vallee

Consulting Engineers,
Architects & Planners

Norfolk County
Planning Department
Robinson Administration Building
185 Robinson Street – Suite 200
Simcoe, Ontario N3Y 5L6

Attention: Mohammad Alam MPL, MUD, RPP, MCIP

Reference: Official Plan and Zoning Bylaw Amendment
G. Douglas Vallee Limited on behalf of Pramukh Development Ltd.
Northeast Corner of Lam Boulevard and Old Highway 24, Waterford
Roll# 33605062848

Dear Mohammad,

Enclosed please find the necessary documents to complete an Official Plan and Zoning By-law amendment for the subject property, including:

- Signed Norfolk County Development Application, dated January 28, 2022;
- Cheque payable to Norfolk County in the amount of $9,020;
- Planning Justification Report, G. Douglas Vallee Limited, dated January 28, 2022;
    - Appendix A – Proposed Site Plan;
        - Annex A1 – Dwelling Unit Floor Plan;
        - Annex A2 – Schematic Elevations;
        - Annex A3 – Elevation Cross Section;
    - Appendix B – Provincial Policy Compliance Chart;
    - Appendix C – Official Plan Compliance Chart.
- Traffic Impact Brief, Paradigm Transportation Solutions, dated January 2022;
- D-6 Compatibility, Dust and Noise Assessment Study, CCS Engineering Inc., dated January 2022; and
- Functional Servicing Report, G. Douglas Vallee Limited, dated January 2022.

If you require any further information, please do not hesitate to contact me at 519-426-6270.

Regards,

Scott Puillandre, CD, MSc
Planner
G. DOUGLAS VALLEE LIMITED
Consulting Engineers, Architects & Planners

Planning Department Development Application Form

Complete Application

A complete development application consists of the following:

1. A properly completed and signed application form (signature must be original in planners file);
2. Supporting information adequate to illustrate your proposal as indicated in **Section H** of this application form (plans are required in paper copy and digital PDF format);
3. Written authorization from the registered owner of the subject lands where the applicant is not the owner as per Section N; and,
4. Cash, debit or cheque payable to Norfolk County in the amount set out in the user fees By-Law.

The above information is required to ensure that your application is given full consideration. An incomplete or improperly prepared application will not be accepted and may result in delays during the processing of the application. This application must be typed or printed in ink and completed in full.

Pre-Submission Consultation "Pre-consultation":

A pre-consultation meeting with staff is required for all applications; however, minor applications may be exempted depending on the nature of the proposal, with approval from the Director of Planning or delegate. The purpose of a pre-consultation meeting is to provide the applicant with an opportunity to present the proposed application, discuss potential issues, and for the County and Agency staff to identify the required information and materials to be submitted with the application in order for it to be considered complete. The applicant has the opportunity to make revisions to the application prior to submission, without the additional costs of recirculation fees. It may be necessary to seek the assistance of independent professional help (for example, a planning consultant or engineer) for complex applications. If a pre-consultation meeting has been held to discuss your development, please **include a copy of the Pre-consultation minutes with your application** as part of the submission package. It should be noted **that pre-consultation minutes are valid for one year after the meeting date**.

Development Application Process

Once an application has been deemed complete by a planner, it will be circulated to public agencies and County departments for review and comments. Notice of the application is also provided to adjacent land owners. The comments received assist the planner with the review and recommendation/approval of your application. The time involved in processing an application varies depending upon its complexity and its

acceptability to the other agencies and is subject to statutory *Planning Act* decision timeframes.

An additional fee will be required if a review by the Long Point Region Conservation Authority or by the Grand River Conservation Authority is deemed necessary by planning staff and/or by the Authority. A separate cheque payable to the Long Point Region Conservation Authority or the Grand River Conservation Authority is required in accordance with their fee schedule at the same time your application is submitted.

Additional studies required as part of the complete application shall be at the sole expense of the applicant. It should also be noted that in some instances peer reviews may be necessary to review particular studies and that the cost shall be at the expense of the applicant. The company to complete the peer review shall be selected by the County.

If the application is withdrawn prior to the circulation to commenting agencies, the entire original fee will be refunded. If withdrawn after the circulation to agencies, half the original fee will be refunded. If your drawings are required to be recirculated there will be an additional fee. Also, please note that if your engineering drawings require more than three reviews due to revisions by the owner or failure to revise your engineering drawings as requested, an additional fee will be charged. No refund is available after the public meeting and/or after approval of application.

Notification Sign Requirements

For the purpose of public notification and in order for staff to locate your lands for appropriate applications (zoning, subdivision, condominium or official plan) you will be given a sign to indicate the intent and purpose of your development application. It is your responsibility to:

1. Post one sign per frontage in a conspicuous location on the subject lands;
2. Ensure one sign is posted at the front of the subject lands at least three feet above ground level, not on a tree;
3. Notify the Planner when the sign is in place in order to avoid processing delays; and
4. Maintain the sign until the development application is finalized and thereafter removed.

Contact Us

For additional information or assistance in completing this application, please contact a planner at 519-426-5870 or 519-875-4485 extension 1842 or planning@norfolkcounty.ca. Please submit the completed application and fees to the attention of the Planning Department at 185 Robinson Street, Suite 200, Simcoe, ON N3Y 5L6.

For Office Use Only:

File Number	_____	Public Notice Sign	_____
Related File Number	_____	Application Fee	_____
Pre-consultation Meeting	_____	Conservation Authority Fee	_____
Application Submitted	_____	Well & Septic Info Provided	_____
Complete Application	_____	Planner	_____

Check the type of planning application(s) you are submitting.

- ☒ Official Plan Amendment
- ☒ Zoning By-Law Amendment
- ☐ Temporary Use By-law
- ☐ Draft Plan of Subdivision/Vacant Land Condominium
- ☐ Condominium Exemption
- ☐ Site Plan Application
- ☐ Extension of a Temporary Use By-law
- ☐ Part Lot Control
- ☐ Cash-in-Lieu of Parking
- ☐ Renewable Energy Project or Radio Communication Tower

Please summarize the desired end result of this application (for example: a special zoning provision on the subject lands to include additional use(s), changing the zone and/or official plan designation of the subject lands, creating a certain number of lots, or similar)

_____
_____
_____
_____
_____
_____
_____

Property Assessment Roll Number: _____

A. Applicant Information

Name of Owner _____

It is the responsibility of the owner or applicant to notify the planner of any changes in ownership within 30 days of such a change.

Address _____

Town and Postal Code _____

Phone Number _____

Cell Number _____

Email _____

Name of Applicant _____

Address _____

Town and Postal Code _____

Phone Number _____

Cell Number _____

Email _____

Name of Agent _____

Address _____

Town and Postal Code _____

Phone Number _____

Cell Number _____

Email _____

Please specify to whom all communications should be sent. Unless otherwise directed, all correspondence and notices in respect of this application will be forwarded to both owner and agent noted above.

☐ Owner ☐ Agent ☐ Applicant

Names and addresses of any holder of any mortgagees, charges or other encumbrances on the subject lands:

_____

_____

B. Location, Legal Description and Property Information

1. Legal Description (include Geographic Township, Concession Number, Lot Number, Block Number and Urban Area or Hamlet):

   _____

   _____

   Municipal Civic Address: _____

   Present Official Plan Designation(s): _____

   Present Zoning: _____

2. Is there a special provision or site specific zone on the subject lands?

   ☐ Yes ☐ No If yes, please specify corresponding number:

   _____

3. Present use of the subject lands:

   _____

   _____

4. Please describe **all existing** buildings or structures on the subject lands and whether they are to be retained, demolished or removed. If retaining the buildings or structures, please describe the type of buildings or structures, and illustrate the setback, in metric units, from front, rear and side lot lines, ground floor area, gross floor area, lot coverage, number of storeys, width, length, and height on your attached sketch which must be included with your application:

   _____

   _____

   _____

5. If an addition to an existing building is being proposed, please explain what it will be used for (for example: bedroom, kitchen, or bathroom). If new fixtures are proposed, please describe.

   _____

   _____

   _____

6. Please describe **all proposed** buildings or structures/additions on the subject lands. Describe the type of buildings or structures/additions, and illustrate the setback, in metric units, from front, rear and side lot lines, ground floor area, gross floor area, lot coverage, number of storeys, width, length, and height on your attached sketch which must be included with your application:

   _____

   _____

   _____

7. Are any existing buildings on the subject lands designated under the *Ontario Heritage Act* as being architecturally and/or historically significant? Yes ☐ No ☐

   If yes, identify and provide details of the building:

   _____

   _____

8. If known, the length of time the existing uses have continued on the subject lands:

   _____

9. Existing use of abutting properties:

   _____

10. Are there any easements or restrictive covenants affecting the subject lands?

    ☐ Yes ☐ No If yes, describe the easement or restrictive covenant and its effect:

    _____

C. Purpose of Development Application

Note: Please complete all that apply.

1. Please explain what you propose to do on the subject lands/premises which makes this development application necessary:

   _____

   _____

   _____

   _____

2. Please explain why it is not possible to comply with the provision(s) of the Zoning By-law/and or Official Plan:

   _____

   _____

   _____

3. Does the requested amendment alter all or any part of the boundary of an area of settlement in the municipality or implement a new area of settlement in the municipality? ☐ Yes ☐ No If yes, describe its effect:

   _____

   _____

   _____

4. Does the requested amendment remove the subject land from an area of employment? ☐ Yes ☐ No If yes, describe its effect:

   _____

   _____

   _____

5. Does the requested amendment alter, replace, or delete a policy of the Official Plan? ☐ Yes ☐ No If yes, identify the policy, and also include a proposed text of the policy amendment (if additional space is required, please attach a separate sheet):

   _____

   _____

   _____

6. Description of land intended to be severed in metric units:
   Frontage: _____
   Depth: _____
   Width: _____
   Lot Area: _____
   Present Use: _____
   Proposed Use: _____
   Proposed final lot size (if boundary adjustment): _____
   If a boundary adjustment, identify the assessment roll number and property owner of the lands to which the parcel will be added: _____

   _____

   Description of land intended to be retained in metric units:
   Frontage: _____
   Depth: _____
   Width: _____
   Lot Area: _____
   Present Use: _____
   Proposed Use: _____
   Buildings on retained land: _____
7. Description of proposed right-of-way/easement:
   Frontage: _____
   Depth: _____
   Width: _____
   Area: _____
   Proposed use: _____
8. Name of person(s), if known, to whom lands or interest in lands to be transferred, leased or charged (if known):

   _____

9. **Site Information**	**Zoning**	**Proposed**
Please indicate unit of measurement, for example: m, m^2 or %		
Lot frontage	_____	_____
Lot depth	_____	_____
Lot width	_____	_____
Lot area	_____	_____
Lot coverage	_____	_____
Front yard	_____	_____
Rear yard	_____	_____
Left Interior side yard	_____	_____
Right Interior side yard	_____	_____
Exterior side yard (corner lot)	_____	_____
Landscaped open space	_____	_____
Entrance access width	_____	_____
Exit access width	_____	_____
Size of fencing or screening	_____	_____
Type of fencing	_____	_____

10. Building Size

Number of storeys	_____	_____
Building height	_____	_____
Total ground floor area	_____	_____
Total gross floor area	_____	_____
Total useable floor area	_____	_____

11. Off Street Parking and Loading Facilities

Number of off street parking spaces	_____	_____
Number of visitor parking spaces	_____	_____
Number of accessible parking spaces	_____	_____
Number of off street loading facilities	_____	_____

12. Residential (if applicable)

Number of buildings existing: _____

Number of buildings proposed: _____

Is this a conversion or addition to an existing building? ☐ Yes ☐ No

If yes, describe: _____

Type	**Number of Units**	**Floor Area per Unit in m2**
Single Detached	_____	_____
Semi-Detached	_____	_____
Duplex	_____	_____
Triplex	_____	_____
Four-plex	_____	_____
Street Townhouse	_____	_____
Stacked Townhouse	_____	_____
Apartment - Bachelor	_____	_____
Apartment - One bedroom	_____	_____
Apartment - Two bedroom	_____	_____
Apartment - Three bedroom	_____	_____

Other facilities provided (for example: play facilities, underground parking, games room, or swimming pool):

13. Commercial/Industrial Uses (if applicable)

Number of buildings existing: _____

Number of buildings proposed: _____

Is this a conversion or addition to an existing building? ☐ Yes ☐ No

If yes, describe:

_____

Indicate the gross floor area by the type of use (for example: office, retail, or storage):

_____

_____

_____

Seating Capacity (for assembly halls or similar): _____

Total number of fixed seats: _____

Describe the type of business(es) proposed: _____

Total number of staff proposed initially: _____

Total number of staff proposed in five years: _____

Maximum number of staff on the largest shift: _____

Is open storage required: ☐ Yes ☐ No

Is a residential use proposed as part of, or accessory to commercial/industrial use?

☐ Yes ☐ No If yes please describe:

_____

_____

14. Institutional (if applicable)

Describe the type of use proposed: _____

Seating capacity (if applicable): _____

Number of beds (if applicable): _____

Total number of staff proposed initially: _____

Total number of staff proposed in five years: _____

Maximum number of staff on the largest shift: _____

Indicate the gross floor area by the type of use (for example: office, retail, or storage):

_____

_____

_____

15. Describe Recreational or Other Use(s) (if applicable)

_____

_____

_____

_____

_____

D. Previous Use of the Property

1. Has there been an industrial or commercial use on the subject lands or adjacent lands? ☐ Yes ☐ No ☐ Unknown
   If yes, specify the uses (for example: gas station or petroleum storage):

   _____

   _____
2. Is there reason to believe the subject lands may have been contaminated by former uses on the site or adjacent sites?☐ Yes ☐ No ☐ Unknown
3. Provide the information you used to determine the answers to the above questions:

   _____

   _____

   _____
4. If you answered yes to any of the above questions in Section D, a previous use inventory showing all known former uses of the subject lands, or if appropriate, the adjacent lands, is needed. Is the previous use inventory attached? ☐ Yes ☐ No

E. Provincial Policy

1. Is the requested amendment consistent with the provincial policy statements issued under subsection 3(1) of the *Planning Act, R.S.O. 1990, c. P. 13*? ☐ Yes ☐ No

   If no, please explain:

   _____

   _____

   _____
2. It is owner's responsibility to be aware of and comply with all relevant federal or provincial legislation, municipal by-laws or other agency approvals, including the Endangered Species Act, 2007. Have the subject lands been screened to ensure that development or site alteration will not have any impact on the habitat for endangered or threatened species further to the provincial policy statement subsection 2.1.7? ☐ Yes ☐ No

   If no, please explain:

   _____

   _____

   _____

3. Have the subject lands been screened to ensure that development or site alteration will not have any impact on source water protection? ☐ Yes ☐ No

   If no, please explain:

   _____

   _____

   Note: If in an area of source water Wellhead Protection Area (WHPA) A, B or C please attach relevant information and approved mitigation measures from the Risk Manager Official.

4. Are any of the following uses or features on the subject lands or within 500 metres of the subject lands, unless otherwise specified? Please check boxes, if applicable.

   Livestock facility or stockyard (submit MDS Calculation with application)

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Wooded area

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Municipal Landfill

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Sewage treatment plant or waste stabilization plant

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Provincially significant wetland (class 1, 2 or 3) or other environmental feature

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Floodplain

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Rehabilitated mine site

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Non-operating mine site within one kilometre

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Active mine site within one kilometre

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Industrial or commercial use (specify the use(s))

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Active railway line

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Seasonal wetness of lands

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Erosion

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Abandoned gas wells

   ☐ On the subject lands or ☐ within 500 meters – distance _____

F. Servicing and Access

1. Indicate what services are available or proposed:
   Water Supply
   - ☐ Municipal piped water
   - ☐ Communal wells
   - ☐ Individual wells
   - ☐ Other (describe below)

   _____

   Sewage Treatment
   - ☐ Municipal sewers
   - ☐ Communal system
   - ☐ Septic tank and tile bed in good working order
   - ☐ Other (describe below)

   _____

   Storm Drainage
   - ☐ Storm sewers
   - ☐ Open ditches
   - ☐ Other (describe below)

   _____

2. Existing or proposed access to subject lands:
   - ☐ Municipal road
   - ☐ Provincial highway
   - ☐ Unopened road
   - ☐ Other (describe below)

   Name of road/street: _____

G. Other Information

1. Does the application involve a local business? ☐ Yes ☐ No
   If yes, how many people are employed on the subject lands?
   _____
2. Is there any other information that you think may be useful in the review of this application? If so, explain below or attach on a separate page.
   _____
   _____
   _____
   _____

H. Supporting Material to be submitted by Applicant

In order for your application to be considered complete, **folded** hard copies (number of paper copies as directed by the planner) and an **electronic version (PDF) of the properly named site plan drawings, additional plans, studies and reports** will be required, including but not limited to the following details:

1. Concept/Layout Plan
2. All measurements in metric
3. Key map
4. Scale, legend and north arrow
5. Legal description and municipal address
6. Development name
7. Drawing title, number, original date and revision dates
8. Owner's name, address and telephone number
9. Engineer's name, address and telephone number
10. Professional engineer's stamp
11. Existing and proposed easements and right of ways
12. Zoning compliance table – required versus proposed
13. Parking space totals – required and proposed
14. All entrances to parking areas marked with directional arrows
15. Loading spaces, facilities and routes (for commercial developments)
16. All dimensions of the subject lands
17. Dimensions and setbacks of all buildings and structures
18. Location and setbacks of septic system and well from all existing and proposed lot lines, and all existing and proposed structures
19. Gross, ground and useable floor area
20. Lot coverage
21. Floor area ratio
22. Building entrances, building type, height, grades and extent of overhangs
23. Names, dimensions and location of adjacent streets including daylighting triangles
24. Driveways, curbs, drop curbs, pavement markings, widths, radii and traffic directional signs
25. All exterior stairways and ramps with dimensions and setbacks
26. Retaining walls including materials proposed
27. Fire access and routes
28. Location, dimensions and number of parking spaces (including visitor and accessible) and drive aisles
29. Location of mechanical room, and other building services (e.g. A/C, HRV)
30. Refuse disposal and storage areas including any related screening (if indoors, need notation on site plan)
31. Winter snow storage location

32. Landscape areas with dimensions
33. Natural features, watercourses and trees
34. Fire hydrants and utilities location
35. Fencing, screening and buffering – size, type and location
36. All hard surface materials
37. Light standards and wall mounted lights (plus a note on the site plan that all outdoor lighting is to be dark sky compliant)
38. Business signs (make sure they are not in sight lines)
39. Sidewalks and walkways with dimensions
40. Pedestrian access routes into site and around site
41. Bicycle parking
42. Architectural elevations of all building sides
43. All other requirements as per the pre-consultation meeting

In addition, the following additional plans, studies and reports, including but not limited to, **may** also be required as part of the complete application submission:

☐ Zoning Deficiency Form

☐ On-Site Sewage Disposal System Evaluation Form (to verify location and condition)

☐ Architectural Plan

☐ Buildings Elevation Plan

☐ Cut and Fill Plan

☐ Erosion and Sediment Control Plan

☐ Grading and Drainage Control Plan (around perimeter and within site) (existing and proposed)

☐ Landscape Plan

☐ Photometric (Lighting) Plan

☐ Plan and Profile Drawings

☐ Site Servicing Plan

☐ Storm water Management Plan

☐ Street Sign and Traffic Plan

☐ Street Tree Planting Plan

☐ Tree Preservation Plan

☐ Archaeological Assessment

☐ Environmental Impact Study

☐ Functional Servicing Report

☐ Geotechnical Study / Hydrogeological Review

☐ Minimum Distance Separation Schedule

☐ Noise or Vibration Study

☐ Record of Site Condition

☐ Storm water Management Report

☐ Traffic Impact Study – please contact the Planner to verify the scope required

Site Plan applications will require the following supporting materials:

1. Two (2) complete sets of the site plan drawings folded to 8½ x 11 and an electronic version in PDF format
2. Letter requesting that the Holding be removed (if applicable)
3. A cost estimate prepared by the applicant's engineer
4. An estimate for Parkland dedication by a certified land appraiser
5. Property Identification Number (PIN) printout

Standard condominium exemptions will require the following supporting materials:

☐ Plan of standard condominium (2 paper copies and 1 electronic copy)

☐ Draft condominium declaration

☐ Property Identification Number (PIN) printout

Your development approval might also be dependent on Ministry of Environment and Climate Change, Ministry of Transportation or other relevant federal or provincial legislation, municipal by-laws or other agency approvals.

All final plans must include the owner's signature as well as the engineer's signature and seal.

I. Development Agreements

A development agreement may be required prior to approval for site plan, subdivision and condominium applications. Should this be necessary for your development, you will be contacted by the agreement administrator with further details of the requirements including but not limited to insurance coverage, professional liability for your engineer, additional fees and securities.

J. Transfers, Easements and Postponement of Interest

The owner acknowledges and agrees that if required it is their solicitor's responsibility on behalf of the owner for the registration of all transfer(s) of land to the County, and/or transfer(s) of easement in favour of the County and/or utilities. Also, the owner further acknowledges and agrees that it is their solicitor's responsibility on behalf of the owner for the registration of postponements of any charges in favour of the County.

K. Permission to Enter Subject Lands

Permission is hereby granted to Norfolk County officers, employees or agents, to enter the premises subject to this application for the purposes of making inspections associated with this application, during normal and reasonable working hours.

L. Freedom of Information

For the purposes of the *Municipal Freedom of Information and Protection of Privacy Act*, I authorize and consent to the use by or the disclosure to any person or public body any information that is collected under the authority of the *Planning Act, R.S.O. 1990, c. P. 13* for the purposes of processing this application.

Jan 28, 2022

Owner/Applicant Signature — Date

M. Owner's Authorization

If the applicant/agent is not the registered owner of the lands that is the subject of this application, the owner(s) must complete the authorization set out below.

I/We Ronak Mehta am/are the registered owner(s) of the lands that is the subject of this application.

I/We authorize G. Douglas Vallee Limited to make this application on my/our behalf and to provide any of my/our personal information necessary for the processing of this application. Moreover, this shall be your good and sufficient authorization for so doing.

Jan 28, 2022

Owner — Date

Owner — Date

N. Declaration

I, Ronak Mehta of Oakville

solemnly declare that:

all of the above statements and the statements contained in all of the exhibits transmitted herewith are true and I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath and by virtue of *The Canada Evidence Act*.

Declared before me at:

THE CITY OF NIAGARA FALLS

In THE REGION OF NIAGARA

This 28TH day of JANUARY.

A.D., 20 22

A Commissioner, etc.

Owner/Applicant Signature

ELDON FRASER DARBYSON, a commissioner, etc.,
Province of Ontario, for G. Douglas Vallee Limited.
Expires March 28, 2022.

1018

PRAMUKH DEVELOPMENTS LTD.

DATE 2022-01-28

PAY TO THE ORDER OF Norfolk County $ 9020.00

Nine thousand & twenty dollars /100 DOLLARS

Security features included. Details on back.

ROYAL BANK OF CANADA
PROGRESS & GRANGEWAY BRANCH
111 GRANGEWAY AVE
SCARBOROUGH, ON M1H 3E9

PRAMUKH DEVELOPMENTS LTD.

FOR Zoning Amendment

MP

⑈1018⑈ ⑆05752⑈003⑆ 100⑈611⑈3⑈

vallee

Consulting Engineers,
Architects & Planners

January 28, 2022

Norfolk County
Robinson Administration Building
185 Robinson Street, Suite 200
Simcoe, ON N3Y 5L6

Attention: Mohammad Alam MPL, MUD, RPP, MCIP

Dear Mohammad,

Reference: Planning Justification Report
Official Plan and Zoning Bylaw Amendment
G. Douglas Vallee Limited on behalf of Pramukh Development Ltd.
Northeast Corner of Lam Boulevard and Old Highway 24, Waterford
Roll# 33605062848

Introduction

G. Douglas Vallee Limited has been retained by Pramukh Developments Ltd. to make application for an Official Plan and Zoning Bylaw Amendment to permit a 40-dwelling unit residential development on a vacant lot at the northeast corner of Lam Boulevard and Old Highway 24 in Waterford.

It is proposed to change the designation of the subject lands from Commercial to Urban Residential and to amend the zoning bylaw to permit the development of three-storey stacked townhouse dwellings. Appendix A provides a detailed site plan for the proposed development, which will provide residents of Norfolk County with much needed housing options.

This Planning Justification report provides planning support and information to Norfolk County Staff and Council to consider when reviewing the Official Plan and Zoning Bylaw amendments for the subject application.

This application:

- Minimizes impacts on surrounding lands;
- Mitigates current and future potential land use conflicts;
- Is consistent with the Provincial Policy Statement 2020;
- Maintains the general intent and purpose of the Norfolk County Official Plan;
- Maintains the general intent and purpose of the Norfolk County Zoning Bylaw; and
- Represents good planning.

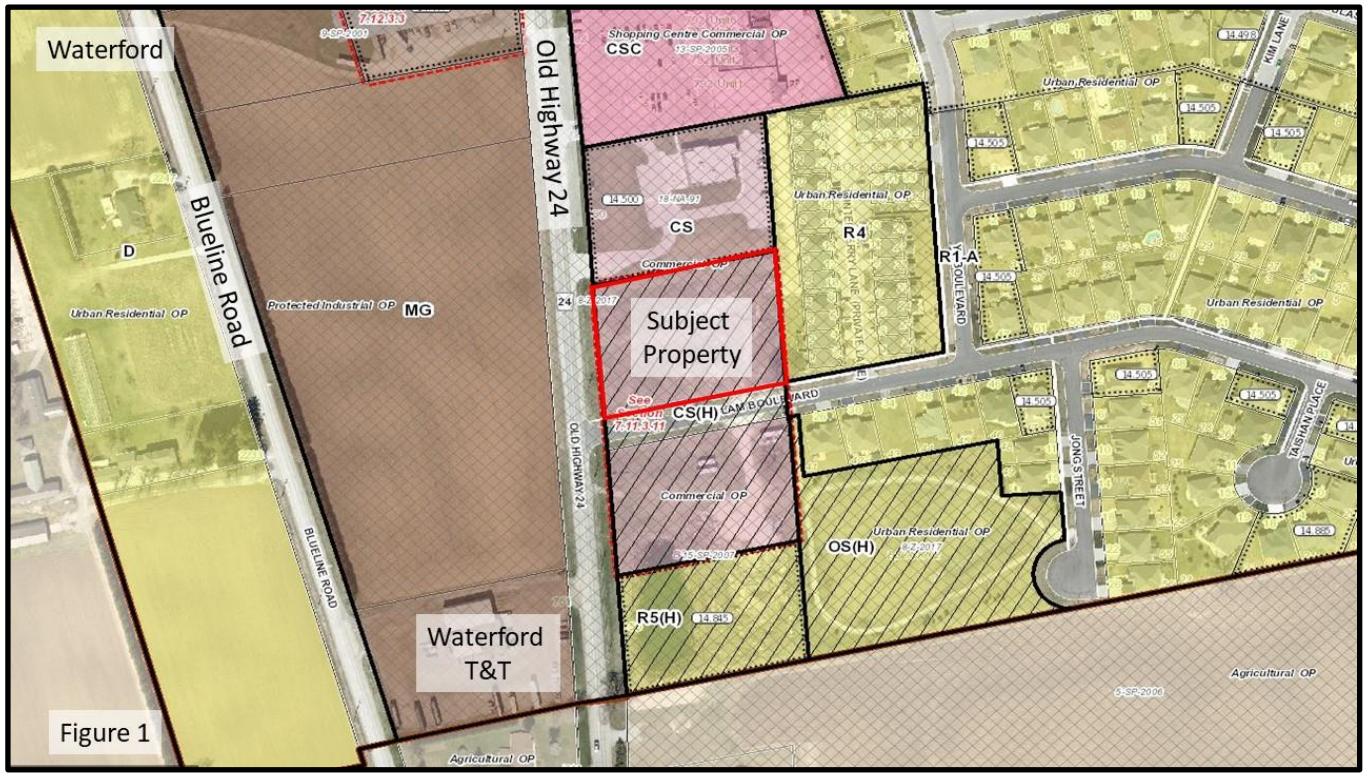
Supporting documents have been provided, including:

- Appendix A – Proposed Site Plan;
  - Annex A1 – Dwelling Unit Floor Plan;
  - Annex A2 – Schematic Elevations;
  - Annex A3 – Elevation Cross Section;
- Appendix B – Provincial Policy Compliance Chart;
- Appendix C – Official Plan Compliance Chart;

Site Description

The subject lands are a vacant parcel of approximately 0.7ha in area located in the community of Waterford at the northeast corner of the intersection of the Lam Boulevard and Old Highway 24. At this time the property does not have a listed civic address according to the Norfolk County GIS. The property has no prominent vegetation or topography.

As shown on Figure 1 below, the property is currently designated Commercial under the Official plan with a site-specific special policy area under Section 7.11.3.11. The property is zoned Service Commercial (CS), with a Holding (H) provision applicable to the entire parcel.



Background

Supporting studies have been prepared and submitted with these applications, including:

- Traffic Impact Study (prepared by Paradigm Transportation Solutions Limited, dated January 2022);
- D-6 Compatibility and Noise Assessment Study (prepared by CCS Engineering Inc. dated January 2022);
- Functional Servicing Report (prepared by G. Douglas Vallee Limited dated January, 2022).

Site Design

Figure 2

As shown in Figure 2 above, the proposed development provides an innovative site design which implements a number of creative features to achieve efficient land use and attractive built form. The three-storey stacked townhouse design eliminates reverse lotting with units facing both Lam Boulevard and Old Highway 24, ensuring an inviting and compatible street-scape.

Planning Analysis

The proposed Official Plan and Zoning Bylaw amendments were prepared in light of several planning documents including the Planning Act, the Provincial Policy Statement, the County Official Plan and Zoning Bylaw.

Planning Act

Section 2 of the Planning Act outlines matters of provincial interest. Section 3 of the Planning Act requires that, in exercising any authority that affects a planning matter, planning authorities "*shall be consistent with the policy statements*" issued under the Act and "*shall conform with the provincial plans that are in effect on that date, or shall not conflict with them, as the case may be*".

Section 22 of the Planning Act outlines the requirements for considering an Official Plan Amendment.

Section 34 of the Planning Act allows for the consideration of amendments to the zoning bylaw.

Provincial Policy Statement (PPS)

The subject lands are within a Settlement Area as defined by the Provincial Policy Statement, 2020 (PPS). The PPS provides policy direction for appropriate land use planning and development patterns to achieve healthy, liveable, and resilient communities through efficient development that will protect resources of provincial interest, public health and safety, the quality of the natural and built environment, and will facilitate economic growth. It is encouraged that planning authorities consider infilling, redevelopment and intensification in a compact form in areas that support active transportation and can take advantage of existing infrastructure.

Section 1.2.6 of the PPS provides guidance on Land Use Compatibility. The current designation of the General Industrial (MG) lands located immediately across the road present challenges for any future land development of a sensitive nature in the surrounding area. As indicated on Figure 1 and 3, a large swath of Protected Industrial land extends down the middle of town, flanked by Urban Residential lands to the west and a mix of Commercial and Urban Residential lands to the east.

Figure 3 below provides a representative land use map with the locations of existing dwellings along with proposed dwellings on the subject lands. Presently there are existing sensitive land uses (residential dwellings) located in closer proximity to the Protected Industrial lands than the proposed development. With no buffer provided between the existing Urban Residential lands to the west of Blueline Road and the Protected Industrial lands to the east, landowners of the Industrial lands will be required to consider Ministry D-6 mitigation strategies between these differing land uses in order to be consistent with the PPS. Given the existing residential land uses in the area, development of future industrial uses is currently constrained by provincial requirements. As shown on Figure 3, the potential future industrial building envelop is approximately 20,000m2. The proposed application does not inhibit future development of the nearby industrial lands. Given the close proximity to existing residential dwellings, high intensity industrial uses (Class III) are not likely to occur on these lands.

CCS Engineering Inc has completed a D-6 Compatibility and Noise Assessment That study considered two types of industrial facilities that could impact the proposed development: Existing and Future.

Existing Facilities:
The CCS Engineering study concluded that there are no existing facilities (industrial or commercial) that are expected to adversely impact the proposed development with noise, dust or odour emissions.

Future Facilities:
The design of any future industrial facility must take into consideration the provincial guidelines and standards as referenced previously for the protection of sensitive land uses such as the residential dwellings. Even without the proposed residential development, the fact that there are existing residential dwellings in close proximity to this industrially designated land, will require that any planned industrial land use would need to mitigate noise, dust or odour emissions to protect those existing dwellings. Depending on the type of industrial use and activity being developed, mitigation measures enforced through an Environmental Compliance Approval process with the Ministry must occur and is applied to the whole of the lands. The standards for future development of the industrial lands will not be significantly affected by this proposed residential development, given that the existing dwellings have already set the parameters for future limited industrial uses and that Environmental Compliance Approvals can be granted by the Ministry to address any potential conflicts with adjacent residential development

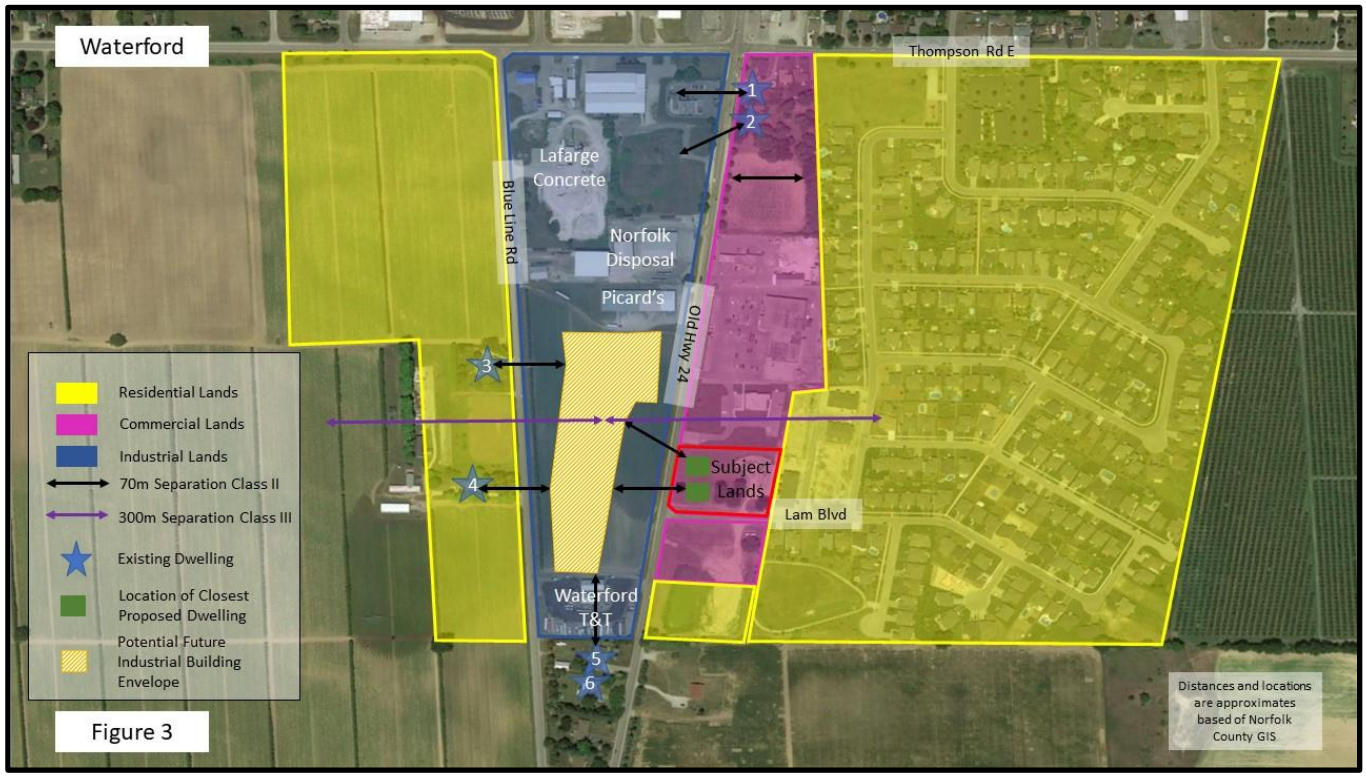


Figure 3

The necessary studies have been completed to satisfy Section 1.2.6.2 of the PPS. While there may be setback restrictions applicable to Class II industries, approval of this application will not prevent development from taking place on the industrial lands.

A decision by Council to approve the Official Plan and Zoning Bylaw amendment will be consistent with PPS, 2020. Full details describing the applicable Provincial policies and how the application is consistent with the PPS are included in Appendix B.

Norfolk County Official Plan

The subject lands are currently designated Commercial, with a site-specific special policy area under Section 7.11.3.11 (11-OP-2007, Amendment 8). This policy states:

On land designated Commercial – Site Specific Policy Area 7.11.3.11 on Schedule "B" to this Plan, commercial uses shall be limited to motels, restaurants, auto service facilities, farm produce outlets and implement dealerships, building supply and lumberyard and other commercial types catering primarily to the travelling public and neighbourhood commercial uses.

The intent and purpose of this site-specific policy area is clear and limits development on the subject land; however, the current CS zone applicable to the property permits all uses within that zone. It appears that the intent of the policy remains to limit the types of commercial development on the property, most of which are more intense commercial uses (implement dealerships, building supply and Lumberyard, auto service facilities) that do not appear to be the most compatible with the adjacent residential subdivision to the east. The proposed residential development, is more compatible with adjacent residential development than the uses permitted under Section 7.11.3.11 of the Official Plan.

The details of compliance with the Official Plan are demonstrated in Appendix C. On a high level, details of the Official Plan policies are captured by the overarching Goals and Objectives. Section 2.2 of the Official Plan set out six "Goals and Objectives" to which the following five are applicable to the proposed residential development:

- Protecting and Enhancing the Natural Environment;
- Maintaining and Enhancing the Rural and Small-Town Character;
- Maintaining a High Quality of Life;
- Upgrading and Expanding Infrastructure; and
- A Well Governed, Well Planned and Sustainable County.

The proposed official plan and zoning bylaw amendment achieves the 'Goals and Objectives' of the Official Plan as demonstrated in Appendix C.

The proposed development will provide a compact form of additional housing choices and attractive streetscape design to the existing mix of residential and commercial development in the area. This will result in an efficient use of land of high quality providing a variety of housing forms and levels of affordability. The lands are subject to site plan control to ensure County development standards are achieved.

The subject lands are vacant and underutilized. Given this special policy area was adopted over 14 years ago, it demonstrates the long-standing difficulties in finding a viable commercial user for this parcel. The property is 0.7 ha in area which provides reduced space for many of the uses permitted under the CS zone. Higher intensity permitted uses (including but not limited to lumber yard, garden supply center, equipment rental establishment, etc.) require large retail buildings and associated parking / display /

storage areas. Lower intensity permitted uses (including but not limited to clinic or doctor office, daycare nursery, dry cleaning establishment, etc.) are normally grouped in larger shared plazas which also requires extensive parking areas. In addition to the area required for a commercial building and parking spaces, additional lands are also required for landscaping, snow storage, garbage collection, and stormwater management. These factors make a smaller parcel unattractive for many of the permitted uses under the CS zone. As outlined above, this property was included in a special policy area adopted in 2007 under Amendment 8 to the Official Plan.

As such, an amendment to change the existing Commercial designation to Urban Residential is beneficial to the community in order to provide additional housing options for the residents of Norfolk County and use vacant lands efficiently.

The lands are near a network of sidewalks along Yu Boulevard to provide easy walkability to the local services (pharmacy, grocery store, etc.) located less than 200m away. Additionally, the development is immediately adjacent to a designated cycling route identified on Schedule I-5 “Active Transportation” of the Official Plan. The County Official Plan supports the development of vacant and underutilized lands that are compact and efficiently used and lends support to the location of the development being within close proximity to active transportation and potential active transportation networks as identified on Schedule “I”.

Norfolk County’s existing infrastructure will be reviewed by Norfolk County’s consultant (RV Anderson Associates) in consideration of the connections proposed to service this development and in light of a Functional Servicing Report prepared by G. Douglas Vallee Limited. Municipal services will be extended to the site from the existing mains along Lam Boulevard and Old Highway 24. The proposed infrastructure will be designed and constructed in accordance with Norfolk County’s requirements, and will be subject to Norfolk County’s approval through the site plan process.

The Compatibility section below and Appendix C provide greater analysis of the design elements included on this development to help mitigate land use conflicts with the residential lands. While the form, height and massing of the proposed development are different than the adjacent residential lands to the east, as demonstrated in Appendix A and sub-annexes, the development will incorporate unit orientation and increased setbacks to blend the built form with the surrounding residential character of the area.

The lands are near existing residential, commercial and institutional uses including the Waterford District High School, several places of worship, parks and a retail center. Through the site plan process, appropriate landscaping, buffering and the recommendations from the D-6 Compatibility and Noise Assessment completed by CCS Engineering Inc. will be considered to improve compatibility with the adjacent uses.

<u>Summary of Official Plan review</u>
As shown in Appendix C, this Official Plan and zoning bylaw amendment is consistent with the policies of the Official Plan. The proposed development is encouraged by the policies for a High-density residential development through the implementation of appropriate forms of housing. Appendix C clearly outlines how this development is consistent and encouraged by the policies of Section 7.7.2 c) of the Official Plan including consideration for site and building design, avoiding undue adverse impacts,

increased setbacks, the provision of landscaping, the availability of parks, services and proximity to arterial or collector roads the Downtown and community services.

The land use compatibility with adjacent industrial land uses has been addressed through expert studies. Any necessary mitigation measures (registration of a warning clause on title, incorporation of triple pane windows, and installation of air condoning units and landscaping) will be implemented during the site plan approval process. The Ministry requirements for land use compatibility do not change as a result of the proposed development. Any proposed industrial development will be required to adherer to the Ministry D-6 Guidelines due the presence of existing residential uses in close proximity to the industrial lands.

The development concept represents an appropriate land use considering the size of the property, proximity to existing residential and commercial uses, availability of servicing, and the provision of buffering and landscaping. Accordingly, the proposed applications meet the intent and purpose of the Official Plan and represent good planning. In this instance, a decision of Council to approve the proposed Official Plan amendment from Commercial to Urban Residential is considered appropriate.

Norfolk County Comprehensive Zoning Bylaw

The subject lands are zoned Service Commercial (CS). It is proposed to change the zoning of the entire block to Urban Residential Type 4 (R4) with site specific provisions to recognize minor modifications. The proposed development will comply with the R4 Zone provisions with requests for minor modifications.

Table 1 and Table 2 below, respectively provide a parking assessment and outline of the requested site-specific zoning provisions.

Table 1: Parking Assessment for Lam Boulevard Condominium

Section	Minimum Requirement	Required	Provided
4.9 a) single detached, semi-detached, duplex, tri-plex, four-plex, townhouse dwellings and vacation home [8-Z-2017]	2 parking spaces for each dwelling unit: 40 units	80 spaces	80 spaces
4.9 f) All apartment dwellings; and duplex dwellings, tri-plex dwellings, four-plex dwellings, townhouse dwellings or single detached or semi-detached dwellings as part of a condominium development or when they abut a private road [27-Z-2020].	1 visitor space for every 3 dwelling units: 40 units / 3	14 spaces	14 spaces
4.3.3Minimum Number and Type of Accessible Parking Spaces As per section 4.9 f) - 19 required visitor parking spaces	1 to be included as part of the total required visitor parking	1 accessible space to be included in total required visitor spaces	1 Type A accessible space

Number of Parking Spaces: 1 – 25 Type A Accessible Space (Van): 1 Type B Accessible Space: 0			
Total		94 spaces	94 spaces

Table 2: Site Specific Zoning Provisions for Lam Boulevard Condominium

Section	Existing	Proposed
2.88	"LOT" shall mean a parcel of land which can be legally conveyed. Where two (2) adjoining lots are in common ownership and a main building straddles the lots, the two (2) lots are deemed to be one (1) lot for the purposes of establishing interior side yards.	In lieu of Section 2.88 the definition of a LOT shall not apply to the individual condominium units. The LOT shall be defined as the entire parcel of land (0.7ha) consisting of entire condominium block. Comment: The Norfolk County Zoning Bylaw provisions regarding the definition of a LOT are unclear in its application to a condominium development. The inclusion of this provision will clearly define the LOT and corresponding yard provisions. It will enhance the ability to interpret and apply the zoning bylaw at the Site Plan approvals stage.
3.11.2	For the purposes of this Subsection, a private condominium road servicing a condominium development shall be deemed to be an open, constructed and year-round improved street.	In lieu of Section 3.11.2, the private condominium road shall not be deemed an improved street. Comment: See Section 2.88 above. The inclusion of this provision will clearly define the required yard and corresponding setback provisions for the entire condominium block. This will enhance the ability to interpret and apply the appropriate zoning bylaw provisions for individual condominium units which will assist staff and residents when considering potential future additions such as decks.
5.4.2 c) & d)	Minimum Front Yard & Exterior Side Yard i) Attached Garage: 6.0m ii) Detached Garage or Rear Yard Parking: 1.5m	Section 5.4.2 c) ii) shall apply: 1.5m. "*Rear Yard Parking*" shall mean: parking that is not located in the front yard or exterior side yard.

	Comment: "Rear Yard Parking" is not a defined term in the Zoning By-law. Based on the design of this development a definition of "Rear Yard Parking" is proposed.	Comment: A 1.5m front yard is permitted for stacked townhouses provided parking is located in a rear yard. Each unit is provided with rear access parking to the garage via a driveway and it is proposed to include a dedicated visitor parking area. This unique design meets the intent of subsection 5.4.2 c) ii) and d) ii) which directs parking away from the front yard and exterior side yard, thus allowing a 1.5 metre setback. The proposed definition eliminates uncertainty of by-law interpretation of where parking may be located on the property.
5.4.2 h)	Maximum Building Height: 11.0m	In lieu of section 5.4.2 h), the maximum building height shall be 13.5m. This development achieves a compact and efficient site design in order to achieve this design each unit has been provided with a smaller building footprint and a larger vertical profile. The increased height provision is required in order to allow for roof-top access and amenity space to ensure a balance of efficient land use with attractive built form and functionality is maintained.
All other provisions of R4 zone shall apply.		

Compatibility

As shown on Figure 1, the subject lands are located on the southerly edge of the urban boundary of Waterford and surrounded by a variety of different land uses. Lands adjacent to the north are used for commercial purposes in the form of an insurance office. Adjacent lands to the south are currently vacant, but are in the planning approval process to permit residential development. Immediately to the east are residential uses in the form of condominium townhouses. Parklands and single detached dwellings are located to the southeast across Lam Boulevard.

As shown on Annex A1 (Dwelling Unit Floor Plan), the increase in height is related to an enclosure for a terrace access stairway and a covered sitting area. A portion of the roof top terrace is uncovered and stepped back from the rear of each unit. The 'stepping back' design strategy not only provides amenity space for a dwelling unit, it also improves compatibility with adjacent land uses. This is also a technique implemented for taller buildings 4 storeys and above (Section 5.6.3) wherein a step back of 2 metres is required. In this instance, a step back of over 3 metres is incorporated.

As shown on Annex A2 (Schematic Elevations), the proposed development will provide a compact and attractive housing form. The adjacent condominium is already provided with internal buffering in the form of a large wooden fence along the property line. Through the site plan approval process, additional buffering such as landscaping can be provided on the subject lands to help further ensure compatibility.

Annex A3 (Elevation Cross Section), the location and orientation of the townhouse blocks are designed to help improve compatibly with the adjacent townhouse development. Proposed building setbacks from the easterly property line significantly exceed minimum zoning requirements. More specifically, Block C units are proposed with an increased setback of 18.0m (60 feet). While Block E units are designed to have a portion of the building located 9.0m (29 feet) from the property line, they have also been designed so that the majority of the east face is actually 10.8m (35 feet) from the property line. These design and setback factors help provide a compatible transition from the lower density housing form to the east.

While the height of the proposed townhomes is slightly above the peak of the roof on the townhouses to the east, it is important to note that care and attention has been paid in the design and layout of the proposed development to provide a suitable transition to the existing development to the east. Given that the existing townhouses are walkout style, when viewed from the proposed development side, these existing townhouses appear to be 2 stories in height plus a high-pitched roof. The ground floor of the proposed development will be similar in elevation to the walkout level of the existing townhouses. Considering the flat roof design and stepped back configuration of the upper level amenity space, the primary massing of the building is nearly equal in height with the peak of the existing townhomes. The upper floor subject to the zoning amendment to increase the total roof height is not considered significant. Annex A3 demonstrates the relationship between the proposed and existing developments, showing that the height of the primary building mass is 9.6 metres whereas the height of the adjacent dwellings is 9.8 metres. Account has been given to step back the roof top terrace to avoid undue impacts.

Lands zoned General Industrial (MG) are located on the west side of Old Highway 24 with an operating truck / trailer repair business – Waterford Truck and Trailer. The necessary studies have been completed to ensure appropriate mitigation measures will be in place to ensure compatibility between these land uses including a demonstration of how the proposed development will not prohibit the development of nearby industrial lands.

Traffic

A Traffic Impact Study was completed by Paradigm Transportation Solutions Limited dated January 2022. The study area included the Old Highway 24 and Lam Boulevard and the access intersection on Old Highway 24. The study considered the impacts on current traffic and forecasted traffic conditions, and concluded that the study area intersection and the access intersections are forecast to operate within acceptable levels of service under the 2023, 2028 and 2033 horizon years. Based on the findings of the study, Paradigm Transportation Solutions Limited recommends the subject development be considered for approval.

Services

A complete Functional Serve Report was completed by G. Douglas Vallee Limited and has been included with the application. Below is a summary of the full servicing report.

Sanitary

The proposed development will be serviced by a sanitary sewer that connects to the existing 200mm sanitary sewer along Lam Boulevard. A peak sanitary design flow of approximately 2.62 L/s is anticipated from the proposed development. An analysis of the existing sanitary sewer network on Lam Boulevard and Old Hwy 24 indicates that there is sufficient capacity to support the sanitary flows from the proposed development. However, modelling from Norfolk County's consultant is recommended to determine the impact of the proposed additional sanitary flows further downstream.

Water

The existing 200mm watermain on Lam Boulevard shall serve as the water supply for the proposed development. The domestic maximum day demand and peak hourly demand were found to be 111.38 m3/day (1.29 L/s) and 8.25 m3/hour (2.29 L/s), respectively. The required fire flow demand for the proposed development was found to be 105 L/s in accordance with the Ontario Building Code, which is within the estimated range of available fire flow (83 L/s to 159 L/s). An analysis of the hydraulic modelling will be conducted by the County consultants to determine the water servicing capacity and constraints on the existing water system to ensure adequate system flows and pressure for the respective domestic and fire demands.

Storm Water

Overland flow (major storm events) storm sewers (minor storm events) will convey stormwater to the proposed underground SWM storage facility, ultimately releasing to the existing municipal 600mm diameter storm sewer along Old Highway 24 via a storm sewer. Under all storm events, peak flows associated with the post-development site are controlled to less than or equal to the allowable peak flow rate determined as part of the Yin Subdivision Phase 5 - Vallee Project 10-034. Quality control will be analyzed during the detailed design stage.

Conclusion

The proposed Official Plan and Zoning Bylaw Amendments are consistent with the policies of the PPS and the Norfolk County Official Plan. The proposed development will achieve 57 uph providing a compact form of development while maintaining an attractive streetscape site design. It is a higher density development appropriately located on the periphery of an existing residential neighbourhood, encouraged by the policies for high-density residential development in the Official Plan including consideration for: site and building design; avoiding undue adverse impacts; increased setbacks; the provision of landscaping; the availability of parks, services and proximity to arterial or collector roads; and proximity to the Downtown and community services within walking distance. As an existing lot of record with access to full municipal services, this development will provide much needed housing options for the residents of Norfolk County.

The D-6 Compatibility and Noise Assessment completed by CCS Engineering Inc. has shown there will be no negative impacts on the industrial lands or the proposed development. Recommendations from this assessment (registration of a warning clause on title, incorporation of triple pane windows, and installation of air conditioning and landscaping) will be implemented through the site plan process and during the construction phase to further mitigate the potential land use conflicts.

The analysis of this application is supportive. The proposed application is consistent with Provincial and County planning policies. Accordingly, it is our opinion that the applications:

- model good planning;
- facilitate a development with an appropriate land use; and
- ensures efficiency and compatibility with the surrounding land uses.

As such it is requested that Staff and Council consider a favourable recommendation and decision to amend the Official Plan and Zoning Bylaw to permit the 40-unit condominium development subject to site specific provisions.

Report prepared by:

Scott Puillandre, CD, MSc
Planner
G. DOUGLAS VALLEE LIMITED
Consulting Engineers, Architects & Planners

Report reviewed and approved by:

Eldon Darbyson, BES, MCIP, RPP
Director of Planning
G. DOUGLAS VALLEE LIMITED
Consulting Engineers, Architects & Planners
\\server02\data\Projects\2021\21-059 Lam Blvd Townhomes\Agencies\Submission\Planning Justification Report - Lam Boulevard(21-059).docx

SITE STATISTIC & ZONING REQ.'S

PROPERTY LEGAL DESCRIPTION:

PLAN 37M-57, BLK 60 PT, ROLL # 3360506204.0
IN THE TOWN OF WATERFORD, IN THE DISTRICT OF NORFOLK COUNTY

ZONING:

IN ACCORDANCE TO THE TOWN OF WATERFORD, ZONING BY-LAW 1-Z-2014
NORFOLK COUNTY - JULY-2020-CONSOLIDATION

PROVISION	LAND USE:	
6.3 ZONING AMEND-MENT	EX. - SERVICE COMMERCIAL ZONE (GS(H))	
5.4 5.4.1	In an R4 Zone, no land, building or structure shall be used except in accordance with the following uses: a) group townhouse b) stacked townhouse c) street townhouse d) semi-detached, duplex, tri-plex and four-plex dwelling s provided they are located on the same lot with, and in accordance with the Zone provisions of, group townhouse e) home occupation f) accessory residential dwelling unit, subject to Subsection 3.23.1(1-Z-2020)	
2.86 3.11.2 ZONING AMENDMENTS 5.4 5.4a) 5.4b) 5.4.2h)	ZONING BY-LAW SPECIAL PROVISIONS: • DEFINITION OF A LOT SHALL NOT APPLY IN LIEU THE ENTIRE CONDOMINIUM BLOCK (APPROX. 0.1 HA.) SHALL BE DEEMED AS THE LOT. • SHALL NOT APPLY AND THE CONDOMINIUM ROAD SHALL NOT BE DEEMED TO BE AN IMPROVED STREET. • URBAN RESIDENTIAL TYPE 4 ZONE (R4) • GROUP TOWNHOUSE • STACKED TOWNHOUSE • INCREASE BLDG. HEIGHT RESTRICTION	

PROVISION	SETBACKS (m - METERS):	REQ'D (h) Group Townhse Stacked Townhse	PROVIDED (h)
5.4.2a)	MIN. LOT AREA: i) ATTACHED GARAGE	185m²	1200m²
5.4.2b)	MIN. LOT FRONTAGE: i) INTERIOR LOT ii) CORNER LOT	30 30	N/A 14.8
5.4.2c) ZONING AMENDMENT	MIN. FRONT YARD i) ATTACHED GARAGE ii) DETACHED GARAGE OR REAR YARD PARKING SECTION 5.4.2 c) ii) SHALL APPLY. 1.5m. "REAR YARD PARKING SHALL MEAN: PARKING THAT IS NOT LOCATED IN THE FRONT YARD OR EXTERIOR SIDE YARD.	6 1.5	N/A 4
5.4.2d)	MIN. EXTERIOR SIDE YARD: i) W/ A 6m FRONT YARD ii) W/ A 1.5m FRONT YARD	6 1.5	N/A 6.9
5.4.2e)	MIN. INTERIOR SIDE YARD	3	3
5.4.2f)	MIN. REAR YARD : i) ATTACHED GARAGE	7.5	9
5.4.2g)	MIN. SEPARATION BETWEEN TOWNHOUSE DWELLINGS	2	7.9
5.4.2h) ZONING AMENDMENT	MAX. BLDG. HEIGHT	11	13.5
5.4.3	MIN. MUTUAL SIDE LOT LINE	1.2	-
5.4.4	MAX. UNITS IN A TOWNHOUSE DWELLING	8 UNITS	8 UNITS

PARKING:

PROVISION	VARIES PARKING SPACES	REQUIRED	PROVIDED
4.19a)	SINGLE DETACHED, SEMI-DETACHED, DUPLEX, TRI-PLEX, FOUR-PLEX, TOWNHOUSE DWELLINGS & VACATION HOME (D-Z-2017): 2 SPACES / DWELLING UNIT 2 SPACES x 40 DWELLING UNITS = 80	80 SPACE(S)	80 SPACE(S)
4.19f)	VISITOR PARKING: 1 SPACE / 3 DWELLING UNITS 1 SPACE x 14 / 3 =	14 SPACE(S)	14 SPACE(S)
4.7	LOADING SPACES:	NIL	
4.7	DROP OFF SPACES:	NIL	
	TOTAL PARKING:	94 SPACE(S)	94 SPACE(S)
BARRIER FREE PARKING:			
4.33	BARRIER FREE PARKING REQ'D: (PART OF REQ'D VISITOR PARKING) 1-25 (VISITOR) PARKING SPACES =		
	TYPE 'A' (3.4m WIDE) PLUS 1.5m AISLE TYPE 'B' (2.4m WIDE) PLUS 1.5m AISLE	1 SPACE(S)	1 SPACE(S)

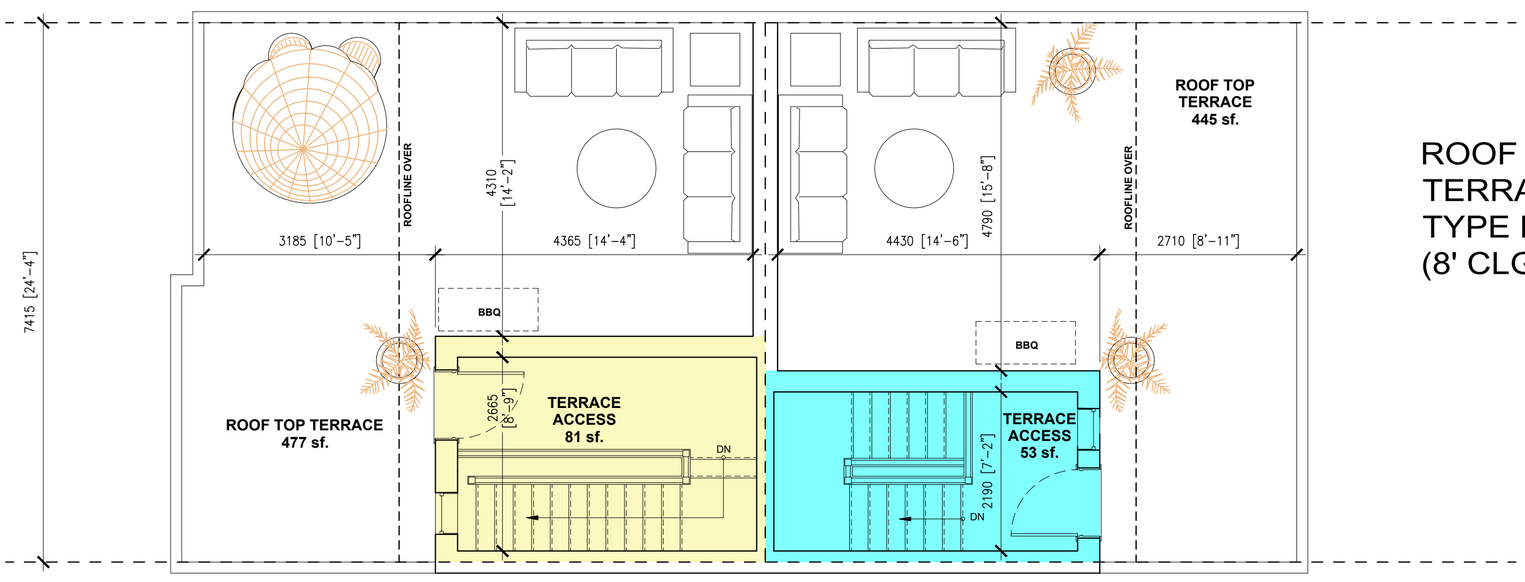
vallee
Consulting Engineers, Architects & Planners

SITE PLAN - BACK TO BACK 3 STOREY TOWNHOUSES
HWY 24 & Lam Blvd.
SCALE 1:350

PROJ. 21-059
JAN. 24, 2022

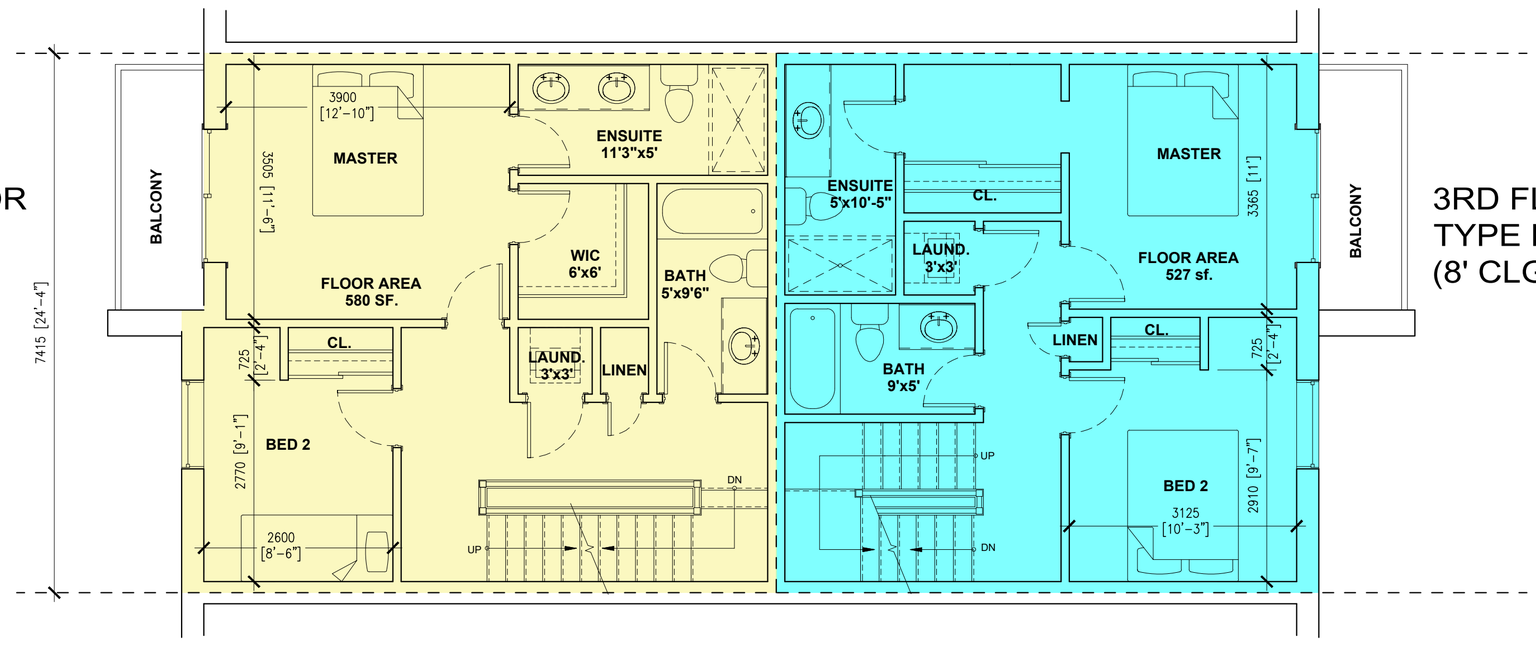
*Note: print this sheet at 24x36

ROOF TERRACE TYPE A (8' CLG)



ROOF TERRACE TYPE B (8' CLG)

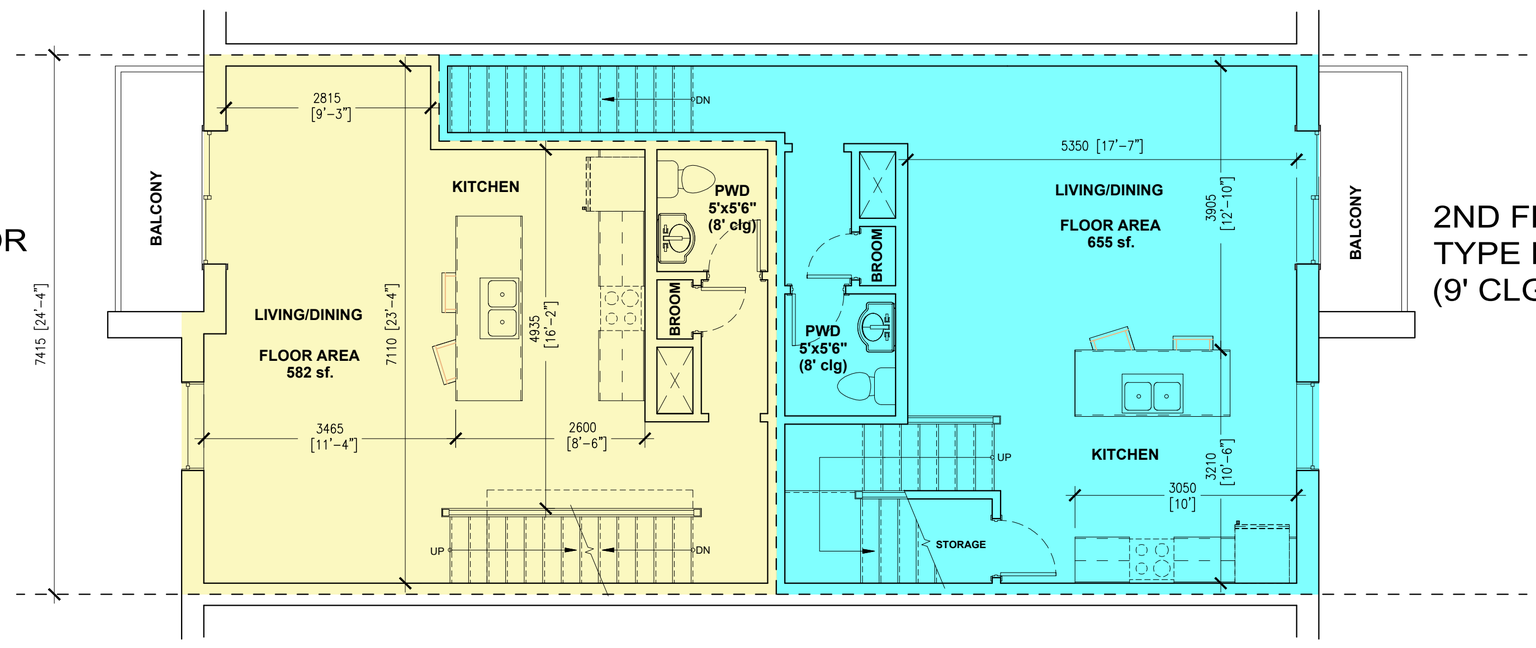
3RD FLOOR TYPE A (8' CLG)



3RD FLOOR TYPE B (8' CLG)

	TYPE A • 2 BEDROOM • 3 STOREY • 0BC PART 9	• TYPE B • 2 BEDROOM, • 3 STOREY • 0BC PART 9
BASEMENT	UNFIN.	UNFIN.
GROUND	174 SF.	174 SF.
2ND	582 SF.	655 SF.
3RD	580 SF.	527 SF.
TERRACE ACCESS	81 sf.	53 sf.
TERRACE	477 sf.	445 sf.

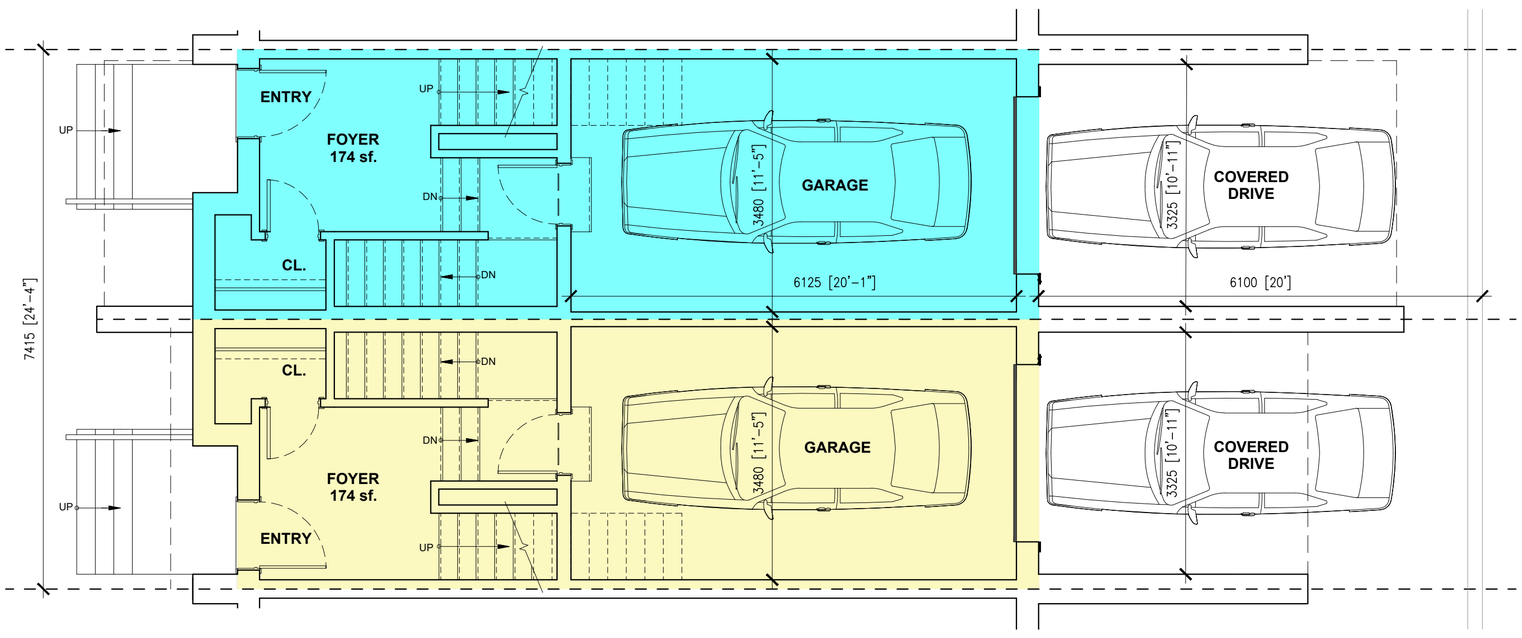
2ND FLOOR TYPE A (9' CLG)



2ND FLOOR TYPE B (9' CLG)

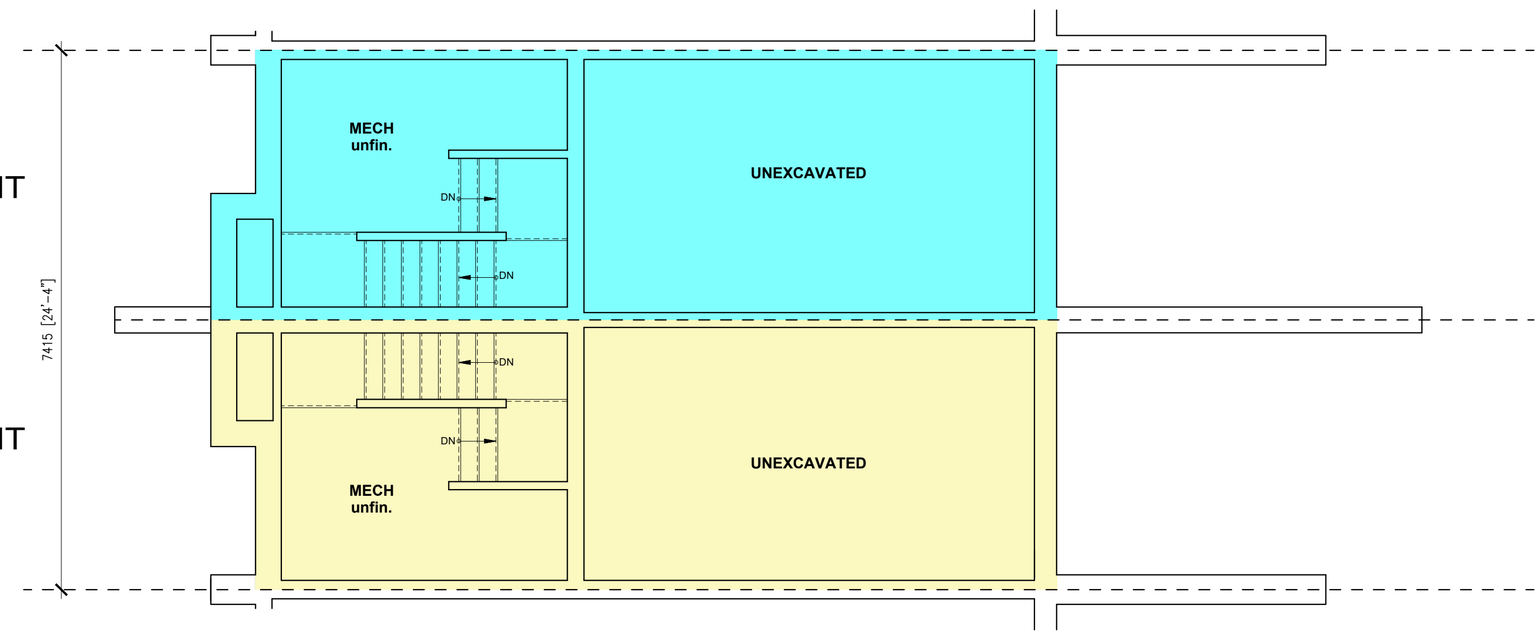
GROUND FLOOR TYPE B

GROUND FLOOR TYPE A



BASEMENT TYPE B

BASEMENT TYPE A



NOTE: THESE DRAWINGS ARE CONSIDERED SCHEMATIC AND REQUIRE DESIGN DEVELOPMENT TO ENSURE STRUCTURAL, MECHANICAL, ZONING AND BUILDING CODE REQUIREMENTS ARE ACHIEVED. END UNITS WILL REQUIRE DESIGN TO ACCOMMODATE ELEVATION TREATMENT.

PRINT AT 24x36

vallee Consulting Engineers, Architects & Planners

BACK TO BACK 3 STOREY TOWNHOUSES (PLANS A & B)

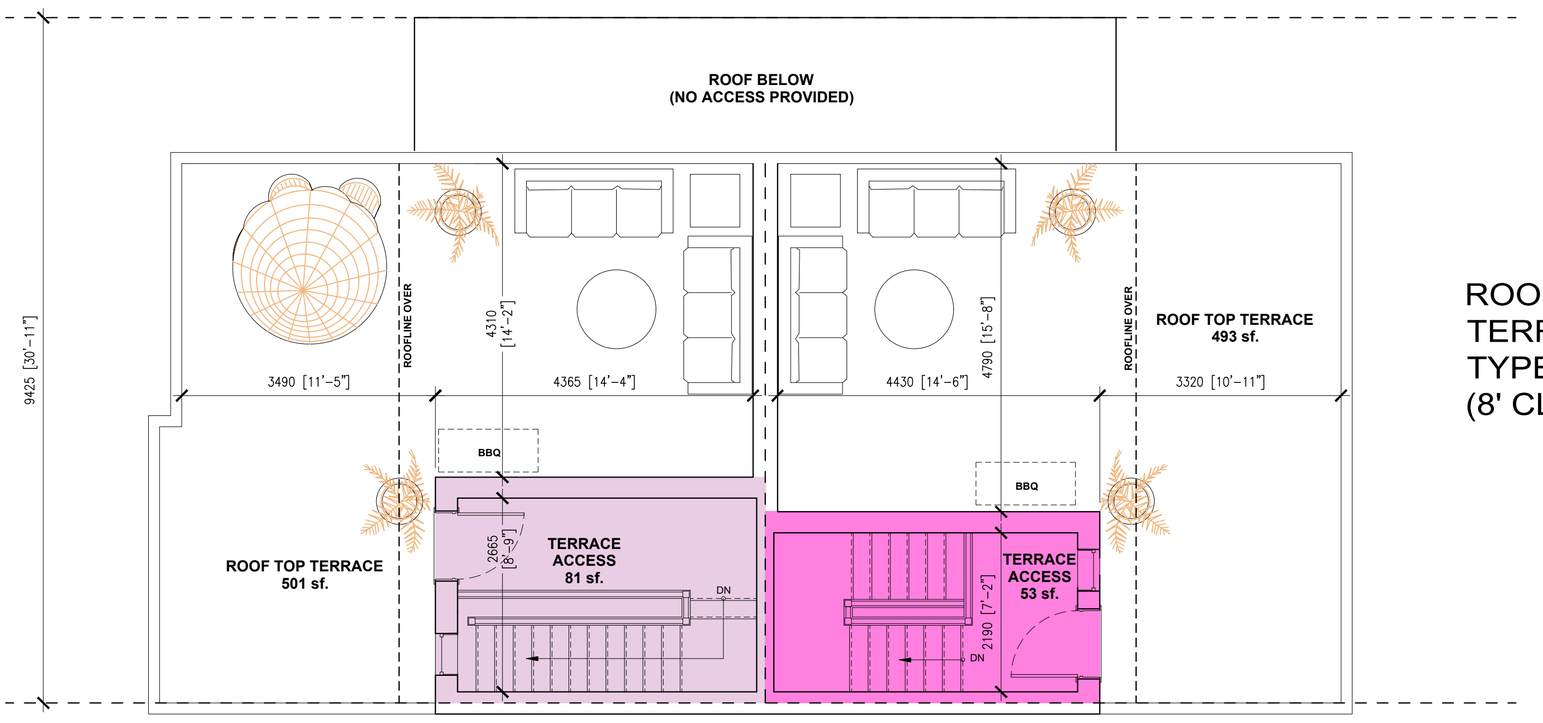
HWY 24 & Lam Blvd.

SCALE (N.T.S.)

PROJ. 21-059

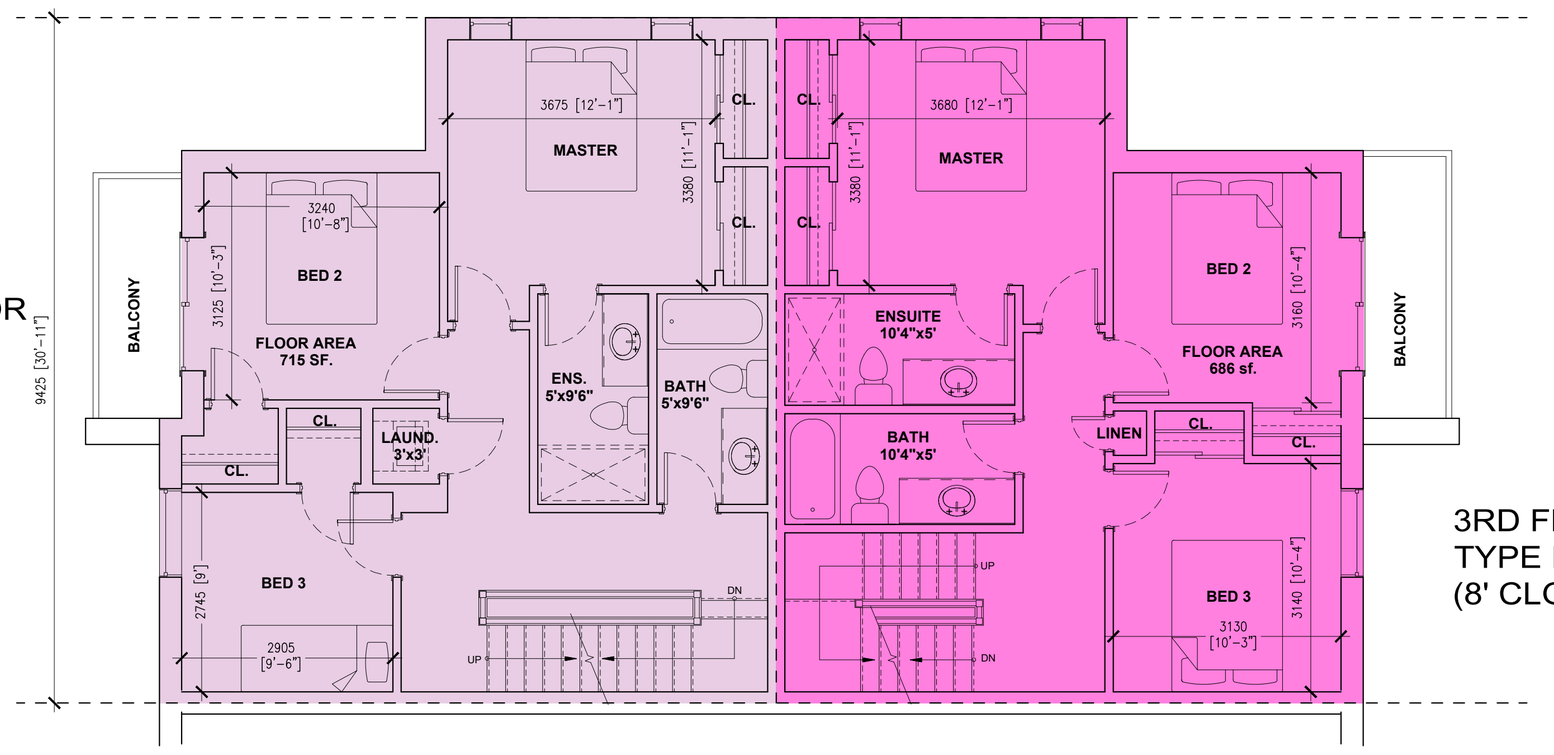
JAN. 24, 2022

ROOF TERRACE TYPE C (8' CLG)



ROOF TERRACE TYPE D (8' CLG)

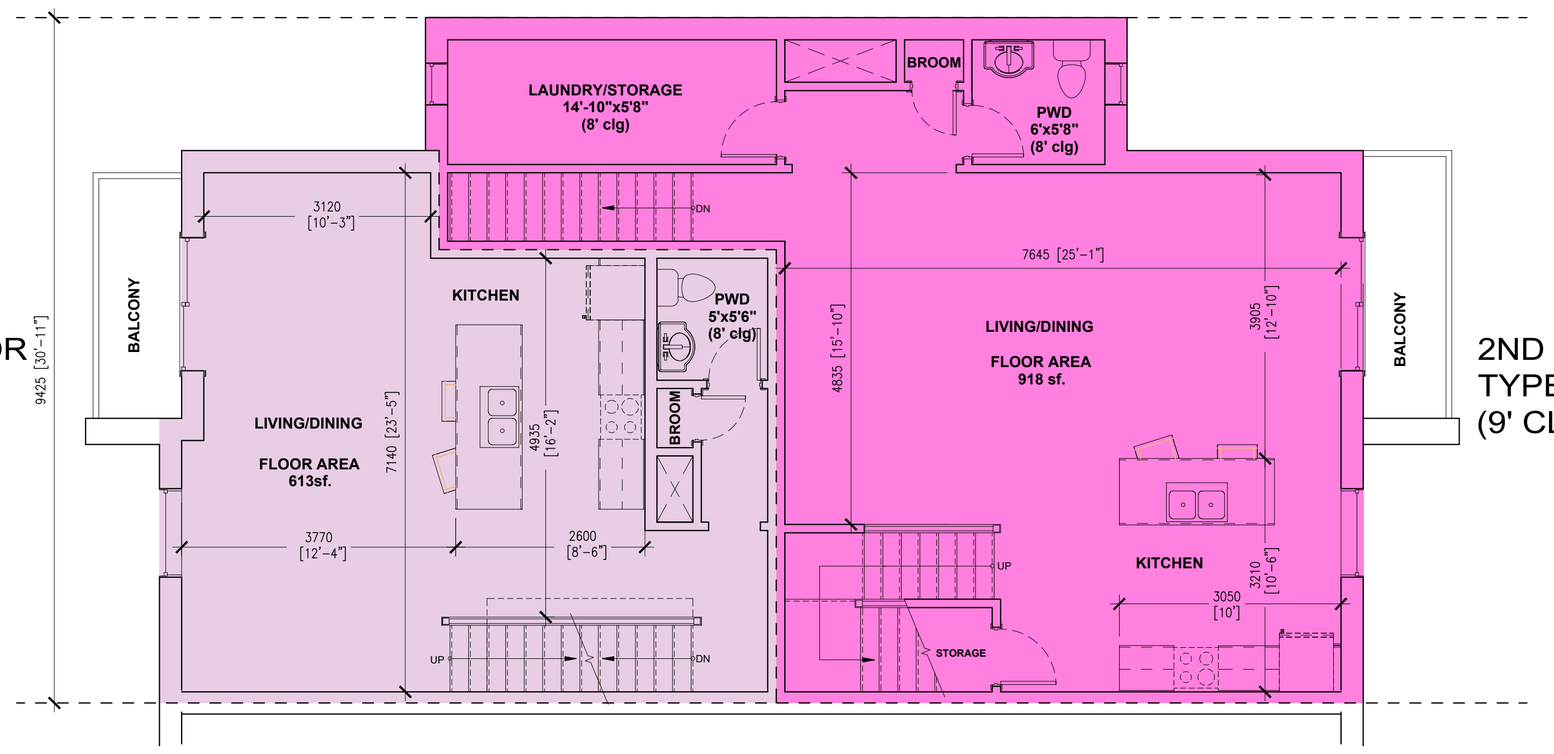
3RD FLOOR TYPE C (8' CLG)



3RD FLOOR TYPE D (8' CLG)

	TYPE C • 3 BEDROOM • 3 STOREY • 0BC PART 9	• TYPE D • 3 BEDROOM, • 3 STOREY • 0BC PART 9
BASEMENT	UNFIN.	UNFIN.
GROUND	186 SF.	186 SF.
2ND	613 SF.	918 SF.
3RD	715 SF.	686 SF.
TERRACE ACCESS	81 sf.	53 sf.
TERRACE	501 sf.	493 sf.

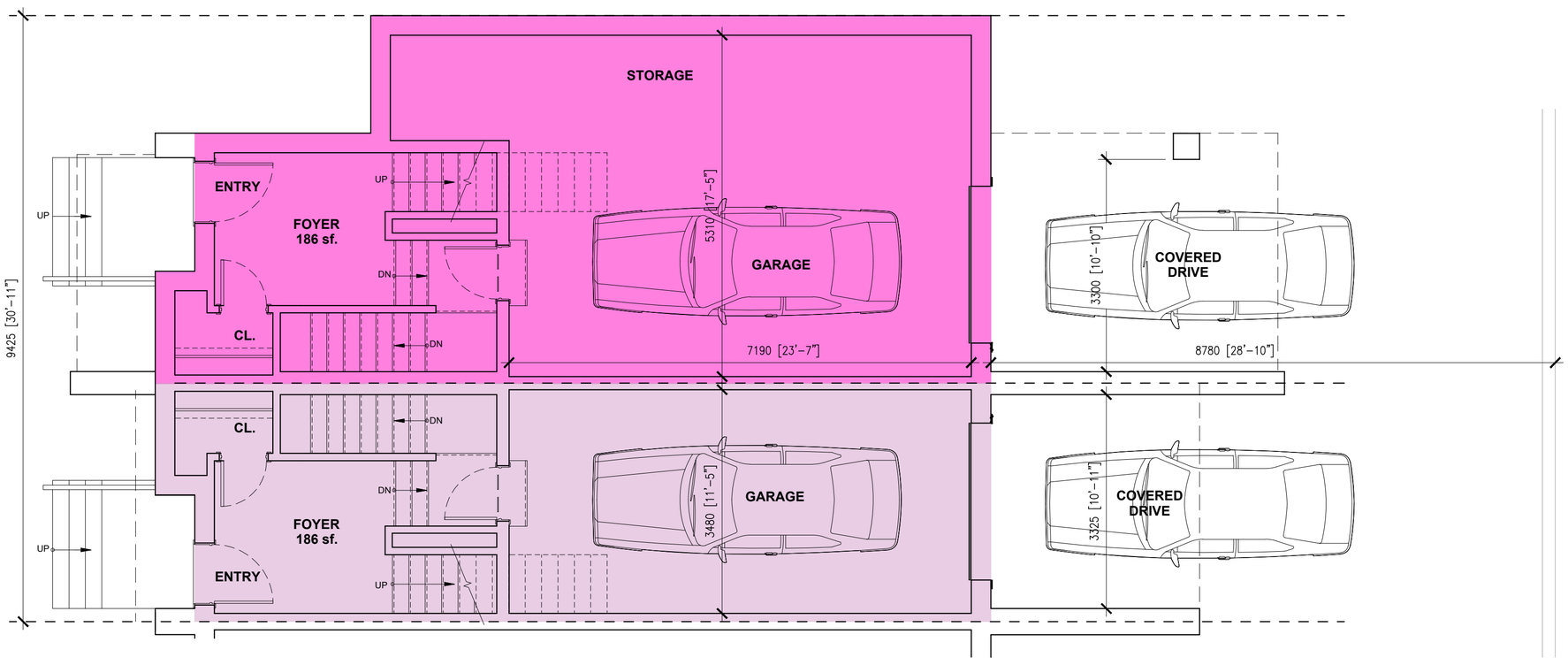
2ND FLOOR TYPE C (9' CLG)



2ND FLOOR TYPE D (9' CLG)

GROUND FLOOR TYPE D

GROUND FLOOR TYPE C



NOTE: BASEMENT LAYOUT NOT SHOWN FOR CLARITY
(SAME LAYOUT AS TYP. TYPE A & B UNITS)

NOTE: THESE DRAWINGS ARE CONSIDERED SCHEMATIC AND REQUIRE DESIGN DEVELOPMENT TO ENSURE STRUCTURAL, MECHANICAL, ZONING AND BUILDING CODE REQUIREMENTS ARE ACHIEVED. END UNITS WILL REQUIRE DESIGN TO ACCOMMODATE ELEVATION TREATMENT.

PRINT AT 24x36

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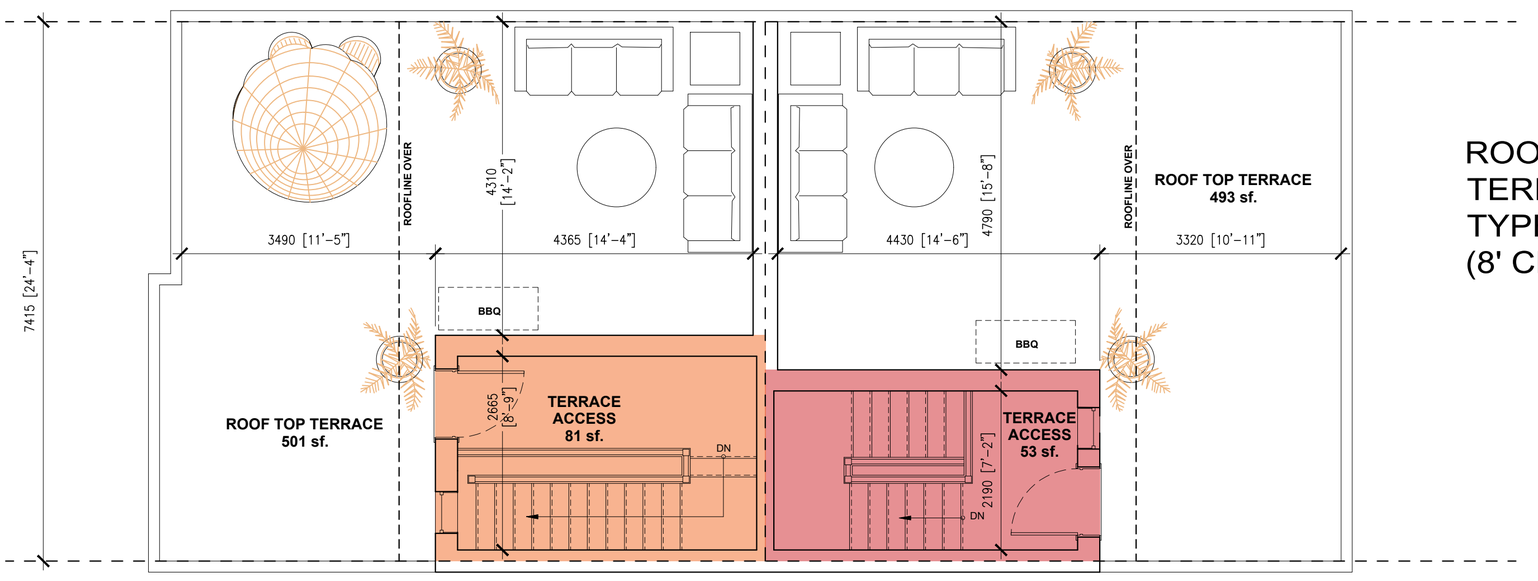
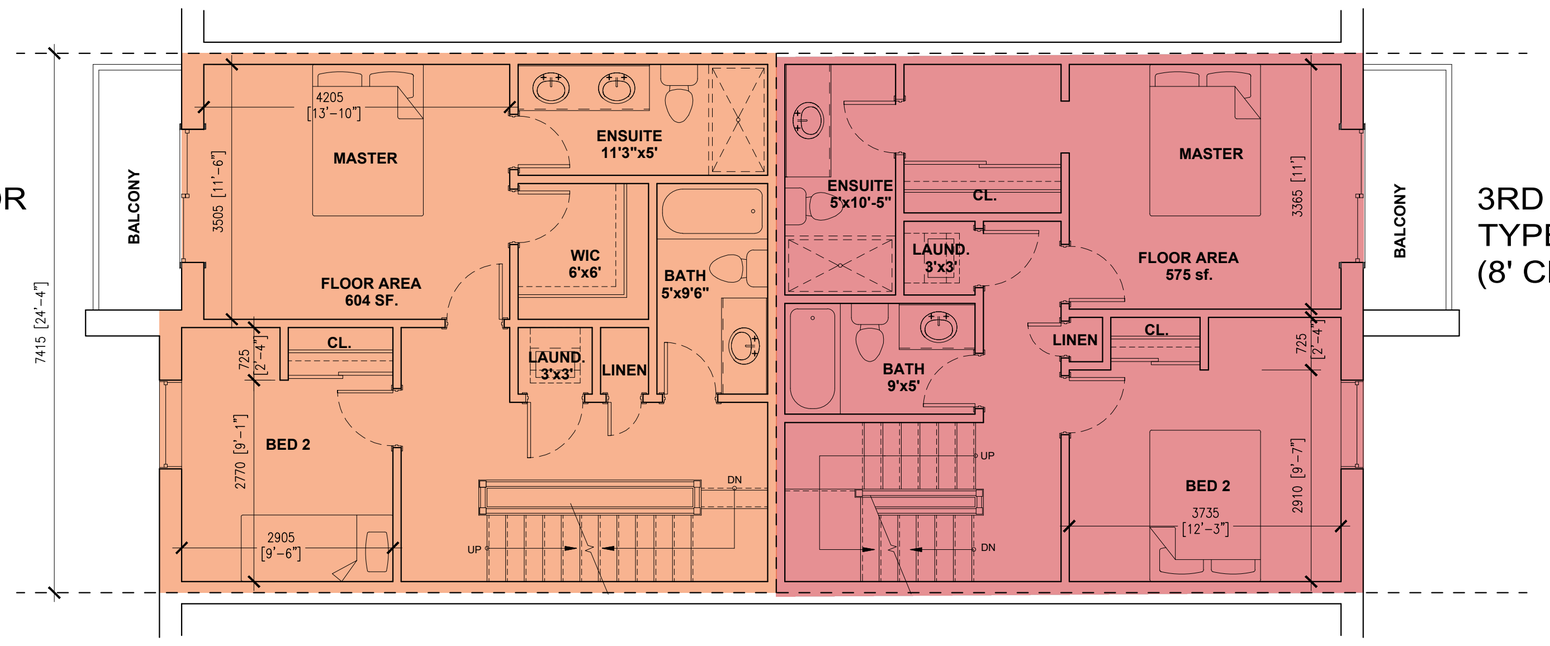
BACK TO BACK, 3 STOREY TOWNHOUSES (PLANS C & D)
HWY 24 & Lam Blvd.
SCALE (N.T.S.)
PROJ. 21-059
JAN. 25, 2022

ROOF TERRACE TYPE G (8' CLG)



ROOF TERRACE TYPE H (8' CLG)

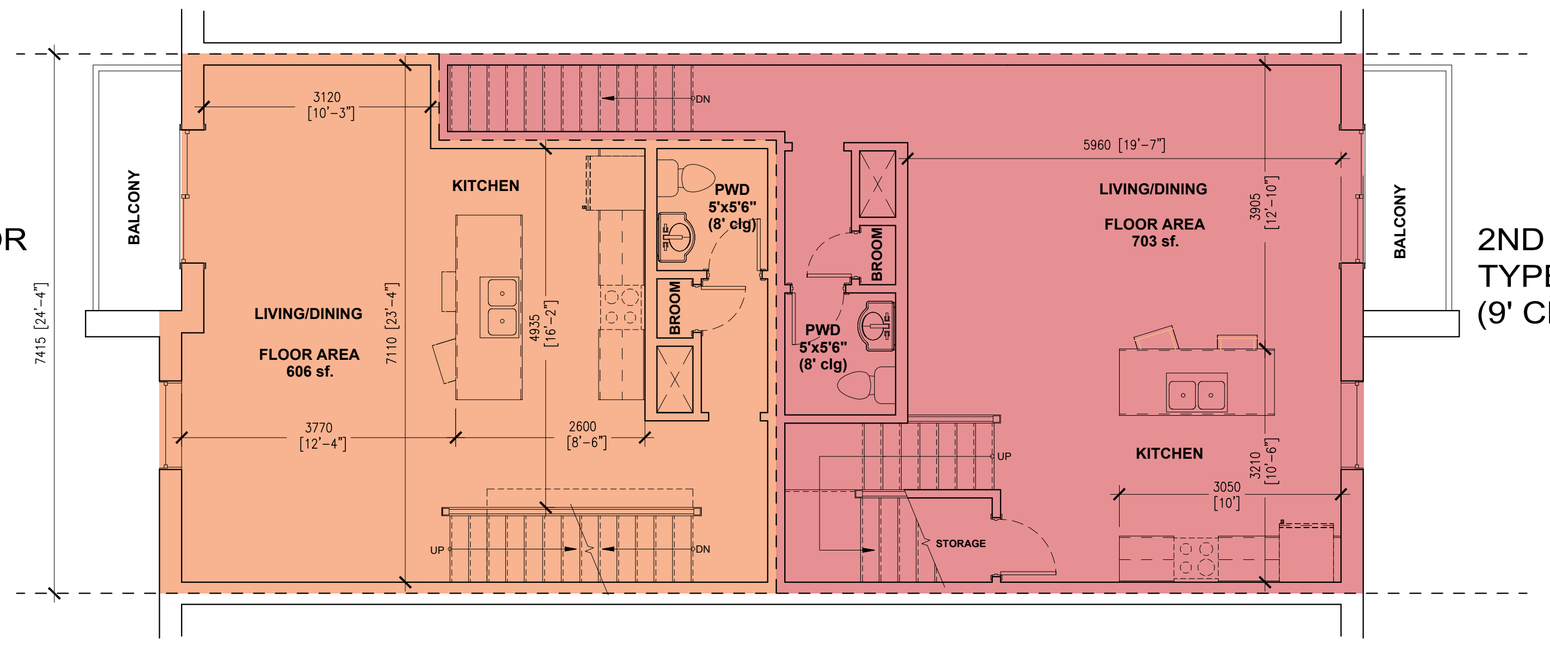
3RD FLOOR TYPE G (8' CLG)



3RD FLOOR TYPE H (8' CLG)

	TYPE G • 2 BEDROOM • 3 STOREY • 0BC PART 9	• TYPE H • 2 BEDROOM, • 3 STOREY • 0BC PART 9
BASEMENT	UNFIN.	UNFIN.
GROUND	186 SF.	186 SF.
2ND	606 SF.	703 SF.
3RD	604 SF.	575 SF.
TERRACE ACCESS	81 sf.	53 sf.
TERRACE	501 sf.	493 sf.

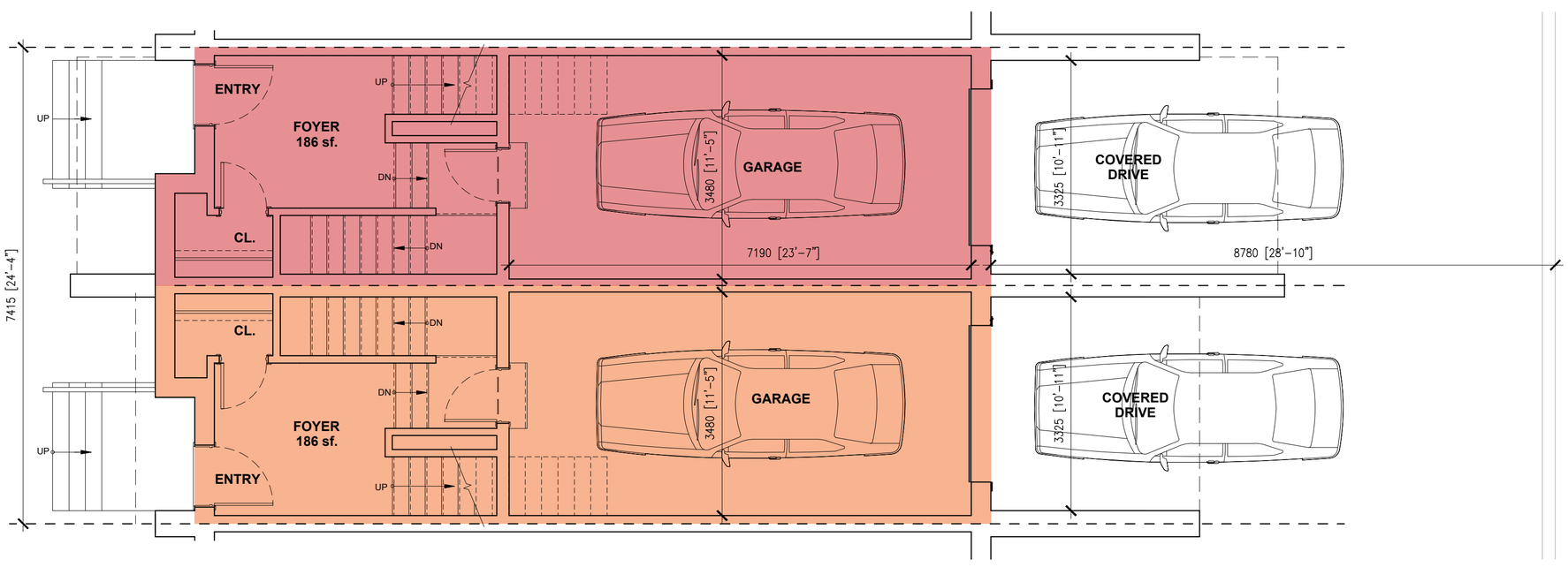
2ND FLOOR TYPE G (9' CLG)



2ND FLOOR TYPE H (9' CLG)

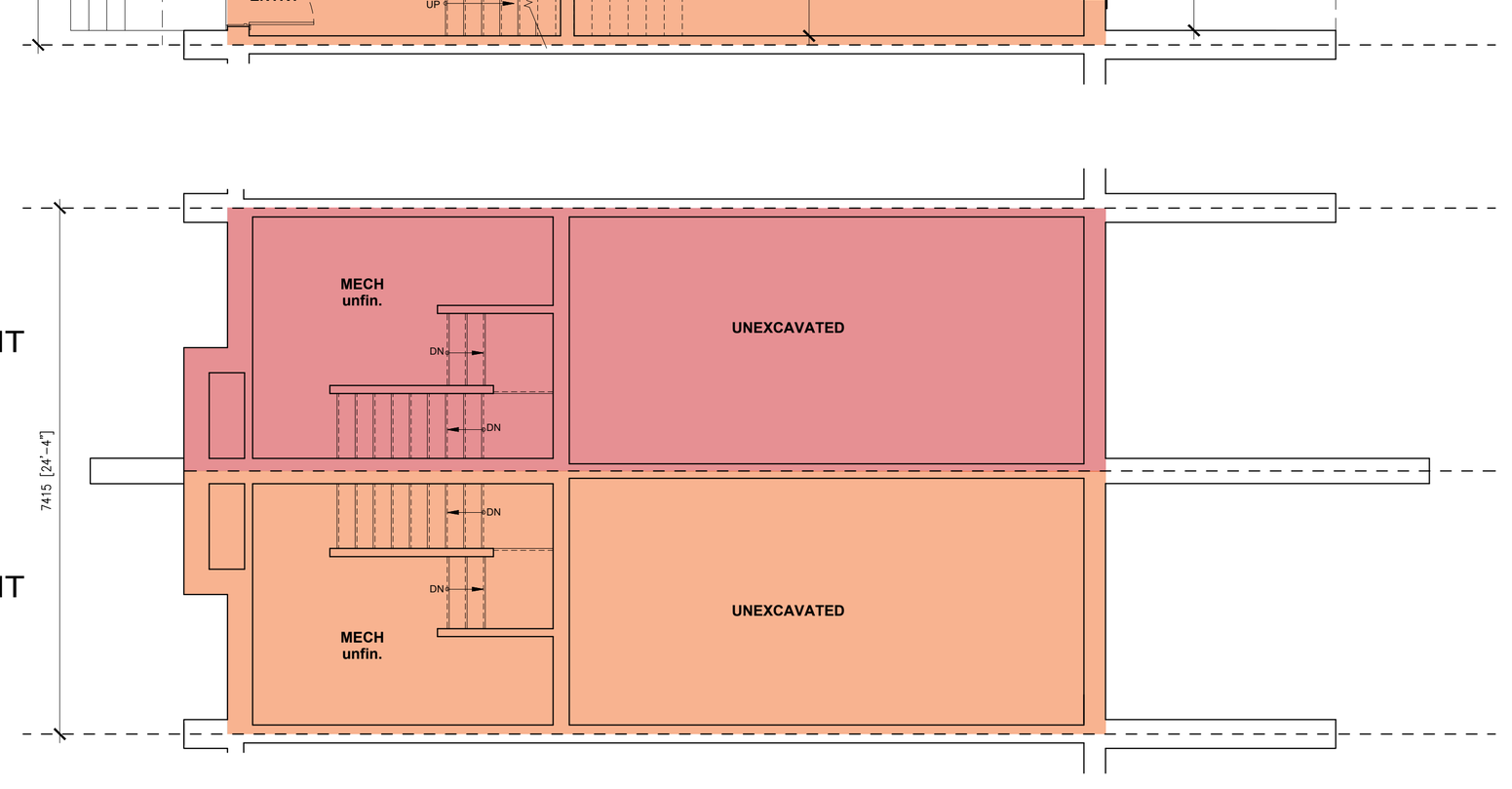
GROUND FLOOR TYPE H

GROUND FLOOR TYPE G



BASEMENT TYPE H

BASEMENT TYPE G



NOTE: THESE DRAWINGS ARE CONSIDERED SCHEMATIC AND REQUIRE DESIGN DEVELOPMENT TO ENSURE STRUCTURAL, MECHANICAL, ZONING AND BUILDING CODE REQUIREMENTS ARE ACHIEVED. END UNITS WILL REQUIRE DESIGN TO ACCOMMODATE ELEVATION TREATMENT.

PRINT AT 24x36

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BACK TO BACK 3 STOREY TOWNHOUSES (PLAN G & H)

HWY 24 & Lam Blvd.
SCALE (N.T.S.)

PROJ. 21-059
JAN. 25, 2022

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Consulting Engineers,
Architects & Planners

G. DOUGLAS VALLEE LIMITED
2 TALBOT STREET NORTH
SIMCOE ONTARIO N3Y 4W3
(519) 426-6270

Project Title

LAM BLVD TOWNHOMES

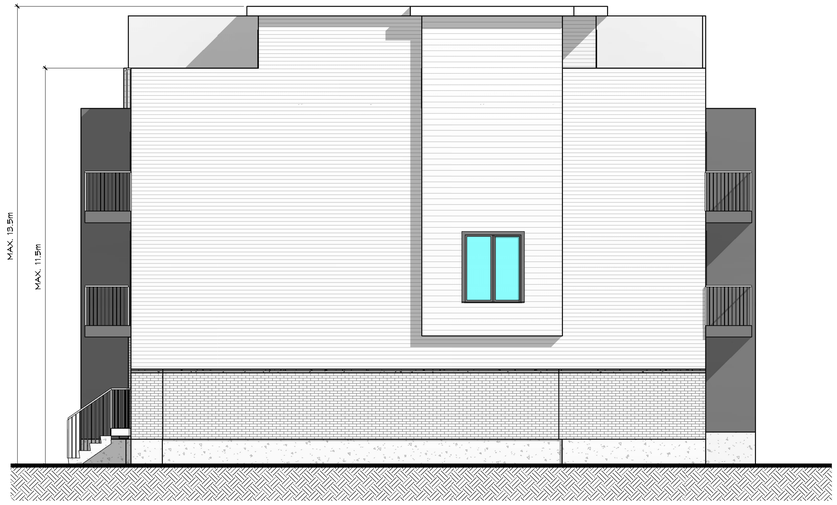
HWY. 24 & LAM BLVD.
WATERFORD, ONTARIO,
N0E 1Y0

PROJECT No.
21-059

Drawing Title
PRESENTATION COVER SHEET

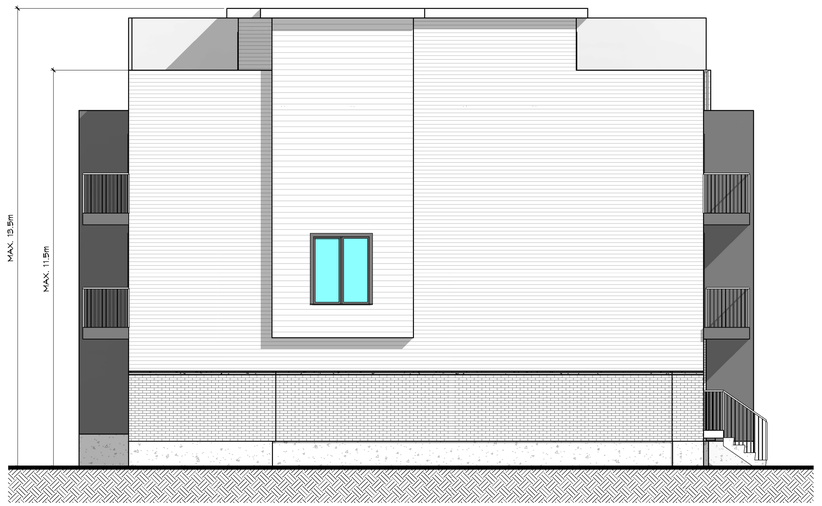
Drawing No.
P100

1 P301 WEST ELEVATION PRESENTATION
SCALE 1 : 75



2 P301 SOUTH ELEVATION PRESENTATION
SCALE 1 : 75

4 P301 EAST ELEVATION PRESENTATION
SCALE 1 : 75



3 P301 NORTH ELEVATION PRESENTATION
SCALE 1 : 75

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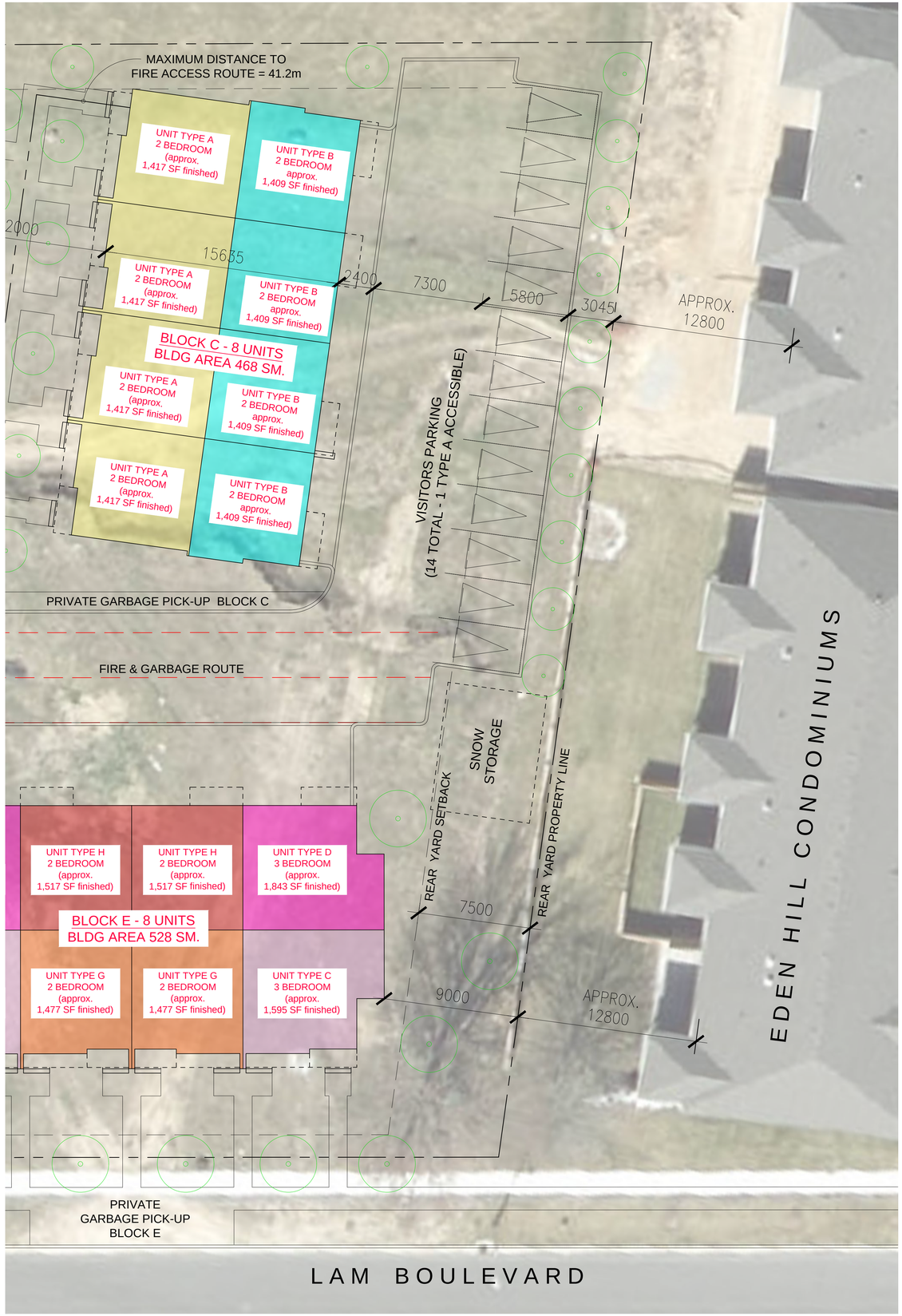
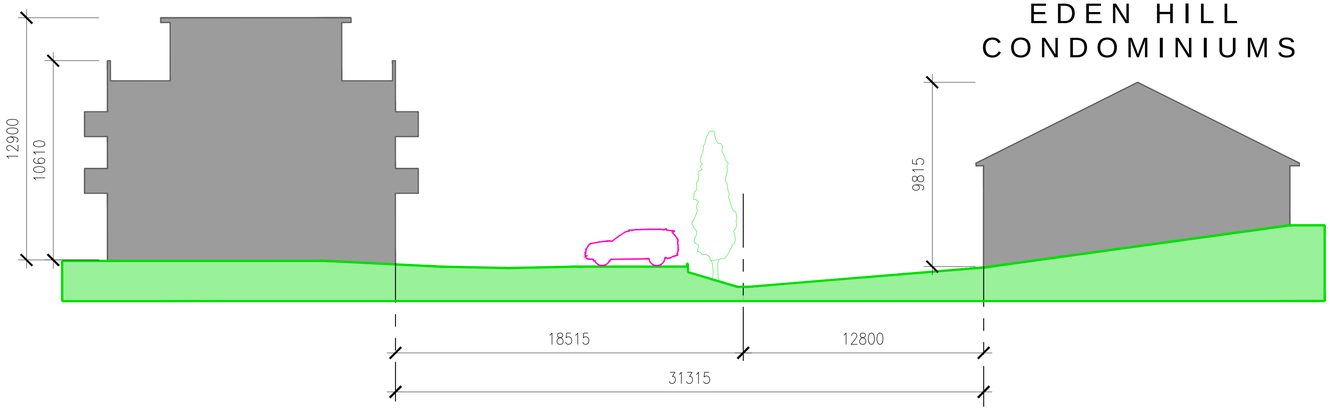
Project Title
LAM BLVD TOWNHOMES
HWY. 24 & LAM BLVD.
WATERFORD, ONTARIO,
N0E 1Y0

PROJECT No.
21-059
Drawing Title
PRESENTATION
ELEVATIONS
Drawing No.
P301

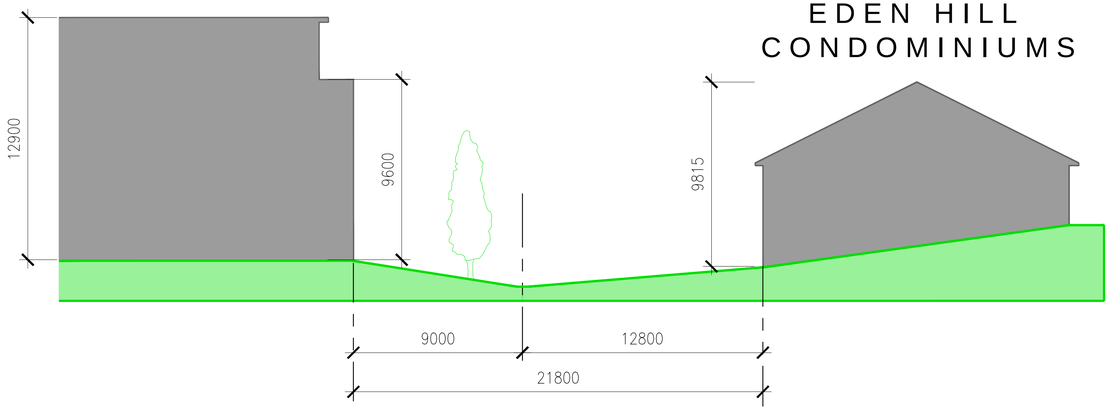


*Note: print this sheet at 24x36

PROPOSED DEVELOPMENT (BLOCK C)



PROPOSED DEVELOPMENT (BLOCK E)



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RELATIONSHIP TO ADJACENT DEVELOPMENT - BACK TO BACK 3 STOREY TOWNHOUSES
HWY 24 & Lam Blvd.
SCALE 1:350

PROJ. 21-059
JAN. 25, 2022

Appendix B to Planning Justification Report
Northeast corner of Lam Boulevard and Old Highway 24, Waterford
Our Project 21-059

Provincial Policy Statement 2020 – Policy Compliance Table

This appendix demonstrates how the proposed application is consistent with those applicable policies of the Provincial Policy Statement 2020.

Section	Policy	Comments	
1.1	**Managing and Directing Land Use to Achieve Efficient and Resilient Development and Land Use Patterns** **Policy 1.1.1 outlines that healthy, liveable, and safe communities are sustained by:** a) promoting efficient development and land use patterns which sustain the financial well-being of the Province and municipalities over the long term; b) accommodating an appropriate affordable and market-based range and mix of residential types (including single-detached, additional residential units, multi-unit housing, affordable housing and housing for older persons), employment (including industrial and commercial), institutional (including places of worship, cemeteries and long-term care homes), recreation, park and open space, and other uses to meet long-term needs; c) avoiding development and land use patterns which may cause environmental or public health and safety concerns; d) avoiding development and land use patterns that would prevent the efficient expansion of settlement areas in those areas which are adjacent or close to settlement areas;	a) The subject lands are appropriate for residential development. The subject lands have never been used for commercial purposes. A special policy area under the official plan was adopted in 2007. Given it has been over 14 years, it indicates the difficulties in finding a viable commercial user for this property. This is an inefficient use of viable development land within the municipality. b) This development adds a compact form of residential development to cater to various incomes and mix of housing types in the area. c) A land use compatibility study was prepared to demonstrate no anticipated negative impacts will be generated d) N/A	✓

	e) promoting the integration of land use planning, growth management, transit-supportive development, intensification and infrastructure planning to achieve cost-effective development patterns, optimization of transit investments, and standards to minimize land consumption and servicing costs; f) improving accessibility for persons with disabilities and older persons by addressing land use barriers which restrict their full participation in society; g) ensuring that necessary infrastructure and public service facilities are or will be available to meet current and projected needs; h) promoting development and land use patterns that conserve biodiversity; and; i) preparing for the regional and local impacts of a changing climate.	e) The proposed development is located within 200m of the Ride Norfolk stop located at the Waterford Plaza. f) A fully constructed sidewalk will be provided as part of this development to assist with connectivity to public transit located in the nearby plaza. g) Infrastructure and various services exist in the area. Capacity does exist within these services to support the development. h) N/A i) N/A	✓
1.1.3.1	States that settlement areas shall be the focus of growth and development.	The subject lands are within the urban boundary of Waterford.	✓
1.1.3.2	**States that land use patterns within settlement areas shall be based on densities and a mix of land uses which:** a) efficiently use land and resources; b) are appropriate for, and efficiently use, the infrastructure and public service facilities which are planned or available, and avoid the need for their unjustified and/or uneconomical expansion;	a) Compact form of development on an existing lot of record b) Municipal services are available to this development with no requirement for extension	✓

	c) minimize negative impacts to air quality and climate change, and promote energy efficiency; d) prepare for the impacts of a changing climate; e) support active transportation; f) are transit-supportive, where transit is planned, exists or may be developed; and g) are freight-supportive.	c) N/A d) N/A e) The location of the development provides walkability to a number of nearby services and cycling trails. f) Located within 200m of the Ride-Norfolk stop at the Waterford Plaza. g) N/A	✓
	Land use patterns within settlement areas shall also be based on a range of uses and opportunities for intensification and redevelopment in accordance with the criteria in policy 1.1.3.3, where this can be accommodated.	This development adds a compact residential development on vacant underutilized lands.	✓
1.1.3.3	Planning authorities shall identify appropriate locations and promote opportunities for transit-supportive development, accommodating a significant supply and range of housing options through intensification and redevelopment where this can be accommodated taking into account existing building stock or areas, including brownfield sites, and the availability of suitable existing or planned infrastructure and public service facilities required to accommodate projected needs.	This policy encourages the proposed development which represents intensification through the provision of a range of housing options that can be serviced with existing infrastructure. Public transit is available within 200m of the development.	✓
1.1.3.4	Appropriate development standards should be promoted which facilitate intensification, redevelopment and compact form, while avoiding or mitigating risks to public health and safety.	The development intensifies the area in a compact form and is not located in a flood plain.	✓
1.1.3.5	Planning authorities shall establish and implement minimum targets for intensification and redevelopment within built-up areas, based on local conditions. However, where provincial targets are established through	The County Official Plan indicates that the County shall target that a minimum 25 percent of its annual residential	✓

	provincial plans, the provincial target shall represent the minimum target for affected areas.	growth be accommodated through infill, intensification and redevelopment within the existing built-up areas in the Urban Areas with full municipal services.	
1.2.6	**Land Use Compatibility** Major facilities and sensitive land uses shall be planned and developed to avoid, or if avoidance is not possible, minimize and mitigate any potential adverse effects from odour, noise and other contaminants, minimize risk to public health and safety, and to ensure the long-term operational and economic viability of major facilities in accordance with provincial guidelines, standards and procedures. A sensitive land use means buildings, amenity areas, or outdoor spaces where routine or normal activities occurring at reasonably expected times would experience one or more adverse effects from contaminant discharges generated by a nearby major facility. Sensitive land uses may be a part of the natural or built environment. Examples may include, but are not limited to: residences, day care centres, and educational and health facilities. A major facility means facilities which may require separation from sensitive land uses, including but not limited to airports, manufacturing uses, transportation infrastructure and corridors, rail facilities, marine facilities, sewage treatment facilities, waste management systems, oil and gas pipelines, industries, energy generation facilities and transmission systems, and resource extraction activities.	As shown through the D-6 Compatibility and Noise Assessment completed by CCS Engineering Inc., there are no existing facilities (industrial or commercial) that are expected to adversely impact the proposed development with noise, dust or odour emissions. Any future proposed industrial facility will already have to take into consideration these provincial guidelines and standards due to potential residential land uses across Blueline Road.	✓
1.4	**Housing** Planning authorities to provide for an appropriate range and mix of housing types and densities.	This development adds to the range and mix of housing types and densities in the area.	✓

1.4.3	Planning authorities to provide for an appropriate range and mix of housing options and densities to meet projected market-based and affordable housing needs of current and future residents of the regional market area by: b) permitting and facilitating: 1. all housing options required to meet the social, health, economic and well-being requirements of current and future residents, including special needs requirements and needs arising from demographic changes and employment opportunities; and 2. all types of residential intensification, including additional residential units, and redevelopment in accordance with policy 1.1.3.3; c) directing the development of new housing towards locations where appropriate levels of infrastructure and public service facilities are or will be available to support current and projected needs; d) promoting densities for new housing which efficiently use land, resources, infrastructure and public service facilities, and support the use of active transportation and transit in areas where it exists or is to be developed; e) requiring transit-supportive development and prioritizing intensification, including potential air rights development, in proximity to transit, including corridors and stations; and f) establishing development standards for residential intensification, redevelopment and new residential development which minimize the cost of housing and facilitate compact form, while maintaining appropriate levels of public health and safety.	b) The development adds to the range of housing options and is located in an area near employment opportunities. c) This development represents residential intensification where public facilities are already available. d) The proposed development will achieve 57 uph to ensure efficient use of the land. The urban area of Waterford contains existing infrastructure public services facilities. e) N/A f) The development is an appropriate density in a compact form for the size of the lands located near	✓

		sidewalks, public transit and existing and future trails.	

Summary

The proposed development will facilitate the construction of a 40-dwelling unit development on an existing vacant parcel of land within the County's Settlement Area. The proposed official plan and zoning amendments will help add to the range of housing in the area. The form of development contributes the County's existing residential building supply, improves the mix of land uses in the area, adds to the diversity unit configurations available, and will appeal to individuals with different needs and financial abilities. The lands have access to existing municipal infrastructure and will not cause any environmental or public health and safety concerns as the necessary studies have been completed to implement mitigation from adjacent industrial land uses. Municipal servicing is available on Old Highway 24 which can be extended to the subject property at the developers cost and will be confirmed through the site plan application.

1.5 Public Spaces, Recreation, Parks, Trails and Open Space

Section 1.5 addresses healthy communities and the provision of public spaces, recreation, parks, trails and open space. The lands are too small to provide viable parkland. Therefore, 5% of the value of the lands will be paid to the County in lieu of parkland dedication in accordance with County policies. It will facilitate active transportation and community connectivity due to the proximity of local businesses and services and fosters social interaction through existing recreation in the area. More specifically, the development is near public parks and within one kilometre of restaurants, pharmaceutical stores and within a five (5) minute walk to the Trans Canada Trail identified on Schedule I of the Official Plan.

1.6 Infrastructure and Public Service Facilities

Policy 1.6 discusses the efficient use of infrastructure, utilities and green infrastructure.

The subject lands will take advantage of existing infrastructure and coordinate the installation of utilities. Green infrastructure in the form of street trees as required by the County. The lands will contain permeable surfaces in the form of sodded boulevards open space areas unoccupied by buildings, structures and driveways.

1.8 Energy Conservation, Air Quality and Climate Change

Policy 1.8.1 states that planning authorities shall support energy conservation and efficiency, improved air quality, reduced greenhouse gas emissions, and preparing for the impacts of a changing climate through land use and development patterns which:

b) promote the use of active transportation and transit in and between residential, employment (including commercial and industrial) and institutional uses and other areas;

e) encourage transit-supportive development and intensification to improve the mix of employment and housing uses to shorten commute journeys and decrease transportation congestion;

The proposed development will be constructed to Ontario Building Code requirements for efficiency and is in a location that encourages active transportation to nearby residential and employment and institutional uses. The lands are in close proximity to various commercial and institutional uses which provide employment opportunities to the future residents of the development.

Appendix C to Planning Justification Report
Northeast corner of Lam Boulevard and Old Highway 24, Waterford
Our Project 21-059

Norfolk County Official Plan – Policy Compliance Table
This appendix demonstrates how the proposed application is consistent with those applicable policies of the Norfolk County Official Plan.

Section	Policy	Comments	
2.2	**Goals and Objectives** This section of the Official Plan sets out six "Goals and Objectives" to which the following five are applicable to the proposed residential development: • Strong and Diversified Economy; • Maintaining and Enhancing the Rural and Small-Town Character; • Maintaining a High Quality of Life; • Upgrading and Expanding Infrastructure; and • A Well Governed, Well Planned and Sustainable County.	The proposed Official Plan and Zoning Bylaw Amendments maintain the general purpose and intent of the Official Plan's Goals and Objectives by providing compact and efficient residential development within the serviced urban area of Waterford. The location of the development will provide its residents with easy access to commercial and social services located in the nearby shopping centre and downtown areas. The proposed development will provide residents with access to much needed housing options to live and work in Norfolk County. Through the site plan process, adherence to the County's design criteria will ensure this development maintains and enriches the rural and small-town character. The compact and attractive housing options in this development will achieve a density of 57 uph to ensure efficient use of land while maintaining compatibility with surrounding residential land uses. As an under utilized and vacant commercial designated property, these lands have not contributed to the County's economy. The location of this development will provide its residents with easy access to Old Highway 24 in order to access employment opportunity across the County, in line with the County's Goals and Objectives to help Norfolk establish a strong and diversified economy.	✓

5.3	**Housing** The provision of housing is an essential part of planning in Norfolk County. The County shall ensure that a full range of housing types are provided to meet the anticipated demand and demographic change. 5.3 e) Under this section the County shall encourage innovative and appropriate housing development that exhibits design and adaptability characteristics, and may represent non-traditional additions to the County's housing stock. 5.3 g) Further the County shall encourage that housing be considered when opportunities for redevelopment become available. This includes the redevelopment of existing single-use and underutilized areas with full municipal services, such as shopping plazas, business and employment sites and older commercial and residential areas, especially where the land is in close proximity to human services. Special attention shall be given to the design of buildings, the landscaping treatment and features of the site to ensure that the proposed redevelopment is physically compatible with the adjacent uses.	The proposed application is consistent with the policies of this section of the official plan. This residential development will provide a compact and much needed form of housing. The proposed application provides three-storey stacked townhouses which are not readily available in Norfolk County. This development will contribute to the range of available housing units and types to help meet the demand and demographic changes. e) This section of the Official Plan requires the County to consider innovative and appropriate housing options. As shown on the concept site plan, the design of this development will provide a form of housing not readily available in Norfolk County. g) This vacant parcel of land has always remained underutilized for commercial purposes. Given a commercial special policy area was adopted in 2007, this is an indication of the inefficient land use polices applicable to the subject lands. The proposed application to permit residential development will make effective use of the land and provide efficient access to human services in the nearby shopping plaza and easy access to the downtown area. As shown through the D-6 compatibility study there are no negative impacts on the proposed development or surrounding land uses. Through the site plan process, buffering and landscaping will be provided on site to further mitigate any potential impacts. The innovative site design has located and oriented the units in such a manner to help improve compatibility with the adjacent residential lands to the east.	✓

	5.3.1 f) The County shall consider applications for infill development, intensification and redevelopment of sites and buildings through intensification based on the following criteria:		
	i. the development proposal is within an Urban Area, and is appropriately located in the context of the residential intensification study;	i.	The proposed application is for a residential development on an existing lot of record within the serviced urban area of Waterford.
	ii. the existing water and sanitary sewer services can accommodate the additional development;	ii.	The development will be provided with access to municipal water and sewer services. As part of the application the necessary studies have been completed to show capacity exists within these systems. ✓
	iii. the road network can accommodate the traffic generated;	iii.	A traffic impact study has been complete and shows the road network can accommodate the anticipated traffic generated.
	iv. the proposed development is compatible with the existing development and physical character of the adjacent properties and surrounding neighbourhood; and	iv.	A Ministry of Environment D-6 compatibility study has shown the proposed development will not be negatively impacted by current or future industrial facilities. The form, height and massing of the proposed development are different than the adjacent residential lands. However, as demonstrated in Appendix A and sub-annexes, the development will incorporate design elements and setbacks to blend the built form with the surrounding character of the area.
	v. the proposed development is consistent with the policies of the appropriate Land Use Designation associated with the land.	v.	Proposed to change from Commercial to Residential.

5.4	**Community Design** The following shall be the policy of the County: a) Through implementation of this Plan, the County shall seek to maintain and improve the physical design characteristics of the Urban Areas in the context of new and existing development and stress a generally high quality of settlement design throughout the County. b) Through the review of development applications, including plans of subdivision, site plans and other development proposals, the County: i. shall ensure that new development is designed in keeping with the traditional character of the Urban Areas, in a manner that both preserves the traditional image of the Urban Areas and enhances the sense of place within the County while maintaining the community image of existing settlement areas; ii. shall promote efficient and cost-effective development design patterns that minimize land consumption; iii. shall promote the improvement of the physical character, appearance and	a) This development will be subject to the site plan control process which will ensure adherence to the County's design criteria. i. The proposed development will achieve 57 uph to ensure efficient use of the land while providing a density that maintains an overall small-town characteristic. Annex A2 demonstrates the attractive and inviting design of the townhouses, helping to ensure a sense of place within Norfolk County. The location of higher density development along the periphery of the neighbourhood area allows residents to take advantage of the nearby services while helping to preserve the more traditional built form of the established downtown and neighbourhood areas. ii. The proposed development will provide 57 uph to ensure efficient use of the lands on an existing lot of record. iii. As shown on the site plan, this development has eliminated reverse lotting to ensure an attractive streetscape.	✓

	safety of streetscapes, civic spaces, and parks;		
	iv. shall encourage tree retention and tree replacement;	iv. A tree planting or landscaping plan will be provided during the site plan approval process.	
	v. shall ensure that design is sympathetic to the heritage character of an area, including the area's cultural heritage resources;	v. Consideration can be given during the site plan approval process to help implement this policy.	✓
	vi. shall strongly encourage design that considers and, wherever possible, continues existing and traditional street patterns and neighbourhood structure;	vi. Increased setback from Old Highway 24 will help maintain the existing street patterns. No new public roads or streets are proposed. The condominium block occupies an existing land parcel within the existing street pattern	
	vii. may require, at the County's sole discretion, that proponents submit design guidelines with development applications, establishing how the policies of this Section have been considered and addressed. Such guidelines may also be required to address related issues of residential streetscaping, landscaping, setbacks, sidewalks, signage, garage placement, and architectural treatment	vii. This requirement will be met during the site plan application process.	
	c) Adequate measures shall be taken to ensure that the permitted uses have no adverse effects on adjacent land uses. Adequate buffering shall be provided between any uses where land use conflicts might be expected, and such buffering may include provisions for	c) These requirements will be met during the site plan approval process. Recommendations from the D-6 Land Use Compatibility Study, including and construction requirements will be incorporated into the development of the site.	✓

	grass strips and appropriate planting of trees and shrubs, berms or fence screening, and other means as appropriate. Modifications to building orientation may also be appropriate buffering measures, but not in replacement of appropriate plantings. d) Development design that establishes reverse lotting on Provincial Highways and County Roads will not be permitted. Development design that requires features such as noise attenuation or privacy fencing will be discouraged. Wherever possible, new development will be oriented toward streets or parks.	A landscape strip is provided along the rear yard between the adjacent townhouse development along with increased setbacks. Building design and orientation of the upper level is stepped back and narrower than the lower floors to reduce the appearance of height. d) As shown on the site plan, no reverse lotting is proposed for any dwelling unit on this development. The innovative design approach facilitates the appealing front façade of the building to face the municipal streets, while all parking is at the rear of the units on the interior of the site, shielded from the streetscape.	✓
6.4	**Urban Areas** This section of the Official Plan identifies the six Urban Areas of Norfolk County – Delhi, Courtland, Port Dove, Port Rowan, Simcoe, and Waterford – as the focal points for growth and development activity.	The proposed application is within the urban boundary of Waterford and will help Norfolk County meet its growth targets.	✓
6.5.4	**The County will support and promote the continued development of Waterford as an important urban community and agricultural support centre in the County. The following shall be the policy of the County:** a) Waterford is the closest Urban Area to Highway No. 403. The County shall encourage employment growth and development in the Urban Area.	This development is located within the urban area of Waterford and does not offend these policies.	✓

	b) Many of the historic residences in the Waterford Urban Area are of cultural heritage value or interest. The County will encourage the maintenance, rehabilitation, and adaptive reuse of the historic residences. c) Trail linkage opportunities exist in the Waterford Urban Area due to the presence of abandoned rail corridors and other linear open space features. The County will encourage the development of trails integrating Waterford with other areas of the County.		
7.7	**Urban Residential Designation** The Urban Residential Designation applies to the Urban Areas of the County. The Urban Areas are expected to continue to accommodate attractive neighbourhoods which will provide for a variety of residential forms. A variety of housing types are needed to meet the needs of a diverse population. Under Permitted uses 7.7.1 c) High density residential uses in development forms greater than those described in Subsections (a) and (b) shall be permitted subject to the policies of Section 7.7.2 (c) (Urban Residential Designation – Land Use Policies), save and except for in the Courtland Urban Area where high density residential uses shall not be permitted.	The proposed development will provide a form of housing that is not readily available in Norfolk County. This development will contribute to the range of housing available in order to help meet future demands and changing demographics. As a proposed high-density condominium, subject to Section 9.6.5 Site Plan Control, the development will adhere to Norfolk County's design criteria to ensure all requirements of this section are satisfied. This will include the necessary studies and modeling to ensure service capacity exists and appropriate buffering and landscaping is implemented.	✓

7.7.2	Land Use Policies 7.7.2 c) High density residential uses, including apartment buildings and other forms of multiple housing of a similar density shall be carefully located. The following criteria shall be addressed in the consideration of such applications, especially in proximity to lower density residential development:		
	i) the density, height and character of the development shall be compatible with adjacent uses;	i. The form, height and massing of the proposed development are different than the adjacent residential lands. However, as demonstrated in Appendix A and sub-annexes, the development will incorporate design elements and setbacks to blend the built form with the surrounding character of the area.	
	ii) the ability of the site to accommodate necessary facilities and amenities, such as garbage storage, parking and landscaped areas;	ii. As shown on Appendix A, there is sufficient space to accommodate the necessary facilities and amenities. During the site plan process these requirements will be reviewed in detail.	✓
	iii) the height, form and density of the proposed development is such that no undue adverse impacts in terms of overshadowing, increased traffic or loss of amenity area are created for surrounding residential uses;	iii. A traffic impact study has been completed and shows the proposed development will not negatively affect area traffic operations. Appendix A and Annex A2 illustrate that consideration has been given to the orientation, placement and setback of each townhouse block to avoid undue adverse impacts on adjacent residential lands. The proposed setback from the eastern property line ranges from approximately 10 to 18 m, being roughly double the standard rear yard setback of 7.5m. The top of the proposed building is at a similar elevation to the top of the roof of the existing townhomes directly to the east.	

	iv) the relationship of the site to nearby lower density residential uses, in view of the desire to provide a gradual transition in height and density wherever possible;	iv. Appendix A and Annex A2 illustrate that consideration has been given to the orientation and setback of each townhouse block to provide a more gradual transition between the lower density housing form to the east including the existing height of the adjacent residential townhouse development which is similar in height to the proposed development. Annex A3 demonstrates that the height of the main development is 9.6 metres whereas the height of the adjacent dwellings is 9.8 metres. Account has been given to step back the roof top terrace to avoid undue impacts. Improved compatibility will result due to significant landscaping along the rear property line to act as a natural buffer between the two forms of development.	
	v) the degree to which the site has access to significant open space amenities such as valley lands or major parks;	v. The proposed development is located within 100m of the park on Jong Street. This will provide its residents with easy access to open amenity space.	✓
	vi) municipal watermains and sanitary sewers shall be required and shall be capable of accommodating the development, or the proponent shall commit to extending services at no cost to the County;	vi. Full municipal services will be provided to the development. During the site plan process, detailed modeling will be conducted to ensure available capacity exists within these services.	
	vii) the proximity of the site to arterial or collector roads, and/or pedestrian accessibility to a Downtown Area or, in the case of the Simcoe Urban Area, a	vii. The development is provided with direct access to Old Highway 24 which is identified as an arterial road on Schedule E-5 of the Official Plan. The proposed access will provide residents with easy	

	Secondary Centre, or other locations of supporting services and facilities; viii) the adequacy of local services including schools and other community services. It is recognized that accessibility to such facilities, including health care services, may be particularly important to residents with special needs; and ix) the use shall be subject to site plan control, in accordance with the policies of Section 9.6.5 (Site Plan Control) of this Plan.	accessibility to the Downtown area while reducing traffic on area local roads. viii. The proposed development is located within 150m of a plaza which has professional offices and services including a pharmacy. The location of this development along Old Highway 24 will provide residents with accessibility to the downtown area where additional local services are offered including, schools, places of worship and doctors' offices. ix. This development will be required to complete the site plan control process.	✓
7.11	**Commercial Designation** Commercial areas are accessible locations along the County's major transportation routes offering suitable accommodation for a specific range of commercial uses which have the following basic characteristics: c) space-extensive uses having physical requirements in terms of the size or configuration of the site or building such that they cannot be accommodated within the Downtown Areas;	As a parcel, representing 0.7ha of Commercial area, the parcel size conflicts with the current policies as it is undesirable for many of the space-extensive uses permitted in the CS zone. This is representative by the historic underutilization of the property for commercial purposes. Re-designation of this small parcel does not offend the policies of the official plan.	✓
7.11.1	The Commercial Designation encourages the establishment of commercial uses and permits limited residential development provided that the uses do not negatively impact the planned function of the Commercial areas. Residential uses are permitted as follows:	The proposed land use is for a multi-residential dwelling unit development which will be designed with residential character and therefore is permitted.	

	i. in a building of commercial character, residential uses shall only be permitted above the ground floor; and ii. in a building of residential character, either single detached or multiple dwelling, residential and/or commercial uses shall be permitted, provided the residential character of the building is maintained.	The property 0.7 ha in area which provides reduced space for many of the uses permitted under the CS zone. Higher intensity permitted uses (including but not limited to lumber yard, garden supply center, equipment rental establishment, etc.) require large retail buildings and associated parking / display / storage areas. Lower intensity permitted uses (including but not limited to clinic or doctor office, daycare nursery, dry cleaning establishment, etc.) are normally grouped in a large shared plaza which also requires extensive parking areas. In addition to the area required for a commercial building and parking space, additional lands are also required for landscaping, snow storage, garbage collection, and storm water management. These factors make a smaller parcel unattractive for many of the permitted uses under the CS zone.	✓
7.11.2	**Land Use Policies** The following policies apply to land designated Commercial. a) Commercial development shall be compatible with surrounding uses and shall be adequately buffered from adjacent sensitive land uses. b) Adequate off-street parking and loading spaces shall be provided in accordance with the Zoning By-law c) Commercial uses shall only locate on Provincial Highways, subject to the approval of the Province and the County, or arterial or collector roads, subject to the approval of the County.	Given the requirements under this section, the small size of the commercial designation makes this parcel less attractive to many commercial uses. These requirements further restrict and reduce the area of land available for commercial uses. Conversion of this parcel to a residential designation will facilitate an appealing and much needed development on this underutilized property.	✓

	d) A high standard of site design shall be required through site plan control. e) Proposals to designate additional land as Commercial within the County shall be subject to the policies of Section 9.6.1 (Official Plan Amendments) and the criteria outlined in Section7.10.2 (f) (Shopping Centre Commercial Designation – Land Use Policies), notwithstanding the size of the proposed use(s), or the presence or absence of a proposed Large Retail Use.		
8.8	**Noise, Vibration, Odour and Light Emissions** Noise, vibration, odour and other contaminants resulting from industrial activity can impact adjacent land uses, and the residents, businesses and visitors of Norfolk County. Managing noise, vibration and odour levels in the County is important to ensuring the health and well-being of the County, and in managing appropriate relationships between sensitive land uses, land uses that emit noise, vibration and/or odour, and certain elements of the transportation network	A D-6 Compatibly Assessment was completed by CCS Engineering Inc. to determine if noise, odour, vibration or dust emissions from surrounding sources might adversely impact the proposed townhouse development sensitive land uses. As shown through the D-6 Compatibility and Noise Assessment completed by CCS Engineering Inc., there are no existing facilities (industrial or commercial) that are expected to adversely impact the proposed development with noise, dust or odour emissions. Any future proposed industrial facility will already have to take into consideration these provincial guidelines and standards due to existing residential land uses located on the west side of Blueline Road. Recommendations from the D-6 Compatibility and Noise Assessment including warning clauses and construction requirements will be incorporated into the development at the site plan stage to further mitigate any potential for future land use conflicts.	✓

8.9.1	**Services in Urban Areas** 8.9.1 c) All development in the Urban Areas shall be fully serviced by municipal piped water supply and waste water treatment systems, save and except for circumstances outlined in Section 8.9.1(f) (Services in Urban Areas). Notwithstanding this, appropriate development shall be permitted in the Courtland Urban Area on the basis of a municipal water system and private waste water disposal systems. e) Infilling of vacant areas within the Urban Areas which are already provided with full municipal services is encouraged, and shall be a criterion when evaluating proposed plans of subdivision and consents, with respect to the extension of services, utilities or the associated construction.	As demonstrated by the Functional Servicing Report prepared by G. Douglas Vallee Limited dated January, 2022, adequate capacity exists within the water and sanitary mains along Lam Boulevard and Old Highway to service the development. As an existing lot within the urban area, this form of development is encouraged by the policies of this section. This project can be considered as infilling given that it is a vacant lot that is surrounded by development. The lot is fully serviced with municipal services. This project is an exact match to this policy and therefore is encouraged by the policy.	✓
9.6	**Development Control** 9.6.1 c) The County shall consider the following criteria when reviewing applications to amend this Plan: i) the manner in which the proposed amendment conforms to prevailing Provincial policy and regulations; ii) the manner in which the proposed amendment conforms to the Strategic Plan prepared in support on this Plan;	i. As detailed in Appendix B, the proposed development conforms and is supported by provincial policies. ii. One of Norfolk County's Strategic Priorities is to offer vibrant and creative communities with a goal of providing beautiful, safe neighbourhoods, with a strong sense of community and great places for people. A priority initiative to reach this goal to facilitate and promote a diverse and attractive mix of housing options to increase affordability. The	✓

			proposed development will offer an attractive built form which is not readily available in Norfolk County.	
	iii) the manner in which the proposed amendment conforms to the Goals and Objectives, and policies of this Plan;	iii.	As outlined above the proposed development conforms to the Goals, Objectives and policies of this plan. The compact and attractive housing options in this development will achieve a density of 57 uph to ensure efficient use of land while maintaining compatibility with surrounding residential land uses. As an underutilized and vacant commercially designated property, these lands have not contributed to the County's economy. The location of this development will provide its residents with direct access to Old Highway 24 in order to access employment opportunity across the County.	
	iv) the impacts of the proposed amendment on the provision of and demand for municipal services, infrastructure and facilities;	iv.	Through the site plan process, detailed modelling will be completed to ensure adequate capacity exists within the municipal services to support this development.	✓
	v) the adequacy of the proposed servicing solution with respect to the servicing policies of this Plan;	v.	See point iv above.	
	vi) the impact of the proposed amendment on surrounding land uses, the transportation system, municipal services and community amenities and services;	vi.	The necessary studies have been completed to show the proposed development will not negatively affect area traffic operations and the surrounding industrial lands uses. Through creative orientation and increased setbacks, the site has been designed to help mitigate adverse impacts on the adjacent residential lands to the east. These mitigating measures will help provide a gradual transition between uses.	

	vii) the impact of the proposed amendment on the community structure and nature of the Urban Areas and/or Hamlet Areas;	vii. The development is located in an area of other recent residential developments on the periphery of the settlement area. These factors help to ensure the community structure of the older development on the interior of Waterford is maintained, while adding new and much needed forms of housing options.	
	viii) the impact of the proposed amendment on cultural heritage resources and/or Natural Heritage Features;	viii. As a vacant and cleared parcel there are no anticipated negative impacts.	
	ix) the impact on agricultural uses and land;	ix. The compact form of this development and its location within the existing urban settlement boundary is encouraged by this policy.	✓
	x) the impact of the proposed amendment on the financial sustainability of the County; and	x. Higher density condominium development is one of the most efficient and sustainable forms of development that allows for higher taxes and better value for municipal infrastructure operation and maintenance.	
	xi) any other information determined by the County, in consultation with the appropriate, agencies, to be relevant and applicable.	xi. Any other pertinent information can be reviewed during the site plan process.	
9.10.5	**Parkland Dedication** The County shall secure the maximum benefit of the Planning Act with respect to land dedication for park development and shall strive to meet the policies of Section 7.5.1 (Parks) of this Plan relating to park development.	Given the policies of Section 9.10.5, it is requested that the County accept cash-in-lieu of land dedication. Due to the size of the site, a parkland dedication large enough to provide a reasonable park facility would render the site impractical for development.	✓

	g) The County may accept cash-in-lieu of the land dedication to be paid into a special account and used as specified in the Planning Act. Council will consider cash-in-lieu of parkland dedication under the following circumstances: a. where the required land dedication fails to provide an area of suitable shape, size or location for development as public parkland; b. where the required dedication of land would render the remainder of the site unsuitable or impractical for development; and/or c. where it is preferable to have consolidated parkland of a substantial size servicing a wide area The County may establish a flat rate for cash-in-lieu payments for parkland dedications from new residential, commercial and industrial lots created by consent.	Additionally, the area is already serviced by parklands located south of the subject property. Cash-in-lieu of parkland dedication from this development could be used to provide facility upgrades to existing parks in Waterford.	

D-6 COMPATIBILITY, DUST and NOISE ASSESSMENT
Pramukh Developments Ltd. - Lam Blvd. and Old Hwy 24
Waterford ON

January 27, 2022 Rv1

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Project 941

TABLE OF CONTENTS

ATTACHMENTS

EXECUTIVE SUMMARY

CCS Engineering Inc. (CCS) was retained by Pramukh Developments Ltd. to prepare a D-6 Land Use Compatibility Assessment for the proposed development located on the northeast corner of Old Highway 24 and Lam Blvd in Waterford, Norfolk County (Lam and Old Hwy 24). The parcel is described as Block 60 in Plan 37M-57 37M-57, Roll #33605062848.

The assessment was conducted in accordance with the “Compatibility between Industrial Facilities and Sensitive Land Uses”, published by the Ontario Ministry of the Environment Conservation and Parks (MOECP) as Guideline D-6 (D-6 Guideline).

The proposed Lam and Old Hwy 24 development is approximately 215 m from existing class II industrial operations northwest along Old Highway 24 (across form the grocery store), well beyond the Guideline D-6 – Land Use Compatibility recommended separation distance of 70 m, and just within the potential influence area (300 m) and based on the review for the surrounding industrial and commercial operations, they are not expected to adversely impact the proposed development with noise, dust or odour emissions.

Noise impact predictions from surrounding commercial operations and road traffic noise indicate that road traffic is the dominant noise source during the day, evening and nighttime periods.

Conservative road traffic volume (to 2032) and vehicle type distribution modelled in STAMSON predicts noise impacts at the townhouse units facades on the west side of the proposed development along Old Highway 24 and be designed with a provision for the installation of central air conditioning. Warning clause C is recommended to be registered for these units.

Potential for dust impacts at the Lam and Old Hwy 24 proposed development are not considered significant. Industrial, commercial and agricultural operations along Old Hwy 24 west and northwest of the proposed development are not considered a significant source of dust.

1.0 INTRODUCTION

CCS Engineering Inc. (CCS) was retained by Pramukh Developments Ltd. to prepare a D-6 Land Use Compatibility Assessment for the proposed development located on the northeast corner of Old Highway 24 and Lam Blvd in Waterford, Norfolk County (Lam and Old Hwy 24). The parcel is described as Block 60 in Plan 37M-57 37M-57, Roll #33605062848.

The purpose of this assessment is to determine if noise, odour, vibration or dust emissions from surrounding sources might adversely impact the proposed townhouse development sensitive land uses.

The assessment was conducted in accordance with the “Compatibility between Industrial Facilities and Sensitive Land Uses”, published by the Ontario Ministry of the Environment Conservation and Parks (MOECP) as Guideline D-6 (D-6 Guideline).

This report describes the surrounding commercial operations, industrial zoned land and existing operations, focusing on the nearest neighbouring businesses and industries to the proposed development as having the highest potential to cause an adverse impact.

Other surrounding facilities within approximately one kilometer diameter have also been identified and reviewed and are considered insignificant.

Assessment of traffic impacts from Old Highway 24 are also considered. These are more significant than any surrounding commercial or industrial stationary operation.

2.0 SITE AND NEIGHBOURHOOD DESCRIPTION

The proposed Lam and Old Hwy 24 townhouse development is located on the northeast corner of Old Highway 24 and Lam Blvd in Waterford, Norfolk County. The parcel is described as Block 60 in Plan 37M-57, Roll #33605062848.

A satellite site location (Figure 1) and Norfolk zoning map (Figure 2) given in Attachment A show the site location.

The Lam and Old Hwy 24 proposed development located is zoned commercial. The proposed development is immediately surrounded by Old Highway 24 to the west, industrial zoned vacant land to the west beyond Old Highway 24, industrial zoned land with a commercial truck repair operation (Waterford Truck and Trailer (WTT)) to the south west, commercial zoned vacant land to the northwest, residential land to the east and northeast, and residential zoned properties to the south.

The Old Highway 24 is bordered by existing commercial and residential properties in the vicinity of the proposed development. Further northwest along Old Highway 24 across from the Foodland grocery store are two class II industrial operations.

Attachment B provides the proposed development layout drawings.

2.1 GUIDELINE D-6 LAND USE COMPATIBILITY

Guideline D-6 – Land Use Compatibility deals with the compatibility between industrial uses and sensitive uses by classification of the industry and identifying an area of influence and establishing recommended minimum setback distances between the industrial operations and sensitive land uses.

D-6 indicates that sensitive land uses can include the following:

- recreational uses which are deemed by the municipality or provincial agency to be sensitive; and/or
- any building or associated amenity area (i.e., may be indoor or outdoor space) which is not directly associated with the industrial use, where humans or the natural environment may be adversely affected by emissions generated by the operation of a nearby industrial facility. For example, the building or amenity area may be associated with residences, senior citizen homes, schools, day care facilities, hospitals, churches and other similar institutional uses, or campgrounds.

The D-6 Industrial Categorization Criteria is summarized in Attachment C. There are three industrial classes:

- Class 1 = light industrial,
- Class 2 = medium industrial, and
- Class 3 = heavy industry

The general descriptions of each class are given below:

Class I Industrial Facility – Light Industrial

A place of business for a small scale, self contained plant or building which produces/stores a product which is contained in a package and has low probability of fugitive emissions. Outputs are infrequent and could be point source or fugitive emissions for any of the following: noise, odour, dust and/or vibration. There are daytime operations only, with infrequent movement of products and/or heavy trucks and no outside storage.

Class II Industrial Facility – Medium Industrial

A place of business for medium scale processing and manufacturing with outdoor storage of wastes or materials (i.e., it has an open process) and/or there are periodic outputs of minor annoyance. There are occasional outputs of either point source or fugitive emissions for any of the following: noise, odour, dust and/or vibration, and low probability of fugitive emissions. Shift operations are permitted and there is frequent movement of products and/or heavy trucks during daytime hours.

Class III Industrial Facility – Heavy Industrial

A place of business for large scale manufacturing or processing, characterized by large physical size, outside storage of raw and finished products, large production volumes and continuous movement of products and employees during daily shift operations. It has frequent outputs of major annoyance and there is high probability of fugitive emissions.

The Ministry has identified in the D-6 guideline potential influence areas - areas within which adverse effects may be experienced. The D-6 guideline also outlines recommended minimum separation distances where no development ideally should occur. The D-6 guideline suggests that distances typically be measured between property lines but can also be measured from a specific source to sensitive receptor. These distances are summarized in the table below.

Industry Classification	**Recommended Min Separation Distance (m)**	**Potential Influence Area (m)**
Class I – Light Industrial	20	70
Class II – Medium Industrial	70	300
Class III – Heavy Industrial	300	1000

3.0 INDUSTRY CLASSIFICATION AND SURROUNDING LAND USES

The neighbouring properties to the north are zoned service commercial and are not considered to adversely impact the proposed Lam and Old Hwy 24 development. These properties include vacant land, food establishments, banking, grocery, drugstore, and gas station.

Neighbouring properties to the west northwest are zoned industrial. Existing industrial operations to the northwest are 215 m (industrial driveway to proposed development northern property line) or farther from the proposed development and are not considered to adversely impact the proposed development. All existing houses along Yu Blvd are within this same separation distance from the industrial operations, many of which are closer than the proposed development.

Industrial Facilities

The nearest industrial facility is Norfolk Disposal, a waste transfer station, located 215 m north west of the proposed development. Norfolk Disposal is located across from the Foodland grocery store and gas station on Hwy 24. This class II medium industrial operation is not considered to adversely impact the proposed development for noise, odour or dust since it is located outside the potential recommended separation distance of 70 m and located more than two thirds distant from the potential influence area of 300 m for a medium industrial facility.

Commercial Facilities

Waterford Truck and Trailer (WTT), a commercial truck repair shop, is located to the west southwest of the proposed development on industrial zoned land. It is not an industrial operation.

WTT could conservatively be considered a Class I industrial facility (but it is a commercial facility). Measuring property line to property line (WTT to proposed development) is 100 m separation. The proposed development is located beyond the recommended 20 m separation distance and 70 m influence zone (based on a Class I Industrial facility) or further away, measured from the WTT property line. The WTT activities and associated noise levels are not considered significant at the proposed development. WTT is not considered significant sources of odour or dust. WTT is not expected to adversely impact the proposed development from dust, noise or odour emissions.

Picard Peanuts, a commercial retail and food packaging operation, is located approximately 155 m northwest of the proposed development. It is located across Old Highway 24 from the Foodland grocery and gas station. This commercial operation could conservatively be

considered a Class I industrial facility and is not considered to adversely impact the proposed development for noise, odour or dust, since it is located outside the potential recommended separation distance of 20 m and potential influence are of 70 m for a light industrial facility.

Since the proposed development is near Old Highway 24, road traffic that contributes to the general ambient background sound level is higher than noise intermittently generated from the WTT truck repair shop, or other industrial or commercial operations situated to the northwest (Pickards, Norfolk Waste).

No other industrial or commercial operations or infrastructure supporting utilities were identified to potentially have an adverse impact on the proposed development.

Figures showing separation distances and influence zones are given in Attachment D.

4.0 NOISE IMPACT ASSESSMENT

4.1 INDUSTRIAL NOISE IMPACTS

NPC 300 is the Environmental Noise Guideline for Stationary and Transportation Sources - Approval and Planning outlining the proper control of sources of noise emissions to the environment. The Ministry of the Environment, Conservation and Parks (MOECP) ensures sources of emissions to the environment are adequately controlled to prevent potential negative effects.

In the province of Ontario, contaminants released by local industrial, and some commercial facilities are regulated by the MOECP under the Environmental Protection Act. Other Acts including the Planning Act, Municipal Act, etc. establish rules that may require assessment of the effects of noise emissions. The definition of "contaminant" includes sound. The industrial facilities are required to meet NPC 300 guidelines that may apply to limit exposure to noise and vibration that can affect human health and the environment.

The MOECP provides guides and resources to conduct noise and sound level assessments in support of an ECA/EASR. https://www.ontario.ca/page/noise-and-sound-level-assessments-sample-applications-guides-and-resources

The applicable noise limit at the sensitive point of reception is the higher of the existing ambient sound level from road traffic/existing approved industry (background sound level) or the exclusion limit outlined in the NPC 300 guideline.

MOECP NPC 300 provides various definitions for noise sensitive buildings and uses:

> **"Noise sensitive commercial purpose building"**
>
> means a building used for a commercial purpose that includes one or more habitable rooms used as sleeping facilities such as a hotel and a motel.
>
> **"Noise sensitive institutional purpose building"**
>
> means a building used for an institutional purpose, including an educational facility, a day nursery, a hospital, a health care facility, a shelter for emergency housing, a community centre, a place of worship and a detention centre. *A place of worship located in commercially or industrially zoned lands is not considered a noise sensitive institutional purpose building.*
>
> **"Noise sensitive land use"** means:
>
> - a property of a person that accommodates a dwelling and includes a legal nonconforming residential use; or
> - a property of a person that accommodates a building used for a noise sensitive commercial purpose; or

- a property of a person that accommodates a building used for a noise sensitive institutional purpose.

"Noise sensitive space"

means the living and sleeping quarters of dwellings and sleeping quarters of noise sensitive commercial or institutional land uses. Examples include, but are not limited to bedrooms, sleeping quarters such as patient rooms, living/dining rooms, eat-in kitchens, dens, lounges, classrooms, therapy or treatment rooms, assembly spaces for worship, sleeping quarters of detention centres.

The Norfolk Waste industrial operation is located approximately 215 m (property line to property line), and approximately 235 m (nearest Norfolk Waste building to proposed development property line) from the proposed development.

This class II – medium industrial operation is not considered to adversely impact the proposed development for noise, odour or dust based on the Guideline D-6 – Land Use Compatibility recommended separation distance of 70 m, and just within the potential influence area (300 m).

No sources of vibration were identified around proposed development.

4.2 COMMERCIAL AND INDUSTRIAL NOISE IMPACTS

Noise emission impacts were estimated using CadnaA noise modelling software assuming noise sources and characteristics as outlined below in Table 1 for Class II industrial operations located over 200 m to the northwest of the proposed development and across from the Foodland grocery store (Norfolk Disposal and Lafarge), and Waterford Truck and Trailer (WTT) located over 100 m west southwest.

Table 1: Sound Source Overview

Source ID	Description	Expected Operating Period	Sound Sequence
Lafarge			
L_L	Front-end Loader	Day/Eve/Night, 7 d/wk, 52 wks/yr	15 min/hr
L_AFH	Aggregate Feed Hopper	Day/Eve/Night, 7 d/wk, 52 wks/yr	15 min/hr
L_RMTL	Redi Mix Truck Loading	Day/Eve/Night, 7 d/wk, 52 wks/yr	60 min/hr
L_RMTS	Redi Mix Truck Slumping	Day/Eve/Night, 7 d/wk, 52 wks/yr	60 min/hr
L_CUB	Cement Unloading - Blower	Daytime only, 7 d/wk, 52 wks/yr	60 min/hr
L_TR_CD	Truck Route - Cement Delivery	Daytime Only, 7 d/wk, 52 wks/yr	1/hr @ 10 km/hr
L_TR_AG	Truck Route - Aggregate Delivery	Day/Eve/Night, 7 d/wk, 52 wks/yr	2/hr @ 10 km/hr
L_TR_RMT	Truck Routes - Redi Mix Truck	Day/Eve/Night, 7 d/wk, 52 wks/yr	6/hr @ 10 km/hr Day, 1/hr Eve or Night
NORFOLK DISP S			
NWS_TR1	Receiving Truck Route	Daytime Only, 7 d/wk, 52 wks/yr	6/hr @ 10 km/hr Day, 3/hr Eve, 0/hr Night
NWS_TR2	Transfer/Disposal Route	Day/Eve/Night, 7 d/wk, 52 wks/yr	1/hr @ 10 km/hr
NWS_L	Loader/Excavator in Processing Bldg.	Day/Eve/Night, 7 d/wk, 52 wks/yr	60 min/hr
NWS_PB	Paint Booth Stack	Day/Eve/Night, 7 d/wk, 52 wks/yr	60 min/hr
NORFOLK DISP N			
NWN_TR1	Truck Route 1	Day/Eve/Night, 7 d/wk, 52 wks/yr	15/hr @ 10 km/h Day/Night, 3/hr Eve
NWN_TR2	Truck Route 2	Day/Eve/Night, 7 d/wk, 52 wks/yr	15/hr @ 10 km/h Day/Night, 3/hr Eve
Waterford Truck and Trailer			
TR-WTT	WTT truck route	Daytime, Evening, 6 d/wk, 50 wks/yr	1 truck per hour along route
BD-WTT	Open Bay door - truck idling	Daytime, Evening, 6 d/wk, 50 wks/yr	10 min/hr idling

Sound source levels and characteristics from the operations in Table 1 are summarized below in Table 2 – Noise Source Summary Table.

The sound levels assume Norfolk Disposal and Lafarge operate in compliance with their ECA air and noise requirements.

Table 2: Noise Source Summary Table

Source ID	Source Description	Sound Power Level (dBA)	Source Location[1]	Sound Characteristics[2]	Noise Control Measures[3]
L_L	Front-end Loader	102 -10	O	S	B
L_AFH	Aggregate Feed Hopper	109 -15	O	S	B
L_RMTL	Redi Mix Truck Loading	98	O	S	U
L_RMTS	Redi Mix Truck Slumping	105 -5	O	S	B
L_CUB	Cement Unloading - Blower	98	O	S	U
L_TR_CD	Truck Route - Cement Delivery	105	O	S	U
L_TR_AG	Truck Route - Aggregate Delivery	105	O	S	U
L_TR_RMT	Truck Routes - Redi Mix Truck	105	O	S	U
NWS_TR1	Waste Receiving Route	105	O	S	U
NWS_TR2	Waste Transfer Route	105	O	S	U
NWS_L	Front End Loader/ Indoor Excavator Noise	102 -15	O	S	B
NWS_PB	Paint Booth Stack	98 -15	O	S	S
NWN-TR1	Truck Route 1	105	O	S	B
NWN-TR2	Truck Route 2	105	O	S	B
TR-WTT	WTT truck route	105	O	S	U
BD-WTT	Open Bay door - truck idling	105	O	S	U

[1] O: located/installed outside the building, including on the roof
I: located/installed inside the building

[2] S: Steady
Q: Quasi Steady Impulsive
I: Impulsive
B: Buzzing
T: Tonal
C: Cyclic
O: Occasional

[3] S: silencer, acoustic louvre, muffler
A: acoustic lining, plenum
B: barrier, berm, screening
L: lagging
E: acoustic enclosure
O: other
U: uncontrolled

The sound sequences of the potentially significant noise sources at WTT are potentially occurring during daytime or evening 5 days per week. The modelling assumes that a transport truck is idling at the building bay door and that a transport truck is driving around the WTT site.

The sound level estimates for Norfolk Waste and Lafarge are conservative estimates associated with a transport or heavy truck idling or driving in the yard and heavy equipment operation throughout the day, evening and nighttime.

Points of reception (POR) at the proposed development include the proposed three and four storey residence townhouse façades on the closest townhouses to Old Highway 24 and Lam Blvd – 2nd and 3rd storey façade Block A, – 2nd and 3rd storey façade block D, and 3rd storey façade Block E.

These noise sources and PORS are shown in Attachment E Figure 1 – Noise Impact Contours.

Point of Reception noise impact summary tables are attached as Table 3.

For the purpose of this assessment the area surrounding the proposed development is defined as a Class 2 area subject to NPC-300 criteria. NPC-300 identifies sound level limits for stationary sources located in Class 2 areas as the lower of the existing One Hour Equivalent Sound Level (Leq) due to background, or the exclusionary limits identified for Class 2 areas. Plane of Window performance limits for a Class 2 area with steady state sources is 50 dBA during the daytime (7 am – 7 pm) and evening (7 pm – 11 pm). This is attached in Table 4.

Overall sound levels at each POR are outlined in Table 5 below. Results are from the worst case impacts operating scenario, where all significant industrial sound sources operate continuously and simultaneously. The sound level calculated at each POR is compared to the daytime and evening performance criteria for the worst-case impact scenario assuming all significant sound sources are operating simultaneously, during their respective operating sequence.

Table 5: Acoustic Assessment Summary Table

Point of Reception ID	**Point of Reception Description**	**Sound Pressure Level at POR**	**Verified by Acoustic Audit (Yes/No)**	**Performance Limit**	**Compliance with Performance Limit**
		dBA (L_{eq})		**dBA (L_{eq})**	**(Yes/No)**
POR1	2nd and 3rd storey façade Block A	44/43/36	No	50/50/45 (day/eve/night)	Yes
POR2	2nd and 3rd storey façade block D	45/45/20	No	50/50/45 (day/eve/night)	Yes
POR3	3rd storey façade Block E	43/43/20	No	50/50/45 (day/eve/night)	Yes

These potential noise source activities and associated conservative noise levels at the points of reception on the proposed development are below MOECP performance limit criteria during day, evening and nighttime and are not considered significant.

Site review activities indicated that noise associated with the industrial and commercial operations were not audible at the proposed development where the dominant noise impact was from vehicle traffic on Old Highway 24.

4.3 ROAD NOISE IMPACTS

Road noise limits for the proposed development sensitive land use are outlined in NPC-300. Limits for plane of window (POW) living areas were assessed. The POW receptors were the most sensitive locations in the development compared to outdoor living areas and therefore outdoor living areas were not assessed.

Road noise sound level limits for POW are 55 dBA for 7 am to 11 pm, and 50 dBA for 11 pm to 7 am. Road traffic volumes were obtained from Norfolk County Engineering for Old Highway 24.

Table 6 – Old Highway 24 Traffic Volumes

Year	**AADT**
2016	11,335
2015	8059
2014	7005

Traffic growth of 1.2% per year was estimated to 2032 and apportioned between trucks, medium vehicles and cars at day/evening and night time periods.

Table 7 – Traffic Volumes (inflated to 2032)

	%	**Veh/hr**	**Day/Eve**	**Night**
AADT (2022)	100%	13719	90%	10%
Cars	87%	11935	10742	1194
Medium Vehicles	5%	686	617	69
Heavy Trucks	8%	1097	988	110

Table 7 suggests that traffic on Old Highway 24 would have on average 62 heavy trucks per hour over a 16 hour period day evening and 14 heavy trucks over an 8 hour night period.

We suspect that the road traffic data is associated with traffic counts north of the proposed development – along Old Highway 24 near Thompson Road – where much more truck and car traffic occurs as a result of the commercial (grocery, bank, gas station, Tim Hortons) and industry (Norfolk Waste, Lafarge), most of which does not drive south on Old Highway 24 but drives north up through town or along Thompson Road.

Points of Reception (POR) at the proposed development were the following point of window facades:

- POR1 – 2nd and 3rd storey, Block A
- POR2 - 2nd and 3rd storey, Block D 3
- POR3 – 3rd storey, Block E

Noise traffic assessment calculations with graphical layouts showing distances, angles and PORs on the various impacted townhouse units are given in Attachment F.

The estimated road traffic noise impacts modelled in the STAMSON model using the conservative and inflated road traffic volumes at the various POR is summarized below.

Table 8 – Estimate Road Traffic Impacts

POR	**Distance (road to façade)**	**Day/ Eve**	**Night**
POR1 - 2nd Storey, Block A	15	71	64
POR1 - 3rd Storey, Block A	15	71	64
POR2 - 2nd Storey, Block D	23	65	59
POR2 - 3rd Storey, Block D	23	65	59
POR3 - 3rd Storey, Block E	65	58	52

STAMSON modelling outputs are given in Attachment F.

The STAMSON modelling predicts the plane of window during the day, evening and night time period for POR1 and POR 2 (the western units directly facing Old Highway 24), having noise impacts due to traffic in the range of 59 - 71 dBA. NPC 300 indicates that these housing units should be designed with a provision for the installation of central air conditioning. Warning clause C is recommended to be registered for these units.

5.0 DUST

Potential for dust impacts at the Lam and Old Hwy 24 proposed development are not considered significant.

Agricultural operations along Old Hwy 24 west and northwest of the proposed development are not considered a significant source of dust.

Both Lafarge and Norfolk Waste could potentially produce dust emissions associated with fugitive sources such as truck traffic on their sites. These potential impacts are more likely to occur at the Foodland grocery or Tim Hortons drive through adjacent to these properties.

The 215 m or greater separation distance from the industrial operations to the northwest of the proposed Lam and Old Hwy 24 development significantly reduces the potential for dust impacts. This separation distance provides significant buffer.

Both industrial sites are paved where trucks enter and exit. This minimizes potential for dust.

Lafarge operates a loader at the back east side (Old Highway 24 side) of the property on gravel road and it generates potential fugitive dust during storage and transfer operations. A covered conveyor and dust collector equipment are part of their operation to reduce potential dust.

Lafarge ENVIRONMENTAL COMPLIANCE APPROVAL NUMBER 3062-ANKM8X Issue Date: June 26, 2017, had condition 2 Fugitive Dust Control for which it must comply.

2.**FUGITIVE DUST CONTROL**

1.The *Company* shall develop in consultation with the *District Manager* and acceptable to the *Director*, a *Best Management Practices Plan* for the control of fugitive dust emissions. This *Best Management Practices Plan* shall include, but not be limited to:

a. identification of the main sources of fugitive dust emissions such as:
    i. on-site traffic;
    ii. paved roads/areas;
    iii. unpaved roads/areas;
    iv. material stock piles;
    v. loading/unloading areas and loading/unloading techniques;
    vi. material spills;
    vii. material conveyance systems;
    viii. exposed openings in process and storage buildings; and
    ix. general work areas.
b. potential causes for high dust emissions and opacity resulting from these sources;
c. preventative and control measures in place or under development to minimize the likelihood of high dust emissions and opacity from the sources of fugitive dust emissions identified above. Details of the preventative and control measures shall include:

    i. a description of the control equipment to be installed;
    ii. a description of the preventative procedures to be implemented; and/or
    iii. the frequency of occurrence of periodic preventative activities, including material application rates, as applicable.
d. an implementation schedule for the *Best Management Practices Plan,* including training of facility personnel;
e. inspection and maintenance procedures and monitoring initiatives to ensure effective implementation of the preventative and control measures; and
f. a list of all *Ministry* comments received, if any, on the development of the *Best Management Practices Plan,* and a description of how each *Ministry* comment was addressed in the *Best Management Practices Plan.*

2.The *Company* shall submit the *Best Management Practices Plan* to the *Director* and the *District Manager* not later than six months after the date of this *Approval.*

i The *Director* may not accept the *Best Management Practices Plan* if the minimum requirements described in Condition 2.1 were not included in the *Best Management Practices Plan.*
ii If the *Best Management Practices Plan* is not accepted by the *Director,* the *Company* shall submit a *Best Management Practices Plan* acceptable to the *Director* not later than nine months after the date of this *Approval;*

3.Upon acceptance of the *Best Management Practices Plan* by the *Director,* the *Company* shall immediately implement the *Best Management Practices Plan* for the control of fugitive dust emissions to provide effective dust suppression measures to any potential sources of fugitive dust emissions resulting from the operation of the *Facility.*

Norfolk Waste AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL, NUMBER A110105, Issue Date: June 26, 2020 has several conditions related to dust management.

15.0 Nuisance Control
15.1 The Company shall ensure that any dirt, dust, smoke, noise, odour and/or other airborne contaminant, resulting from activities at this Site, is controlled and does not cause an adverse effect.
15.2 The Company shall ensure that vehicles leaving this Site do not drag out onto roads, dirt and/or other material that may become a contaminant or cause an adverse effect.
15.3 The Company shall pick up litter daily to ensure that this Site and surrounding areas are not impacted.
15.4 The Company shall ensure that all litter collected is stored indoors, or if stored outdoors is stored only in closed or covered containers.
15.5 The Company shall take all reasonable action to ensure that incoming or outgoing vehicles to or from this Site do not cause line-ups or similar traffic problems on the roads that provide access to this Site.
15.6 (a) The Company shall not operate the proposed electric grinder until the Ministry has received and reviewed the Company's Environmental Compliance Approval (Section 9) application, including a noise assessment, and the review of the application concludes the shredder may be operated in compliance with the Ministry's noise standards.

(b) Subject to Condition 15.6(a), the Company shall only grind wood waste including painted wood, treated wood, laminated wood and such contaminants that may be present in wood waste generated from construction and demolitions sites.
(c) Subject to Condition 15.6(a), the Company shall ensure the electric grinder is operated in a manner which does not cause an adverse effect, including but not limited to noise and dust.

If Lafarge and Norfolk Waste comply with the conditions of their ECA’s there is unlikely to be a dust impact on the proposed development at Lam and Old Hwy 24.

6.0 CONCLUSIONS AND RECOMMENDATIONS

There are no facilities (industrial or commercial) that are expected to adversely impact the proposed development located on the northeast corner of Old Highway 24 and Lam Blvd with noise, dust or odour emissions based on the Guideline D-6 – Land Use Compatibility review for the surrounding industrial and commercial operations.

Proposed development units will be located outside the D-6 recommended 20 m separation distance from a class I industrial operation and 70 m influence area from a class II industrial operation and just within the potential influence area (300 m) and based on the review for the surrounding industrial and commercial operations. Considering the separation distance they are not expected to adversely impact the proposed development with noise, dust or odour emissions.

There currently exists other sensitive land uses in much closer proximity to the existing industrial and commercial operations along Old Highway 24 in the vicinity of the proposed development.

Noise impact predictions from surrounding industrial / commercial operations and road traffic noise indicate that road traffic is the dominant noise source during the day, evening and nighttime periods.

Conservative road traffic volume (predicted to 2032) and vehicle type distribution modelled in STAMSON predicts noise impacts at the townhouse units on the west side of the proposed development along Old Highway 24 be designed with a provision for the installation of central air conditioning.

Warning clause C is recommended to be registered for these units:

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

All other locations of the proposed development except those fronting Old Highway 24 will be shielded by the units along Old Highway 24 and have worst case predicted noise impacts around 55 dBA during the day/night.

NPC 300 recommendations for noise mitigation at the most impacted proposed development units along Old Hwy 24 are installation of air conditioning. It is recommended that air conditioning be installed for all units.

Additional recommendations to mitigate potential noise impacts include:

- incorporation of triple pane windows for all units, and
- installation of landscaping along the west portion of the proposed development to mitigate road traffic related noise in potential outdoor living areas (front yards of the units along the west side of the proposed development).

The incorporation of these additional mitigation measures will further reduce any potential or future potential noise impacts from Old Hwy 24 road traffic noise.

Based on the assessment of the industrial and commercial land uses in the vicinity of the proposed development, review of the MOECP's D-6 guidelines, there are no industrial or commercial that are expected to adversely impact the proposed development as a result of noise, odour or dust.

The proposed development is not expected to adversely impact the neighbouring land uses.

If you have any questions, please contact the undersigned.

Yours truly,
CCS Engineering Inc.

Jim Anderson, M.Eng., P.Eng.
Principal
JA/JA
Attachments

ATTACHMENT A

SITE LOCATION AND ZONING FIGURES

Source: Google Earth

Approximate Scale Metres

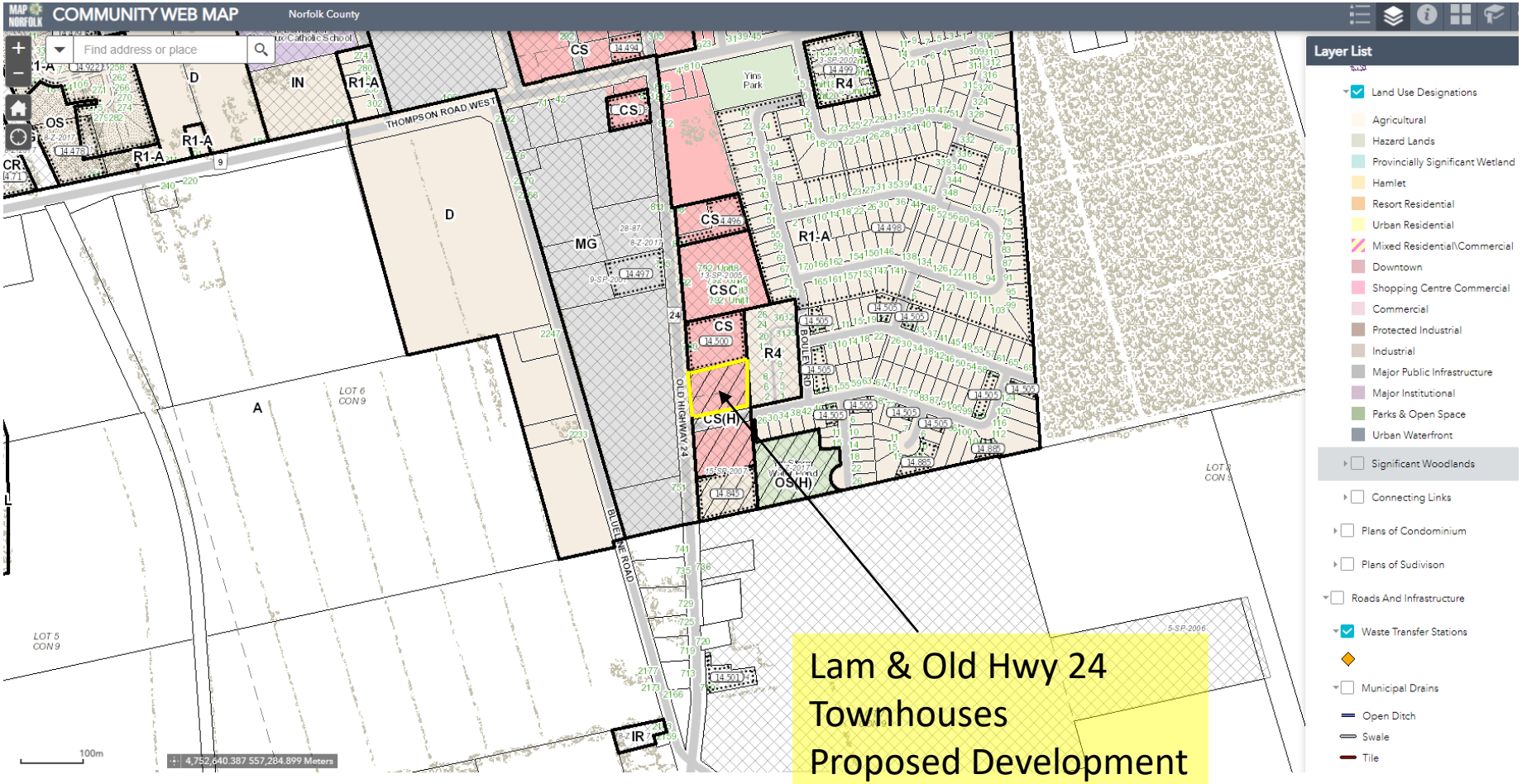
0 350

CCS Engineering Inc.

SITE LOCATION
Pramukh Townhouses
WATERFORD, ONTARIO

By: JA	Date: 15 Dec 2021	Project No. 941

Figure 1



Source: Map Norfolk

Approximate Scale Metres

0 300

CCS Engineering Inc.

ZONING
Pramukh Townhouses
WATERFORD, ONTARIO

By: JA	Date: 15 Dec 2021	Project No. 941

Figure 2

ATTACHMENT B

PROPOSED DEVELOPMENT LAYOUT DWG

SITE STATISTIC & ZONING REQ.'S

PROPERTY LEGAL DESCRIPTION:
PLAN 37M-57, BLK 60 PT, ROLL # 33605062848 IN THE TOWN OF WATERFORD, IN THE DISTRICT OF NORFOLK COUNTY

ZONING:
IN ACCORDANCE TO THE TOWN OF WATERFORD, ZONING BY-LAW 1-Z-2014 NORFOLK COUNTY - JULY-2020-CONSOLIDATION

	PROVISION	LAND USE:
	6.3 ZONING AMEND-MENT	EX. - SERVICE COMMERCIAL ZONE (CS(H))
	5.4 5.4.1	In an R4 *Zone*, no land, *building or structure* shall be used except in accordance with the following uses: a) group townhouse b) stacked townhouse c) street townhouse d) *semi-detached*, *duplex*, *tri-plex* and *four-plex dwelling* s provided they are located on the same *lot* with, and in accordance with the *Zone* provisions of, *group townhouse* e) home occupation f) *accessory residential dwelling unit*, subject to Subsection 3.2.3.[7-Z-2020]
ZONING AMENDMENTS	2.88 3.11.2 5.4 5.4a) 5.4b) 5.4.2h)	ZONING BY-LAW SPECIAL PROVISIONS: • DEFINITION OF A 'LOT' SHALL NOT APPLY IN LIEU, THE ENTIRE CONDOMINUM BLOCK (APPROX. 1.3 HA.) SHALL BE DEEMED AS THE 'LOT'. • SHALL NOT APPLY AND THE CONDOMINIUM ROAD SHALL NOT BE DEEMED TO BE AN IMPROVED STREET • URBAN RESIDENTIAL TYPE 4 ZONE (R4) • GROUP TOWNHOUSE • STACKED TOWNHOUSE • INCREASE BLDG. HEIGHT RESTRICTION (TO BE DETERMINED);

	PROVISION	SETBACKS (m - METERS):	REQUIRED (m) Group Townhouse Stacked Townhouse	PROVIDED (m)
	5.4.2a)	MIN. LOT AREA: i) ATTACHED GARAGE	195m²	7008m²
	5.4.2b)	MIN. LOT FRONTAGE: i) INTERIOR LOT ii) CORNER LOT	30 30	N/A 74.8
ZONING AMENDMENTS	5.4.2c)	MIN. FRONT YARD i) ATTACHED GARAGE ii) DETACHED GARAGE OR REAR YARD PARKING ANY PARKING THAT IS NOT IN A FRONT YARD OR EXTERIOR SIDE YARD IS DEEMED TO BE LOCATED IN A REAR YARD	6 1.5	N/A 4
	5.4.2d)	MIN. EXTERIOR SIDE YARD: i) W/ A 6m FRONT YARD ii) W/ A 1.5m FRONT YARD	6 1.5	N/A 6.9
	5.4.2e)	MIN. INTERIOR SIDE YARD	3	3
	5.4.2f)	MIN. REAR YARD : i) ATTACHED GARAGE	7.5	9
	5.4.2g)	MIN. SEPARATION BETWEEN TOWNHOUSE DWELLINGS	2	7.9
ZONING AMENDMENTS	5.4.2h)	MAX. BLDG. HEIGHT	11	13
	5.4.3	MIN. MUTUAL SIDE LOT LINE	1.2	-
	5.4.4	MAX. UNITS IN A TOWNHOUSE DWELLING	8 UNITS	8 UNITS

PARKING:

PROVISION	NUMBER OF PARKING SPACES	REQUIRED	PROVIDED
4.9a)	SINGLE DETACHED, SEMI-DETACHED, DUPLEX, TRI-PLEX, FOUR-PLEX, TOWNHOUSE DWELLINGS & VACATION HOME [8-Z-2017]: 2 SPACES / DWELLING UNIT 2 SPACES x 40 DWELLING UNITS = 80	80 SPACE(S)	80 SPACE(S)
4.9f)	VISITOR PARKING: 1 SPACE / 3 DWELLING UNITS 1 SPACE x (40 / 3) =	14 SPACE(S)	14 SPACE(S)
4.7	LOADING SPACES:	N/A	
4.7	DROP OFF SPACES:	N/A	
	TOTAL PARKING:	94 SPACE(S)	94 SPACE(S)
BARRIER FREE PARKING:			
4.3.3	BARRIER FREE PARKING REQ.'D: (PART OF REQ.'D VISITOR PARKING) 1-25 (VISITOR) PARKING SPACES = TYPE 'A' (3.4m WIDE) PLUS 1.5m AISLE TYPE 'B' (2.4m WIDE) PLUS 1.5m AISLE	=1 SPACE(S)	1 SPACE(S)

vallee
Consulting Engineers, Architects & Planners

SITE PLAN - BACK TO BACK 3 STOREY TOWNHOUSES
HWY 24 & Lam Blvd.
SCALE 1:350
PROJ. 21-059
JAN. 21, 2022

ATTACHMENT C

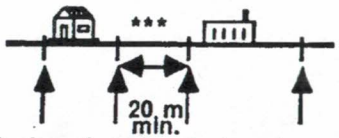
D-6-1 Industrial Categorization Criteria

SEPARATION DISTANCES

(Section View)

CLASS I INDUSTRIAL:

70 m. potential influence area

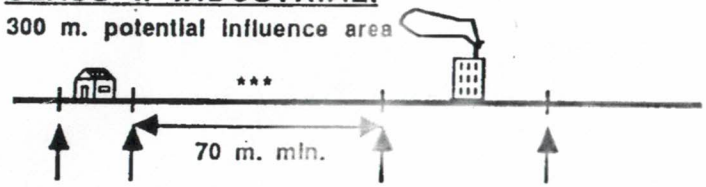


designation, zoning or property lines** of closest existing, committed or proposed Sensitive Land Use

designation, zoning or property lines* of closest existing, committed or proposed Class I Industrial Use

CLASS II INDUSTRIAL:

300 m. potential influence area

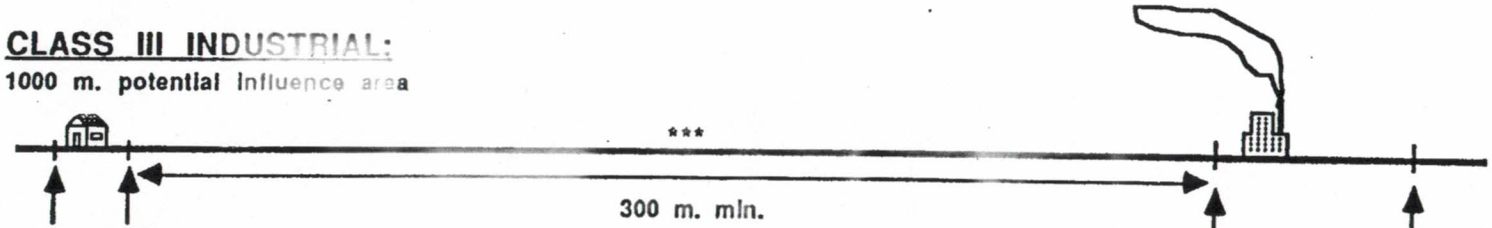


designation, zoning or property lines** of closest existing, committed or proposed Sensitive Land Use

designation, zoning or property lines* of closest existing, committed or proposed Class II Industrial Use

CLASS III INDUSTRIAL:

1000 m. potential influence area



designation, zoning or property lines** of closest existing, committed or proposed Sensitive Land Use

designation, zoning or property lines* of closest existing, committed or proposed Class III Industrial Use

* The set backs established in a zoning by-law can be included in the separation distance measurement if the by-law or site plan control precludes the use of the set back for activites that could create an adverse effect. [See Section 4.4.3, "Zoning/Site Plan Control (Industrial Land Uses)".]

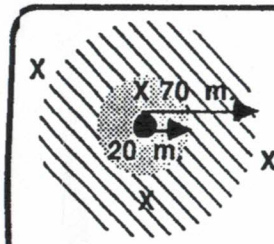
** Where the established use of on-site & ancillary lands associated with a sensitive land use are not of a sensitive nature (e.g. a parking lot or roadway), measurement may be taken to where the sensitive activities actually begin. [See Section 4.4.2, "Site Specific Plans & Section 4.4.4, "Ancillary Uses (Sensitive Land Use)" .)]
This approach may be particularly appropriate for redevelopment/infill proposals. [See Section 4.10, "Redevelopment, Infilling ...."]

*** No incompatible development should normally take place within the Recommended Minimum. [See Section 4.3, "Recommended Minimum", Section 4.10, "Redevelopment, Infillling & Mixed Use Areas" and Section 4.2.5, "Off-Site Separation Distances".]

SEPARATION DISTANCES

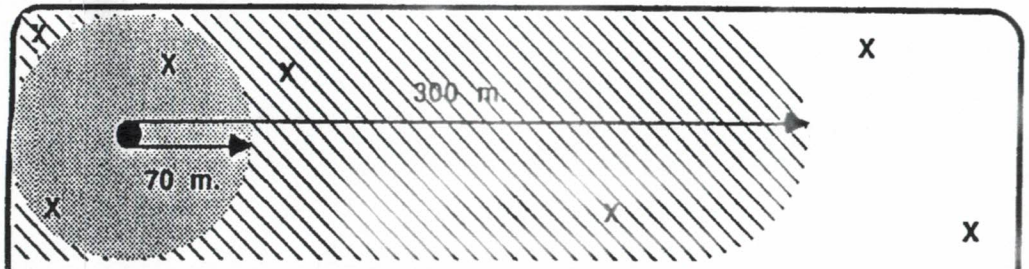
(PLAN VIEW)

CLASS I INDUSTRIAL:



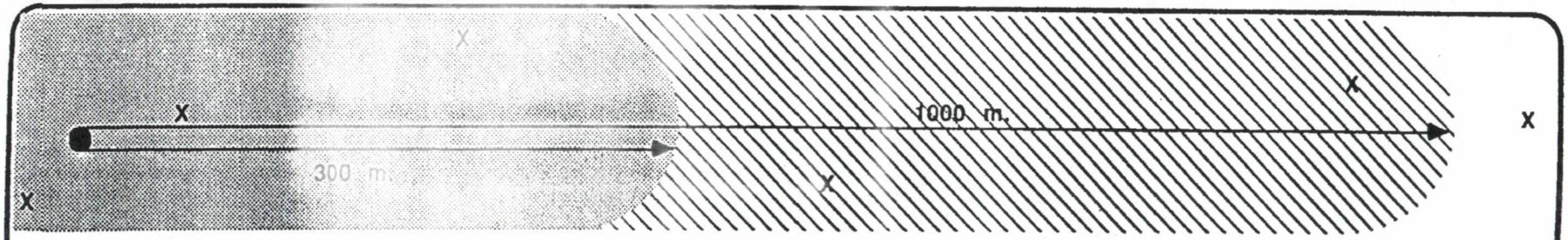
20 m. minimum separation distance recommended **
70 m. potential influence area

CLASS II INDUSTRIAL:



70 m. minimum separation distance recommended **
300 m. potential influence area

CLASS III INDUSTRIAL:



3300 m. minimum separation distance recommended**
11000 m. potential influence area

Legend:

- ● Existing* Land Use
- X Proposed* Land Uses
- Recommended Minimum - Incompatible Development should not normally be permitted . [See Section 4.3, "Recommended Minimums" and Section 4.10, "Redevelopment, Infilling ....", for exceptions.]
- Potential Influence Area or Actual Influence Area - "Adverse Effects" need to be identified, mitigation proposed, & an assessment made on the acceptability of the proposal. (See Section 4.1, "Influence Area Concept".)
- Acceptable Range - Beyond the Potential Influence Area or Actual Influence Area, therefore normally development in this range should not pose a compatibility problem. (See also Section 4.5.2, "Separation Distance Greater than the Potential Influence Area" for exceptions.)

* Note: If the existing use is industrial, then the proposed use is sensitive, and vice versa.

** See Section 4.10, "Redevelopment, Infilling & Mixed Use Areas " for exceptions.

See also Section 4.4, "Measuring Separation Distance".

Note: Drawing not to scale.

D-6-1 Industrial Categorization Criteria

A guide for land use planning authorities on the appropriate distances between industrial areas and sensitive land uses like people's homes and workplaces.

Industrial categorization criteria *

Category	Outputs	Scale	Process	Operation /Intensity	Possible examples **
Class I	• Noise: Sound not audible off property • Dust and/or Odour: Infrequent and not intense • Vibration: No ground borne vibration on plant property	• No outside storage • Small scale plant or scale is irrelevant in relation to all other criteria for this Class	• Self contained plant or building which produces/stores a packaged product. Low probability of fugitive emissions	• Daytime operations only • Infrequent movement of products and/or heavy trucks	• Electronics manufacturing and repair • Furniture repair and refinishing • Beverages bottling • Auto parts supply • Packaging and crafting services • Distribution of dairy products • Laundry and linen supply
Class II	• Noise: Sound occasionally audible off property • Dust and/or Odour: Frequent and occasionally intense • Vibration: Possible ground borne vibration, but cannot be perceived off property	• Outside storage permitted • Medium level of production allowed	• Open process • Periodic outputs of minor annoyance • Low probability of fugitive emissions	• Shift operations permitted • Frequent movement of products and/or heavy trucks with the majority of movements during daytime hours	• Magazine printing • Paint spray booths • Metal command • Electrical production manufacturing • Manufacturing of dairy products • Dry cleaning services • Feed packing plant
Class III	• Noise: sound frequently audible off property • Dust and/or Odour: Persistent and/or intense • Vibration: Ground-borne vibration can frequently be perceived off property	• Outside storage of raw and finished products • Large production levels	• Open process • Frequent outputs of major annoyances • High probability of fugitive emissions	• Continuous movement of products and employees • Daily shift operations permitted	• Manufacturing of paint and varnish • Organic chemicals manufacturing • Breweries • Solvent recovery plants • Soaps and detergent manufacturing • Manufacturing of resins and costing

Industrial categorization criteria *				
Category Outputs	**Scale**	**Process**	**Operation /Intensity**	**Possible examples ****
				• Metal manufacturing

Note: Emissions may be point source or fugitive.

* Note: This Table should not be considered a comprehensive list but is to be used to provide examples of industrial categories.

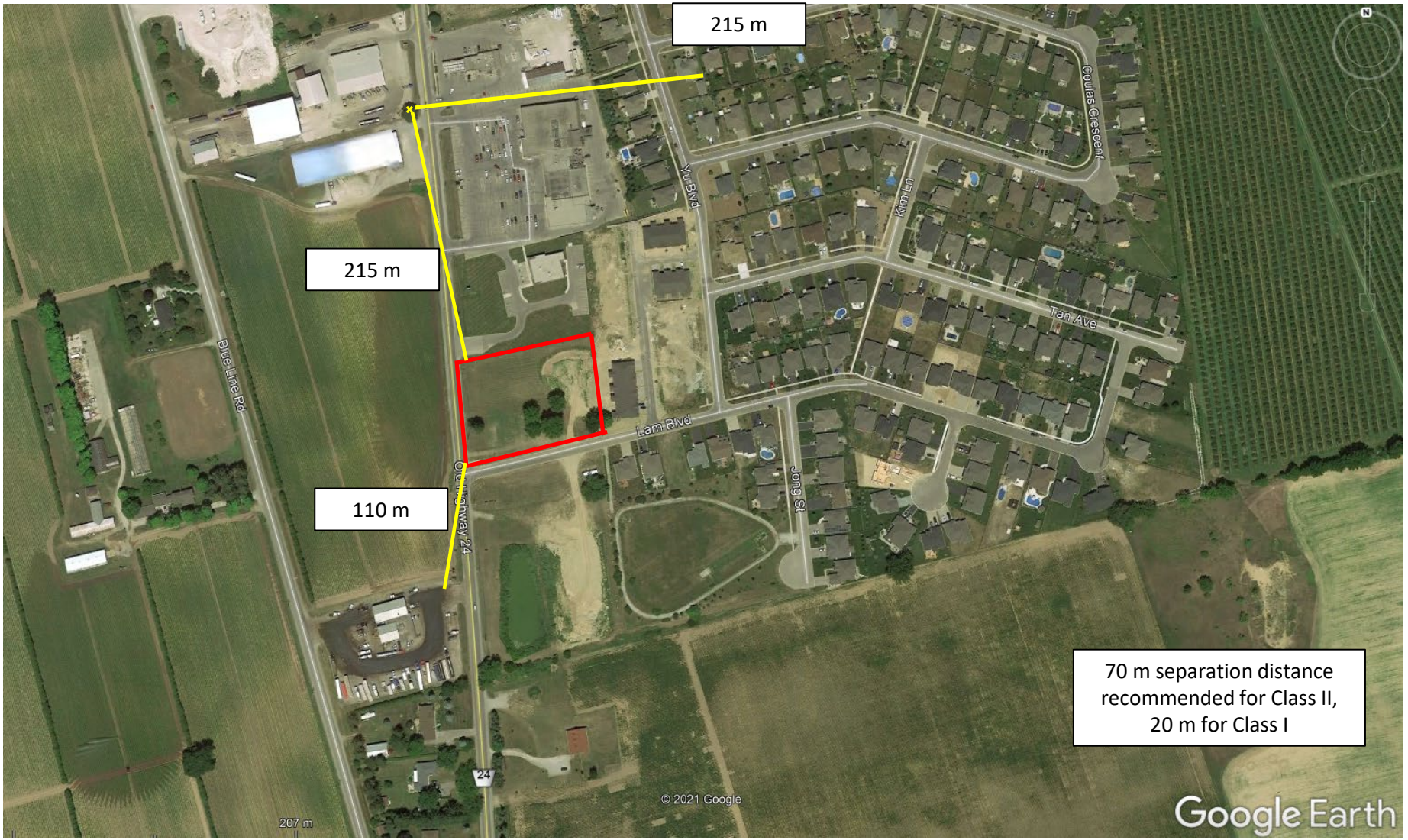
** Note: The following examples are not limited to the Class indicated on the Table. The categorization of a particular industry will vary with the specifics of the case.

Source: The criteria for categorizing industries into Class I, II or III are derived from Ministry experience and the investigation of complaints related to industrial facilities.

Updated: April 4, 2016
Published: February 26, 2016

ATTACHMENT D

SEPARATION AND INFLUENCE ZONE FIGURES



Source: Google Earth

Approximate Scale Metres

0 200

CCS Engineering Inc.

INDUSTRIAL CLASS SEPARATION
Pramukh Townhouses
WATERFORD, ONTARIO

By: JA	Date: 15 Dec 2021	Project No. 941

Figure 3

ATTACHMENT E

CadnaA NOISE OUTPUT
NOISE CALCULATION TABLES


558140
558160
558180
558200
558220
558240
558260
558280
558300
4752320
4752300
4752280
4752260
4752240
4752220
4752200
POR1
D/E/N
44, 43, 36
POR2
D/E/N
45, 45, 20
POR3
D/E/N
43, 43, 20
45
45
40
Point Source
Line Source
Building
Cylinder
Barrier
Ground Absorption
Contour Line
Receiver
Calculation Area
N
Note: Contour heights
at 7.5 m.
>= 35.0 dBA
>= 40.0 dBA
>= 45.0 dBA
>= 50.0 dBA
>= 55.0 dBA
>= 60.0 dBA
>= 65.0 dBA
>= 70.0 dBA
>= 75.0 dBA
>= 80.0 dBA
>= 85.0 dBA
Figure A:
Daytime
Noise Impact Contours
(Mitigated)
Block 60 Development
November 2021


558140
558160
558180
558200
558220
558240
558260
558280
558300
4752320
4752300
4752280
4752260
4752240
4752220
4752200
POR1
D/E/N
44, 43, 36
POR2
D/E/N
45, 45, 20
POR3
D/E/N
43, 43, 20
45
45
40
Point Source
Line Source
Building
Cylinder
Barrier
Ground Absorption
Contour Line
Receiver
Calculation Area
N
Note: Contour heights
at 7.5 m.
>= 35.0 dBA
>= 40.0 dBA
>= 45.0 dBA
>= 50.0 dBA
>= 55.0 dBA
>= 60.0 dBA
>= 65.0 dBA
>= 70.0 dBA
>= 75.0 dBA
>= 80.0 dBA
>= 85.0 dBA
Figure B:
Evening
Noise Impact Contours
(Mitigated)
Block 60 Development
November 2021


558140
558160
558180
558200
558220
558240
558260
558280
558300
4752320
4752300
4752280
4752260
4752240
4752220
4752200
40
35
30
35
POR1
D/E/N
44, 43, 36
POR2
D/E/N
45, 45, 20
POR3
D/E/N
43, 43, 20
Point Source
Line Source
Building
Cylinder
Barrier
Ground Absorption
Contour Line
Receiver
Calculation Area
N
Note: Contour heights
at 7.5 m.
>= 35.0 dBA
>= 40.0 dBA
>= 45.0 dBA
>= 50.0 dBA
>= 55.0 dBA
>= 60.0 dBA
>= 65.0 dBA
>= 70.0 dBA
>= 75.0 dBA
>= 80.0 dBA
>= 85.0 dBA
Figure B:
Night-time
Noise Impact Contours
(Mitigated)
Block 60 Development
November 2021

Revisions

11-Nov-21	CadnaA based on Oct. 28 Site Plan. Mitigated sources for Lafarge, NWN and NWS. No mitigation for WTT.
12-Nov-21	Stamson - traffic modelled to 2032 and assumes O'Hara development blocks road noise for Block E

POR List Oct. 28, 2021 Layout

			Approximate distance Norfolk S	Lafarge	Wat.T&T
POR1	Block A, NW Unit	3 storey residence	215	276	165
POR2	Block D, SW Unit	4 storey residence	270	340	110
POR3	Block E, SW Unit	4 storey residence	275	360	140

Table B1: Insignificant Source Listing

Source ID	Source Description	Rationale
B- La	Hot water steam boiler	inside, not audible
L-NWS	Norfolk Waste South front end loader	Blocked by Picards building
MR-NWS	Norfolk Waste South mix room	fan and motor inside building, not audible above trucks, open bay door
W-NWS	Norfolk Waste South mtce welding	intermittent, not heard above truck traffic
OHD-NWS	Norfolk Waste Overhead Doors	Bay doors and site truck traffic blocked Picards building
OHD-NWN	Norfolk Waste North Overhead Door - Mechanical Noise	Expected to be insignificant compared to worst-case truck traffic hour.
OHD-NWS	Overhead Doors	Continuous loader noise modelled to be representative of excavator and intermittent loader movements in/out of processing building.
PP	Picards Peanuts	commercial
	Grocery and restaurants	commercial
	Other commercial	gas station going on corner of Lam/Old Hwy 24

Table B2: Source/CadnaA Input Table

								Sound Pressure Levels		Frequency (Hz)								
Source ID	Source Description	Intermittency (min/hr)	Data Source, File #	Tonal	Source Height (m)	Sound Power Lw (dBA)	Sphere Partition	Ref. Distance (m)	Lp (dBA)	31.5	63	125	250	500	1000	2000	4000	8000
	LAFARGE																	
L_L	Front-end Loader	15 DT/E/NT	MM 17	N	2.3	101.9	50%	5.2	79.6	39.8	54.6	66.7	68.6	75.0	73.9	72.0	67.3	60.9
L_AFH	Aggregate Feed Hopper	15 DT/E/NT	MM 390	N	3.7	108.5	50%	22	73.7	36.6	53.5	63.4	61.1	63.8	67.3	67.1	65.9	64.7
L_RMTL	Redi Mix Truck Loading	60 DT/E/NT	MM 395	N	4.1	97.8	50%	7.4	72.4	41.4	56.1	63.3	64.1	66.6	64.7	65.0	60.7	55.3
L_RMTS	Redi Mix Truck Slumping	60 DT/E/NT	DB Heavy Truck	N	2.5	104.9	50%	5.8	81.6	53.6	59.5	60.8	69.6	72.3	76.8	76.0	73.9	67.3
L_CUB	Cement Unloading - Blower	60 DT only	ECA	N	2.0	97.8	100%	3	75.0					75.0				
L_TR_CD	Truck Route - Cement Delivery	1/hr @ 10 km/hr DT only	DB Heavy Truck	N	2.5	104.9	50%	5.8	81.6	53.6	59.5	60.8	69.6	72.3	76.8	76.0	73.9	67.3
L_TR_AG	Truck Route - Aggregate Delivery	2/hr @ 10 km/hr DT, Eve and NT	DB Heavy Truck	N	2.5	104.9	50%	5.8	81.6	53.6	59.5	60.8	69.6	72.3	76.8	76.0	73.9	67.3
L_TR_RMT	Truck Routes - Redi Mix Truck	6/hr total @ 10 km/hr DT 1/hr EVE or NT	DB Heavy Truck	N	2.5	104.9	50%	5.8	81.6	53.6	59.5	60.8	69.6	72.3	76.8	76.0	73.9	67.3
	NOFOLK WASTE DISP S																	
NWS_TR1	Waste Receiving Route	6/hr day, 3/hr eve, 0/hr night	DB Heavy Truck	N	2.5	104.9	50%	5.8	81.6	53.6	59.5	60.8	69.6	72.3	76.8	76.0	73.9	67.3
NWS_TR2	Waste Transfer Route	1/hr night/day/eve	DB Heavy Truck	N	2.5	104.9	50%	5.8	81.6	53.6	59.5	60.8	69.6	72.3	76.8	76.0	73.9	67.3
NWS_L	Front End Loader/ Indoor Excavator Noise	Intermittent noise assumed continuous. D/E/N. Loader in/out of processing/sorting building. Excavator assumed continuous. Assumed outdoors (conservatively).	MM 17	N	2.3	101.9	50%	5.2	79.6	39.8	54.6	66.7	68.6	75.0	73.9	72.0	67.3	60.9
NWS_PB	Paint Booth Stack	60 DT only	Lxt 13	N	5.8	98.4	75%	16.0	64.6	24.7	37.6	46.5	57.1	61.5	58.5	52.7	41.5	29.3
	NOFOLK DISP N																	
NWN-TR1	Truck Route 1	15 trucks per day: 15 trucks leaving from 6 am - 7 am, max 15 trucks/hr returning during the day, 3/hr eve.	DB Heavy Truck	N	2.5	104.9	50%	5.8	81.6	53.6	59.5	60.8	69.6	72.3	76.8	76.0	73.9	67.3
NWN-TR2	Truck Route 2	15 trucks per day: 15 trucks leaving from 6 am - 7 am, max 15 trucks/hr returning during the day, 3/hr eve.	DB Heavy Truck	N	2.5	104.9	50%	5.8	81.6	53.6	59.5	60.8	69.6	72.3	76.8	76.0	73.9	67.3
	Waterford Truck and Trailer																	
TR-WTT	WTT truck route	1 truck per hour, day/eve, 7 am - 11 pm	DB Heavy Truck	N	2.5	104.9	50%	5.8	81.6	53.6	59.5	60.8	69.6	72.3	76.8	76.0	73.9	67.3
BD-WTT	Open Bay door - truck idling	1 truck idling for 10 min/hr, 7 am - 11 pm	DB Heavy Truck	N	2.5	104.9	50%	5.8	81.6	53.6	59.5	60.8	69.6	72.3	76.8	76.0	73.9	67.3

Norfolk south ECA - Waste - June 2020

12.0 Hours of Operation

12.1 The Company shall ensure that waste processing operations, limited to sorting and compaction, at the Site are restricted to the following hours only, excluding statutory holidays:

(a) Monday to Friday 6:00 a.m. to 6:00 p.m.; and

(b) Saturday 7:00 a.m. to 4:00 p.m.

12.2 The Company shall ensure that waste receiving and transfer operations at the *Site* are restricted to the following hours only:

(a) Monday to Friday 6:00 a.m. to 10:00 p.m.; and

(b) Saturday, Sundays and statutory holidays 7:00 a.m. to 6:00 p.m.

14.0 Approved Quantities

14.1 (a) The Company shall ensure the maximum quantity of waste (including processed, unprocessed and residual waste) stored at this Site does not exceed 300 tonnes at any time.

(b) The Company shall ensure the maximum quantity of waste received at this Site, on any one day, shall not exceed 550 tonnes.

14.2 The Company shall ensure the total amount of residual waste transported from this Site does not exceed 200 tonnes on any day.

Lafarge ECA Air - June 2017

5. **NOISE**
   1. The *Company* shall:
      a. implement the *Noise Control Measures* as outlined in Schedule "A" of this *Approval*;
      b. following the implementation of the *Noise Control Measures*, comply with the limits set out in *Publication NPC-205*;
      c. properly maintain the *Noise Control Measures* ensuring that they continue to meet the acoustical performance outlined in the *Acoustic Assessment Report;*
      d. limit *Trucks* arrivals and departures during the day-time hours of 7 a.m. to 7 p.m., in accordance with the following:
         i. a maximum of six (6) ready-mix trucks per sixty (60) minute period;
         ii. a maximum of two (2) aggregate trucks per sixty (60) minute period;
         iii. a maximum of one (1) cementitious material tanker truck per sixty (60) minute period;
      e. limit *Trucks* arrivals and departures during the evening-time hours of to 7 p.m to 11 p.m., in accordance with the following:
         i. a maximum of one (1) ready-mix truck per sixty (60) minute period;
         ii. a maximum of two (2) aggregate trucks per sixty (60) minute period;
      f. limit *Trucks* arrivals and departures during the night-time hours of 11 p.m. to 7 a.m., in accordance with the following:
         i. a maximum of one (1) ready-mix truck per sixty (60) minute period; and
         ii. a maximum of two (2) aggregate trucks per sixty (60) minute period.

15.0 Nuisance Control

15.1 The Company shall ensure that any dirt, dust, smoke, noise, odour and/or other airborne contaminant, resulting from activities at this Site, is controlled and does not cause an adverse effect.

15.2 The Company shall ensure that vehicles leaving this Site do not drag out onto roads, dirt and/or other material that may become a contaminant or cause an adverse effect.

15.6 (a) The Company shall not operate the proposed electric grinder until the Ministry has received and reviewed the Company's Environmental Compliance Approval (Section 9) application, including a noise assessment, and the review of the application concludes the shredder may be operated in compliance with the Ministry's noise standards.

(c) Subject to Condition 15.6(a), the Company shall ensure the electric grinder is operated in a manner which does not cause an adverse effect, including but not limited to noise and dust.

Norfolk south ECA - Air - May 2019

2. **NOISE**
   1. The *Company* shall, at all times, ensure that the noise emissions from the *Facility* comply with the limits set out in *Ministry Publication NPC-300*.
   2. The *Company* shall restrict operation of the *Facility* to the daytime period between 7:00 AM to 7:00 PM.

SCHEDULE "A"

Noise Control Measures

1. **Stage 1 - Completion six (6) months after the date of this *Approval***
   a. Ready-Mix Trucks
      Ready-mix trucks will remain at the loading point to slump, rather than moving to a position south-east of the loading point (as is currently the case). The throughput of the ready-mix trucks will be limited to one (1) truck per sixty (60) minute period during the evening/night-time hours of 7 p.m. to 7 a.m.
2. **Stage 2 - Completion eighteen (18) months after the date of this *Approval***
   a. Tanker Trucks

   Tanker trucks will be unloaded using a stationary plant-based blower, mitigated with appropriate noise control measures to yield a maximum sound pressure level of 75 dBA measured at three (3) meters from the blower.
3. **Stage 3 - Completion thirty six (36) months after the date of this *Approval***
   a. East Property Line Acoustic Barrier
      One (1) 4 metres high and 28 metres long acoustic barrier positioned as per Figure 4 of the *Acoustic Assessment Report*, continuous without holes, gaps and other penetrations, and having a surface mass density of at least 20 kilograms per square metre.
4. **Phase 4 - Completion sixty (60) months after the date of this *Approval***
   a. Front End Loader
      One (1) 5 metres high and 30 metres long acoustic barrier positioned as per Figure 4 of the *Acoustic Assessment Report*, continuous without holes, gaps and other penetrations, and having a surface mass density of at least 20 kilograms per square metre.

Table 1: Sound Source Overview

Source ID	Description	Expected Operating Period	Sound Sequence
Lafarge			
L_L	Front-end Loader	Day/Eve/Night, 7 d/wk, 52 wks/yr	15 min/hr
L_AFH	Aggregate Feed Hopper	Day/Eve/Night, 7 d/wk, 52 wks/yr	15 min/hr
L_RMTL	Redi Mix Truck Loading	Day/Eve/Night, 7 d/wk, 52 wks/yr	60 min/hr
L_RMTS	Redi Mix Truck Slumping	Day/Eve/Night, 7 d/wk, 52 wks/yr	60 min/hr
L_CUB	Cement Unloading - Blower	Daytime only, 7 d/wk, 52 wks/yr	60 min/hr
L_TR_CD	Truck Route - Cement Delivery	Daytime Only, 7 d/wk, 52 wks/yr	1/hr @ 10 km/hr
L_TR_AG	Truck Route - Aggregate Delivery	Day/Eve/Night, 7 d/wk, 52 wks/yr	2/hr @ 10 km/hr
L_TR_RMT	Truck Routes - Redi Mix Truck	Day/Eve/Night, 7 d/wk, 52 wks/yr	6/hr @ 10 km/hr Day, 1/hr Eve or Night
NORFOLK DISP S			
NWS_TR1	Receiving Truck Route	Daytime Only, 7 d/wk, 52 wks/yr	6/hr @ 10 km/hr Day, 3/hr Eve, 0/hr Night
NWS_TR2	Transfer/Disposal Route	Day/Eve/Night, 7 d/wk, 52 wks/yr	1/hr @ 10 km/hr
NWS_L	Loader/Excavator in Processing Bldg.	Day/Eve/Night, 7 d/wk, 52 wks/yr	60 min/hr
NWS_PB	Paint Booth Stack	Day/Eve/Night, 7 d/wk, 52 wks/yr	60 min/hr
NORFOLK DISP N			
NWN_TR1	Truck Route 1	Day/Eve/Night, 7 d/wk, 52 wks/yr	15/hr @ 10 km/h Day/Night, 3/hr Eve
NWN_TR2	Truck Route 2	Day/Eve/Night, 7 d/wk, 52 wks/yr	15/hr @ 10 km/h Day/Night, 3/hr Eve
Waterford Truck and Trailer			
TR-WTT	WTT truck route	Daytime, Evening, 6 d/wk, 50 wks/yr	1 truck per hour along route
BD-WTT	Open Bay door - truck idling	Daytime, Evening, 6 d/wk, 50 wks/yr	10 min/hr idling

Table 2: Noise Source Summary Table

Source ID	Source Description	Sound Power Level (dBA)	Source Location[1]	Sound Characteristics[2]	Noise Control Measures[3]
L_L	Front-end Loader	102 -10	O	S	B
L_AFH	Aggregate Feed Hopper	109 -15	O	S	B
L_RMTL	Redi Mix Truck Loading	98	O	S	U
L_RMTS	Redi Mix Truck Slumping	105 -5	O	S	B
L_CUB	Cement Unloading - Blower	98	O	S	U
L_TR_CD	Truck Route - Cement Delivery	105	O	S	U
L_TR_AG	Truck Route - Aggregate Delivery	105	O	S	U
L_TR_RMT	Truck Routes - Redi Mix Truck	105	O	S	U
NWS_TR1	Waste Receiving Route	105	O	S	U
NWS_TR2	Waste Transfer Route	105	O	S	U
NWS_L	Front End Loader/ Indoor Excavator Noise	102 -15	O	S	B
NWS_PB	Paint Booth Stack	98 -15	O	S	S
NWN-TR1	Truck Route 1	105	O	S	B
NWN-TR2	Truck Route 2	105	O	S	B
TR-WTT	WTT truck route	105	O	S	U
BD-WTT	Open Bay door - truck idling	105	O	S	U

[1] O: located/installed outside the building, including on the roof
I: located/installed inside the building

[2] S: Steady
Q: Quasi Steady Impulsive
I: Impulsive
B: Buzzing
T: Tonal
C: Cyclic
O: Occasional

[3] S: silencer, acoustic louvre, muffler
A: acoustic lining, plenum
B: barrier, berm, screening
L: lagging
E: acoustic enclosure
O: other
U: uncontrolled

Table 4: Performance Limits

Time Of Day	Class 1 Area - Steady Source Limits	
	Plane of Window (Leq, dBA)	**Outdoor Receptor (Leq, dBA)**
07:00-19:00	50	50
19:00-23:00	50	50
23:00-07:00	45	N/A - no criteria for this time period

Table 5: Acoustic Assessment Summary Table

Point of Reception ID	Point of Reception Description	Sound Pressure Level at POR	Verified by Acoustic Audit (Yes/No)	Performance Limit	Compliance with Performance Limit
		dBA (L_{eq})		dBA (L_{eq})	(Yes/No)
POR1	2nd and 3rd storey façade Block A	44/43/36	No	50/50/45 (day/eve/night)	Yes
POR2	2nd and 3rd storey façade block D	45/45/20	No	50/50/45 (day/eve/night)	Yes
POR3	3rd storey façade Block E	43/43/20	No	50/50/45 (day/eve/night)	Yes

ATTACHMENT F

STAMSON NOISE CALCULATION TABLES
STAMSON OUTPUTS

Traffic Noise Assessment

Data Source: Norfolk County (Pedrag Jaksic)
Traffic Data Location: Old Highway 24
Traffic Data Location ID: n/a
Streets Assessed: Old Highway 24
Posted Speed: 60 km/hr
AADT (2016): 11335
AADT (2032 Projection): 13719
Assessment Basis: AADT with Ministry breakdown of automobiles, med trucks and heavy trucks

Class Data:

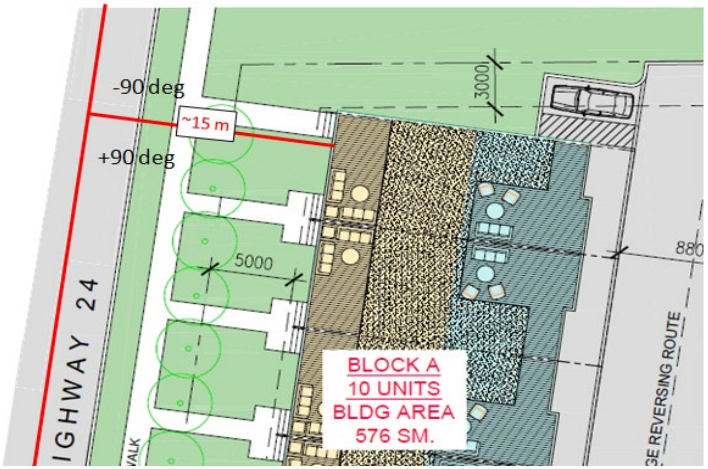
	%	Veh/hr	Day/Eve	Night
AADT (predicted to 2032	100%	13719	90%	10%
Cars	87%	11935	10742	1194
Medium Vehicles	5%	686	617	69
Heavy Trucks	8%	1097	988	110

STAMSON Modelling Summary:

POR	Distance (road to façade)	Day/ Eve	Night
POR1 - 2nd Storey, Block A	15	71	64
POR1 - 3rd Storey, Block A	15	71	64
POR2 - 2nd Storey, Block D	23	65	59
POR2 - 3rd Storey, Block D	23	65	59
POR3 - 3rd Storey, Block E	65	58	52

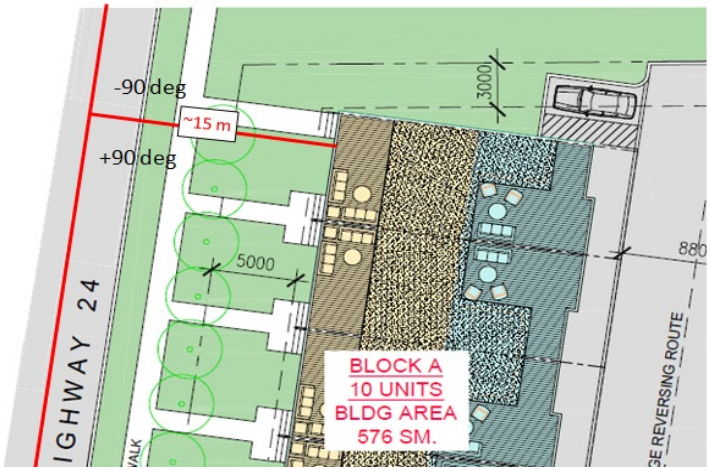
POR1 (3 Storey - 2nd storey), Block A

Time Period:	16 hr	8 hr
Automobiles:	10742	1194
Med. Trucks	617	69
Heavy Trucks	988	110
Speed Limit:	60 km/hr	
Road Gradient:	0%	
Road Pavement:	1 (asphalt or concrete)	
Source-Receiver Distance:	15 m	
Receiver Height:	4.5 m (2nd storey)	
Intermediate Surface:	2 (reflecting)	
Topography:	1 (flat)	
Wood Depth:	0 (no woods)	
Rows of Houses:	0 (no houses)	
Source Height:	1.68 m	
Segments:	1	
Segment 1:	-90 deg to 90 deg	



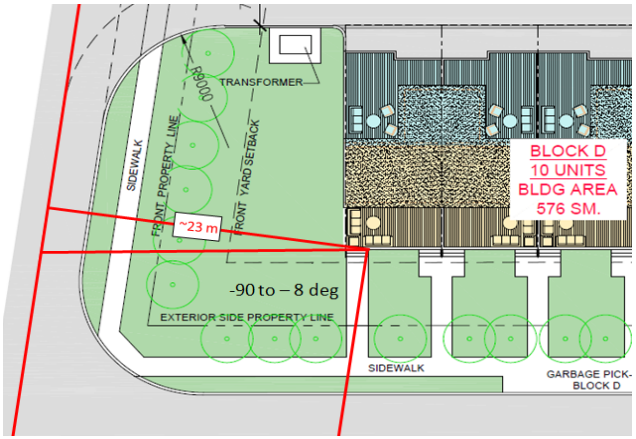
POR1 (3 Storey - 3rd storey), Block A

Time Period:	16 hr	8 hr
Automobiles:	10742	1194
Med. Trucks	617	69
Heavy Trucks	988	110
Speed Limit:	60 km/hr	
Road Gradient:	0%	
Road Pavement:	1 (asphalt or concrete)	
Source-Receiver Distance:	15 m	
Receiver Height:	7.5 m (3rd storey)	
Intermediate Surface:	2 (reflecting)	
Topography:	1 (flat)	
Wood Depth:	0 (no woods)	
Rows of Houses:	0 (no houses)	
Source Height:	1.68 m	
Segments:	1	
Segment 1:	-90 deg to 90 deg	



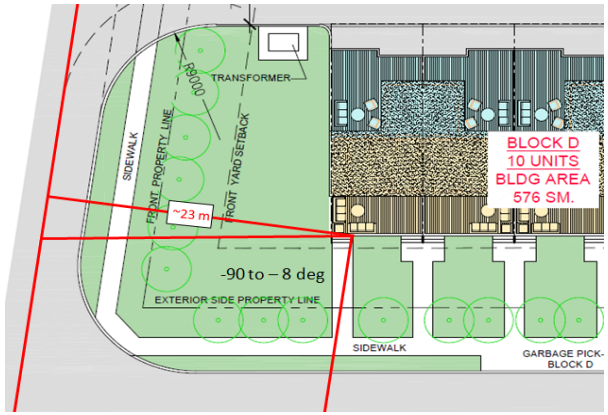
POR2 - (3 Storey - 2nd storey), Block D

Time Period:	16 hr	8 hr
Automobiles:	10742	1194
Med. Trucks	617	69
Heavy Trucks	988	110
Speed Limit:	60 km/hr	
Road Gradient:	0%	
Road Pavement:	1 (asphalt or concrete)	
Source-Receiver Distance:	23 m	
Receiver Height:	4.5 m (2nd storey)	
Intermediate Surface:	1 (absorbing)	
Topography:	1 (flat)	
Wood Depth:	0 (no woods)	
Rows of Houses:	0 (no houses)	
Source Height:	1.68 m	
Segments:	1	
Segment 1:	-8 deg to -90 deg	



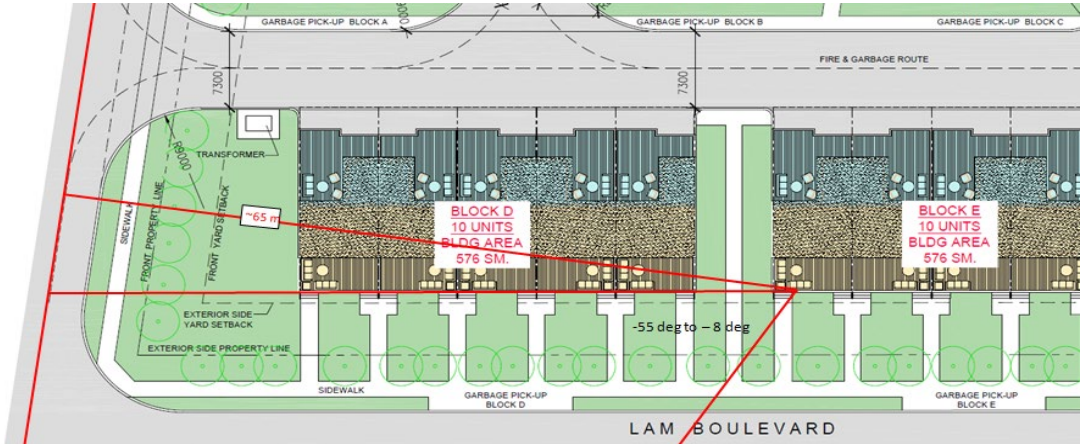
POR2 (3 Storey- 3rd storey, Block D)

Time Period:	16 hr	8 hr
Automobiles:	10742	1194
Med. Trucks	617	69
Heavy Trucks	988	110
Speed Limit:	60 km/hr	
Road Gradient:	0%	
Road Pavement:	1 (asphalt or concrete)	
Source-Receiver Distance:	23 m	
Receiver Height:	7.5 m (3rd storey)	
Intermediate Surface:	1 (absorbing)	
Topography:	1 (flat)	
Wood Depth:	0 (no woods)	
Rows of Houses:	0 (no houses)	
Source Height:	1.68 m	
Segments:	1	
Segment 1:	-90 deg to -8 deg	



POR3 (3 Storey- 3rd storey, Block E)

Time Period:	16 hr	8 hr
Automobiles:	0	0
Med. Trucks	16 hr	8 hr
Heavy Trucks	10742	1194
Speed Limit:	60 km/hr	
Road Gradient:	0%	
Road Pavement:	1 (asphalt or concrete)	
Source-Receiver Distance:	65 m	
Receiver Height:	7.5 m (3rd storey)	
Intermediate Surface:	1 (absorbing)	
Topography:	1 (flat)	
Wood Depth:	0 (no woods)	
Rows of Houses:	0 (no houses)	
Source Height:	1.68 m	
Segments:	1	
Segment 1:	-55 deg to -8 deg	



STAMSON 5.0 NORMAL REPORT Date: 12-11-2021 12:36:37
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: POR1_3S Time Period: Day/Night 16/8 hours
Description: POR1 - 3rd Storey

Road data, segment # 1: Old Hwy 24 (day/night)

Car traffic volume	: 10742/1194	veh/TimePeriod
Medium truck volume	: 617/69	veh/TimePeriod
Heavy truck volume	: 988/110	veh/TimePeriod
Posted speed limit	: 60	km/h
Road gradient	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

Data for Segment # 1: Old Hwy 24 (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	: 15.00 / 15.00	m
Receiver height	: 7.50 / 7.50	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

Results segment # 1: Old Hwy 24 (day)

Source height = 1.68 m

ROAD (0.00 + 70.58 + 0.00) = 70.58 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	70.58	0.00	0.00	0.00	0.00	0.00	0.00	70.58

Segment Leq : 70.58 dBA

Total Leq All Segments: 70.58 dBA

Results segment # 1: Old Hwy 24 (night)

Source height = 1.68 m

ROAD (0.00 + 64.05 + 0.00) = 64.05 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	64.05	0.00	0.00	0.00	0.00	0.00	0.00	64.05

Segment Leq : 64.05 dBA

Total Leq All Segments: 64.05 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 70.58
(NIGHT): 64.05

STAMSON 5.0 NORMAL REPORT Date: 12-11-2021 12:31:20
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: POR1_2S Time Period: Day/Night 16/8 hours
Description: POR1 - 2nd Storey

Road data, segment # 1: Old Hwy 24 (day/night)

Car traffic volume	: 10742/1194	veh/TimePeriod
Medium truck volume	: 617/69	veh/TimePeriod
Heavy truck volume	: 988/110	veh/TimePeriod
Posted speed limit	: 60	km/h
Road gradient	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

Data for Segment # 1: Old Hwy 24 (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	: 15.00 / 15.00	m
Receiver height	: 4.50 / 4.50	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

Results segment # 1: Old Hwy 24 (day)

Source height = 1.68 m

ROAD (0.00 + 70.58 + 0.00) = 70.58 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	70.58	0.00	0.00	0.00	0.00	0.00	0.00	70.58

Segment Leq : 70.58 dBA

Total Leq All Segments: 70.58 dBA

Results segment # 1: Old Hwy 24 (night)

Source height = 1.68 m

ROAD (0.00 + 64.05 + 0.00) = 64.05 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	64.05	0.00	0.00	0.00	0.00	0.00	0.00	64.05

Segment Leq : 64.05 dBA

Total Leq All Segments: 64.05 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 70.58
(NIGHT): 64.05

STAMSON 5.0 NORMAL REPORT Date: 12-11-2021 12:43:20
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: POR2_2S Time Period: Day/Night 16/8 hours
Description: POR2 - 2nd Storey

Road data, segment # 1: Old Hwy 24 (day/night)

Car traffic volume	: 10742/1194	veh/TimePeriod
Medium truck volume	: 617/69	veh/TimePeriod
Heavy truck volume	: 988/110	veh/TimePeriod
Posted speed limit	: 60	km/h
Road gradient	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

Data for Segment # 1: Old Hwy 24 (day/night)

Angle1 Angle2	: -90.00 deg	-8.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 2	(Reflective ground surface)
Receiver source distance	: 23.00 / 23.00	m
Receiver height	: 4.50 / 4.50	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

Results segment # 1: Old Hwy 24 (day)

Source height = 1.68 m

ROAD (0.00 + 65.31 + 0.00) = 65.31 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-8	0.00	70.58	0.00	-1.86	-3.41	0.00	0.00	0.00	65.31

Segment Leq : 65.31 dBA

Total Leq All Segments: 65.31 dBA

Results segment # 1: Old Hwy 24 (night)

Source height = 1.68 m

ROAD (0.00 + 58.78 + 0.00) = 58.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-8	0.00	64.05	0.00	-1.86	-3.41	0.00	0.00	0.00	58.78

Segment Leq : 58.78 dBA

Total Leq All Segments: 58.78 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.31
(NIGHT): 58.78

STAMSON 5.0 NORMAL REPORT Date: 12-11-2021 12:40:18
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: POR2_3S Time Period: Day/Night 16/8 hours
Description: POR2 - 3rd Storey

Road data, segment # 1: Old Hwy 24 (day/night)

Car traffic volume	: 10742/1194	veh/TimePeriod
Medium truck volume	: 617/69	veh/TimePeriod
Heavy truck volume	: 988/110	veh/TimePeriod
Posted speed limit	: 60	km/h
Road gradient	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

Data for Segment # 1: Old Hwy 24 (day/night)

Angle1 Angle2	: -90.00 deg	-8.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 2	(Reflective ground surface)
Receiver source distance	: 23.00 / 23.00	m
Receiver height	: 7.50 / 7.50	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

Results segment # 1: Old Hwy 24 (day)

Source height = 1.68 m

ROAD (0.00 + 65.31 + 0.00) = 65.31 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-8	0.00	70.58	0.00	-1.86	-3.41	0.00	0.00	0.00	65.31

Segment Leq : 65.31 dBA

Total Leq All Segments: 65.31 dBA

Results segment # 1: Old Hwy 24 (night)

Source height = 1.68 m

ROAD (0.00 + 58.78 + 0.00) = 58.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-8	0.00	64.05	0.00	-1.86	-3.41	0.00	0.00	0.00	58.78

Segment Leq : 58.78 dBA

Total Leq All Segments: 58.78 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.31
(NIGHT): 58.78

STAMSON 5.0 NORMAL REPORT Date: 12-11-2021 13:22:08
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: POR3_3S Time Period: Day/Night 16/8 hours
Description: POR3 - 3rd Storey

Road data, segment # 1: Old Hwy 24 (day/night)

Car traffic volume	: 10742/1194	veh/TimePeriod
Medium truck volume	: 617/69	veh/TimePeriod
Heavy truck volume	: 988/110	veh/TimePeriod
Posted speed limit	: 60	km/h
Road gradient	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

Data for Segment # 1: Old Hwy 24 (day/night)

Angle1 Angle2	: -55.00 deg	-8.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 2	(Reflective ground surface)
Receiver source distance	: 65.00 / 65.00	m
Receiver height	: 7.50 / 7.50	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

Results segment # 1: Old Hwy 24 (day)

Source height = 1.68 m

ROAD (0.00 + 58.38 + 0.00) = 58.38 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	-8	0.00	70.58	0.00	-6.37	-5.83	0.00	0.00	0.00	58.38

Segment Leq : 58.38 dBA

Total Leq All Segments: 58.38 dBA

Results segment # 1: Old Hwy 24 (night)

Source height = 1.68 m

ROAD (0.00 + 51.85 + 0.00) = 51.85 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	-8	0.00	64.05	0.00	-6.37	-5.83	0.00	0.00	0.00	51.85

Segment Leq : 51.85 dBA

Total Leq All Segments: 51.85 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.38
(NIGHT): 51.85

vallee

Consulting Engineers,
Architects & Planners

January 25, 2022

Ronak Mehta & Darpan Patel
Pramukh Developments Ltd.
2324 West Ham Rd Oakville ON L6M 4N6

Attention: **Ronak Mehta & Darpan Patel**

Reference: **Conceptual Functional Servicing Report**
Lam Boulevard Stacked Townhouse Development
Waterford, Norfolk County
Our Project # 21-059

Introduction

G. Douglas Vallee Ltd (Vallee) has been retained by Pramukh Development's Ltd. to prepare a Conceptual Functional Servicing report for submission to Norfolk County. This report has been prepared in support of the zoning by-law amendment application required for the construction of 40-unit townhouse development on the northeast corner of Old Highway 24 and Lam Boulevard in Waterford - Norfolk County. This report presents the conceptual functional serving for the proposed development, including sanitary servicing, storm servicing and domestic and fire water servicing.

Background

The proposed 0.70 ha development site is situated northeast of Old Highway 24 and Lam Boulevard in Waterford, Norfolk County. The subject lands are bound by an existing subdivision to the east and commercial land to the north, as shown in Figure 1.

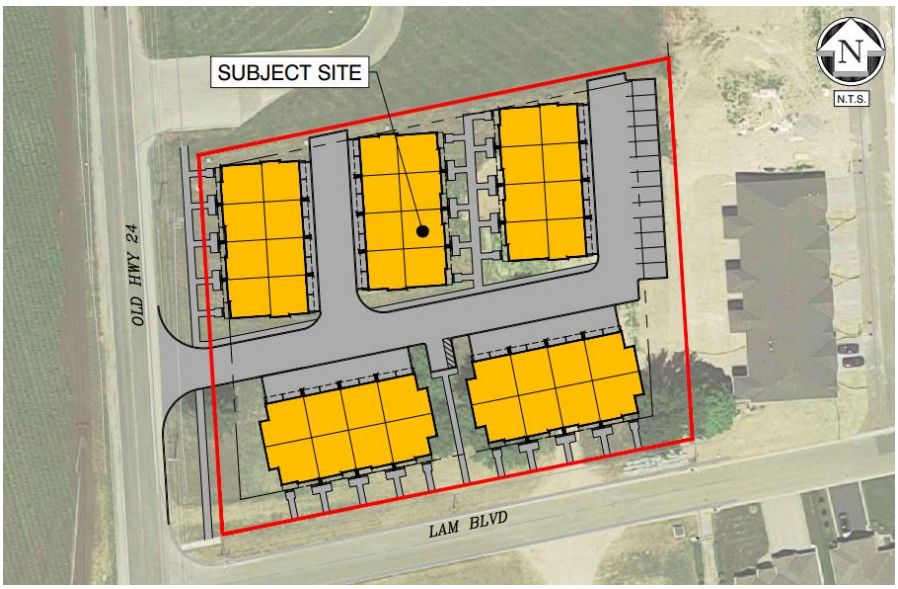


Figure 1 - Site Location

The development site currently features open landscaped area and is zoned as "Hamlet Service Commercial CS(H)". The proposed residential development shall consist of the following construction:

- 40 – 3-storey stacked residential dwelling units;
- Storm and sanitary infrastructure to support proposed construction;
- Stormwater management facility;
- Curbs, sidewalks, swales and other miscellaneous items to support proposed construction.

Sanitary Servicing

Record drawings from Vallee Project No. 10-034 – Yin Subdivision Phase 5 indicate a 200mm diameter PVC gravity sanitary sewer along Lam Boulevard and Old Highway 24. As part of this project, a sanitary manhole was also installed on the subject site's south property line for future development. It is proposed that sanitary flows from the proposed development will discharge to this existing sanitary manhole via an internal sanitary sewer system.

Sanitary design flows were calculated using the Norfolk County Design Criteria. Table 1 presents the flow information for the proposed development. In summary, the proposed development is anticipated to generate an additional sanitary flow of approximately 2.62 L/s to the existing sanitary sewer along Lam Boulevard.

Table 1
Sanitary Design Flow Information

Total Number of Units	40
Population Density (persons/units)	2.75
Per Capita Flow (L/person/day)	450
Peak Extraneous Flow (L/sec/hectare)	0.28
Development Area (ha)	0.70
Infiltration Flow (L/s)	0.20
Sewage Flow (L/s)	0.57
Peak Design Flow (L/s)	2.62

As part of the Yin Subdivision Phase 5 project (Vallee Project No. 10-034), a sanitary drainage area plan and sanitary design sheet were created for the sanitary sewer system which discharges to the sanitary main along Lam Boulevard and Old Highway 24, as shown in Appendix A. The sanitary design sheet has been updated to reflect the proposed 40-unit townhouse development, as shown the revised sanitary design sheet in Appendix A. Based on the calculations completed, it can be concluded that the existing sanitary sewer along Lam Boulevard and Old Highway 24 has adequate capacity to support the proposed development. In addition, Vallee has reviewed the invert elevation of the existing sanitary stub and has confirmed that it can service the proposed development.

To confirm the calculations presented, Vallee requests that sanitary hydraulic modelling be completed by the Norfolk County consultant to determine if the existing County infrastructure provides adequate capacity to accommodate the estimated sanitary design flow from the proposed development.

Stormwater Management

Under existing condition, the subject site is composed of open grassed area. Runoff from the site drains overland in a north westerly direction towards Old Highway 24. As part of the Yin Subdivision Phase 5 project (Vallee Project No. 10-034), a peak flow allowance of 0.015 m^3/s was allocated for subject site during the storm sewer design. Refer drawing 10-034 ST1 – Storm Drainage Areas and the corresponding storm design sheet in Appendix B. Consequently, the stormwater management (SWM) quantity control target for the proposed development is to reduce and/or control post-development peak flow rates from the site to levels that do not exceed the 0.015 m^3/s flow allowance, for all storm events up to and including the 100-year storm event.

To meet this objective, runoff from the proposed condominium development will be detained in an underground storage facility, and released at a rate such that the peak flow allowance is not exceeded. Infiltration beneath the chamber facility will also be utilized to decrease the required storage volume. Minor storm events (2-year and 5-year) will be conveyed to the proposed SWM storage facility through a storm sewer network and major storm events will flow overland. Runoff released from the storage facility will be directed to the existing municipal 600mm diameter storm sewer along Old Highway 24. Vallee has reviewed the invert elevation of the existing storm sewer stub and has confirmed that it can service the proposed development.

Visual OTTHYMO was utilized to simulate the post-development condition for the subject site and determine the storage volume and orifice control required to meet the quantity control objective. Using a storage volume of 250 m^3 and a 75mm control orifice the total post-development design flows from the subject site can be reduced to less than or equal to the peak flow rate allowance, as displayed in Table 2. Supporting calculations can be found in Appendix B. During the detailed design stage, further low-impact development infiltration practices will be analyzed to reduce the required storage volume.

100-Year Post-Development Flow Rates Table 2

AREA	Allowance (cms)	Post (cms)
TOTAL	0.015	0.014

Stormwater quality control for the site will be analyzed during the detailed design stage. At that time, multiple quality control solutions will be investigated, such as low-impact development (LID) treatment and oil grit separators (OGS), and the most practical solution that meets the municipal design criteria will be proposed.

Water Servicing

As-constructed drawings and the Norfolk County ISMP indicate there is an existing 200mm diameter watermain along Lam Boulevard. As part of the Yin Subdivision Phase 5 project (Vallee Project No. 10-034), a 150mm diameter water service was installed at the south east corner of the subject site which will be utilized to service the proposed development. An analysis of the hydraulic modelling will be conducted by the County consultants to determine the water servicing capacity and constraints on the existing water system to ensure adequate system flows and pressure for the aforementioned domestic and fire demands. Norfolk County's design criteria stipulates the following requirements for system pressures, and the system shall be designed to meet the greater of either of the following requirements;

- Fire flow conditions– not less than 140 kPa
- Normal operating conditions – not less than 280 kPa

Domestic Water Demand

The following summarizes the domestic water flow information for the proposed development:

- Total Number of Units: 40
- Population Density: 2.75 persons per unit
- Population: 110 people
- Average Daily Water Demand (per person) 0.450 m^3/person/day
- Average Daily Water Demand: 49.5 m^3/day (0.57 L/s)
- Maximum Day Demand Factor: 2.25
- Maximum Day Demand: 111.38 m^3/day (1.29 L/s)
- Peak Hourly Demand Factor (Residential) 4.00
- Peak Hourly Demand 8.25 m^3/hour (2.29 L/s)

Fire Water Service

According to the County GIS online mapping, there are three existing fire hydrants located in proximity to the subject development site. The first hydrant is located on the west side of Old Highway 24, at the northwest corner of the property, the second is located on the west side of Old Highway 24 at the intersection of Old Highway 24 and Lam Boulevard, and the third is located on the north side of Lam Boulevard at the southeast corner of the property. The entire subject property is covered within the 90m radii of the existing hydrants, consequently, no fire hydrants are required to be installed on the subject property to service the proposed development.

Typically, available fire flow during the maximum day demand is the critical criteria when evaluating a watermain distribution system's ability to service a residential subdivision. The estimated fire flow requirement for the development has been determined using both the recommendations of the Fire Underwriters Survey – 1999 (FUS) and the Ontario Building Code (OBC) method. Using the FUS recommendations and the OBC fire flow calculation procedure, the minimum required fire flow was determined to be 250 L/s and 105 L/s, respectively. It should be noted that the FUS method is generally conservative, and is intended as a guideline for underwriting purposes, not as a design standard. As such, the required flow for proposed development is

estimated to be 105 L/s to satisfy OBC requirements. Supporting calculations for both methods are detailed in Appendix C.

The Norfolk County ISMP estimates that the available fire flow in the existing watermain on Lam Boulevard ranges from 83 L/s to 159 L/s, as displayed in Appendix C. The required flow calculated using the OBC method falls within this range. It should be noted that the ISMP modeling was from 2015, consequently, Vallee requests that Norfolk County review their current model and provide more current available demands to confirm that the supply is adequate, and provide fire flow estimations at all three of the fire hydrants surrounding the subject site.

Conclusions and Recommendations

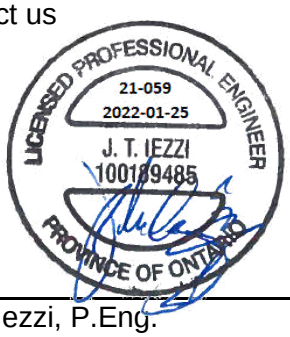
The functional servicing design for the proposed development can be summarized as follows:

- The proposed development will be serviced by a sanitary sewer that connects to the existing 200mm sanitary sewer along Lam Boulevard.
- A peak sanitary design flow of approximately 2.62 L/s is anticipated from the proposed development.
- An analysis of the existing sanitary sewer network on Lam Boulevard and Old Highway 24 indicates that there is sufficient capacity to support the sanitary flows from the proposed development. However, modelling from the Norfolk County's consultant is recommended to determine the impact of the proposed additional sanitary flows further downstream.
- Overland flow (major storm events) storm sewers (minor storm events) will convey stormwater to the proposed underground SWM storage facility, ultimately releasing to the existing municipal 600mm diameter storm sewer along Old Highway 24 via a storm sewer.
- Under all storm events, peak flows associated with the post-development site are controlled to less than or equal to the allowable peak flow rate determined as part of the Yin Subdivision Phase 5 - Vallee Project 10-034.
- Quality control will be analyzed during the detailed design stage.
- The existing 200mm watermain on Lam Boulevard shall serve as the water supply for the proposed development.
- An analysis of the hydraulic modelling will be conducted by the County consultants to determine the water servicing capacity and constraints on the existing water system to ensure adequate system flows and pressure for the aforementioned domestic and fire demands.
- The domestic maximum day demand and peak hourly demand were found to be 111.38 m3/day (1.29 L/s) and 8.25 m3/hour (2.29 L/s), respectively.
- The required fire flow demand for the proposed development was found to be 105 L/s in accordance with the OBC requirements, which is within the estimated range of available fire flow (83 L/s to 159 L/s). Actual flows at each of the hydrants noted is to be provided through modelling by the county's consultants.

It is recommended that this report be provided to the Norfolk County and the Long Point Region Conservation Authority in support of the application for zoning by-law amendment of the proposed development.

We trust that this information is complete and sufficient for submission. Should you have any questions or require further information please do not hesitate to contact us

Respectfully submitted,



Natalie Biesinger, B.A.Sc., EIT
G. DOUGLAS VALLEE LIMITED
Consulting Engineers, Architects and Planners

John Iezzi, P.Eng.
G. DOUGLAS VALLEE LIMITED
Consulting Engineers, Architects and Planners

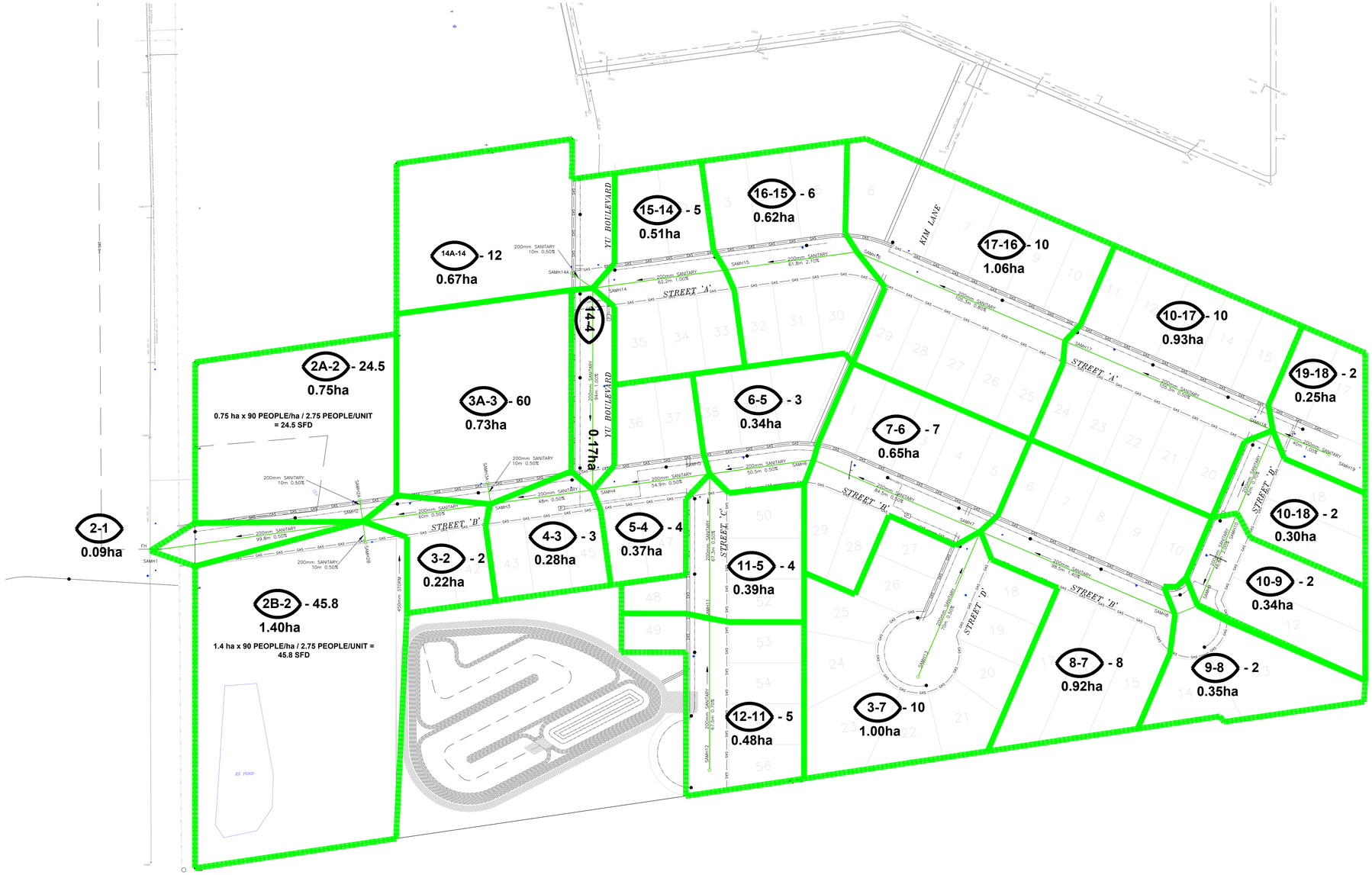
Appendix A
– 10-034 SA1 – Sanitary Sewer Drainage Areas
– 10-034 Sanitary Sewer Design Sheet
– 21-059 Sanitary Sewer Design Sheet
– 21-059 Sanitary Flow Calculation

Appendix B
– 10-034 ST1 – Storm Drainage Areas
– 10-034 Storm Sewer Design Sheet
– 21-059 SWM – Stormwater Management Drainage Areas
– 21-059 SWM Parameters and Calculations

Appendix C
– Domestic Water Demand Calculations
– Fire Flow Calculation Distances
– FUS Calculations
– OBC Calculations
– Norfolk ISMP Map

APPENDIX A

10-034 SA1 – Sanitary Sewer Drainage Areas
10-034 Sanitary Sewer Design Sheet
21-059 Sanitary Sewer Design Sheet
21-059 Sanitary Flow Calculation



REV. No.	DATE	REVISION
0		

vallee
Consulting Engineers, Architects & Planners
G. DOUGLAS VALLEE LIMITED
2 TALBOT STREET NORTH
SIMCOE, ONTARIO N3Y 3W4
(519) 426-6270

Stamp

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Project Title
YIN PHASE 5
WATERFORD - NORFOLK COUNTY

Drawing Title
SANITARY SEWER DRAINAGE AREAS

Designed by : DJB	Drawn By : TJC
Checked by : TGS	Date Started : SEPTEMBER 2010
Drawing Scale : 1:1000	Drawing No. SA1
Project No. 10-034	

DATE LAST PLOTTED :

SANITARY SEWER DESIGN SHEET

Pipe Material PVC
N 0.013

Project: Yin's Subdivision Phase 6

Job No. 14123

Date 1-Feb-15
Designed by TGS
Checked by JDV
Sheet of : 1 of 1

Location				Area						Flow			Sewer Design						
Area	Street	From	To	Section	Cumul.	Section	Cumul	Total	M=Peak	Q(i)	Q(s)	Q(d)	Material	Size	Length	N	Slope	Cap	Full V
		MH	MH	Ha	Ha	Units	Units	Pop.	Factor	L/s	L/s	L/s		mm	m		%	L/s	m/s
10-18	Lam Blvd	10	18	0.3	0.30	2	2	6	4.4363	0.084	0.1271	0.2111	PVC	200	42	0.013	0.70%	27.4	0.87
19-18	Tan Ave	19	18	0.25	0.55	2	4	11	4.4106	0.154	0.2527	0.4067	PVC	200	40	0.013	1.00%	32.8	1.04
18-17	Tan Ave	18	17	0.93	1.48	10	14	39	4.3363	0.4144	0.8695	1.2839	PVC	200	105.3	0.013	0.50%	23.2	0.74
17-16	Tan Ave	17	16	1.06	2.54	10	24	66	4.2888	0.7112	1.4743	2.1855	PVC	200	105.3	0.013	0.80%	29.3	0.93
16-15	Tan Ave	16	15	0.62	3.16	6	30	83	4.2655	0.8848	1.8328	2.7176	PVC	200	61.8	0.013	2.10%	47.5	1.51
15-14	Tan Ave	15	14	0.51	3.67	5	35	96	4.2481	1.0276	2.1296	3.1572	PVC	200	62.2	0.013	1.00%	32.8	1.04
14A-14	Block 1 - TWNHSE	14A	14	0.67	0.67	12	12	33	4.348	0.1876	0.7473	0.9349	PVC	200	10	0.013	0.50%	23.2	0.74
14-4	Yu Blvd	14	4	0.17	4.51	0	47	129	4.2114	1.2628	2.835	4.0978	PVC	200	94	0.013	1.00%	32.8	1.04
10-9	Lam Blvd	10	9	0.34	0.34	2	2	6	4.4363	0.0952	0.1271	0.2223	PVC	200	46.8	0.013	2.00%	46.4	1.48
9-8	Lam Blvd	9	8	0.35	0.69	2	4	11	4.4106	0.1932	0.2527	0.4459	PVC	200	11.3	0.013	1.70%	42.8	1.36
8-7	Lam Blvd	8	7	0.92	1.61	8	12	33	4.348	0.4508	0.7473	1.1981	PVC	200	98.5	0.013	1.40%	38.8	1.24
13-7	Tai Shan Place	13	7	1.00	1.00	10	10	28	4.3607	0.28	0.6246	0.9046	PVC	200	70	0.013	0.50%	23.2	0.74
7-6	Lam Blvd	7	6	0.65	3.26	7	29	80	4.2692	0.9128	1.7733	2.6861	PVC	200	84.5	0.013	0.50%	23.2	0.74
6-5	Lam Blvd	6	5	0.34	3.60	3	32	88	4.2584	1.008	1.9517	2.9597	PVC	200	50.5	0.013	0.50%	23.2	0.74
12-11	Jong St	12	11	0.48	0.48	5	5	14	4.4003	0.1344	0.3151	0.4495	PVC	200	67.5	0.013	0.70%	27.4	0.87
11-5	Jong St	11	5	0.39	0.87	4	9	25	4.3676	0.2436	0.563	0.8066	PVC	200	67.3	0.013	0.50%	23.2	0.74
5-4	Lam Blvd	5	4	0.37	4.84	4	45	124	4.2171	1.3552	2.718	4.0732	PVC	200	54.9	0.013	0.50%	23.2	0.74
4-3	Lam Blvd	4	3	0.28	9.63	3	95	261	4.1034	2.6964	5.5835	8.2799	PVC	200	48	0.013	0.50%	23.2	0.74
3A-3	Block 2 Aptmnts.	3A	3	0.73	0.73	60	60	165	4.1773	0.2044	3.5899	3.7943	PVC	200	10	0.013	0.50%	23.2	0.74
3-2	Lam Blvd	3	2	0.22	10.58	2	157	432	4.0062	2.9624	9.0087	11.971	PVC	200	60	0.013	0.50%	23.2	0.74
2A-2	Block 3 Commercial	2A	2	0.75	0.75	25	25	67	4.2867	0.21	1.5043	1.7143	PVC	200	10	0.013	0.50%	23.2	0.74
2B-2	Block 2 Aptmnts.	2B	2	1.4	1.40	46	46	127	4.2142	0.392	2.7765	3.1685	PVC	200	10	0.013	0.50%	23.2	0.74
2-1	Lam Blvd	2	1	0.09	12.07	0	228	626	3.9222	3.3796	12.78	16.16	PVC	200	99.8	0.013	0.50%	23.2	0.74

Design Information:
Q(s) = Sewage Flow = P q M / 86.4
Q(i) = Infiltration Flow = I A
Q(d) = Peak Design Flow = Q(s) + Q(i)

P = Population in thousands
M = Peaking Factor = 1 + 14 / (4 + P^.5)
A = Tributary Area

q = Per Capita Flow= 450 L/cap d
I = Peak Extraneous Flow = 0.28 L/s/ha
Population Density 2.75 persons /unit

Existing Sewer

SANITARY SEWER DESIGN SHEET

Pipe Material PVC
N 0.01

Project: Yin's Subdivision Phase 6
Updated to Include Orchard Square & Lam Boulevard Townhouses

Job No. 20-128

Date 7-Dec-21
Designed by TGS/NLB
Checked by JI
Sheet of : 1 of 1

Location				Area						Flow			Sewer Design							
Area	Street	From MH	To MH	Section Ha	Cumul. Ha	Section Units	Cumul Units	Total Pop.	M=Peak Factor	Q(i) L/s	Q(s) L/s	Q(d) L/s	Material	Size mm	Length m	N	Slope %	Cap L/s	Full V m/s	
10-18	Lam Blvd	10	18	0.3	0.30	2	2	6	4.43629	0.084	0.12708	0.21108	PVC	200	42	0.013	0.70%	27.4	0.87	1%
19-18	Tan Ave	19	18	0.25	0.55	2	4	11	4.41057	0.154	0.25269	0.40669	PVC	200	40	0.013	1.00%	32.8	1.04	1%
18-17	Tan Ave	18	17	0.93	1.48	10	14	39	4.33634	0.4144	0.86953	1.28393	PVC	200	105.3	0.013	0.50%	23.2	0.74	6%
17-16	Tan Ave	17	16	1.06	2.54	10	24	66	4.28877	0.7112	1.47427	2.18547	PVC	200	105.3	0.013	0.80%	29.3	0.93	7%
16-15	Tan Ave	16	15	0.62	3.16	6	30	83	4.26551	0.8848	1.83284	2.71764	PVC	200	61.8	0.013	2.10%	47.5	1.51	6%
15-14	Tan Ave	15	14	0.51	3.67	5	35	96	4.24808	1.0276	2.12957	3.15717	PVC	200	62.2	0.013	1.00%	32.8	1.04	10%
14A-14	Block 1 - TWNHSE	14A	14	0.67	0.67	12	12	33	4.34795	0.1876	0.7473	0.9349	PVC	200	10	0.013	0.50%	23.2	0.74	4%
14-4	Yu Blvd	14	4	0.17	4.51	0	47	129	4.21137	1.2628	2.835	4.0978	PVC	200	94	0.013	1.00%	32.8	1.04	12%
10-9	Lam Blvd	10	9	0.34	0.34	2	2	6	4.43629	0.0952	0.12708	0.22228	PVC	200	46.8	0.013	2.00%	46.4	1.48	0%
9-8	Lam Blvd	9	8	0.35	0.69	2	4	11	4.41057	0.1932	0.25269	0.44589	PVC	200	11.3	0.013	1.70%	42.8	1.36	1%
8-7	Lam Blvd	8	7	0.92	1.61	8	12	33	4.34795	0.4508	0.7473	1.1981	PVC	200	98.5	0.013	1.40%	38.8	1.24	3%
13-7	Tai Shan Place	13	7	1.00	1.00	10	10	28	4.36067	0.28	0.62458	0.90458	PVC	200	70	0.013	0.50%	23.2	0.74	4%
7-6	Lam Blvd	7	6	0.65	3.26	7	29	80	4.26919	0.9128	1.77327	2.68607	PVC	200	84.5	0.013	0.50%	23.2	0.74	12%
6-5	Lam Blvd	6	5	0.34	3.60	3	32	88	4.25835	1.008	1.95175	2.95975	PVC	200	50.5	0.013	0.50%	23.2	0.74	13%
12-11	Jong St	12	11	0.48	0.48	5	5	14	4.40032	0.1344	0.31513	0.44953	PVC	200	67.5	0.013	0.70%	27.4	0.87	2%
11-5	Jong St	11	5	0.39	0.87	4	9	25	4.36755	0.2436	0.563	0.8066	PVC	200	67.3	0.013	0.50%	23.2	0.74	3%
5-4	Lam Blvd	5	4	0.37	4.84	4	45	124	4.21707	1.3552	2.71804	4.07324	PVC	200	54.9	0.013	0.50%	23.2	0.74	18%
4-3	Lam Blvd	4	3	0.28	9.63	3	95	261	4.10344	2.6964	5.58345	8.27985	PVC	200	48	0.013	0.50%	23.2	0.74	36%
3A-3	Block 2 Aptmnts.	3A	3	0.73	0.73	60	60	165	4.17734	0.2044	3.5899	3.7943	PVC	200	10	0.013	0.50%	23.2	0.74	16%
3-2	Lam Blvd	3	2	0.22	10.58	2	157	432	4.00618	2.9624	9.00868	11.9711	PVC	200	60	0.013	0.50%	23.2	0.74	52%
2A-2	Block 3 Commercial	2A	2	0.75	0.75	40	40	110	4.23202	0.21	2.42459	2.63459	PVC	200	10	0.013	0.50%	23.2	0.74	11%
2B-2	Block 2 Aptmnts.	2B	2	1.4	1.40	55	55	151	4.18986	0.392	3.30061	3.69261	PVC	200	10	0.013	0.50%	23.2	0.74	16%
2-1	Lam Blvd	2	1	0.09	12.07	0	252	693	3.89707	3.3796	14.066	17.4456	PVC	200	99.8	0.013	0.50%	23.2	0.74	75%

Design Information:
Q(s) = Sewage Flow = P q M / 86.4
Q(i) = Infiltration Flow = I A
Q(d) = Peak Design Flow = Q(s) + Q(i)

P = Population in thousands
M = Peaking Factor = 1 + 14 / (4 + P^.5)
A = Tributary Area

q = Per Capita Flow= 450 L/cap d
I = Peak Extraneous Flow = 0.28 L/s/ha
Population Density 2.75 persons /unit

Existing Sewer

Notes:
1) Number of units for drainage area 2B-2 modified to 55 from 46 (for 20-128 Orchard Square)
1) Number of units for drainage area 2B-2 modified to 40 from 25 (for 21-059 Lam Blvd Townhouses)

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Subject:	Lam Boulevard Townhouses		
Date:	12/26/2021	By:	NLB
Project #:	21-059	Page	1

Norfolk County Design Criteria Section 9.2 - Sanitary Sewage Flow

9.2.01 Tributary Population

Residential Development:	2.75	persons/unit
Units:	40	Units
Number of Persons:	110	persons
Site Area	0.70	ha

9.2.02 Sewage Flow

Residential Development:	0.45	m^3/person/day
Average Sewage Flow:	0.573	L/s

9.2.03 Peak Sanitary Flow Factor

Commercial Peaking Factor Formula:

M = 1 + (14/(4+ [14 / { 4 + P^(0.5)}])

P =	0.11
M =	4.232

9.2.04 Infiltration Allowance

Infiltration Allowance:	0.28	L/s/ha
Infiltration Allowance:	0.196	L/s

9.2.05 Design Flow

Design Flow:

Design Flow = (Average Sewage Flow * Peak Sanitary Flow Factor) + Infil. Allowance

Design Flow =	2.621	L/s

APPENDIX B

10-034 ST1 – Storm Drainage Areas
10-034 Storm Sewer Design Sheet
21-059 SWM – Stormwater Management Drainage Areas
21-059 SWM Parameters and Calculations

REV. No.	DATE	REVISION
0	DEC 8/10	SUBMIT TO COUNTY FOR REVIEW

(10) STORM MANHOLE AND NUMBER

10-10A
0.69 0.75
AREA NUMBER
RUNOFF COEFF.
AREA (Ha)

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G. DOUGLAS VALLEE LIMITED
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SIMCOE, ONTARIO N3Y 3W4
(519) 426-6270

Stamp

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Project Title
YIN PHASE 5
NORFOLK COUNTY - WATERFORD

Drawing Title
STORM DRAINAGE AREAS

Designed by : DJB	Drawn By : TJC
Checked by : TGS	Date Started : SEPTEMBER 2010
Drawing Scale : 1:100	Drawing No. ST1
Project No. 10-034	

DATE LAST PLOTTED :

STORM SEWER DESIGN SHEET

Storm 2-year Simcoe
A= 529.71 B= 4.501 C= 0.745
Pipe Material PVC<=450, Concrete >450
n 0.013

Project 10034 Yin's Phase 5 - Main Street Storm
Town/County Waterford - Norfolk County

Date Nov 24/10
Designed by TGS
Checked by JDV
Sheet of : 1 of

Location			Area			Cumlative	Time	Rainfall	Flow	Sewer Design					
Area	From	To			TOTAL	R*A	of		2.78*I*A*R	Size	Slope	Cap	Vel	Length	Time
			Ha	Ha	Ha		Concentration	mm/hr							
			0.45	0.9			min		L/s	mm	%	L/s	m/s	m	min
Pond	Pond	7	0		0.00	0	0.00	N/A	30.0	450	0.30%	156.2	0.982	59.2	1
7-6	7	6	0.37		0.17	0.17	15.00	57.94	56.8	450	0.40%	180.3	1.134	104.5	1.54
6-5	6	5	0		0.00	0.17	16.54	54.75	85.3	600	0.20%	274.6	0.971	114	1.96
5-4	5	4		1.34	1.21	1.37	18.49	51.24	255.5	600	0.20%	274.6	0.971	119	2.04
4-3	4	3		2.09	1.88	3.25	20.53	48.10	495.0	750	0.25%	556.6	1.26	119.4	1.58
3-2	3	2		1.81	1.63	4.88	22.11	45.95	683.7	825	0.25%	717.7	1.343	84	1.04
2-1	2	1	1.71		0.77	5.65	23.16	44.66	761.7	825	0.30%	786.2	1.471	29.9	0.34
1-EX	1	EX	1.26		0.57	6.22	23.50	44.25	825.1	825	0.35%	849.2	1.589	107	1.12

Note:

Peak Discharge from Pond (100-yr storm)	0.03	Applied at Area POND
Peak Dischare from Block 3	0.015	Applied at Area 6-5
Peak Discharge from Block 4	0.015	Applied at Area 6-6

LEGEND

- OVERLAND FLOW (MAJOR)
- PROPERTY/CATCHMENT BOUNDARY
- IMPERVIOUS AREA
- SWM — SWM DRAINAGE AREA
- 0.99 | 35.0% — TOTAL IMPERVIOUS PERCENTAGE (%)
- AREA (ha)

N

REV. No.	DATE	REVISION
0	XXX XX, XXXX	ISSUED FOR CLIENT REVIEW

SCALE:
5 10 15
HORIZONTAL : 1:250

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(519) 426-6270

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PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Project Title
LAM BOULEVARD
WATERFORD, NORFOLK COUNTY

Drawing Title
SWM DRAINAGE AREAS

Designed by : NLB	Drawn By : NLB
Checked by : JI	Date Started : 1/17/2022
Drawing Scale : 1:250	Drawing No. SWM
Project No. 21-059	

DATE LAST PLOTTED : January 19, 2022

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Subject:	Catchment Parameters & Allowable Release Rate		
Date:	1/11/2022	By:	NLB
Project #:	21-059	Page	1

Post-Development Catchment Parameters

Drainage Area	Area Description	Area (ha)	Imperv. Area (ha)	Directly Connected Imperv. (ha)	TIMP (%)	XIMP (%)
		(1)	(2)	(3)	(2)/(1)	(3)/(1)
POST	Total Site	0.700	0.489	0.204	69.8%	29.1%

Allowable Release Rate (m3/s)	0.015	*obtained from 10-034 Yin Phase5 Subdivision SWM Report

Soil Parameters

Soil Type	A - gravelly sandy till, sandy textures over gravelly sandy till
CN (-)	58
Ia Developed (mm)	16.5
Infiltration Rate (i) (m/hr)	0.0114
Void Ratio (Vr)	0.4
Drainage Time (ts) (hr)	48
Max allowable stone depth (drmax) (m)	1.37

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Subject:	Stage-Storage-Discharge Estimate		
Date:	1/11/2022	By:	NLB
Project #:	21-059	Page	2

Chamber Parameters

Model	MC-3500	
Number of Chambers	40	
Depth of Stone Above Chamber	300	mm
Depth of Stone Below Chambers	500	mm
Min Surface Elev.	243.45	m
Min. Cover (For Vehicles)	0.70	m
Top of Chamber Elv.	242.75	m
Height of Chambers	1140	mm
Base of Chamber Elev.	241.61	m
Base of Stone Elev.	241.11	m
Top of Stone Elev.	243.05	m
System Footprint	230.22	m2
System Width	11.00	m
System Length	21.75	m

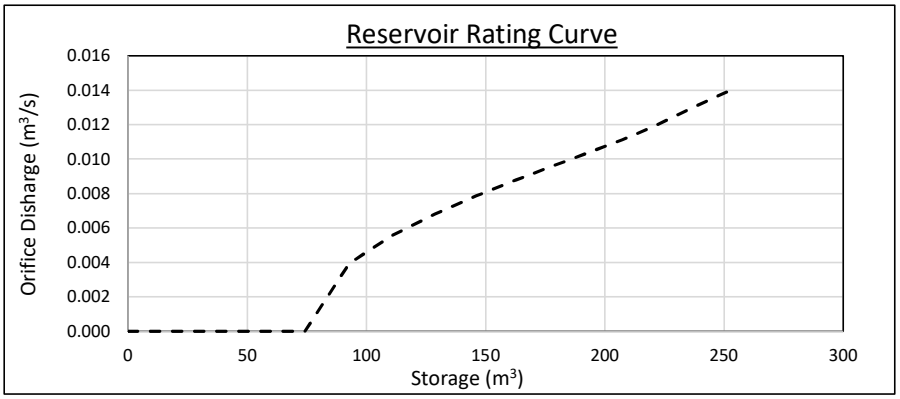
Orifice Parameters

	Diameter	0.075	m
Orifice #1	Area	0.0044	m2
	Elevation	241.77	m
	Depth	0.66	m

Stage-Storage-Discharge

Description	Elevation (m)	Stage (mm)	Stage (m)	Volume (m3)	Height Above Invert (m)	Q (m3/s) Orifice 1
Base of Stone Storage	241.11	0	0.000	0.00	0.000	0.000
	241.21	102	0.102	9.15	0.000	0.000
	241.31	203	0.203	18.31	0.000	0.000
	241.42	305	0.305	27.46	0.000	0.000
	241.52	406	0.406	36.62	0.000	0.000
	241.67	559	0.559	55.29	0.000	0.000
Outlet Orifice #1	241.77	660	0.660	74.13	0.000	0.000
	241.87	762	0.762	92.68	0.102	0.004
	241.97	864	0.864	110.90	0.204	0.006
	242.08	965	0.965	128.71	0.305	0.007
	242.18	1067	1.067	146.01	0.407	0.008
	242.28	1168	1.168	162.69	0.508	0.009
	242.38	1270	1.270	178.62	0.610	0.010
	242.48	1372	1.372	193.59	0.712	0.010
	242.58	1473	1.473	207.29	0.813	0.011
	242.69	1575	1.575	218.79	0.915	0.012
	242.79	1676	1.676	228.33	1.016	0.012
	242.89	1778	1.778	237.48	1.118	0.013
	242.99	1880	1.880	246.64	1.220	0.014
Top of Stone Storage	243.07	1956	1.956	253.50	1.296	0.014

**Storage volumes obtained from OTTHYMO*



100-YR Flow Rate (m3/s)

Target	0.015	
Actual Provided	0.014	✓

Required Storage (m3)

Provided	254	
Utilized	242	✓

APPENDIX C

Domestic Water Demand Calculations
Fire Flow Calculation Distances
FUS Calculations
OBC Calculations
Norfolk ISMP Map

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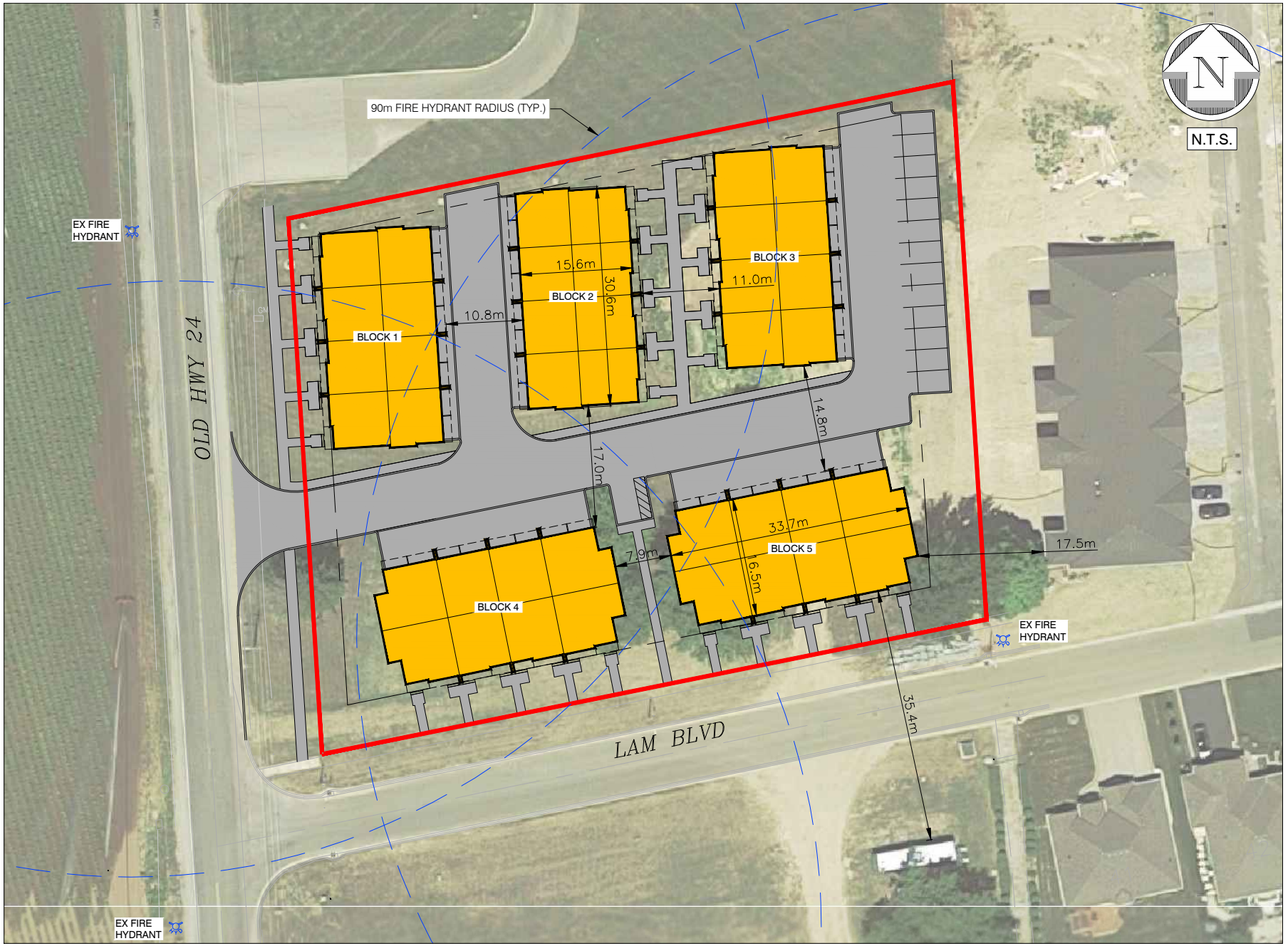
Subject: Lam Boulevard Townhouses
Date: 12/23/2021 By: NLB
Project #: 21-059 Page

Maximum Daily Demand

Total Number of Units	40	units
Zoning of Land	Residential	
Equiv. Population Density	2.75	ppl/unit
Equiv. Population	110	
Av. Daily Demand Per Capita	0.45	m^3/capita/day
Maximum Daily Demand Peaking Factor	2.25	
Maximum Daily Demand	111.38	m^3/day
	1.29	l/s

Maximum Hourly Demand

Total Number of Units	40	units
Zoning of Land	Residential	
Equiv. Population Density	2.75	ppl/ha
Equiv. Population	110	
Av. Daily Demand Per Capita	0.45	m^3/capita/day
Maximum Hourly Demand Peaking Factor	4	
Maximum Hourly Demand	8.25	m^3/hour
	2.29	l/s


90m FIRE HYDRANT RADIUS (TYP.)
N
N.T.S.
EX FIRE HYDRANT
EX FIRE HYDRANT
EX FIRE HYDRANT
OLD HWY 24
LAM BLVD
BLOCK 1
BLOCK 2
BLOCK 3
BLOCK 4
BLOCK 5
15.6m
30.6m
11.0m
10.8m
14.8m
17.0m
33.7m
7.9m
6.5m
17.5m
35.4m

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Subject:	Lam Boulevard Townhouses		
Date:	Dec-21	By:	NLB
Project #:	21-059	Page:	1

UNIT BLOCK 2

1) Fire Flow Requirement

$F_1=220C(A^{1/2})$ (L/min)

C= 1.5 Construction coefficient for wood frame construction

A= 468.0 Floor Area m^2 = main floor area

= 1404.0 Fire Area m^2 = main floor area + 2nd floor area + 3rd floor area

F_1= 12365 L/min

F_1= 12000 L/min (Round to the nearest 1,000 l/min)

2) Occupancy

Occupancy Type: Residential Non-Combustible

Reduction: 25%

Surcharge: 0%

$F_2=F_1+(F_1*Reduction/Surcharge)$ (L/min)

F_2= 9000 L/min

3) Sprinkler System

Sprikler System: Not Applicable (assumed no sprinkler system in service)

Reduction: 0%

$F_3=F_2*Reduction$ (L/min)

F_3= 0 L/min

4) Seperation

Location	Direction	Distance (m)	Surcharge
Front	West	10.8	15%
Side	North	9999.0	0%
Side	South	17.0	15%
Rear	East	11.0	15%
		Total:	45%

Separation Surcharges	
0 to 3m	25%
3.1m to 10m	20%
10.1m to 20m	15%
20.1 to 30m	10%
30.1 to 45m	5%

F4=(TOTAL)*F2 (L/min)

F_4= 4050 L/min

Total Fire Flow

$F=F_2-F_3+F_4$ = 13050 L/min

= 13000 L/min (Round to the nearest 1,000 l/min)

= **216.7 L/s**

Notes: *1) All calculations and factors from Part 2 "Water Supply for Public Fire Protection" by the Fire Underwriters Survey, 1999*

2) 9999 denotes either the nearest building > 45m away or a fire wall is provided

UNIT BLOCK 5

1) Fire Flow Requirement

$F_1=220C(A^{1/2})$ (L/min)

C= 1.5 Construction coefficient for wood frame construction

A= 528.0 Floor Area m^2 = main floor area

= 1584.0 Fire Area m^2 = main floor area + 2nd floor area + 3rd floor area

F_1= 13134 L/min

F_1= 13000 L/min (Round to the nearest 1,000 l/min)

2) Occupancy

Occupancy Type: Residential Non-Combustible

Reduction: 25%

Surcharge: 0%

$F_2=F_1+(F_1*Reduction/Surcharge)$ (L/min)

F_2= 9750 L/min

3) Sprinkler System

Sprikler System: Not Applicable (assumed no sprinkler system in service)

Reduction: 0%

$F_3=F_2*Reduction$ (L/min)

F_3= 0 L/min

4) Seperation

Location	Direction	Distance (m)	Surcharge
Front	West	7.9	20%
Side	North	14.8	15%
Side	South	35.4	5%
Rear	East	17.5	15%
		Total:	55%

Separation Surcharges	
0 to 3m	25%
3.1m to 10m	20%
10.1m to 20m	15%
20.1 to 30m	10%
30.1 to 45m	5%

F4=(TOTAL)*F2 (L/min)

F_4= 5363 L/min

Total Fire Flow

$F=F_2-F_3+F_4$ = 15113 L/min

= 15000 L/min (Round to the nearest 1,000 l/min)

= **250.0 L/s**

Notes: *1) All calculations and factors from Part 2 "Water Supply for Public Fire Protection" by the Fire Underwriters Survey, 1999*

2) 9999 denotes either the nearest building > 45m away or a fire wall is provided

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Subject:	Lam Boulevard Townhouses		
Date:	Dec-21	By:	NLB
Project #:	21-059	Page:	1

ON-SITE FIRE PROTECTION SUPPLY CALCULATION

Per Fire Protection Water Supply Guideline, Ontario Building Code Division 3, Part B, 3.2.5.7

Project:	21-059 Lam Blvd Townhouses	Building/Block #:	Unit Block 2
Project Location:	Waterford, ON	Firewalls/Sprinkler:	

Conditions not requiring On-Site Fire Protection:

Building area is Less than 200 m^2 or Less	☐
Building height is 2 Storeys or Less	☐
Building does not have a Group B Occupancy (Care or Detention)	☑
Building does not require a sprinkler system or standpipe and hose system	☑
Limiting distance from the property line is at least 13 m if the building has an F-1 (high hazard industrial) occupancy	☑
Building constitutes no significant environmental contamination potential under fire conditions	☑
On-Site Supply Required?	**YES**

Calculation Information:

$$Q = K^* V * S_{Tot}$$

where: Q = Minimum supply of water in litres (L)
V = Total Building Volume in cubic metres
K = Water supply coefficient from Table 1
S_{Tot} = total of spatial coefficient values from property line exposures on all sides, as obtained from the formula:

$$S_{Tot} = 1.0 + [(S_{Side1}) + (S_{Side2}) + (S_{Side3}) + \text{... etc.}]$$

where: S_{Side} = values are obtained from Figure 1, as modified by Sections 6.3 (e) and 6.3 (f) of the OBC Guideline
S_{Tot} = need not exceed 2.0 (see Section 7.0 of the OBC Guideline)

Determining K Value:

Major Occupancy Classification	Residential Occupancies
Group	C
Division	-

Building is of combustible construction. Roof assemblies, mezzanines, loadbearing walls, columns and arches do not have a fire resistance rating.

K Factor **23**

Determining Building Volume:

Average Length (m)	30.6
Average Width (m)	15.6
Height, including basements (m)	16.5

Building Volume (m^3) **7876**

Total Spatial Coefficient:

	Exposure Distance (m)	Factor
North Side	>10	0
East Side	>10	0
South Side	>10	0
West Side	>10	0

S_{Tot} Factor **1**

Minimum Water Supply Flow:

Q (L) **181,158**

Minimum Water Supply Flow Rate OBC:

5400 L/min
90.0 L/sec

Table 2:
Minimum Water Supply Flow Rates

Building Code, Part 3 Buildings	Required Minimum Water Supply Flow Rate (L/min.)
One-storey building with building area not exceeding 600m² (excluding F-1 occupancies)	1800
All other buildings	2700 (If **Q** ≤ 108,000L)(1) 3600 (If **Q** > 108,000L **and** ≤ 135,000L)(1) 4500 (If **Q** > 135,000L **and** ≤ 162,000L)(1) 5400 (If **Q** > 162,000L **and** ≤ 190,000L)(1) 6300 (If **Q** > 190,000L **and** ≤ 270,000L)(1) 9000 (If **Q** > 270,000L)(1)

Note: (1) **$Q=KVS_{Tot}$** as referenced in Section 3(a)

ON-SITE FIRE PROTECTION SUPPLY CALCULATION

Per Fire Protection Water Supply Guideline, Ontario Building Code Division 3, Part B, 3.2.5.7

Project: 21-059 Lam Blvd Townhouses Building/Block #: Unit Block 5
Project Location: Waterford, ON Firewalls/Sprinkler:

Conditions not requiring On-Site Fire Protection:

Building area is Less than 200 m^2 or Less	☐
Building height is 2 Storeys or Less	☐
Building does not have a Group B Occupancy (Care or Detention)	☑
Building does not require a sprinkler system or standpipe and hose system	☑
Limiting distance from the property line is at least 13 m if the building has an F-1 (high hazard industrial) occupancy	☑
Building constitutes no significant environmental contamination potential under fire conditions	☑
On-Site Supply Required?	**YES**

Calculation Information:

$$Q = K^* V * S_{Tot}$$

where: Q = Minimum supply of water in litres (L)
V = Total Building Volume in cubic metres
K = Water supply coefficient from Table 1
S_{Tot} = total of spatial coefficient values from property line exposures on all sides, as obtained from the formula:

$$S_{Tot} = 1.0 + [(S_{Side1}) + (S_{Side2}) + (S_{Side3}) + \ldots \text{etc.}]$$

where: S_{Side} = values are obtained from Figure 1, as modified by Sections 6.3 (e) and 6.3 (f) of the OBC Guideline
S_{Tot} = need not exceed 2.0 (see Section 7.0 of the OBC Guideline)

Determining K Value:

Major Occupancy Classification	Residential Occupancies
Group	C
Division	-

Building is of combustible construction. Roof assemblies, mezzanines, loadbearing walls, columns and arches do not have a fire resistance rating. **K Factor** **23**

Determining Building Volume:

Average Length (m)	33.7
Average Width (m)	16.5
Height, including basements (m)	16.5

Building Volume (m^3) **9175**

Total Spatial Coefficient:

	Exposure Distance (m)	Factor
North Side	>10	0
East Side	>10	0
South Side	>10	0
West Side	7.9	0.2

S_{Tot} Factor **1.2**

Minimum Water Supply Flow:

Q (L) **253,225**

Minimum Water Supply Flow Rate OBC:

6300 **L/min**
105.0 **L/sec**

Table 2:
Minimum Water Supply Flow Rates

Building Code, Part 3 Buildings	Required Minimum Water Supply Flow Rate (L/min.)
One-storey building with building area not exceeding 600m² (excluding F-1 occupancies)	1800
All other buildings	2700 (If **Q** ≤ 108,000L)(1) 3600 (If **Q** > 108,000L **and** ≤ 135,000L)(1) 4500 (If **Q** > 135,000L **and** ≤ 162,000L)(1) 5400 (If **Q** > 162,000L **and** ≤ 190,000L)(1) 6300 (If **Q** > 190,000L **and** ≤ 270,000L)(1) 9000 (If **Q** > 270,000L)(1)

Note: (1) **$Q=KVS_{Tot}$** as referenced in Section 3(a)

Ontario Building Code Tables and Figures

XX

Table 3.1.2.1.
Major Occupancy Classification

Forming Part of Sentences 3.1.2.1.(1), 3.1.2.2.(1) and 3.11.2.1.(3)

Item	Column 1 Group	Column 2 Division	Column 3 Description of *Major Occupancies*
1.	A	1	*Assembly occupancies* intended for the production and viewing of the performing arts
2.	A	2	*Assembly occupancies* not elsewhere classified in Group A
3.	A	3	*Assembly occupancies* of the arena type
4.	A	4	*Assembly occupancies* in which occupants are gathered in the open air
5.	B	1	Detention occupancies
6.	B	2	Care and treatment occupancies
7.	B	3	Care occupancies
8.	C	---	Residential occupancies
9.	D	---	Business and personal services occupancies
10.	E	---	Mercantile occupancies
11.	F	1	High hazard industrial occupancies
12.	F	2	Medium hazard industrial occupancies
13.	F	3	Low hazard industrial occupancies

Table 2:
Minimum Water Supply Flow Rates

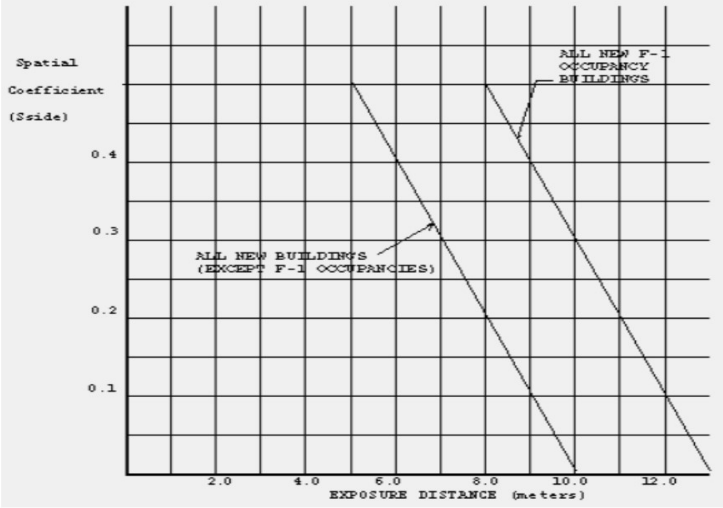
Building Code, Part 3 Buildings	**Required Minimum Water Supply Flow Rate (L/min.)**
One-storey building with building area not exceeding 600m² (excluding F-1 occupancies)	1800
All other buildings	2700 (If **Q** ≤ 108,000L)[1] 3600 (If **Q** > 108,000L **and** ≤ 135,000L)[1] 4500 (If **Q** > 135,000L **and** ≤ 162,000L)[1] 5400 (If **Q** > 162,000L **and** ≤ 190,000L)[1] 6300 (If **Q** > 190,000L **and** ≤ 270,000L)[1] 9000 (If **Q** > 270,000L)[1]

Note: [1] **$Q=KVS_{Tot}$** as referenced in Section 3(a)

Table 1:
Water Supply Coefficient - K

TYPE OF CONSTRUCTION	**Classification by Group or Division in Accordance with Table 3.1.2.1 of the Ontario Building Code**				
	A-2 B-1 B-2 B-3 C D	**A-4 F-3**	**A-1 A-3<**	**E F-2**	**F-1**
Building is of noncombustible construction with fire separations and fire-resistance ratings provided in accordance with Subsection 3.2.2. of the OBC, including loadbearing walls, columns and arches.	10	12	14	17	23
Building is of noncombustible construction or of heavy timber construction conforming to Article 3.1.4.6. of the OBC. Floor assemblies are fire separations but with no fire-resistance rating. Roof assemblies, mezzanines, loadbearing walls, columns and arches do not have a fire-resistance rating.	16	19	22	27	37
Building is of combustible construction with fire separations and fire-resistance ratings provided in accordance with Subsection 3.2.2. of the OBC, including loadbearing walls, columns and arches. Noncombustible construction may be used in lieu of fire-resistance rating where permitted in Subsection 3.2.2. of the OBC.	18	22	25	31	41
Building is of combustible construction. Floor assemblies are fire separations but with no fire-resistance rating. Roof assemblies, mezzanines, loadbearing walls, columns and arches do not have a fire-resistance rating.	23	28	32	39	53
Column 1	2	3	4	5	6

FIGURE 1
SPATIAL COEFFICIENT VS EXPOSURE DISTANCE



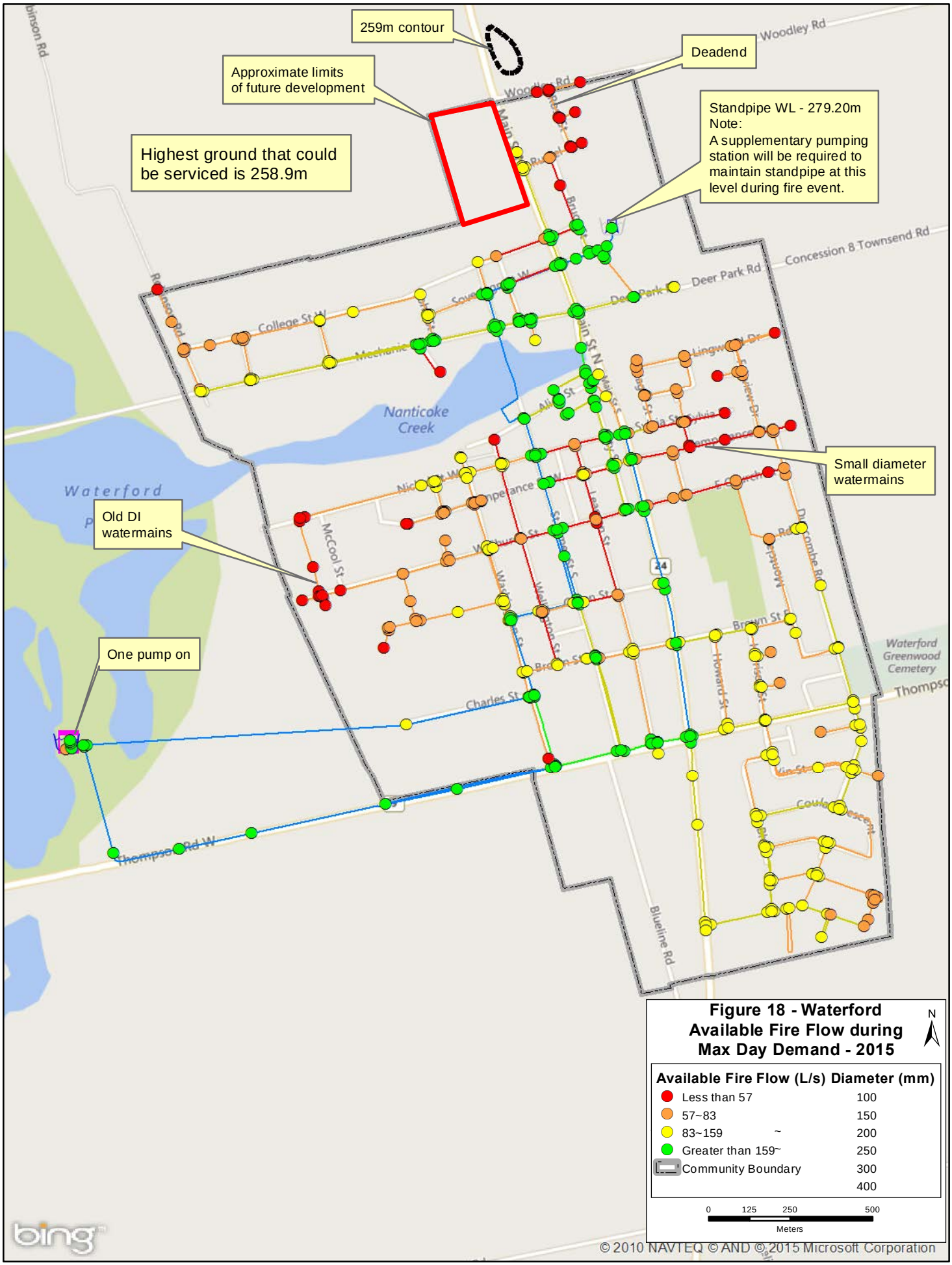


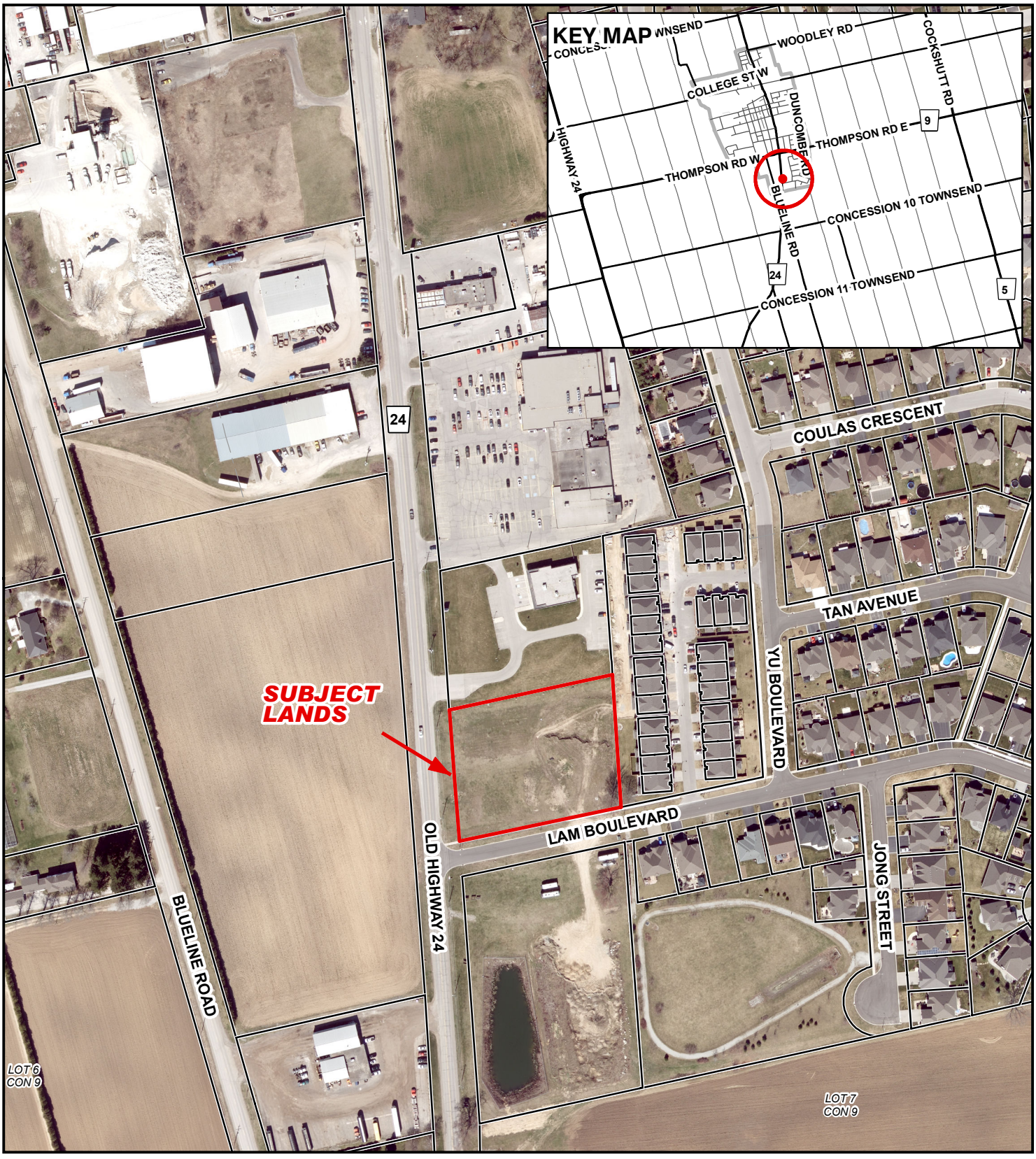
Figure 18 - Waterford Available Fire Flow during Max Day Demand - 2015

MAP A

CONTEXT MAP

Geographic Township of TOWNSEND

OPNPL2022043
ZNPL2022053



Legend

Subject Lands

2020 Air Photo

2/24/2022

N

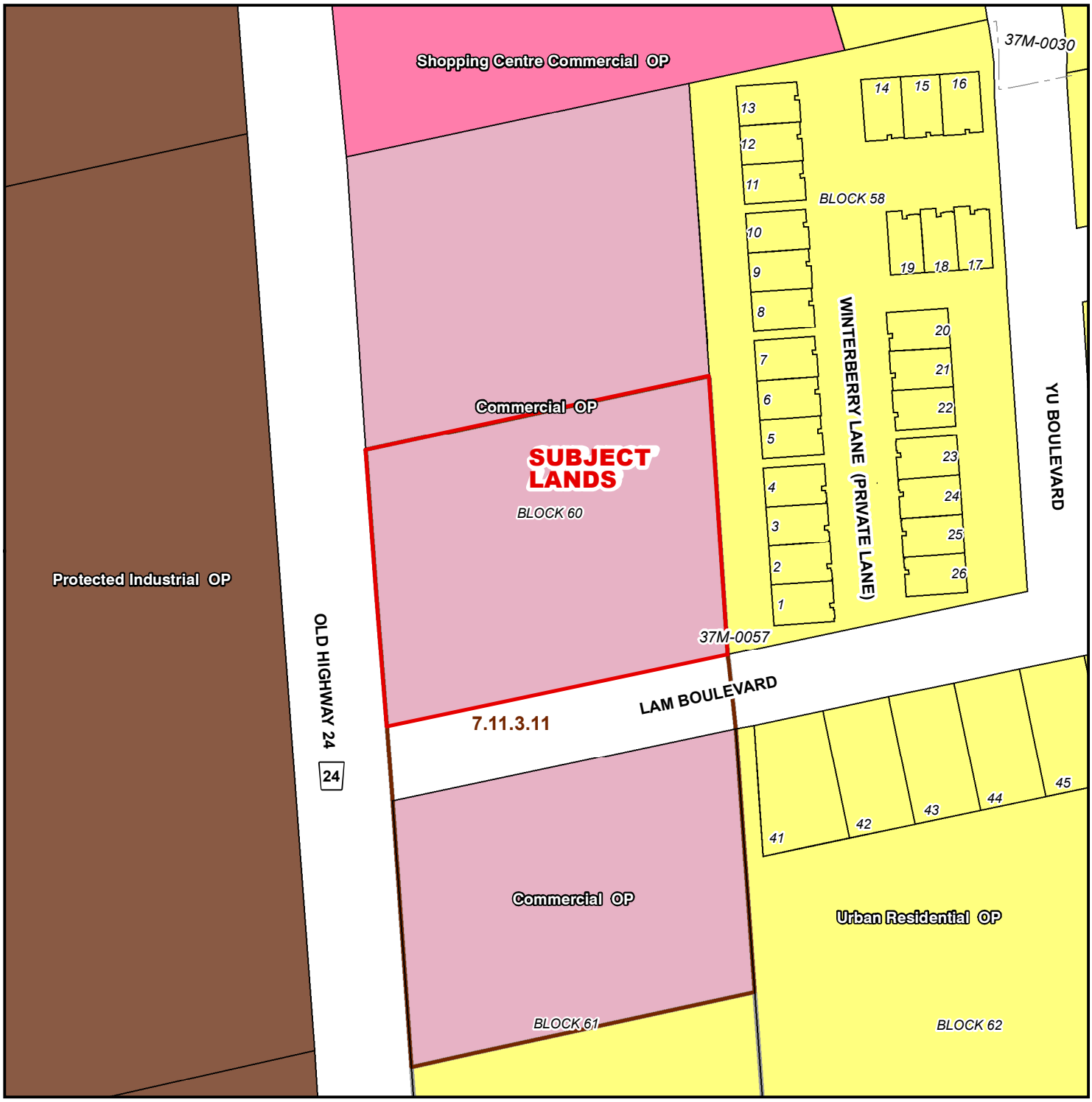
20 10 0 20 40 60 80 Meters

MAP B

PROPOSED OFFICIAL PLAN AMENDMENT MAP

Geographic Township of TOWNSEND

OPNPL2022043
ZNPL2022053



Legend

Subject Lands

Official Plan Designations

- Urban Residential
- Shopping Centre Commercial
- Commercial
- Protected Industrial
- Urban Area Boundary

From: Commercial with 7.11.3.11
To: Urban Residential

2/24/2022

N

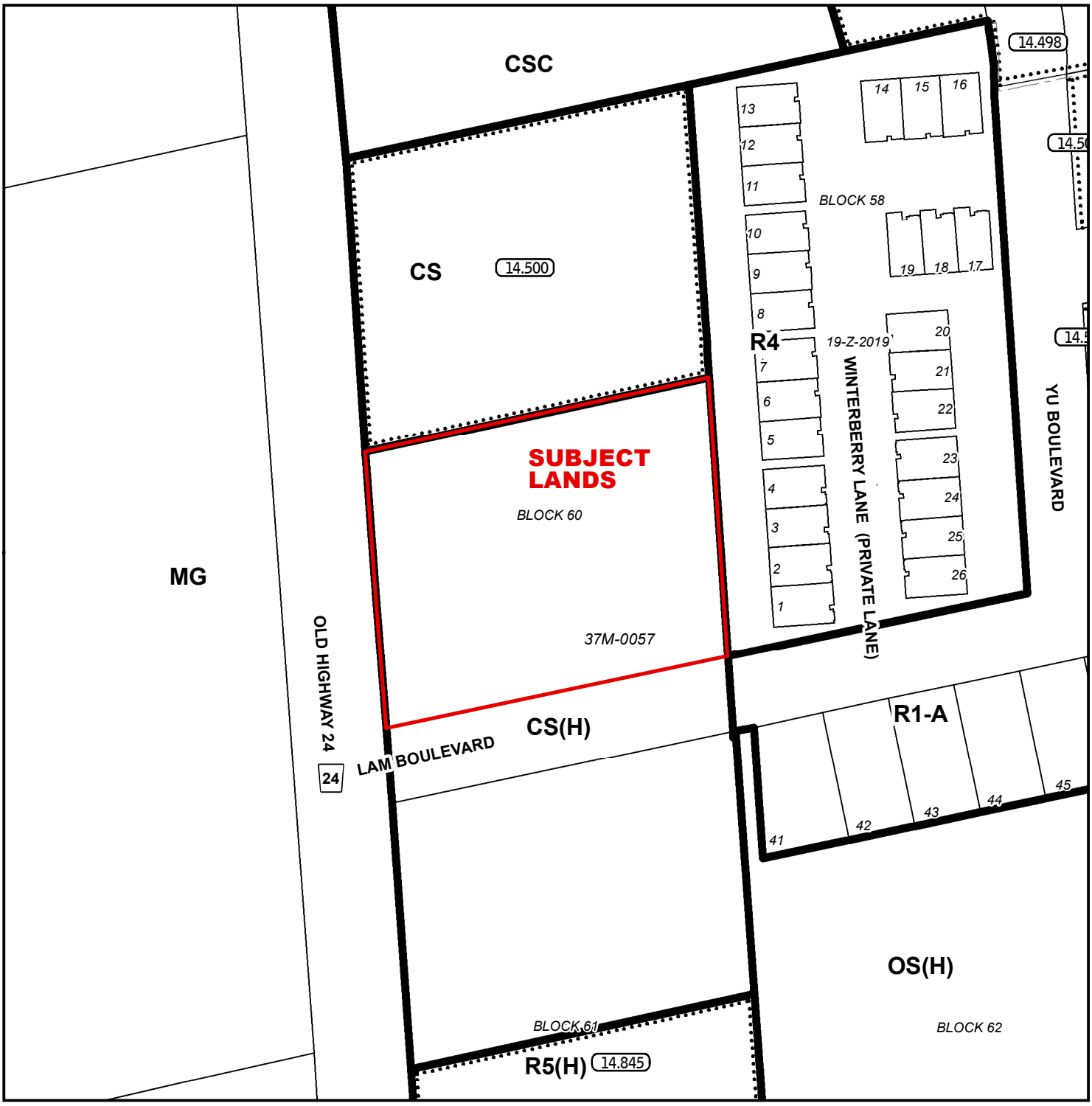
10 5 0 10 20 30 40 Meters

MAP C

PROPOSED ZONING BY-LAW AMENDMENT MAP

Geographic Township of TOWNSEND

OPNPL2022043
ZNPL2022053



2/24/2022

LEGEND

Subject Lands

ZONING BY-LAW 1-Z-2014

(H) - Holding
CS - Service Commercial Zone
CSC - Shopping Centre Commercial Zone
MG - General Industrial Zone
OS - Open Space Zone
R1-A - Residential R1-A Zone
R4 - Residential R4 Zone
R5 - Residential R5 Zone

From: CS(H)
To: R4(H)

N

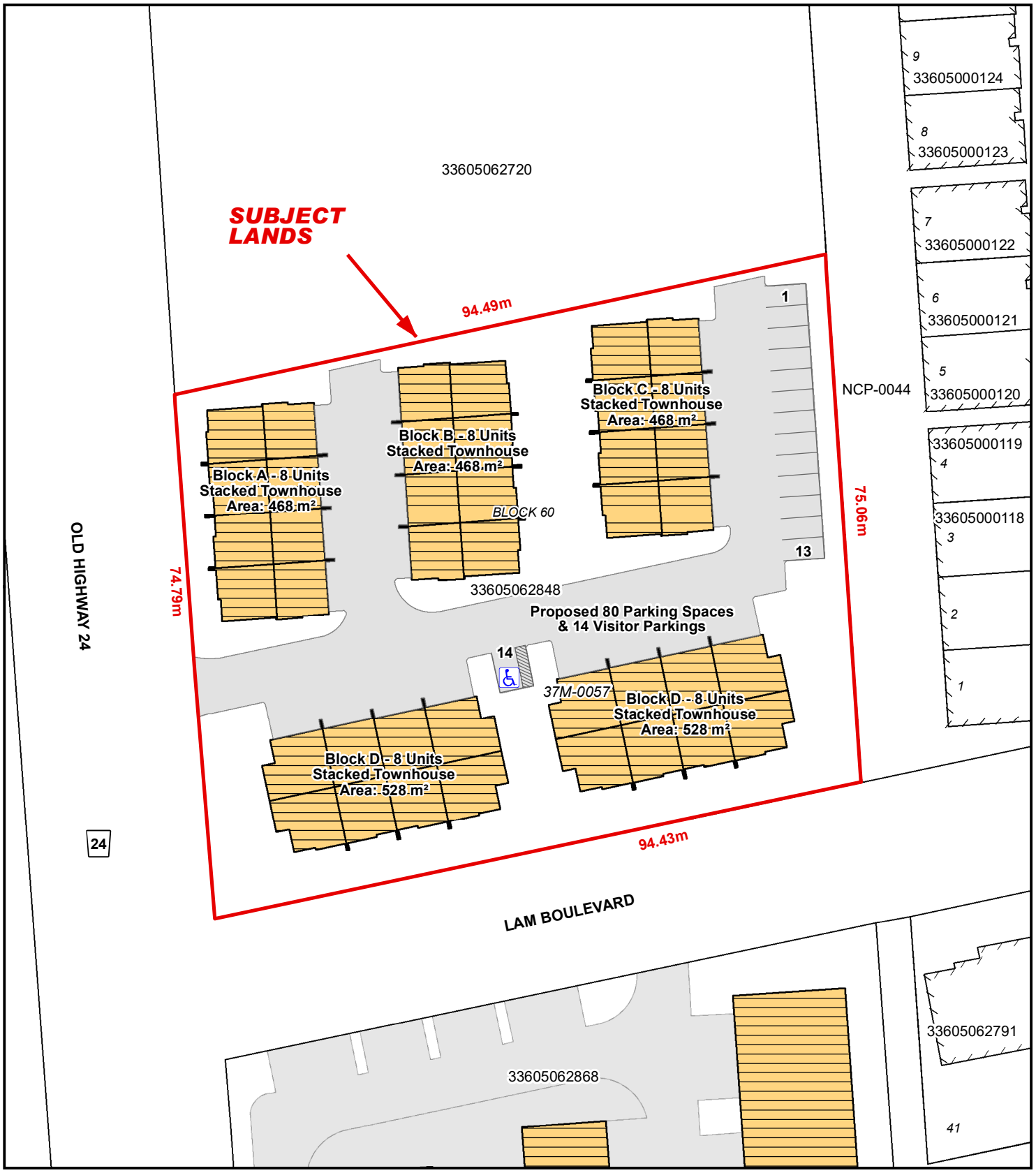
10 5 0 10 20 30 40 Meters

MAP D

CONCEPTUAL PLAN

Geographic Township of TOWNSEND

OPNPL2022043
ZNPL2022053



Legend

Subject Lands

2/24/2022

N

6 3 0 6 12 18 24 Meters