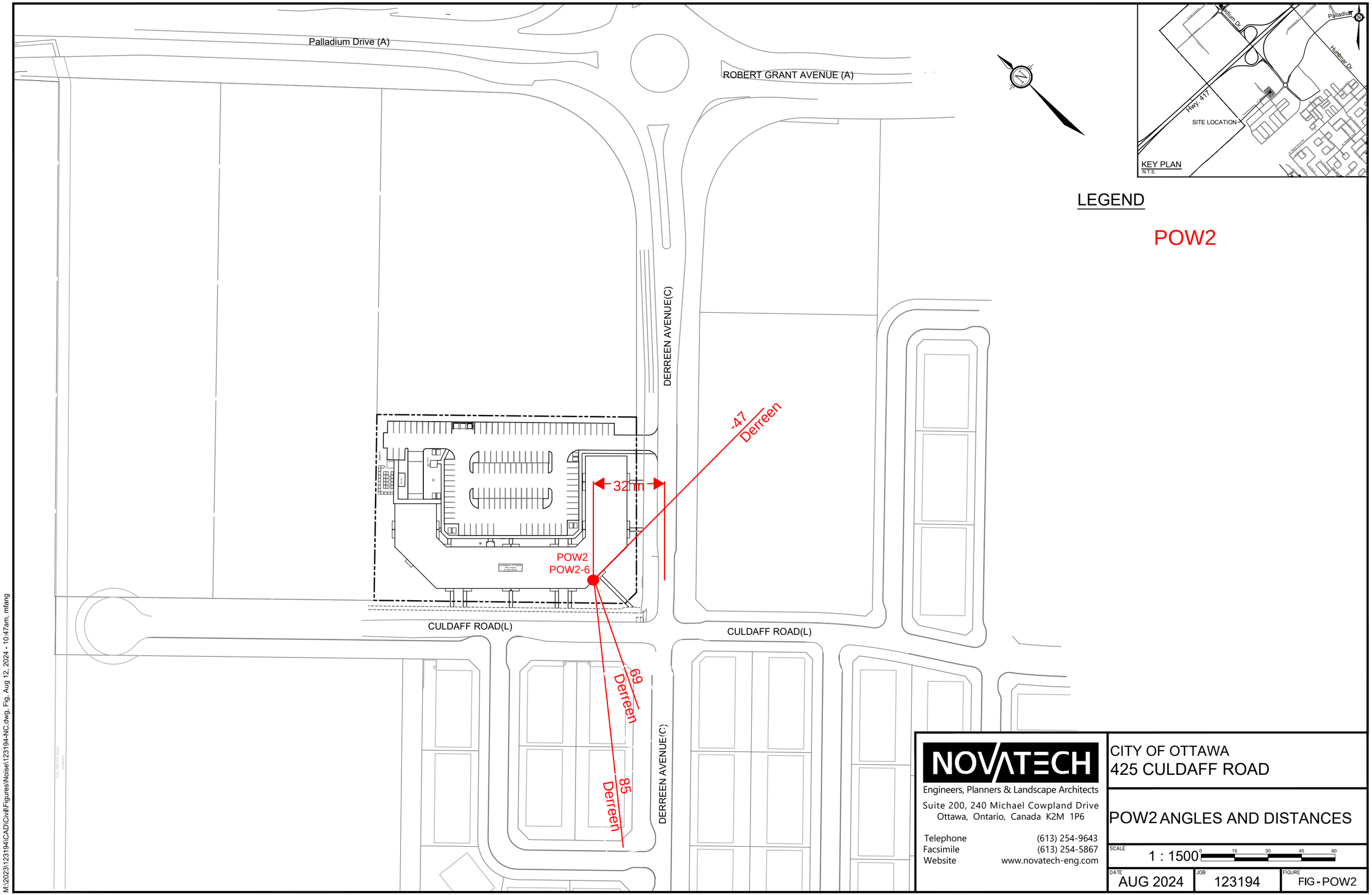
SHT11X17.DWG - 279mmX432mm



NOVATECH
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Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

CITY OF OTTAWA
425 CULDAFF ROAD

POW2 ANGLES AND DISTANCES

SCALE 1 : 1500 (0, 15, 30, 45, 60)
DATE AUG 2024
JOB 123194
FIGURE FIG - POW2

SHT11X17.DWG - 279mmX432mm

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Palladium Drive (A)

ROBERT GRANT AVENUE (A)

DERREEN AVENUE(C)

CULDAFF ROAD(L)

CULDAFF ROAD(L)

DERREEN AVENUE(C)

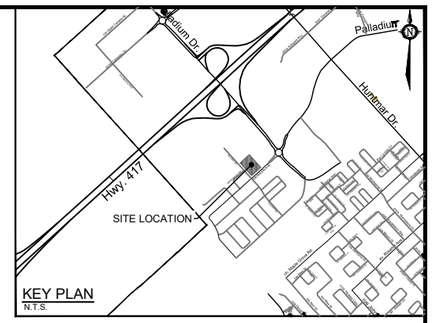
47 m

POW3

0
Derreen

52
Derreen

83
Derreen



KEY PLAN
N.T.S.

LEGEND

POW3

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
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Facsimile (613) 254-5867
Website www.novatech-eng.com

CITY OF OTTAWA
425 CULDAFF ROAD

POW3 ANGLES AND DISTANCES

SCALE 1 : 1500 (0, 15, 30, 45, 60)

DATE AUG 2024 | JOB 123194 | FIGURE FIG - POW3

SHT11X17.DWG - 279mmX432mm

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