



# vallee

*Consulting Engineers,  
Architects & Planners*

August 4, 2023

Norfolk County  
Clerks and By-Law  
50 Colborne Street South  
Simcoe, Ontario N3Y 4H3

Norfolk County  
Community Development Division  
185 Robinson Street  
Simcoe, Ontario N3Y 5L6

Sent by email only to: Genevieve Scharback [Genevieve.Scharback@norfolkcounty.ca](mailto:Genevieve.Scharback@norfolkcounty.ca)  
NC Clerks [clerks@norfolkcounty.ca](mailto:clerks@norfolkcounty.ca)  
Mohammad Alam [Mohammad.Alam@norfolkcounty.ca](mailto:Mohammad.Alam@norfolkcounty.ca)  
Norfolk Planning [planning@norfolkcounty.ca](mailto:planning@norfolkcounty.ca)

**Attention:** Genevieve Scharback, County Clerk  
Mohammad Alam, Principal Planner

**Reference:** Orchard Square  
Application for Zoning By-Law Amendment, Severance & Easement  
Waterford, Norfolk County  
Our File 20-128

Please accept this package as our formal application for the following planning applications:

1. **Zoning By-Law Amendment:** The Zoning By-Law amendment proposal is to permit retail use on the property's northern commercial section.
2. **Consent for a Severance:** The consent proposes to sever the 1.31-hectare site into two parcels along the zoning line. One parcel will be for commercial use, while the other will be for residential use.
3. **Consent for an Easement:** The consent proposes two easements side by side, each 3.7m wide for a total of 7.4m for a mutual shared driveway access.

We include the following documents as our complete application package:

1. This **cover letter**.
2. **Norfolk County's partial minutes** from the February 1, 2023, pre-consultation meeting, as issued by Norfolk on July 19, 2023, and signed by Mr. John D. Vallee, P.Eng. These minutes do not include comments from Development Engineering, and do not include any reference to the discussion at the pre-consultation meeting regarding the proposed zoning amendment to include retail as a permitted use on the site.
3. **Norfolk County Development Engineering Department comments** from the pre-consultation meeting on February 1, 2023, as issued on July 20, 2023. Note that these comments do not require any information or documents to be submitted at the zoning stage.
4. **Norfolk County Planning Department Development Application Form** completed and executed for the proposed zoning by-law amendment and the proposed severance.
5. **Norfolk County Committee of Adjustment Application to Planning Department Form** completed and executed for the proposed easement.
6. **Conceptual site plan** for the combined residential and commercial development.
7. **Planning Justification Report** with parking assessment as prepared by G. Douglas Vallee Limited.
8. **Functional Servicing and Stormwater Management Report** containing the anticipated flows and demands associated with the project as prepared by G. Douglas Vallee Limited.
9. **General Plan of Services**.
10. **Traffic Impact Study** as prepared by Paradigm traffic consultants.

Based on a submission date of Friday August 4, 2023, we request that you process these applications in accordance with the following schedule:

**September 3, 2023:** 30 days after submission, confirm that this application is complete.

**November 2, 2023:** 90 days after submission, decision for approval by Norfolk County Council and Committee of Adjustment.

Please advise us immediately if you anticipate any change in this schedule.

**G. DOUGLAS VALLEE LIMITED**  
**Consulting Engineers, Architects & Planners**

Should you have any questions or comments, please contact me immediately so that we can address your items in a timely manner.

Thank you in advance for your support of this project.

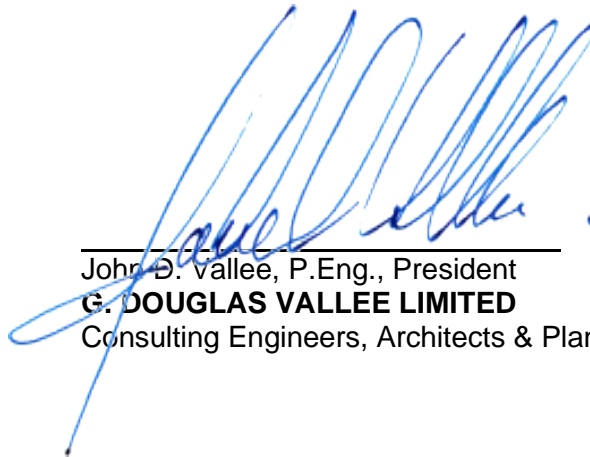
Yours very truly,

Prepared by:

Reviewed by



Benjamin Calderon, Planner  
**G. DOUGLAS VALLEE LIMITED**  
Consulting Engineers, Architects & Planners



John D. Vallee, P.Eng., President  
**G. DOUGLAS VALLEE LIMITED**  
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July 24, 2023

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  
Zoning By-law Amendment and Consent for Severance & Easements  
G. Douglas Vallee Limited on behalf of Verlinda Homes  
Orchard Square - Old Highway 24, Waterford  
Our Project Number 20-128**

## Introduction

G. Douglas Vallee Limited has been retained by Verlinda Homes to make three (3) applications related to their property at the southeast corner of Lam Boulevard and Old Highway 24 in Waterford:

- Zoning By-law Amendment:** The proposed Zoning By-Law amendment is to permit retail land use on the northern portion of the lot.
- Severance (consent):** The proposed severance application will divide the 1.31ha site into two parcels, coincident with the existing zoning line. The northern parcel would consist of the lands that are currently zoned commercial, and the southern parcel would consist of the lands that are currently zoned residential.

Current Parts	Area
<b>Entire Subject Lands</b>	1.3ha (3.23 ac)
<b>Retained land.</b> Part One (Northern commercial site) Existing zoning is CS – Service Commercial	0.7ha (1.72ac)
<b>Severed land.</b> Part Two (Southern residential site) Existing zoning is Residential	0.6ha (1.48ac)

- Easement Creation:** Access easements will be required for the shared driveway from Old Highway 24 to the two sites.

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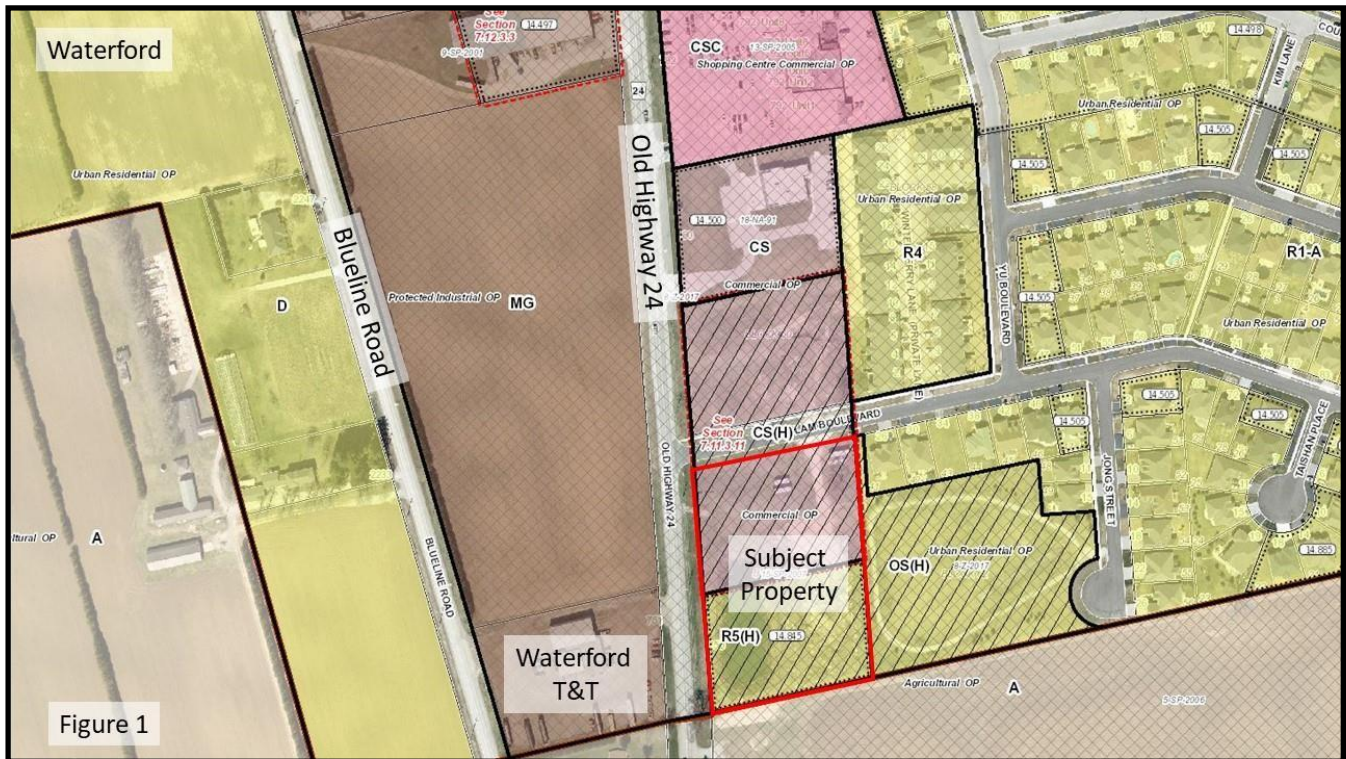
Ontario Association  
of Architects



**Site Description**

The subject lands are located in the community of Waterford at the southeast corner of the intersection of Lam Boulevard and Old Highway 24. The lands are currently vacant and have an area of approximately 1.3ha. The municipal address is 750 Main Street South, Waterford, Ontario. The property has no prominent vegetation, with a large existing pond occupying the southwest corner of the property.

As shown on Figure 1 below, the northern portion of the property is currently designated Commercial under the Official Plan and zoned Service Commercial (CS), while the southern portion is designated Urban Residential and zoned Urban Residential Type 5 (R5) with a special provision 14.845. A Holding (H) provision has been applied to both the CS and R5 zones on the property.



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Figure 2 above illustrates a conceptual site plan design.

**The southern portion** of the property includes a mid-rise apartment building with 44 dwelling units in a mix of styles and sizes. Parking is provided on the site in accordance with Norfolk County's Zoning By-Law as follows:

- 44 apartment units @ 1.5 spaces requires 66 spaces.
- 44 apartment units / 3 requires 15 visitor spaces.
- A total of 81 parking spaces are required and indicated on the plan.

This site layout is in conformance with the current zoning by-law and no amendments are proposed.

**The northern portion** of the property includes a stand-alone building for a fast-food restaurant with a drive through. The second building contains approximately 810 m<sup>2</sup> of useable floor area commercial space. It is proposed to amend the site zoning to permit "retail" use within that 810 m<sup>2</sup> of commercial space. Assuming the entire commercial building is "retail" parking is provided on site in accordance with Norfolk County's Zoning By-Law as follows:

- 414 m<sup>2</sup> useable floor area for restaurant / 10 requires 42 spaces.
- 810 m<sup>2</sup> of retail useable floor area / 30 requires 27 spaces.
- A total of 69 parking spaces are required and indicated on the plan.

It is important to note that each half of the site has been designed in anticipation of the proposed severance such that all the required parking is contained on the appropriate future lot, and all setbacks are achieved from the proposed lot lines.

## **Zoning By-law Amendment**

The zoning by-law amendment proposes to add "retail" as a permitted use for the lands designated as a Service Commercial Zone (CS). The conceptual site plan for the proposed development is attached and forms part of this submission package. Consultation with Norfolk County Planning staff indicates support for retail on this site up to a maximum of 10,000 square feet. The proposal is for less than 9,000 square feet.

A previous development application – by the same applicant - on the subject lands proposed residential land use on this entire site with a proposed zoning amendment from commercial to residential on the northern portion of the site. That proposal was met with resistance from Norfolk County Planning Staff, as Planning Staff required commercial use on the site as a buffer between the adjacent Protected Industrial designated lands to the west and the residential lands to the east.

This application implements the vision of Planning Staff for the site, in that this commercial/retail development provides a buffer between the industrially designated lands west of Old Highway 24, and the existing Yin subdivision residential lands to the east.

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This Planning Justification Report provides planning support and information to Norfolk County Staff and Council to consider when reviewing the Zoning By-law amendments for the subject application.

This application:

- 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 By-law; and
- Represents good planning.

### **Planning Analysis**

The proposed Zoning By-law amendment was prepared in light of several planning policy documents including the Planning Act, the Provincial Policy Statement, the County Official Plan and Zoning By-law.

#### 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 34 of the Planning Act allows for the consideration of amendments to the zoning by-law. Section 53 of the Planning Act permits a Committee of Adjustment to make decisions on applications for changes to land configuration in the form of Consents.

#### 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 MG lands located immediately across Old Highway 24 (Main Street) presents a number of challenges for any future land development in the surrounding area. As indicated on Figure 1 and 3, a large swath of Protected Industrial land extends down the middle of Waterford, flanked by Urban Residential lands to the west and a mix of Commercial and Urban Residential lands to the east.

A decision by Council to approve the Zoning By-law amendment will be consistent with PPS, 2020.

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Norfolk County Official Plan

The northern portion of the subject land is currently designated Commercial, while the southern portion is designated Urban Residential. It is proposed to amend the zoning to add retail as a permitted use for the subject lands within the Service Commercial Zone (CS).

The proposed development will provide a compact form of food and retail commercial options and will be compatible with 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 food and retail shopping options. The lands are subject to site plan control to ensure County development standards are achieved.

A zoning by-law amendment to add “retail” as a permitted use in the existing Service Commercial Zone (CS) will add flexibility to marketing of this commercial space. This retail use will be beneficial to the community in order to provide commercial options for the residents of Norfolk County and use vacant lands efficiently.

The land is near a network of sidewalks to provide easy walkability to the local services located less than 250m away. Additionally, the development is immediately adjacent to a designated cycling route identified on Schedule I-3 “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. Existing services will be extended to the site from the existing mains along Lam Boulevard. 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 lands are near existing residential, commercial and institutional uses including the Waterford District High School, several places of worship, parks and a retail centre.

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Summary of Official Plan Review

Section 7.11 of the Norfolk County Official Plan sets out the policies for the Commercial Designation of the subject lands.

As section 7.11.1 outlines the permitted uses within the Commercial Designation.

#	Policy	Comment	
	7.11.1 Commercial Designation: Permitted Uses		
a)	The primary permitted uses shall include <b>retail</b> establishments and commercial uses, which are destination oriented or are intended to serve the travelling public, including automobile parking depots, automobile service stations, vehicle sales and service, public garages, repair service and rental establishments, motels, hotels, convention centres, restaurants, animal hospitals, commercial recreation uses, private clubs, funeral homes, day care centres and similar uses.	The Norfolk County Official Plan encourages retail establishments in Commercial Designation areas. The proposed development will provide various retail establishments intended to serve Norfolk County residents and the travelling public.	✓
b)	Category-specific retail establishments shall be limited to furniture, appliance, carpet, flooring, home electronics and/or garden centres and building supply centres that are less than 3,000 square metres of gross leasable floor space.	The useable floor area of the entire commercial building is approximately 810 m2, being roughly one quarter of the maximum size for retail establishments. This is a small-scale retail use.	✓
c)	Food stores, drug store, personal service shops and other similar uses intended for the Downtown and/or Shopping Centre Commercial Designations shall not be permitted	These uses are not proposed.	✓
d)	Large retail Uses over 3,000 square metres.... shall not be permitted.	The useable floor area of the entire commercial building is approximately 810 m2, being roughly one quarter of the maximum size for retail establishments. This is a small-scale retail use.	✓
e)	Residential uses shall be permitted, provided they do not negatively impact the planned function of the Commercial areas.....	Residential use is not proposed.	✓
f)	Uses accessory to any of the permitted uses in the Commercial Designation are permitted.	No accessory uses are proposed.	✓

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Section 7.11.2 sets out the Land Use Policies for lands designated Commercial.

#	Policy	Comment	
	7.11.2 Commercial Land Use Policies		
a)	Commercial development shall be compatible with surrounding uses and shall be adequately buffered from adjacent sensitive land uses.	The land is currently designated commercial. No change is proposed.	✓
b)	Adequate off-street parking and loading spaces shall be provided.....	The conceptual site plan illustrates that adequate parking can be provided on the site in accordance with the zoning by-law.	✓
c)	Commercial uses shall only be located 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.	The land is currently designated commercial. No change is proposed. Section 7.11 of the NCOP states that "Commercial areas are accessible locations along the <b>County's major transportation routes.</b> "	✓
d)	A high standard of site design shall be required through site plan control.	The site is subject to 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 Section 7.10.2 (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.	The lands are already designated commercial. No additional land designation is proposed.	✓

The proposal to add a small retail use within the existing commercially designated lands is consistent with all of the policies that have been reviewed above.

In response to a very similar application, Norfolk County Council – upon the recommendation of Planning Staff - recently included "retail" as a permitted use in the same commercial zone on the lands immediately across Lam Blvd from the subject lands.

A decision of Council to approve the proposed Zoning By-Law amendment to add retail as a permitted use for the subject lands, designated as a Service Commercial Zone (CS) will be consistent with the Norfolk County Official Plan.

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Norfolk County Comprehensive Zoning By-law

The northern portion of the subject lands is zoned Service Commercial (CS). The current CS zoning permits a variety of commercial uses, but it does not permit retail as a use. The proposed amendment would add retail as a permitted use to facilitate the leasing process of the development. The proposed amendment will be minor in nature.

Proposed Special Provision:

**In addition to the uses permitted in the Service Commercial Zone (CS), retail shall also be permitted.**

**Supporting Studies**

**Functional Servicing Report (FSR):** A FSR has been prepared by Vallee and is attached to this submission package. The highlights from that study are as follows:

- **Sanitary:** The northern commercial site can be serviced from the existing sanitary sewer service on Lam Blvd. The southern residential site can be serviced from the existing sanitary main on Old Highway 24 across the frontage of the site.
- **Watermain.** The northern commercial site can be serviced from the existing watermain service on Lam Blvd. The southern residential site will require a watermain extension along Old Highway 24, and a new service as illustrated on the servicing plan.
- **Storm Sewer:** Both sites will be serviced by a common stormwater management system consisting of a series of underground storage units on the commercial site. A network of storm sewers will discharge to this underground system, which will outlet to the existing storm sewer service at the corner of Lam Blvd and Old Highway 24. A series of easements and shared service agreements will be required between the owners of the two land parcels to accommodate this approach.
- **Modeling:** Sanitary and water modeling will be required by Norfolk County's consultant to confirm network capacities.

Full details of the servicing are found in the FSR.

**Transportation Impact Study (TIS):** A TIS has been prepared by Paradigm Transportation Solutions Limited. This report is attached to this submission. The conclusions and recommendations of the report as summarized as follows:

- The intersection of Old Highway 24 and Lam Blvd and the access intersections to Old Highway 24 and Lam Blvd are forecast to operate within acceptable level of service under the 2024, 2029, and 2034 total traffic conditions.

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- The site driveway intersections on Old Highway 24 and Lam Blvd are forecast to operate at acceptable levels of service. Auxiliary left turn lanes are not warranted at either driveway intersection under the 2034 total traffic conditions.
- The location of the driveway on Old Highway 24 is 80 m from the Old Highway 24 / Lam Blvd intersection which satisfies the corner clearance requirement of 35 m recommended by TAC design guidelines.
- Based on the findings of this study, it is recommended that the subject development be considered for approval as proposed.

**Severance / Consent**

Section 9.6.3.2 of the Norfolk County Official Plan sets out the policies for consents to sever land. Those policies are reviewed in the table below.

#	Policy	Compliance	
	9.6.3.2 General Consent to Sever Land Policies		
	Applications for consent to sever land shall be considered on the basis of the policies of this Section, the underlying land use designation and the associated policies of this Plan. The Committee of Adjustment shall deal with all applications for consent in accordance with the relevant provisions of the Planning Act. The decisions of the Committee of Adjustment shall also be consistent with prevailing Provincial policy. Norfolk County Official Plan Consolidated to January 1, 2021, 274   Page In addition to the specific land division and consent policies associated with the underlying land use designation, the following policies shall apply to applications for consent:		
a)	Plans of subdivision shall be the preferred method of land division. Consents should only be granted when it is clearly not necessary or in the public interest that the land be developed by plan of subdivision. Plans of subdivision shall be required and <b>applications for consent shall not be approved under the following circumstances:</b>	The application is not proposing a subdivision.	
a) i)	more than three (3) lots (two severed and one retained) from a land holding are being created;	Only 1 lot is being created.	✓

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a) ii)	lots created require a new public road for the provision of access;	Both the severed and retained parcels have frontage on an existing road. No new roads are required or proposed.	✓
a) iii)	the provision or extension of municipal services (water and/or sewer, as appropriate) is required; or	Both sites can be serviced by existing sanitary sewer and storm sewer services. The north site can be serviced by an existing watermain. The south site will require a small watermain extension, however, this is within the urban area of Waterford on an existing municipal roadway that would normally be expected to have a watermain within the road allowance. The intent of this section is satisfied.	✓
a) iv)	other matters that may arise during the review of the proposed development.	N/A	
b)	Notwithstanding Section 9.6.3.2 a) i), the requirement for a plan of subdivision may be waived for infilling or redevelopment of up to four (4) lots having frontage on a public road that is maintained on a year-round basis in an Urban Area serviced by municipal water and sanitary sewers.	Only 1 lot is being created.	✓
c)	If a plan of subdivision is not deemed necessary, regard shall be had to the other policies within this Plan and to the following criteria when considering an application for consent:	N/A	
c) i)	Consents shall only be granted when the land fronts onto an existing, assumed public road that is maintained on a year-round basis;	The subject land front is onto an existing, assumed public road that is maintained on a year-round basis	✓
c) ii)	consents shall have the effect of infilling in existing areas and not extending existing development;	The proposed severance is to separate a lot with dual zoning along the lines of the existing zoning separation. The proposal does not extend existing development.	✓
c) iii)	creation of the lot does not compromise the long-term use of the remaining land or retained parcel; and	The severance is required to facilitate development of the lands.	✓

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c)iv)	consents may be considered for large parcels, where future development of the large parcels is to proceed by plan of subdivision.	N/A	
d)	The size of any parcel of land created by consent should be appropriate for the use proposed, considering the level of services available, the soil conditions, and other factors. No parcel shall be created which does not conform to the Norfolk County Official Plan Consolidated to January 1, 2021 275   Page provisions of the Zoning By-law, except where a minor variance has been secured, in accordance with Section 9.6.3.1 (Minor Variances) of this Plan.	The parcel of land created is appropriate for the proposed use, considering the level of services available, the soil conditions, and other factors. The created parcel does conform to the Norfolk County Official Plan.	✓
e)	A hydrogeological study to confirm soil conditions and suitability for potential future private services may be required where the retained or severed parcel(s) is(are) sufficiently large to accommodate subsequent lots.	Private services are not proposed. This section does not apply.	✓
f)	Consents for building purposes shall not be permitted under the following circumstances:		✓

f)i)	the land is located within any Natural Heritage Features, as defined by this Plan, and a suitable building site cannot be found through the evaluation completed in an Environment Impact Study;	The subject land is <b>not</b> located within any Natural Heritage Feature.	✓
f)ii)	the land is located in a floodplain;	The subject land is <b>not</b> located in a floodplain.	✓
f)iii)	the land is located on or within 500 metres of a Bedrock Resource Area, 300 metres of a Sand and Gravel Resource Area, or 75 metres of mineral or petroleum resource deposits or an active petroleum well, as identified in the Oil, Gas and Salt Resources Library of the Ministry of Natural Resources and Forestry;	The subject land is <b>not</b> located on or within 500 metres of a Bedrock Resource Area, 300 metres of a Sand and Gravel Resource Area, or 75 metres of mineral or petroleum resource deposits or an active petroleum well.	✓
f)iv)	Provincial or County transportation objectives, standards or policies cannot be maintained; or	The severance will maintain provincial and county transportation objectives, standards and policies.	✓
f)v)	the created and retained parcels cannot be provided with an adequate level of service.	The created and retained parcels will be provided with an	✓

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		adequate level of service as outlined in the FSR and the TIS.	
g)	On the granting of an application for consent, conditions may be imposed on the severed and retained parcels.	Conditions of approval will be imposed by Norfolk County.	✓
xxii	Compliance with the Minimum Distance Separation Formulae shall be required subject to the policies of Section 7.2 (Agricultural Designation).	The proposal complies with MDS.	
xxiii	Subject to the specific policies of this Plan, consents may be permitted for the purposes of making lot boundary corrections, for the purposes of granting easements, for conveyances and consolidations, and other such administrative or technical matters, provided that such matters are minor in nature. The County shall support the consolidation of undersized lots.	This application is to create one single lot.	✓

**Easement / Consent**

The design of the site plan for the two parcels is illustrated on the attached site plan and included previously within this document. It is anticipated that Norfolk County will prefer that entrances from Old Highway 24 are minimized. The combined sites also function well with a shared entrance from Old Highway 24.

To that end, it is proposed to create a shared entrance to the two properties straddling the property line that will be created between the severed and retained lands. In this arrangement, the severed land will require an easement over the retained lands, and the retained lands will require an easement over the severed lands. The easements will be for access purposes only and an agreement to that effect will be required between the parties.

The easement on each property will be approximately 3.7 m wide for a total combined width of approximately 7.4 m.

Since the easements will be in place for more than 21 years, the approval of the Committee of Adjustment is required.

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## Compatibility

As shown in 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.

Adjacent lands to the south are used for agriculture, and to the east are residential uses, including parklands and single detached dwellings. Located immediately across Lam Boulevard is a vacant commercially zoned lot. The proposed site plan will be suitable for ensuring compatibility with the existing built form in the area.

Located on the west side of Old Highway 24 exists lands zoned General Industrial (MG) with an operating truck / trailer repair business – Waterford Truck and Trailer. This business is considered a Class 1 site and therefore the separation distance of 20 m to sensitive land use is provided by the roadway. This development does not contain sensitive land use, and therefore the 20 m roadway is more than sufficient buffer.

## Conclusion

The proposed Zoning By-law Amendments is consistent with the policies of the PPS and the Norfolk County Official Plan. Accordingly, it is our opinion that the applications:

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

As such it is requested that Norfolk County Council amends the Zoning By-law to permit the addition of retail as a permitted use subject to site specific provisions.

The proposed severance is being conducted for legal reasons in order allow the option of separate ownerships for the commercial and residential lands. The proposed severance is in keeping with the policies of the Official Plan and maintains the intent of the Zoning By-Law.

Given the factors outlined in this report, it is respectfully requested that the Norfolk County Committee of Adjustment approve the requested consent.

Report prepared by:

Report reviewed by



Benjamin Calderon, Planner  
**G. DOUGLAS VALLEE LIMITED**  
Consulting Engineers, Architects & Planners



John D. Vallee, P.Eng., President  
**G. DOUGLAS VALLEE LIMITED**  
Consulting Engineers, Architects & Planners

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**Privileged Information and Without Prejudice**

**Development Engineering – 750 Old Hwy. 24, Waterford**

<b>Development Engineering requirements to proceed</b> The below requirements are to be submitted as part of the Formal Development Planning application.	<b>Required at OPA/ Zoning Stage</b>	<b>Required at Site Plan Stage</b>	<b>Potentially Required (See Notes Section)</b>
<b>General Requirements</b>			
Concept Plan		X	
Area Rough Grading Plan			X <sup>28</sup>
Lot Grading Plan		X <sup>13</sup>	
Siltation and Erosion Control Plan		X <sup>13</sup>	
General Plan of Services		X <sup>13</sup>	
Plan and Profile Drawings		X <sup>14</sup>	X <sup>29</sup>
Utility Plan		X <sup>15</sup>	
Geotechnical Report			X <sup>30</sup>
Functional Servicing Report		X <sup>9, 10, 11</sup>	
Form 1 Approval for Watermain extension or Alteration.			X <sup>31</sup>
Consolidated Linear Infrastructure approval for Sanitary and/or Storm sewer Extension or Alteration			X <sup>32</sup>
<b>Water Servicing Requirements– Section 10.0 Norfolk County Design Criteria and ISMP Section 4.0</b>			
Extension of Watermain			X <sup>31</sup>
Disconnection of Water Service(s) to Main		X <sup>17</sup>	
Water Modelling (County Consultant)		X <sup>10</sup>	
Backflow Preventer (RPZ)		X <sup>18</sup>	
Water Allocation		X <sup>7</sup>	
<b>Sanitary Servicing Requirements – Section 9.0 Norfolk County Design Criteria and ISMP Section 4.0</b>			
Sanitary Drainage Plan			X
Sanitary Design Sheet			X
Extension of Sanitary Mainline		X <sup>19</sup>	X <sup>32</sup>
Disconnection of Sanitary Service(s) to Main		X	
Sanitary Modelling (County Consultant)		X <sup>10</sup>	

**Privileged Information and Without Prejudice**

Property Line Inspection Maintenance Hole		X <sup>20</sup>	
<b>Storm Water Servicing Requirements – Section 7.0 and Section 8 Norfolk County Design Criteria and ISMP Section 4.0</b>			
Storm Water Management Design Report (including calculations)		X <sup>21, 26</sup>	
Storm Water Drainage Plan		X <sup>24</sup>	
Storm Sewer Design Sheet			X
Establish/Confirm Legal and Adequate Outlet		X	
Anticipated Flow/Analysis to Receiving Collection System		X <sup>25</sup>	
Extension of Storm Water Mainline		X <sup>23</sup>	X <sup>32</sup>
Easement and/or Block Registration			
Municipal Drainage		X <sup>22, 23</sup>	
Property Line Inspection Maintenance Hole		X <sup>20</sup>	
<b>Transportation Requirements – Section 6.0 Norfolk County Design Criteria, ISMP Section 5.0, Section 6.0 and Appendix J</b>			
Traffic Impact Study		X <sup>27</sup>	
Improvements to Existing Roads & Sidewalk (urbanization, pavement structure, widening sidewalk replacement, upgrades, extension and accessibility)		X	

**General Notes:**

1. Securities will be required in the form of a schedule. Any works completed within the Municipal Right-of-Way (R.O.W.) is to be shown as 100% security. Any works completed within private property is to be shown as 10% security. This can be submitted at time of Site Plan.
2. All reports and plans are to be signed and stamped by a Professional Engineer (P.Eng.).
3. All reports are to be completed in reference to Norfolk County's Design Criteria and Integrated Sustainable Master Plan (ISMP).
4. Recommendations from all reports (FSR, SWM, TIS, Modelling, etc.) must be incorporated into the design and is to adhere to Norfolk County's Design Criteria. A copy of this criteria is available upon request.
5. Recommendations from all reports (FSR, SWM, TIB, Modelling, etc.) must be incorporated into the design and be constructed at the developer's expense.
6. All applicable permits and inspections to be issued by Public Works.

## **Privileged Information and Without Prejudice**

7. Water / Wastewater allocation was issued as part of the Zoning By-law amendment. Water Allocation will not be issued until the end of the site plan application process. The applicant is to confirm capacities at the time of Site Plan application. At the time registration of agreement\approval allocation will be provided for the development, if available.
8. During review of this proposal, Development Engineering has also reviewed an older By-law (The Regional Municipality of Haldimand-Norfolk By-law No. 60-74 A BY-LAW TO REGULATE THE LOCATION OF BUILDINGS, STRUCTURES, AND TREES ON LANDS ADJACENT TO CERTAIN REGIONAL ROADS, AND TO REPEAL BY-LAW 48-74). In the past this By-law was considered to be current and should also be considered as current for this application.

### **Required at Zoning Notes:**

In Development Engineering review of this submission, we considered the applicants assessment of the current zoning being adequate and consulted with Planning Department to this regard. As a result, Development Engineering have provided no comments specific to any potential Zone change. If a Zone change is ever required Development Engineering would have additional comments.

### **Required at Site Plan Stage Notes and/ or Severances Stage:**

All Site Plan submissions are to comply with Section 16 of the Norfolk County Design Criteria in addition to the comments below.

9. The following reports/studies will be required at time of Site Plan Submission:
  - Concept Plan;
  - Functional Servicing Report (as per Norfolk County Design Criteria);  
NOTE: Separate FSR's are required if the property is to be severed and developed at different stages.
  - Water / Sanitary Modelling;
  - Storm Water Management Report;
  - Traffic Impact Study (as per ISMP Appendix J – TIS Guidelines);
10. Sanitary and Water modelling will be required. This is to be completed by Norfolk County's third-party consultant. The cost to complete the modelling and any recommendations from reports are to be implemented into the design at the applicant's expense. The following information will be required to receive a quote and complete the modelling;
  - a. General Plan of Services
  - b. Functional Servicing Report;
    - i. Total Wastewater Design Flows;



## **Privileged Information and Without Prejudice**

- ii. Total Domestic Water and Fire Flows as per Norfolk County Design Criteria Section 10.1.1

The Functional Servicing Report must include water /sanitary servicing and fire flow calculations.

Once the quote has been received, approval from the applicant will be required before proceeding.

11. The Functional Servicing Report needs to include a comprehensive assessment of the potential environmental impacts of the proposed development. The requirements of the Class EA integrated process may not apply to Site Plans. The legislation allows for an integrated approach and provides proponents with the opportunity to reduce duplication by simultaneously complying with the Planning Act and Class EA processes, including public/stakeholder notification and consultation requirements, technical reports and analyses, and land use planning and environmental protection decisions.
12. Any recommendations/upgrades from the modelling reports must be implemented at the time of Site Plan submission. Upgrades, if any, are to be completed at the Developer's expense.
13. Lot Grading Plan, Siltation and Erosion Control Plan, and General Plan of Services drawing can be shown on one engineering plan as long as it's legible for review.
14. Plan and Profile drawings will be required as per Section 16.4.03.
15. A Utility Plan is required as per Section 4.4.07 of Norfolk County Design Criteria for all utilities to be installed in the Municipal ROW. An Electrical Services Plan as per Section 16.4.05 and 16.5.05 shall also be included with the Utility Plan
16. As per Norfolk County By-Law 2013-65, only one domestic water service pipe shall be installed per property or condominium corporation. Interconnection of services will not be permitted. If the intent is to sever the existing parcel, then separate services are required. At the time of Severance, it will be a condition that all servicing must be separate.
17. In the current proposal it is unclear if the existing service off Lam Blvd is located at a location that can be used for the site. If the servicing does not align with the new proposal then please be aware that all existing servicing must be removed prior to approval of new connections in the ROW.
18. A Testable DCVA Backflow device shall be placed in a watertight chamber at property line. Approval from the Manager of Environmental Services must be obtained as per Norfolk County Design criteria. In the event of Severance then a DCVA is required for each Property.
19. In the proposal submitted it identified 2 options for Sanitary. In option 1 the sanitary connection would be made to Lam Blvd; this is acceptable to Norfolk County. In Option 2 please note that a Sanitary Main will need to be extended along the entire frontage of the property and then a service will be installed

## Privileged Information and Without Prejudice

from the new Sanitary main to property line. Long services from the intersection of Lam Blvd will not be permitted. All new Sanitary Sewers will require a complete design and approval through the Norfolk County CLI-ECA process.

20. Storm and Sanitary property Line inspection manholes are required.
21. Stormwater Management Report is to be completed as per Norfolk County Design Criteria Section 7 & Section 8 and Section 4.0 of the ISMP.
22. Most of the property identified in this proposal is currently part of the Waterford South Main Street Drain. Early consultation with Norfolk County's Drainage Department will be required. This will be necessary prior to completing the determination of the legal and adequate outlet.

Furthermore, for those sections of the proposal where a severance application is proposed the following would be required at the time of Severance application.

- Developer to prove capacity in existing Municipal Drain to the outlet.
  - A Drain Apportionment under Drainage Act Section 65 is required at the Cost of the Developer. This is to apportion the future maintenance assessment of Waterford South Main Street Drain.
23. If a severance is to be completed and the Waterford South Municipal Drain is to be extended along Old Hwy 24 to service, the residential property it is the opinion of Norfolk County that this becomes an addition to a Municipal drain and therefore will follow the appropriate process through the Municipal Drainage Act. As an alternative it may be possible to construct this as a storm sewer under our CLI- Storm Sewer approvals, provided that the drainage area assessment has already been included as part of the Municipal Drain. More information is provided in Comment 32 with respect to a new Storm sewer.
  24. A Storm Drainage Area Plan will be required as per Norfolk County Design Criteria and must identify if any external overland flows are tributary to this site. The Plan must show the location of all major overland flows exiting the site. It is recommended by Development Engineering that like the Site Grading Plan criteria in Section 16.4.02 that contours are to be shown a minimum of 30.0m beyond the property limits to indicate the grading and drainage patterns of the adjacent lands.
  25. The developer will be responsible for confirming anticipated flow to the existing Municipal Drain and ensure adequate capacity exists to accept the proposed development. It shall be the developer's responsibility to satisfy themselves that there is an adequate storm outlet to the proposed development. All associated costs of construction for upgrades to existing and new infrastructure shall be the responsibility of the owner / applicants of the development.
  26. The ultimate handling of all Storm water discharge shall be identified in the Stormwater Management Report, including all overland discharges from site.
  27. As per Norfolk County's Integrated Sustainable Master Plan (ISMP) – Appendix J: Traffic Impact Study (TIS) Guidelines, a traffic impact study will be required.

## **Privileged Information and Without Prejudice**

These guidelines are available upon request. Any existing TIS will need to be updated to match the proposed Development.

### **Potentially Required Notes:**

28. As per Norfolk County Design Criteria, an area rough grading plan will be required if earth cuts and fills in excess of 0.5m.
29. Plan and Profile drawings will be required if any infrastructure is to be installed within the municipal R.O.W.
30. A Geotechnical Report will be required if infiltration galleries are proposed within the design. A Geotechnical report is also required for any installation of new infrastructure in the County ROW. This will recommend if current soil conditions are acceptable and the appropriate restoration.
31. If an extension of the Watermain along Old HWY 24 is required within the Municipal ROW then the Developer's engineer will be responsible to provide detailed Engineering drawings of the proposed watermain. The design must include Plan and Profile drawings. Prior to Site Plan approval all external Watermain must be approved through the County's Consolidated Linear Infrastructure approval process including completion of the Form 1.
32. If an extension of the Sanitary and/or Storm sewer is required within the Municipal ROW then the Developer's engineer will be responsible to provide detailed Engineering drawings of the proposed storm sewer. The design must include Plan and Profile drawings, Design sheets and Drainage plans. Prior to Site Plan approval all external storm sewers must be approved through the County's Consolidated Linear Infrastructure approval process

### **To Question 1-3 identified in the Pre con request Cover Letter, Development Engineering offers the following answer:**

1. Development Engineering could support a future severance as long as each property would have independent servicing and would be serviced based on Norfolk County's servicing policies.
2. Depending on the servicing strategy any future severance would require separate services. If there is only one service, then Development Engineering would not support the severance based on current servicing policies. It is not permitted to sever a service. As noted in your submission a second service is not permitted at this time if the property is developed as a single lot.
3. Norfolk County Environmental Services does not permit interconnection of internal fire services. No servicing in an easement would be permitted.



## Committee of Adjustment Application to Planning Department

### 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 all registered owners 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-Consultation

A pre-consultation meeting is not required for Committee of Adjustment applications; however, discussion with Planning Department staff prior to the submission of an application is strongly encouraged. The purpose of a pre-consultation meeting is to provide the applicant with an opportunity to present the proposed application, to discuss potential issues and to determine the required information and materials to be submitted with the application in order for it to be considered complete by staff. The applicant has the opportunity to make revisions to the application prior to submission, without the additional costs of recirculation fees. It may be appropriate to seek the assistance of independent professional help (for example a planning consultant or engineer) for complex applications.

### Processing the Development Application

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.

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. No refund is available after the public meeting and/or approval of application.

### **Notification Sign Requirements**

Planning Department staff will post a notification sign on your property in advance of the public meeting. Please keep this sign posted until you have received a notice in the mail indicating that no appeals were filed.

### **Contact Us**

For additional information or assistance in completing this application, please contact a planner at 519-426-5870 or 519-875-4485 extension 1290 or [planning@norfolkcounty.ca](mailto:planning@norfolkcounty.ca).

Please submit the completed application and fees to:

185 Robinson Street, Suite 200, Simcoe, ON N3Y 5L6

or

22 Albert Street, Langton, ON N0E 1G0

**For Office Use Only:**

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

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

- Consent/Severance/Boundary Adjustment
- Surplus Farm Dwelling Severance and Zoning By-law Amendment
- Minor Variance
- Easement/Right-of-Way

**Property Assessment Roll Number:** 33605062868

**A. Applicant Information**

**Name of Owner** Verlinda Homes (C/O Thomas O'Hara)

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 26 Main St S Box 1152

Town and Postal Code Waterford, ON N0E 1Y0

Phone Number 1-866-781-7653

Cell Number 705-205-3235

Email tom@teamohara.com

**Name of Applicant** Verlinda Homes (C/O Thomas O'Hara)

Address Same as above

Town and Postal Code Same as above

Phone Number 1-866-781-7653

Cell Number 705-205-3235

Email tom@teamohara.com

**Name of Agent** G. Douglas Vallee Limited  
**Address** 2 Talbot St. North  
**Town and Postal Code** Simcoe N3Y 3W4  
**Phone Number** 519-426-6270  
**Cell Number** \_\_\_\_\_  
**Email** Johnvallee@gdvallee.ca

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 the 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):  
     Plan 37M-57 Block 61

Municipal Civic Address: 750 Main Street South, Waterford  
 Present Official Plan Designation(s): Urban Residential and Commercial  
 Present Zoning: R5(H) and CS

2. Is there a special provision or site specific zone on the subject lands?  
 Yes  No If yes, please specify:  
14.845
3. Present use of the subject lands:  
     Vacant

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:

Vacant

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

N/A

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:

See Site Plan

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:

Vacant

---

9. Existing use of abutting properties:

Parkland and Residential

---

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:

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**C. Purpose of Development Application**

Note: Please complete all that apply.

<b>1. Site Information</b>	<b>Existing</b>	<b>Proposed</b>
Please indicate unit of measurement, for example: m, m <sup>2</sup> or %		
Lot frontage	<u>140m</u>	<u>75m</u>
Lot depth	<u>94m</u>	<u>94m</u>
Lot width	<u>140m</u>	<u>75m</u>
Lot area	<u>13,102m<sup>2</sup></u>	<u>7,068.86m<sup>2</sup></u>
Lot coverage	<u>0%</u>	<u>35%</u>
Front yard	<u>n/a</u>	<u>8.9m</u>
Rear yard	<u>n/a</u>	<u>9m</u>
Left Interior side yard	<u>n/a</u>	<u>N/A</u>
Right Interior side yard	<u>n/a</u>	<u>11m</u>
Exterior side yard (corner lot)	<u>n/a</u>	<u>12.6m</u>

2. Please outline the relief requested (assistance is available):

3. Please explain why it is not possible to comply with the provision(s) of the Zoning By-law:

The property is designated as Service Commercial Zone(CS) which does not include retail as a permitted use.

4. Description of land intended to be severed in metric units: Residential Lot

Frontage:	<u>65m</u>
Depth:	<u>94m</u>
Width:	<u>65m</u>
Lot Area:	<u>6034m<sup>2</sup></u>
Present Use:	<u>Vacant</u>
Proposed Use:	<u>Residential as per current zoning</u>
Proposed final lot size (if boundary adjustment):	<u>Approximately 6,034 m<sup>2</sup></u>

If a boundary adjustment, identify the assessment roll number and property owner of the lands to which the parcel will be added: n/a

Description of land intended to be retained in metric units: Commercial Lot  
Frontage: 75m  
Depth: 94m  
Width: 75m  
Lot Area: 7069m<sup>2</sup>  
Present Use: Vacant  
Proposed Use: Commercial  
Buildings on retained land: No existing buildings on site.

5. Description of proposed right-of-way/easement in metric units:

Frontage: Two easements side by side, each 3.7m wide for total of 7.4 m  
Depth: Approx 59 m  
Width: Two easements side by side, each 3.7m for total of 7.4 m  
Area: 7.4 x 59 = 437m<sup>2</sup>  
Proposed Use: Mutual shared driveway access

6. List all properties in Norfolk County, which are owned and farmed by the applicant and involved in the farm operation:

Owners Name: n/a  
Roll Number: n/a  
Total Acreage: n/a  
Workable Acreage: n/a  
Existing Farm Type: (for example: corn, orchard, livestock) n/a  
Dwelling Present?:  Yes  No If yes, year dwelling built n/a

Owners Name: n/a  
Roll Number: n/a  
Total Acreage: n/a  
Workable Acreage: n/a  
Existing Farm Type: (for example: corn, orchard, livestock) n/a  
Dwelling Present?:  Yes  No If yes, year dwelling built n/a

Owners Name: n/a  
Roll Number: n/a  
Total Acreage: n/a  
Workable Acreage: n/a  
Existing Farm Type: (for example: corn, orchard, livestock) n/a  
Dwelling Present?:  Yes  No If yes, year dwelling built n/a

Owners Name: n/a  
Roll Number: n/a  
Total Acreage: n/a  
Workable Acreage: n/a  
Existing Farm Type: (for example: corn, orchard, livestock) n/a  
Dwelling Present?:  Yes  No If yes, year dwelling built n/a

**Note: If additional space is needed please attach a separate sheet.**

**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:  
Known as vacant lands.

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:

Not in wellhead protection area

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 60m

**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  
 Individual wells

- Communal wells  
 Other (describe below)
- 

Sewage Treatment

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

Storm Drainage

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

2. Existing or proposed access to subject lands

- Municipal road  
 Unopened road
- Provincial highway  
 Other (describe below)

Name of road/street:

Old Highway 24 and Lam Blvd.

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**G. Other Information**

1. Does the application involve a local business?  Yes  No

If yes, how many people are employed on the subject lands?

Subject lands are vacant

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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 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. Existing and proposed easements and right of ways
4. Parking space totals – required and proposed
5. All dimensions of the subject lands
6. Dimensions and setbacks of all buildings and structures
7. Location and setbacks of septic system and well from all existing and proposed lot lines, and all existing and proposed structures
8. Names of adjacent streets
9. Natural features, watercourses and trees

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)
- Environmental Impact Study
- Geotechnical Study / Hydrogeological Review
- Minimum Distance Separation Schedule
- Record of Site Condition
- Agricultural Impact Assessment

Your development approval might also be dependent on Ministry of Environment Conservation and Parks, 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. 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.

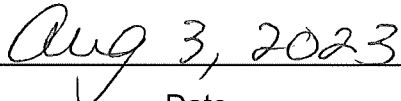
**Permission to Enter Subject Lands**

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.

**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.

  
\_\_\_\_\_  
Owner/Applicant/Agent Signature  
Tom O'Hara


  
\_\_\_\_\_  
Date

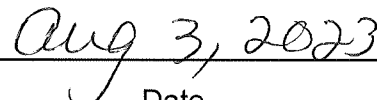
**J. Owner's Authorization**

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

I/We Verlinda Thomas 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.

  
\_\_\_\_\_  
Owner

  
\_\_\_\_\_  
Date

\_\_\_\_\_  
Owner

\_\_\_\_\_  
Date



**K. Declaration**

I, Thomas O'Hara of Waterford, ON

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:

Brenda Joanne Bruley, a  
Commissioner, etc., Province of Ontario.  
for the Corporation of Norfolk County.  
Expires September 2, 2024.

In \_\_\_\_\_



Owner/Applicant/Agent Signature

This 3 day of Aug

A.D., 2023

Brenda Bruley  
A Commissioner, etc.



# vallee

*Consulting Engineers,  
Architects & Planners*

July 18, 2023

Mr. Tom O'Hara  
Box 121, 99 Maple Street  
Port Carling, ON  
P0B 1J0

**Attention: Mr. Tom O'Hara**

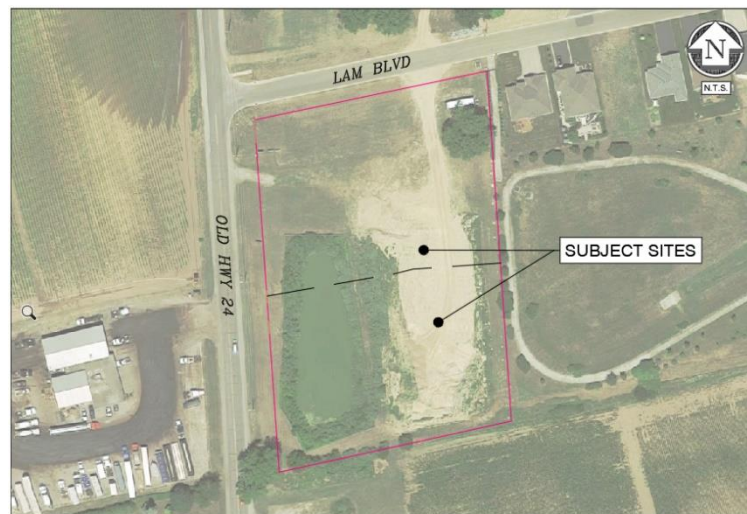
**Reference: Functional Servicing Report  
Orchard Square Townhouse Development  
Waterford, Norfolk County  
Our Project # 20-128**

## Introduction

G. Douglas Vallee Limited has been retained by Verlinda Homes to prepare a Functional Servicing Report in support of the zoning by-law amendment and severance application required for the proposed development located on the southeast corner of Old Hwy 24 and Lam Boulevard in Waterford - Norfolk County. The intent of the application is to split the property into two parcels. Parcel one will consist of a 44-unit multi-story residential building and Parcel two will feature a commercial retail use and a restaurant. This report presents the conceptual functional servicing for the proposed development, including sanitary servicing, storm servicing, domestic water and fire water servicing.

## Background

The proposed 1.31 ha development sites are situated southeast of Old Hwy 24 and Lam Boulevard in Waterford, Norfolk County. The subject lands are bounded by an existing subdivision to the east and agricultural land to the south, as shown in Figure 1.



**Figure 1 - Site Location**

2 Talbot Street North, Simcoe, ON N3Y 3W4 ■ Phone: 519 426-6270 ■ Fax: 519 426-6277 ■ [www.gdvallee.ca](http://www.gdvallee.ca)

**G. Douglas Vallee Limited**

The development site currently features an open landscaped area and a pond and is zoned as “Hamlet Residential Type 5 – R5(H)” and “Hamlet Service Commercial CS(H). The proposed residential development shall consist of the following construction between the two sites:

- 1 – 5-storey apartment units;
- 1 – 875m<sup>2</sup> commercial strip mall;
- 1 – 465m<sup>2</sup> fast food restaurant;
- 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. As part of this project, a sanitary manhole was also installed on the subject site’s north property line for future development. It is proposed that sanitary flows from the proposed commercial development will discharge to this existing sanitary manhole via a sanitary storm sewer on site as shown on Drawing C101 – Site Servicing Plan in Appendix E. The residential development will see their sewage drained to the west sewer running along old HWY 24.

Sanitary design flows were calculated using the Norfolk County Design Criteria. Table 1 presents the flow information for the proposed residential development. In summary, the proposed development is anticipated to generate an additional sanitary flow of approximately 2.84 L/s to the existing sanitary sewer along old HWY 24.

<b>Table 1 Sanitary Design Flow Information Site 1 Residential</b>	
Total Number of Units	44
Population Density (persons/units)	2.75
Per Capita Flow (L/person/day)	450
Peak Extraneous Flow (L/sec/hectare)	0.28
Development Area (ha)	0.65
Infiltration Flow (L/s)	0.18
Sewage Flow (L/s)	0.63
Peak Design Flow (L/s)	2.84

Table 2 presents the flow information for the commercial development, where approximately 1.25 L/s travels to the existing sewer on Lam Blvd.

<b>Table 2 Sanitary Design Flow Information Site 2 Commercial</b>	
Development Area (ha)	0.67
Population Density (persons/units)	90
Per Capita Flow (L/person/day)	450
Peak Extraneous Flow (L/sec/hectare)	0.28
Infiltration Flow (L/s)	0.19
Sewage Flow (L/s)	0.31
Peak Design Flow (L/s)	1.25

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 Hwy 24, as shown in Appendix A. The sanitary design sheet has been updated to reflect the proposed commercial development, as shown in 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 has adequate capacity to support the commercial proposed development. It is, however, unknown if the existing pipe has the capacity for the increased residential flow under old HWY 24.

A request has previously been made to Norfolk County to have the development layout and anticipated demands reviewed by the County's external sanitary modelling consultant, RV Anderson. At this time, no modelling report has been received. It is requested that the County's consultant review this report, update their model and confirm if the municipal infrastructure can support this development.

## Stormwater Management

Under pre-development conditions, the subject property is vacant land which features an open grassed area and an irrigation pond. Stormwater runoff from the subject property drains uncontrolled, overland in a southwesterly direction towards Old Hwy 24.

As part of the Yin's Subdivision - Phase 5 project (Vallee Project No. 10-034), a peak flow allowance of 0.015 m<sup>3</sup>/s was allocated for subject site as part of the storm sewer design along Old Highway 24. Consequently, the SWM quantity control target for the proposed development is to reduce and/or control all post-development peak flow rates from the site to levels that do not exceed the 0.015 m<sup>3</sup>/s flow allowance, for all storm events up to and including the 100-year storm event. To meet this quantity control target, runoff from the post-developed sites will be directed to an underground stormwater management chamber facility at the north side of the property, and released at a rate such that peak flow allowance rate is not exceeded. Runoff released from the stormwater management facility will be discharged to the existing municipal 600mm diameter storm sewer along Old Hwy 24. Minor storm events (2-year and 5-year) will be conveyed to the proposed stormwater management facility through a storm sewer network and major storm events will flow overland. Given the severance of the two properties, storm easements will be made across the two properties to allow both properties to share a single stormwater detention system.

Visual OTTHYMO was utilized to simulate the post-development system for the subject site. Table 3 and 4 present the Norfolk County rainfall IDF curve data and the post-development parameters used in the SWM model.

<b>Table 3 Norfolk County Rainfall IDF Parameters</b>			
<b>Event</b>	<b>A</b>	<b>B</b>	<b>C</b>
2-year	529.711	4.501	0.745
5-year	583.017	3.007	0.703
10-year	670.324	3.007	0.698
25-year	721.533	2.253	0.679
50-year	766.038	1.898	0.668
100-year	801.041	1.501	0.657

<b>Table 4 Post-Development OTTHYMO Input Parameters</b>	
<b>Parameter</b>	
Soil Type	Gravelly, sandy till
Hydrologic Soil Group	A
SCS Curve Number	58
Initial Abstraction (mm)	16.5
Infiltration Rate (mm/hr)	30 mm/hr

Table 5 presents the post-development catchment area, the total impervious percentage and the directly connected impervious percentage associated with the site's catchment. Land area that is considered to be directly connected to the storm sewer system includes the parking spaces, roofs and roads.

<b>Table 5 Post-Development Catchments</b>				
<b>Catchment</b>	<b>Runoff Control System</b>	<b>Area</b>	<b>Impervious Percentage</b>	<b>Directly Connected Impervious Percentage</b>
POST1	SWM Chamber Facility	1.32	77%	77%

Table 6 summarizes the peak post-development runoff rates found using Visual OTTHYMO and compares them to the allowable release rate for each storm event, up to and including the 100-year storm event. The post-development flow rates for the corresponding storm event are presented in Table 6.

<b>Table 6 Post-Development Flow Rates</b>			
<b>Event</b>	<b>Allowable Release Rate (cms)</b>	<b>Post-Development (cms)</b>	<b>Net Change (cms)</b>
2-year	0.015	0.006	-0.009
5-year		0.009	-0.006
10-year		0.010	-0.005
25-year		0.012	-0.003
50-year		0.014	-0.001
100-year		0.015	0.000

For all design storm events, the peak post-development flow rates are attenuated to less than or equal to the 0.015 m<sup>3</sup>/s flow allowance prescribed in the 10-034 Yin’s Subdivision - Phase 5 Stormwater Management Report, as shown in Table 6. All corresponding calculations completed during the development of the Visual OTTHYMO model can be found in Appendix C and the results from the Visual OTTHYMO analysis are detailed in Appendix D. During the detailed design stage, low-impact development infiltration practices will be analyzed to reduce the required storage volume.

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, chamber isolator rows, 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 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 northeast corner of the subject site and will be utilized to service the proposed commercial development. The water service will be further extended on Old HWY 24 past the proposed delineation line between the commercial and residential developments and then travel east into the site. Refer to C101 – Servicing Plan in Appendix E. An analysis of the hydraulic modelling will be conducted by the County’s consultant to determine the water servicing capacity and constraints on the existing water system to ensure adequate system flows and pressure for the 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:

#### **Residential**

- Total Number of Units: 44
- Population Density: 2.75 persons per unit
- Population: 121 people
- Average Daily Water Demand (per person) 0.450 m<sup>3</sup>/person/day
- Average Daily Water Demand: 54.45 m<sup>3</sup>/day (0.63 L/s)
- Maximum Day Demand Factor: 2.25
- Maximum Day Demand: 122.51 m<sup>3</sup>/day (1.41 L/s)
- Peak Hourly Demand Factor (Residential) 4.00
- Peak Hourly Demand 9.08 m<sup>3</sup>/hour (2.52 L/s)

#### **Commercial**

- Total Area: 0.66ha
- Population Density: 90 persons per ha
- Population: 60 people
- Average Daily Water Demand (per person) 0.450 m<sup>3</sup>/person/day
- Average Daily Water Demand: 27 m<sup>3</sup>/day (0.3125 L/s)
- Maximum Day Demand Factor: 2.25
- Maximum Day Demand: 60.75 m<sup>3</sup>/day (0.70 L/s)
- Peak Hourly Demand Factor (Commercial) 2.00
- Peak Hourly Demand 2.25 m<sup>3</sup>/hour (0.63 L/s)

### **Fire Water Service**

According to the County GIS online mapping, there are two existing fire hydrants located in proximity to the proposed development. One is on the west side of Old Hwy 24, at the intersection of Old Hwy 24 and Lam Boulevard, and the second is located on the north side of Lam Boulevard, at the northeast corner of the subject property. However, both hydrants are greater than 90 m away from the furthest proposed unit. Consequently, a fire hydrant will be installed on the southwest corner of the east strip mall of the subject property to service the proposed development.

Typically, available fire flow during the maximum day demand is the critical criterion 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 the Fire Underwriters Survey – 2020 (FUS). Using the FUS recommendations, the minimum required fire flow was determined to be 116.7 L/s for the 5-storey residential building and 100 L/s for the east commercial building. Supporting calculations are detailed in Appendix B.

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 B. In addition, Norfolk County has indicated that the fire flow during the max day demand is preliminarily estimated to be 129 L/s. Based on this information provided by Norfolk County, it is likely that the fire flow demands are within the available range. It is requested that the County's consultant review this report, update their water model and confirm that there is available pressure and flow in the municipal infrastructure to support this development.

## Recommendations & Conclusions

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

### Commercial Site:

- 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 1.25 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, modeling from Norfolk County's consultant is recommended to determine the impact of the proposed additional sanitary flows further downstream.
- Using an underground stormwater storage system, release rates can be limited to that of the amount designed for in the previous sewer upgrade.
- The existing 200mm watermain on Lam Boulevard shall serve as the water supply for the proposed development.
- An analysis of the hydraulic modelling is recommended by Norfolk County's 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 60.75 m<sup>3</sup>/day (0.70 L/s) and 2.25 m<sup>3</sup>/hour (0.63 L/s), respectively.
- The required fire flow demand was found to be 100 L/s for the commercial development. As with the current information, the flow based on the FUS is within the estimated range of available fire flow (83 L/s to 159 L/s) per the Norfolk County ISMP, and less than the preliminary available fire flow estimate indicated by Norfolk County (129 L/s).

### Residential Site:

- The proposed development will be serviced by a sanitary sewer that connects to the existing 200mm sanitary sewer along old HWY 24.
- A peak sanitary design flow of approximately 2.84 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, modeling from Norfolk County's consultant is recommended to determine the impact of the proposed additional sanitary flows further downstream.
- Using an underground stormwater storage system, release rates can be limited to that of the amount designed for in the previous sewer upgrade.
- The existing 200mm watermain on old HWY 24 shall serve as the water supply for the proposed development.
- An analysis of the hydraulic modeling is recommended by Norfolk County's 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.

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**Consulting Engineers, Architects & Planners**



- The domestic maximum day demand and peak hourly demand were found to be 122.51 m<sup>3</sup>/day (1.42 L/s) and 9.08 m<sup>3</sup>/hour (2.52 L/s), respectively.
- The required fire flow demand for the proposed development was found to be 116.7 L/. As with the current information, the flow based on the FUS is within the estimated range of available fire flow (83 L/s to 159 L/s) per the Norfolk County ISMP, and less than the preliminary available fire flow estimate indicated by Norfolk County (129 L/s).

It is recommended that this report be provided to Norfolk County 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,



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
- 20-128 Sanitary Flow Calculation

#### Appendix B

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

#### Appendix C

- 20-128 Storm Calculations
- 20-128 Post Conditions

#### Appendix D

- Otthymo Results

#### Appendix E

- C101 Site Servicing Plan

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## **APPENDIX A**

**10-034 SA1 – Sanitary Sewer Drainage Areas**  
**10-034 Sanitary Sewer Design Sheet**  
**20-128 Sanitary Flow Calculation**  
**10-034 Sanitary Sewer Design Sheet - Modified**





# SANITARY SEWER DESIGN SHEET

Pipe Material PVC  
N 0.013

Project: Yin's Subdivision Phase 6 - Updated to Include Orchard Square  
Job No. 20-128

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

Location		Area						Total Pop.	M=Peak Factor	Flow			Sewer Design							
Area	Street	From	To	Section	Cumul.	Section	Cumul			Q(i)	Q(s)	Q(d)	Material	Size	Length	N	Slope	Cap	Full V	
		MH	MH	Ha	Ha	Units	Units			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	4.43629	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	25	25	67	4.28672	0.21	1.50426	1.71426	PVC	200	10	0.013	0.50%	23.2	0.74	✓ 7%
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	237	650	3.91275	3.3796	13.2539	16.6335	PVC	200	99.8	0.013	0.50%	23.2	0.74	✓ 72%

**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<sup>0.5</sup>)

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.



**Norfolk County Design Criteria Section 9.2 - Sanitary Sewage Flow**

**9.2.01 Tributary Population**

qs 2.75 persons/unit  
 Units: 44 Units  
 Number of Persons: 121 persons  
 Site Area 0.65 ha

**9.2.02 Sewage Flow**

qs 0.45 m<sup>3</sup>/person/day  
 Average Sewage Flow: 0.630 L/s

**9.2.03 Peak Sanitary Flow Factor**

Residential Peaking Factor Formula:  
 $M = 1 + ( 14 / ( 4 + [ 14 / \{ 4 + P^{(0.5)} \} ] ) )$   
 P = 0.121  
 M = 4.220

**9.2.04 Infiltration Allowance**

Infiltration Allowance: 0.28 L/s/ha  
 Infiltration Allowance: 0.182 L/s

**9.2.05 Design Flow**

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

Design Flow =	2.841 L/s
---------------	-----------



Subject: Orchard Square Sanitary Flow  
Date: 2022-11-28 By: KRA  
Project #: 20-128 Page 2  
Description: EAST Building

---

## Norfolk County Design Criteria Section 9.2 - Sanitary Sewage Flow

### 9.2.01 Tributary Population

Commercial Development: 90 persons/ha  
Site Area: 0.35 ha  
Number of Persons: 32 persons

### 9.2.02 Sewage Flow

Commercial Development: 40 m<sup>3</sup>/ha/day  
Average Sewage Flow: 0.160 L/s

### 9.2.03 Peak Sanitary Flow Factor

Commercial Peaking Factor Formula:

$$M = 0.8(1 + (14 / (4 + (Pe^{0.5}))))$$

Pe = 0.032

M = 3.480

### 9.2.04 Infiltration Allowance

Infiltration Allowance: 0.28 L/s/ha

Infiltration Allowance: 0.097 L/s

### 9.2.05 Design Flow

Design Flow:

Design Flow = (Average Sewage Flow \* Peak Sanitary Flow Factor)

Design Flow =	0.65 L/s
---------------	----------



Subject: Orchard Square Sanitary Flow  
Date: 2022-11-28 By: KRA  
Project #: 20-128 Page 3  
Description: WEST Building

---

## Norfolk County Design Criteria Section 9.2 - Sanitary Sewage Flow

### 9.2.01 Tributary Population

Commercial Development: 90 persons/ha  
Site Area: 0.32 ha  
Number of Persons: 29 persons

### 9.2.02 Sewage Flow

Commercial Development: 40 m<sup>3</sup>/ha/day  
Average Sewage Flow: 0.147 L/s

### 9.2.03 Peak Sanitary Flow Factor

Commercial Peaking Factor Formula:

$$M = 0.8(1 + (14 / (4 + (Pe^{0.5}))))$$

Pe = 0.029

M = 3.486

### 9.2.04 Infiltration Allowance

Infiltration Allowance: 0.28 L/s/ha  
Infiltration Allowance: 0.089 L/s

### 9.2.05 Design Flow

Design Flow:

Design Flow = (Average Sewage Flow \* Peak Sanitary Flow Factor)

Design Flow =	0.60 L/s
---------------	----------



**vallee**

*Consulting Engineers,  
Architects & Planners*

Subject: Orchard Square Sanitary Flow  
Date: 2022-11-28 By: KRA  
Project #: 20-128 Page 4  
Description: Summary

---

**Summary of Design Flows**

**Residential** 2.84 L/s

**Commercial East** 0.65 L/s

**Commerical West** 0.60 L/s

<b>Total Design Flow:</b> 4.09 L/s
------------------------------------



# SANITARY SEWER DESIGN SHEET

Pipe Material PVC  
N 0.01

Project: Yin's Subdivision Phase 6 - Updated to Include Orchard Square  
Job No. 20-128

Date 18-Jul-21  
Designed by KRA  
Checked by JL  
Sheet of: 1 of 1

Location			Area				Total Pop.	M=Peak Factor	Flow			Sewer Design								
Area	Street	From MH	To MH	Section Ha	Cumul. Ha	Section Units			Cumul. Units	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	25	25	67	4.28672	0.21	1.50426	1.71426	PVC	200	10	0.013	0.50%	23.2	0.74	✓ 7%
2B-2	Block 2 Commercial	2B	2	0.67	0.67						4.09		PVC	200	10	0.013	0.50%	23.2	0.74	✓ 18%
2-1	Lam Blvd	2	1	0.09	11.34	0	182	499	3.97462	3.1752	10.3325	13.5077	PVC	200	99.8	0.013	0.50%	23.2	0.74	✓ 58%

**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^0.5)  
 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

## **APPENDIX B**

**Domestic Water Demand Calculations**

**Fire Flow Calculation Distances**

**FUS Calculations**

**Norfolk ISMP Map**



Subject: Orchard Square

Date: 2022-11-28 By: KRA

Project #: 20-128 Page           

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### **Maximum Daily Demand**

Total Number of Units	44 units		
Zoning of Land	Residential		
Equiv. Population Density	2.75 ppl/unit		
Equiv. Population	121		
Av. Daily Demand Per Capita	0.45 m <sup>3</sup> /capita/day		
Maximum Daily Demand Peaking Factor	2.25		
Maximum Daily Demand	<table border="1"><tr><td>122.51 m<sup>3</sup>/day</td></tr><tr><td>1.42 l/s</td></tr></table>	122.51 m <sup>3</sup> /day	1.42 l/s
122.51 m <sup>3</sup> /day			
1.42 l/s			

### **Maximum Hourly Demand**

Total Number of Units	44 units		
Zoning of Land	Residential		
Equiv. Population Density	2.75 ppl/ha		
Equiv. Population	121		
Av. Daily Demand Per Capita	0.45 m <sup>3</sup> /capita/day		
Maximum Hourly Demand Peaking Factor	4		
Maximum Hourly Demand	<table border="1"><tr><td>9.08 m<sup>3</sup>/hour</td></tr><tr><td>2.52 l/s</td></tr></table>	9.08 m <sup>3</sup> /hour	2.52 l/s
9.08 m <sup>3</sup> /hour			
2.52 l/s			

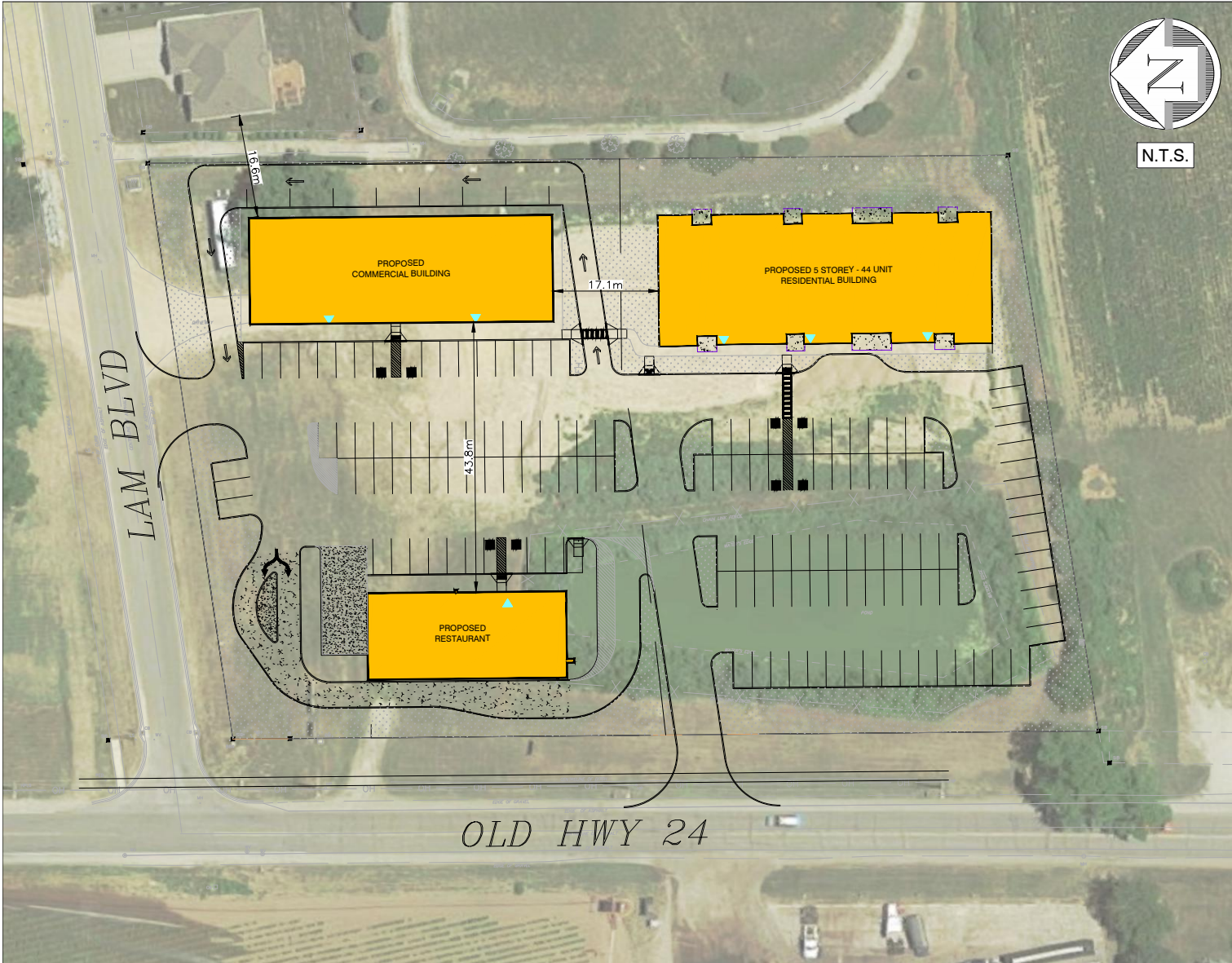


**Maximum Daily Demand**

Area	0.66 ha		
Zoning of Land	Commercial		
Equiv. Population Density	90 ppl/ha		
Equiv. Population	60		
Av. Daily Demand Per Capita	0.45 m <sup>3</sup> /capita/day		
Maximum Daily Demand Peaking Factor	2.25		
Maximum Daily Demand	<table border="1"><tr><td>60.75 m<sup>3</sup>/day</td></tr><tr><td>0.70 l/s</td></tr></table>	60.75 m <sup>3</sup> /day	0.70 l/s
60.75 m <sup>3</sup> /day			
0.70 l/s			

**Maximum Hourly Demand**

Area	0.66 ha		
Zoning of Land	Commercial		
Equiv. Population Density	90 ppl/ha		
Equiv. Population	60		
Av. Daily Demand Per Capita	0.45 m <sup>3</sup> /capita/day		
Maximum Hourly Demand Peaking Factor	2		
Maximum Hourly Demand	<table border="1"><tr><td>2.25 m<sup>3</sup>/hour</td></tr><tr><td>0.63 l/s</td></tr></table>	2.25 m <sup>3</sup> /hour	0.63 l/s
2.25 m <sup>3</sup> /hour			
0.63 l/s			



**Residential Tower**

1) **Fire Flow Requirement**

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

C= 0.8 Construction coefficient for wood frame construction

A= 1092.0 Floor Area m<sup>2</sup> = main floor area  
 = 1638.0 Fire Area m<sup>2</sup> = Assumed protected openings therefore area is largest floor plus 25% of each two immediately adjoining floors.

$F_1 = 7123$  L/min

**$F_1 = 7000$  L/min** (Round to the nearest 1,000 l/min)

2) **Occupancy**

Occupancy Type: Residential Non-Combustible

Reduction: 15%

Surcharge: 0%

$F_2 = F_1 + (F_1 * \text{Reduction} / \text{Surcharge})$  (L/min)

**$F_2 = 5950$  L/min**

3) **Sprinkler System**

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

Reduction: 0%

$F_3 = F_2 * \text{Reduction}$  (L/min)

**$F_3 = 0$  L/min**

4) **Seperation**

<u>Location</u>	<u>Direction</u>	<u>Distance</u>	<u>Surcharge</u>	<u>Separation Surcharges</u>	
Front	NORTH	17.1	15%	0 to 3m	25%
Side	EAST	9999.0	0%	3.1m to 10m	20%
Side	WEST	9999.0	0%	10.1m to 20m	15%
Rear	SOUTH	9999.0	0%	20.1 to 30m	10%
		Total:	15%	30.1 to 45m	5%

$F_4 = (\text{TOTAL}) * F_2$  (L/min)

**$F_4 = 893$  L/min**

**Total Fire Flow**

$F = F_2 - F_3 + F_4 = 6843$  L/min  
 = **7000** L/min (Round to the nearest 1,000 l/min)  
 = **116.7** L/s

Notes: 1) All calculations and factors from Part 2 "Water Supply for Public Fire Protection" by the Fire Underwriters Survey, 2020  
 2) 9999 denotes either the nearest building > 45m away or a fire wall is provided

**East Commercial Building**

1) **Fire Flow Requirement**

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

C= 1 Construction coefficient for brick Consutrciotn

A= 875.0 Floor Area m<sup>2</sup> = main floor area  
 = 875.0 Fire Area m<sup>2</sup>

$F_1 = 6508$  L/min

**$F_1 = 7000$  L/min** (Round to the nearest 1,000 l/min)

2) **Occupancy**

Occupancy Type: Assembly

Reduction: 0%

Surcharge: 0%

$F_2 = F_1 + (F_1 * \text{Reduction} / \text{Surcharge})$  (L/min)

**$F_2 = 7000$  L/min**

3) **Sprinkler System**

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

Reduction: 50%

$F_3 = F_2 * \text{Reduction}$  (L/min)

**$F_3 = 3500$  L/min**

4) **Seperation**

<u>Location</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Surcharge</u>	<u>Separation Surcharges</u>	
Front	West	43.8	5%	0 to 3m	25%
Side	North	9999.0	0%	3.1m to 10m	20%
Side	South	17.1	15%	10.1m to 20m	15%
Rear	East	16.6	15%	20.1 to 30m	10%
			35%	30.1 to 45m	5%

$F_4 = (\text{TOTAL}) * F_2$  (L/min)

**$F_4 = 2450$  L/min**

**Total Fire Flow**

$F = F_2 - F_3 + F_4 = 5950$  L/min

= **6000 L/min** (Round to the nearest 1,000 l/min)

= **100.0 L/s**

- Notes: 1) All calculations and factors from Part 2 "Water Supply for Public Fire Protection" by the Fire Underwriters Survey, 2020  
 2) 9999 denotes either the nearest building > 45m away or a fire wall is provided

**West Commercial Building**

1) **Fire Flow Requirement**

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

C= 1.5 Wood Construction

A= 465.0 Floor Area m<sup>2</sup> = main floor area  
 = 465.0 Fire Area m<sup>2</sup>

= main floor area

F<sub>1</sub>= 7116 L/min

**F<sub>1</sub>= 7000 L/min** (Round to the nearest 1,000 l/min)

2) **Occupancy**

Occupancy Type: Assembly

Reduction: 0%

Surcharge: 0%

$F_2 = F_1 + (F_1 * \text{Reduction} / \text{Surcharge})$  (L/min)

**F<sub>2</sub>= 7000 L/min**

3) **Sprinkler System**

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

Reduction: 50%

$F_3 = F_2 * \text{Reduction}$  (L/min)

**F<sub>3</sub>= 3500 L/min**

4) **Seperation**

<u>Location</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Surcharge</u>	<u>Separation Surcharges</u>	
Front	West	9999.0	0%	0 to 3m	25%
Side	North	9999.0	0%	3.1m to 10m	20%
Side	South	9999.0	0%	10.1m to 20m	15%
Rear	East	43.8	5%	20.1 to 30m	10%
			5%	30.1 to 45m	5%

$F_4 = (\text{TOTAL}) * F_2$  (L/min)

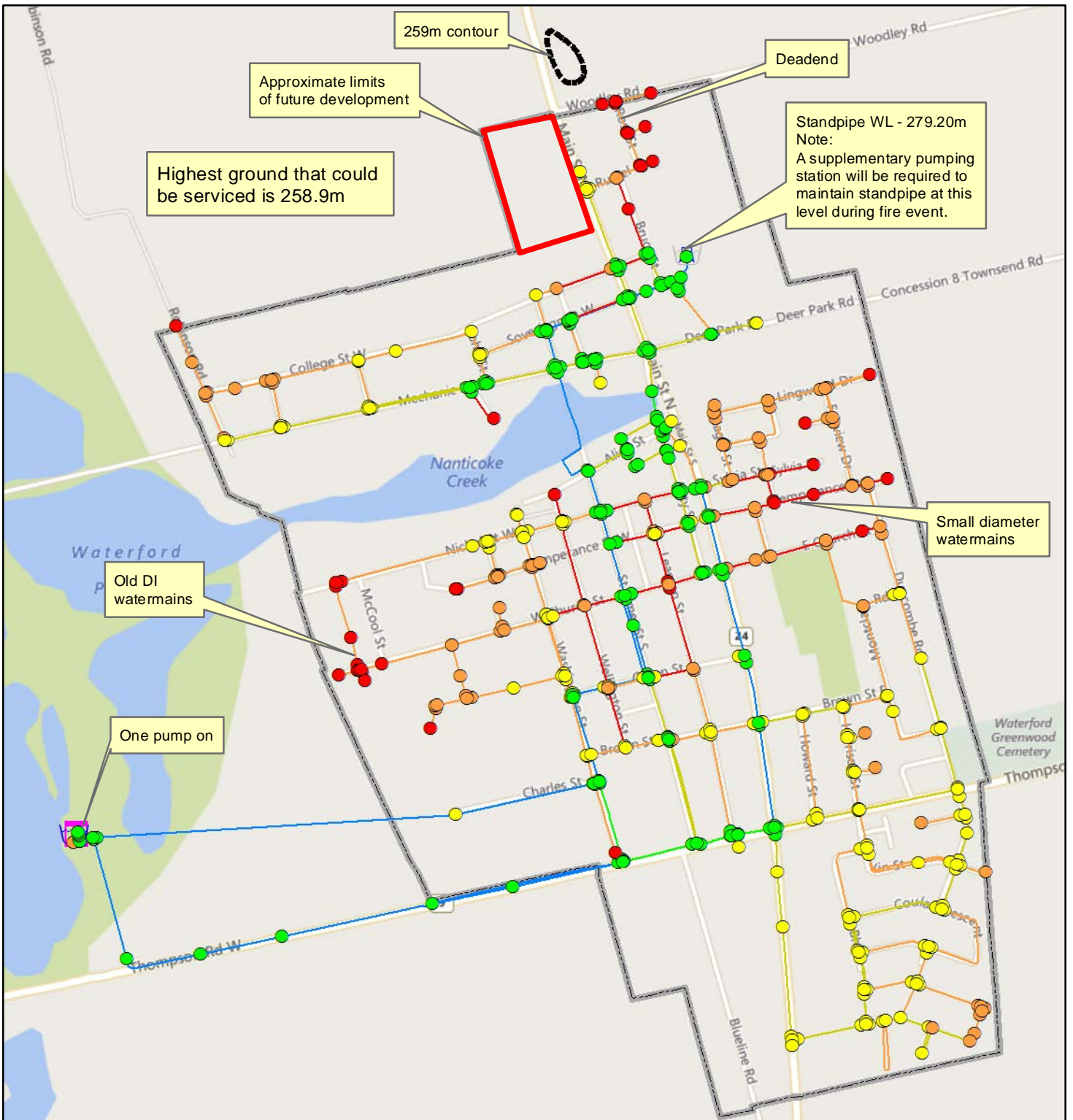
**F<sub>4</sub>= 350 L/min**

**Total Fire Flow**

F = F<sub>2</sub> - F<sub>3</sub> + F<sub>4</sub> = 3850 L/min  
 = **4000 L/min** (Round to the nearest 1,000 l/min)  
 = **66.7 L/s**

Notes: 1) All calculations and factors from Part 2 "Water Supply for Public Fire Protection" by the Fire Underwriters Survey, 2020  
 2) 9999 denotes either the nearest building > 45m away or a fire wall is provided





Highest ground that could be serviced is 258.9m

Approximate limits of future development

259m contour

Deadend

Standpipe WL - 279.20m  
 Note:  
 A supplementary pumping station will be required to maintain standpipe at this level during fire event.

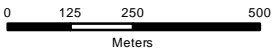
Small diameter water mains

Old DI water mains

One pump on

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

Available Fire Flow (L/s) Diameter (mm)	
● Less than 57	100
● 57~83	150
● 83~159	200
● Greater than 159~	250
▭ Community Boundary	300
	400



## **Appendix C**

**10-034 Storm Drainage Areas**

**10-034 Storm Sewer Design Sheet**

**20-128 SWM Drainage Areas**

**20-128 Catchment Parameters & Allowable Release Rate**

**20-128 Chamber Stage-Storage-Discharge**

**20-128 Pre to Post Flows and Utilized Storage Volumes**





## 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			Cumulative	Time	Rainfall	Flow	Sewer Design					
Area	From	To	Ha	Ha	TOTAL Ha	R*A	of Concentration min	mm/hr	2.78*I*A*R L/s	Size mm	Slope %	Cap L/s	Vel m/s	Length m	Time min
			0.45	0.9											
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)

Peak Discharge from Block 3

Peak Discharge from Block 4

0.03 Applied at Area POND

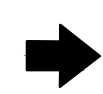

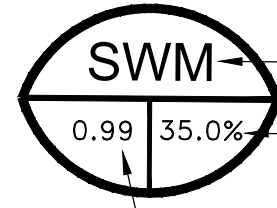
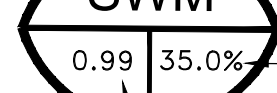

0.015 Applied at Area 6-5

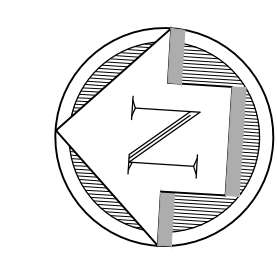
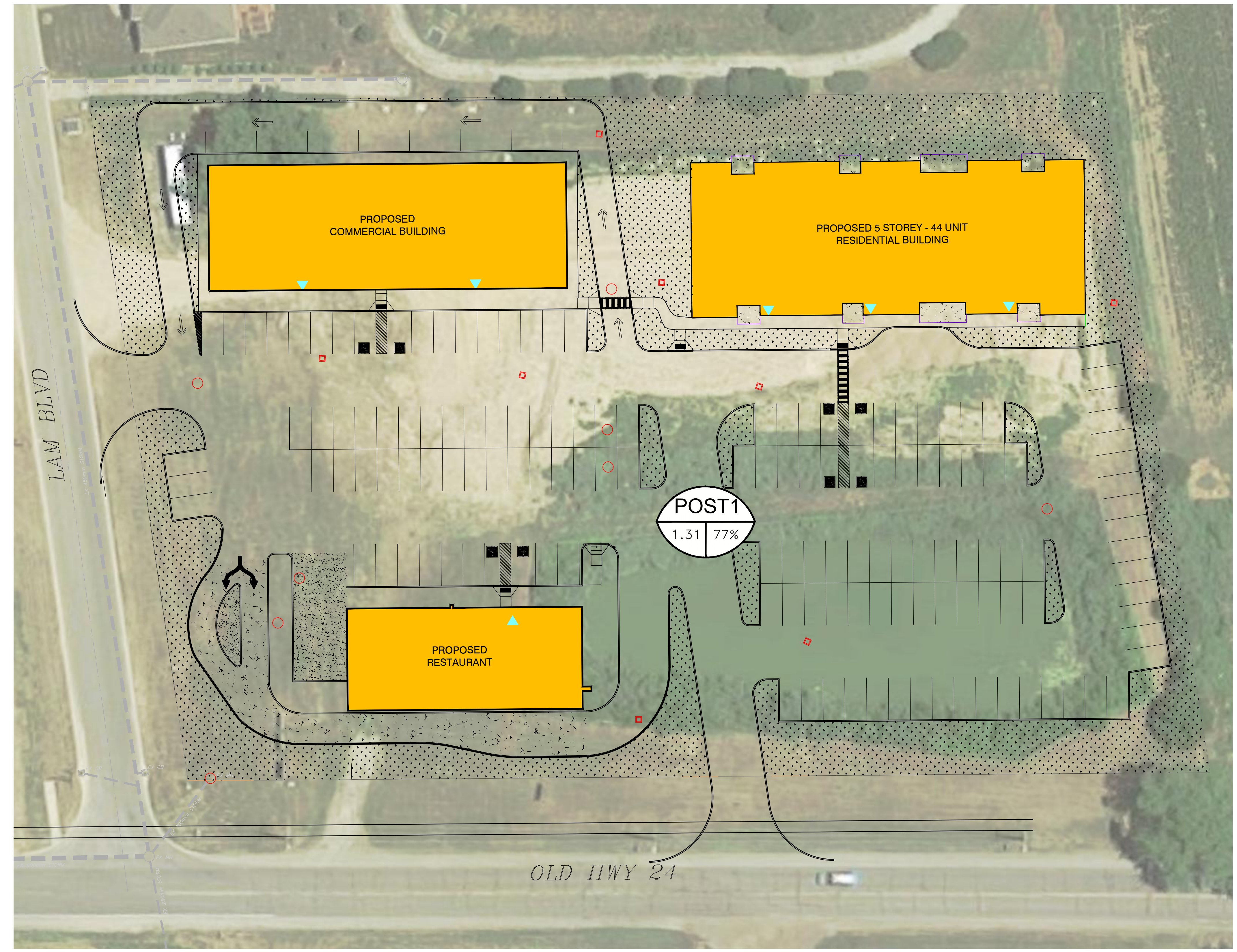
0.015 Applied at Area 6-6



REV. No.	DATE	REVISION
0	DEC 16, 2021	ISSUED FOR FUNCTIONAL SERVICING
1	APR 21, 2022	ISSUED FOR SWM REPORT
1	JAN. 27, 2023	REVISED TO SUIT NEW SITE LAYOUT

**LEGEND**

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



SCALE:  
HORIZONTAL : 1:300



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FOR CONSTRUCTION

Project Title  
**ORCHARD SQUARE**  
WATERFORD, NORFOLK COUNTY

Drawing Title <b>SWM DRAINAGE AREAS</b>	
Designed by : NLB	Drawn By : NLB
Checked by : JI	Date Started : 1/27/2023
Drawing Scale : 1:300	Drawing No. <b>SWM</b>
Project No. <b>20-128</b>	

DATE LAST PLOTTED : July 25, 2023



**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)
TOTAL	Entire property	1.31	1.01	1.01	77%	77%

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

Soil Type	A - gravelly sandy till, sandy textures over gravelly sandy till	
CN (-)	58	
Ia Developed	16.5 mm	
Infiltration Rate (i)	0.0300 m/hr	<i>Soil-Mat Engineers &amp; Consultants Ltd. Geotechnical Investigation</i>
Safety Factor	2.5	<i>Dated December 20th 2021</i>
Design Infiltration Rate	0.012 mm/hr	
Void Ratio (Vr)	0.4	
Drainage Time (ts)	96 hr	
Max allowable stone depth (drmax)	2.88 m	

**Chamber Parameters**

Model	MC-3500
Number of Chambers	126
Number of End Caps	16
Depth of Stone Above Chamber	500 mm
Depth of Stone Below Chambers	500 mm
Base of Stone Elev.	241.60 m
Base of Chamber Elev.	242.10 m
Height of Chambers	1140 mm
Top of Chamber Elv.	243.24 m
Top of Stone Elev.	243.74 m
Min. Cover (For Vehicles)	0.54 m
Min Surface Elev.	<b>244.28</b> m
System Footprint	648.89 m2

**Orifice Parameters**

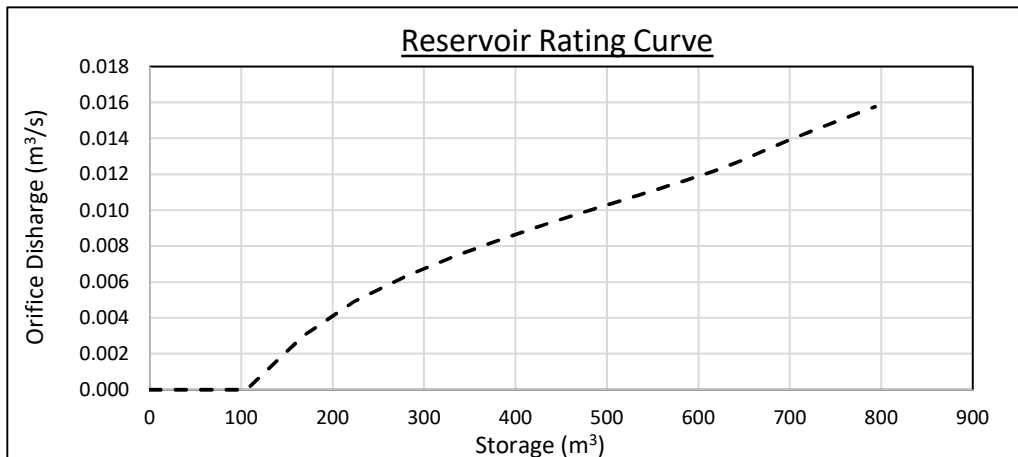
<b>Orifice #1</b>	Diameter	0.075	m
	Area	0.0044	m2
	Elevation	242.10	m
	Depth	0.50	m

\*300mm Gran B, 150mm Gran A, 50mm base, 40mm surface

**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	241.60	0	0.000	0.00	0.000	0.000	
	241.70	102	0.102	26.36	0.000	0.000	
	241.80	203	0.203	52.73	0.000	0.000	
	241.91	305	0.305	79.09	0.000	0.000	
	242.01	406	0.406	105.46	0.000	0.000	
Base of Chambers/Orifice 1	242.16	559	0.559	167.82	0.059	0.003	
	242.26	660	0.660	223.91	0.160	0.005	
	242.36	762	0.762	279.12	0.262	0.006	
	242.46	864	0.864	333.24	0.364	0.007	
	242.57	965	0.965	386.03	0.465	0.008	
	242.67	1067	1.067	437.21	0.567	0.009	
	242.77	1168	1.168	486.39	0.668	0.010	
	242.87	1270	1.270	533.13	0.770	0.011	
	242.97	1372	1.372	576.72	0.872	0.012	
	243.07	1473	1.473	615.98	0.973	0.012	
	243.18	1575	1.575	647.57	1.075	0.013	
	Top of Chambers	243.28	1676	1.676	674.49	1.176	0.013
		243.38	1778	1.778	700.85	1.278	0.014
243.48		1880	1.880	727.22	1.380	0.014	
243.58		1981	1.981	753.58	1.481	0.015	
Top of Stone Storage	243.68	2083	2.083	779.95	1.583	0.016	
	243.73	2134	2.134	793.13	1.634	0.016	

\*Storage volumes obtained from OTTHYMO



**Pre to Post-Development Flow Rates**

Return Period	Q (m <sup>3</sup> /s)			Check
	Pre	Post	Net	
2	0.015	0.006	-0.009	✓
5		0.009	-0.006	✓
10		0.010	-0.005	✓
25		0.012	-0.003	✓
50		0.014	-0.001	✓
100		0.015	0.000	!

**Chamber Stage-Storage**

Description	Elevation (m)	Ponding Depth (m)	Total Volume (m <sup>3</sup> )	Q (m <sup>3</sup> /s) Total
Base of Stone Storage	241.60	0.00	0.0	0.000
	241.70	0.10	26.4	0.000
	241.80	0.20	52.7	0.000
	241.91	0.31	79.1	0.000
	242.01	0.41	105.5	0.000
Base of Chambers/Orifice 1	242.16	0.56	167.8	0.003
	242.26	0.66	223.9	0.005
	242.36	0.76	279.1	0.006
	242.46	0.86	333.2	0.007
	242.57	0.97	386.0	0.008
	242.67	1.07	437.2	0.009
	242.77	1.17	486.4	0.010
	242.87	1.27	533.1	0.011
	242.97	1.37	576.7	0.012
	243.07	1.47	616.0	0.012
Top of Chambers	243.18	1.58	647.6	0.013
	243.28	1.68	674.5	0.013
	243.38	1.78	700.9	0.014
	243.48	1.88	727.2	0.014
Top of Stone Storage	243.58	1.98	753.6	0.015
	243.68	2.08	779.9	0.016
	243.73	2.13	793.1	0.016

\*Storage volumes obtained from OTTHYMO

**Approximate Chamber Stages from OTTHYMO Model**

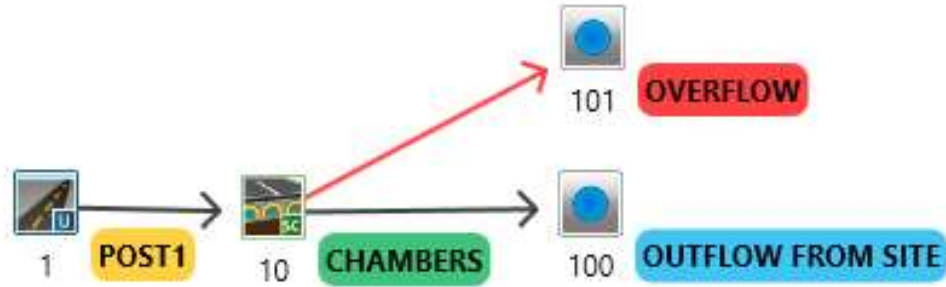
Return Period	Q (m <sup>3</sup> /s) Total	Ponding Depth (m)	Elev. (m)	Storage (m)
2	0.006	0.73	242.33	264
5	0.009	1.03	242.63	421
10	0.010	1.16	242.76	481
25	0.012	1.45	243.05	606
50	0.014	1.79	243.39	704
100	0.015	1.98	243.58	753



# **Appendix D**

## **Visual Otthymo Results**

# 20-128 ORCHARD SQUARE POST-DEVELOPMENT OTTHYMO MODEL



## 2-YEAR STORM

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

```

V V I SSSSS U U A L (v 6.1.2002)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL

OOO TTTT TTTT H H Y Y M M OOO TM
O O T T H H Y Y MM MM O O
O O T T H H Y Y M M O O
OOO T T H H Y Y M M OOO
  
```

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\*\*\*\*\* D E T A I L E D O U T P U T \*\*\*\*\*

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Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat
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```

DATE: 01-30-2023 TIME: 07:54:15

USER:

COMMENTS: \_\_\_\_\_

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.68	1.083	17.69	2.083	5.90	3.08	3.14
0.167	2.68	1.167	17.69	2.167	5.90	3.17	3.14
0.250	3.04	1.250	72.24	2.250	5.09	3.25	2.94
0.333	3.04	1.333	72.24	2.333	5.09	3.33	2.94
0.417	3.53	1.417	22.78	2.417	4.50	3.42	2.76
0.500	3.53	1.500	22.78	2.500	4.50	3.50	2.76
0.583	4.26	1.583	12.62	2.583	4.04	3.58	2.60
0.667	4.26	1.667	12.62	2.667	4.04	3.67	2.60
0.750	5.49	1.750	8.98	2.750	3.68	3.75	2.47
0.833	5.49	1.833	8.98	2.833	3.68	3.83	2.47
0.917	8.02	1.917	7.08	2.917	3.39	3.92	2.35
1.000	8.02	2.000	7.08	3.000	3.39	4.00	2.35

\*\*\*\*\* WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 58.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```

| CHAMBER( 0010) | OUTFLOW: ON, UNDERDRAIN: OFF, INFIL: ON
| IN= 2--> OUT= 3 | CHAMBER:
| DT= 5.0 min | MAX STO VOL (cu.m.)= 746.99 Bottom Area(m2) = 648.89
  
```

```

| CHICAGO STORM | IDF curve parameters: A= 529.711
| Ptotal= 35.21 mm | B= 4.501
| | C= 0.745
used in: INTENSITY = A / (t + B)^C

Duration of storm = 4.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.33
  
```

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.17	2.68	1.17	17.69	2.17	5.90	3.17	3.14
0.33	3.04	1.33	72.24	2.33	5.09	3.33	2.94
0.50	3.53	1.50	22.78	2.50	4.50	3.50	2.76
0.67	4.26	1.67	12.62	2.67	4.04	3.67	2.60
0.83	5.49	1.83	8.98	2.83	3.68	3.83	2.47
1.00	8.02	2.00	7.08	3.00	3.39	4.00	2.35

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	991.00	392.62
25.00	6.59	1016.00	405.58
51.00	13.18	1041.00	418.43
76.00	19.77	1067.00	431.17
102.00	26.36	1092.00	443.80
127.00	32.96	1118.00	456.30
152.00	39.55	1143.00	468.66
178.00	46.14	1168.00	480.90
203.00	52.73	1194.00	492.98
229.00	59.32	1219.00	504.92
254.00	65.91	1245.00	516.69
279.00	72.50	1270.00	528.30
305.00	79.09	1295.00	539.72
330.00	85.69	1321.00	550.94
356.00	92.28	1346.00	561.96
381.00	98.87	1372.00	572.76
406.00	105.46	1397.00	583.31
432.00	112.05	1422.00	593.60
457.00	118.64	1448.00	603.60
483.00	125.23	1473.00	613.27
508.00	131.82	1499.00	622.57
533.00	146.08	1524.00	631.39
559.00	160.27	1549.00	639.47
584.00	174.42	1575.00	646.94
610.00	188.51	1600.00	654.17
635.00	202.56	1626.00	661.18
660.00	216.56	1651.00	667.90

```

| CALIB |
| STANDHYD ( 0001) | Area (ha)= 1.31
| ID= 1 DT= 5.0 min | Total Imp(%)= 79.00 Dir. Conn.(%)= 79.00
  
```

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.03	0.28
Dep. Storage (mm)=	1.00	16.50
Average Slope (%)=	1.00	2.00
Length (m)=	93.45	40.00
Mannings n =	0.013	0.250

686.00	230.50		1676.00	674.49
711.00	244.40		1702.00	681.08
737.00	258.23		1727.00	687.67
762.00	272.00		1753.00	694.26
787.00	285.71		1778.00	700.85
813.00	299.35		1803.00	707.44
838.00	312.92		1829.00	714.03
864.00	326.41		1854.00	720.62
889.00	339.83		1880.00	727.22
914.00	353.16		1905.00	733.81
940.00	366.41		1930.00	740.40
965.00	379.56		1956.00	746.99

DEPTH	DISCHARGE		DEPTH	DISCHARGE
(m)	(cms)		(m)	(cms)
0.000	0.000		0.802	0.011
0.090	0.004		0.903	0.012
0.192	0.005		1.005	0.012
0.294	0.007		1.106	0.013
0.395	0.008		1.208	0.014
0.497	0.009		1.310	0.014
0.598	0.010		1.360	0.014
0.700	0.010		1.386	0.015

NATIVE SOIL LAYER:  
Infiltration (m/hr) = 0.0300

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW:ID= 2	1.31	0.203	1.33	27.38
OUTFLOW:ID= 1	1.31	0.005	3.00	5.12
OVERFLOW:ID= 3	0.00	0.000	0.00	0.00

Volume Reduction Rate[(RVin-RVout)/RVin] (%)= 81.30  
Time to reach Max storage (Hr)= 3.00  
Volume of water for drawdown in LID (cu.m.)= 236.50  
Volume of maximum water storage (cu.m.)= 251.38  
Calculated Drawdown Time (Hr)= 11.00

-----  
Junction Command(0101)

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 3( 0010)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2( 0101)	0.00	0.00	0.00	0.00

-----  
Junction Command(0100)

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 1( 0010)	1.31	0.00	3.00	5.12
OUTFLOW: ID= 2( 0100)	1.31	0.00	3.00	5.12

**5-YEAR STORM**

- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```

V V I SSSSS U U A L (v 6.1.2002)
V V I SS U U A A L
V V I SS U U A A L
VV I SSSSS UUUU A A LLLLL
  
```

```

OOO TTTT TTTT H H Y Y M M OOO TM
O O T T H H Y Y MM MM O O
O O T T H H Y Y M M O O
OOO T T H H Y Y M M OOO
  
```

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\*\*\*\*\* D E T A I L E D O U T P U T \*\*\*\*\*

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```

DATE: 01-30-2023 TIME: 07:54:15

USER:

COMMENTS: \_\_\_\_\_

```

*****
** SIMULATION : 02_5-Year Norfolk **
*****
  
```

```

| CHICAGO STORM |
| Ptotal= 49.03 mm |
  
```

```

IDF curve parameters: A= 583.017
                    B= 3.007
                    C= 0.703
used in: INTENSITY = A / (t + B)^C
  
```

```

Duration of storm = 4.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.33
  
```

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.17	4.20	1.17	23.22	2.17	8.64	3.17	4.87
0.33	4.72	1.33	96.03	2.33	7.56	3.33	4.58
0.50	5.42	1.50	29.33	2.50	6.76	3.50	4.32
0.67	6.44	1.67	17.13	2.67	6.13	3.67	4.10
0.83	8.09	1.83	12.62	2.83	5.63	3.83	3.90
1.00	11.39	2.00	10.19	3.00	5.22	4.00	3.72

DEPTH	DISCHARGE	DEPTH	DISCHARGE
(m)	(cms)	(m)	(cms)
0.000	0.000	0.802	0.011
0.090	0.004	0.903	0.012
0.192	0.005	1.005	0.012
0.294	0.007	1.106	0.013
0.395	0.008	1.208	0.014
0.497	0.009	1.310	0.014
0.598	0.010	1.360	0.014
0.700	0.010	1.386	0.015

NATIVE SOIL LAYER:  
 Infiltration (m/hr) = 0.0300

```

| CALIB |
| STANDHYD ( 0001) |
| ID= 1 DT= 5.0 min |
  
```

```

Area (ha)= 1.31
Total Imp(%)= 79.00 Dir. Conn.(%)= 79.00
  
```

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW:ID= 2	1.31	0.273	1.33	38.97
OUTFLOW:ID= 1	1.31	0.008	3.50	12.22
OVERFLOW:ID= 3	0.00	0.000	0.00	0.00

	IMPERVIOUS	PERVIOUS (i)
	(ha)=	
Surface Area	1.03	0.28
Dep. Storage	1.00	16.50
Average Slope	1.00	2.00
Length	93.45	40.00
Mannings n	0.013	0.250

```

Volume Reduction Rate[(RVin-RVout)/RVin] (%)= 68.64
Time to reach Max storage (Hr)= 3.50
Volume of water for drawdown in LID (cu.m.)= 349.28
Volume of maximum water storage (cu.m.)= 365.96
Calculated Drawdown Time (Hr)= 13.83
  
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| Junction Command(0101) |

```

---- TRANSFORMED HYETOGRAPH ----

```

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	4.20	1.083	23.22	2.083	8.64	3.08	4.87
0.167	4.20	1.167	23.22	2.167	8.64	3.17	4.87
0.250	4.72	1.250	96.03	2.250	7.56	3.25	4.58
0.333	4.72	1.333	96.03	2.333	7.56	3.33	4.58
0.417	5.42	1.417	29.33	2.417	6.76	3.42	4.32
0.500	5.42	1.500	29.33	2.500	6.76	3.50	4.32
0.583	6.44	1.583	17.13	2.583	6.13	3.58	4.10
0.667	6.44	1.667	17.13	2.667	6.13	3.67	4.10
0.750	8.09	1.750	12.62	2.750	5.63	3.75	3.90
0.833	8.09	1.833	12.62	2.833	5.63	3.83	3.90
0.917	11.39	1.917	10.19	2.917	5.22	3.92	3.72
1.000	11.39	2.000	10.19	3.000	5.22	4.00	3.72

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 3 ( 0010)	0.00	0.00	0.00	0.00
OUTFLOW : ID= 2 ( 0101)	0.00	0.00	0.00	0.00

| Junction Command(0100) |

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 1 ( 0010)	1.31	0.01	3.50	12.22
OUTFLOW : ID= 2 ( 0100)	1.31	0.01	3.50	12.22

```

Max.Eff.Inten.(mm/hr)= 96.03 4.65
over (min)= 5.00 10.00
Storage Coeff. (min)= 2.49 (ii) 6.72 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.29 0.14
  
```

```

*TOTALS*
PEAK FLOW (cms)= 0.27 0.00 0.273 (iii)
TIME TO PEAK (hrs)= 1.33 1.50 1.33
RUNOFF VOLUME (mm)= 48.03 4.89 38.97
TOTAL RAINFALL (mm)= 49.03 49.03 49.03
RUNOFF COEFFICIENT = 0.98 0.10 0.79
  
```

\*\*\*\*\* WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 58.0 Ia = Dep. Storage (Above)

10-YEAR STORM

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
V V I SSSS U U A L (v 6.1.2002)
V V I SS U U A A L
V V I SS U U AAAA L
V V I SS U U A A L
VV I SSSS UUUU A A LLLL
```

```
CHAMBER( 0010) | OUTFLOW: ON, UNDERDRAIN: OFF, INFIL: ON
|IN= 2--> OUT= 3 | CHAMBER:
| DT= 5.0 min | MAX STO VOL (cu.m.)= 746.99 Bottom Area(m2) = 648.89
```

```
OOO TTTT TTTT H H Y Y M M OOO TM
O O T T H H Y Y MM MM O O
O O T T H H Y Y M M O O
OOO T T H H Y Y M M OOO
```

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	991.00	392.62
25.00	6.59	1016.00	405.58
51.00	13.18	1041.00	418.43
76.00	19.77	1067.00	431.17
102.00	26.36	1092.00	443.80
127.00	32.96	1118.00	456.30
152.00	39.55	1143.00	468.66
178.00	46.14	1168.00	480.90
203.00	52.73	1194.00	492.98
229.00	59.32	1219.00	504.92
254.00	65.91	1245.00	516.69
279.00	72.50	1270.00	528.30
305.00	79.09	1295.00	539.72
330.00	85.69	1321.00	550.94
356.00	92.28	1346.00	561.96
381.00	98.87	1372.00	572.76
406.00	105.46	1397.00	583.31
432.00	112.05	1422.00	593.60
457.00	118.64	1448.00	603.60
483.00	125.23	1473.00	613.27
508.00	131.82	1499.00	622.57
533.00	146.08	1524.00	631.39
559.00	160.27	1549.00	639.47
584.00	174.42	1575.00	646.94
610.00	188.51	1600.00	654.17
635.00	202.56	1626.00	661.18
660.00	216.56	1651.00	667.90
686.00	230.50	1676.00	674.49
711.00	244.40	1702.00	681.08
737.00	258.23	1727.00	687.67
762.00	272.00	1753.00	694.26
787.00	285.71	1778.00	700.85
813.00	299.35	1803.00	707.44
838.00	312.92	1829.00	714.03
864.00	326.41	1854.00	720.62
889.00	339.83	1880.00	727.22
914.00	353.16	1905.00	733.81
940.00	366.41	1930.00	740.40
965.00	379.56	1956.00	746.99

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\*\*\*\*\* D E T A I L E D O U T P U T \*\*\*\*\*

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```

DATE: 01-30-2023 TIME: 07:54:15

USER:

COMMENTS: \_\_\_\_\_

```
*****
** SIMULATION : 03_10-Year Norfolk **
*****
```

```
CHICAGO STORM | IDF curve parameters: A= 670.324
| Ptotal= 57.94 mm | B= 3.007
| | C= 0.698
used in: INTENSITY = A / (t + B)^C
```

Duration of storm = 4.00 hrs  
Storm time step = 10.00 min  
Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	5.04	1.17	27.43	2.17	10.30	3.17	5.84
0.33	5.66	1.33	111.84	2.33	9.03	3.33	5.49
0.50	6.49	1.50	34.58	2.50	8.07	3.50	5.18
0.67	7.70	1.67	20.31	2.67	7.33	3.67	4.92
0.83	9.66	1.83	15.00	2.83	6.74	3.83	4.68
1.00	13.55	2.00	12.13	3.00	6.25	4.00	4.47

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.802	0.011
0.090	0.004	0.903	0.012
0.192	0.005	1.005	0.012
0.294	0.007	1.106	0.013
0.395	0.008	1.208	0.014
0.497	0.009	1.310	0.014
0.598	0.010	1.360	0.014
0.700	0.010	1.386	0.015

NATIVE SOIL LAYER:  
Infiltration (m/hr) = 0.0300

```
CALIB |
| STANDHYD ( 0001) | Area (ha)= 1.31
| ID= 1 DT= 5.0 min | Total Imp(%)= 79.00 Dir. Conn.(%)= 79.00
```

```
INFLOW:ID= 2 AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)
OUTFLOW:ID= 1 1.31 0.321 1.33 46.58
OVERFLOW:ID= 3 0.00 0.009 3.67 17.29
```

```
IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 1.03 0.28
Dep. Storage (mm)= 1.00 16.50
Average Slope (%)= 1.00 2.00
Length (m)= 93.45 40.00
Mannings n = 0.013 0.250
```

```
Volume Reduction Rate[(RVin-RVout)/RVin] (%)= 62.88
Time to reach Max storage (Hr)= 3.67
Volume of water for drawdown in LID (cu.m.)= 431.08
Volume of maximum water storage (cu.m.)= 448.12
Calculated Drawdown Time (Hr)= 15.50
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| Junction Command(0101) |

```
---- TRANSFORMED HYETOGRAPH ----
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	5.04	1.083	27.43	2.083	10.30	3.08	5.84
0.167	5.04	1.167	27.43	2.167	10.30	3.17	5.84
0.250	5.66	1.250	111.84	2.250	9.03	3.25	5.49
0.333	5.66	1.333	111.84	2.333	9.03	3.33	5.49
0.417	6.49	1.417	34.58	2.417	8.07	3.42	5.18
0.500	6.49	1.500	34.58	2.500	8.07	3.50	5.18
0.583	7.70	1.583	20.31	2.583	7.33	3.58	4.92
0.667	7.70	1.667	20.31	2.667	7.33	3.67	4.92
0.750	9.66	1.750	15.00	2.750	6.74	3.75	4.68
0.833	9.66	1.833	15.00	2.833	6.74	3.83	4.68
0.917	13.55	1.917	12.13	2.917	6.25	3.92	4.47
1.000	13.55	2.000	12.13	3.000	6.25	4.00	4.47

```
AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)
INFLOW : ID= 3( 0010) 0.00 0.00 0.00 0.00
OUTFLOW: ID= 2( 0101) 0.00 0.00 0.00 0.00
```

| Junction Command(0100) |

```
AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)
INFLOW : ID= 1( 0010) 1.31 0.01 3.67 17.29
OUTFLOW: ID= 2( 0100) 1.31 0.01 3.67 17.29
```

```
Max.Eff.Inten.(mm/hr)= 111.84 8.30
over (min) 5.00 10.00
Storage Coeff. (min)= 2.35 (ii) 6.32 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.30 0.15
```

```
*TOTALS*
PEAK FLOW (cms)= 0.32 0.00 0.321 (iii)
TIME TO PEAK (hrs)= 1.33 1.42 1.33
RUNOFF VOLUME (mm)= 56.94 7.62 46.58
TOTAL RAINFALL (mm)= 57.94 57.94 57.94
RUNOFF COEFFICIENT = 0.98 0.13 0.80
```

\*\*\*\*\* WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 58.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.

25-YEAR STORM

```
V V I SSSS U U A L (v 6.1.2002)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
VV I SSSS UUUU A A LLLLL
```

```
CHAMBER( 0010) | OUTFLOW: ON, UNDERDRAIN: OFF, INFIL: ON
|IN= 2--> OUT= 3 | CHAMBER:
|DT= 5.0 min | MAX STO VOL (cu.m.)= 746.99 Bottom Area(m2) = 648.89
```

```
OOO TTTT TTTT H H Y Y M M OOO TM
O O T T H H Y Y MM MM O O O
O O T T H H Y Y M M O O O
OOO T T H H Y Y M M OOO
```

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	991.00	392.62
25.00	6.59	1016.00	405.58
51.00	13.18	1041.00	418.43
76.00	19.77	1067.00	431.17
102.00	26.36	1092.00	443.80
127.00	32.95	1118.00	456.30
152.00	39.55	1143.00	468.66
178.00	46.14	1168.00	480.90
203.00	52.73	1194.00	492.98
229.00	59.32	1219.00	504.92
254.00	65.91	1245.00	516.69
279.00	72.50	1270.00	528.30
305.00	79.09	1295.00	539.72
330.00	85.69	1321.00	550.94
356.00	92.28	1346.00	561.96
381.00	98.87	1372.00	572.76
406.00	105.46	1397.00	583.31
432.00	112.05	1422.00	593.60
457.00	118.64	1448.00	603.60
483.00	125.23	1473.00	613.27
508.00	131.82	1499.00	622.57
533.00	146.08	1524.00	631.39
559.00	160.27	1549.00	639.47
584.00	174.42	1575.00	646.94
610.00	188.51	1600.00	654.17
635.00	202.56	1626.00	661.18
660.00	216.56	1651.00	667.90
686.00	230.50	1676.00	674.49
711.00	244.40	1702.00	681.08
737.00	258.23	1727.00	687.67
762.00	272.00	1753.00	694.26
787.00	285.71	1778.00	700.85
813.00	299.35	1803.00	707.44
838.00	312.92	1829.00	714.03
864.00	326.41	1854.00	720.62
889.00	339.83	1880.00	727.22
914.00	353.16	1905.00	733.81
940.00	366.41	1930.00	740.40
965.00	379.56	1956.00	746.99

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\*\*\*\*\* D E T A I L E D O U T P U T \*\*\*\*\*

```
Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat
Output filename: C:\Users\Keegan\AppData\Local\Civica\5f825abd2-5f32-4c68-9c0f-9f2fb80764f6\b41c6750-4b25-4b97-b39b-5ff0b49c2399\scena
Summary filename: C:\Users\Keegan\AppData\Local\Civica\5f825abd2-5f32-4c68-9c0f-9f2fb80764f6\b41c6750-4b25-4b97-b39b-5ff0b49c2399\scena
```

DATE: 01-30-2023 TIME: 07:54:15

USER:

COMMENTS:

```
*****
** SIMULATION : 04_25-Year Norfolk **
*****
```

```
CHICAGO STORM | IDF curve parameters: A= 721.533
| Ptotal= 69.38 mm | B= 2.253
| | C= 0.679
used in: INTENSITY = A / (t + B)^C
```

Duration of storm = 4.00 hrs  
Storm time step = 10.00 min  
Time to peak ratio = 0.33

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.17	6.34	1.17	31.84	2.17	12.58	3.17	7.30
0.33	7.08	1.33	131.63	2.33	11.08	3.33	6.87
0.50	8.07	1.50	39.74	2.50	9.96	3.50	6.50
0.67	9.51	1.67	23.97	2.67	9.08	3.67	6.18
0.83	11.82	1.83	17.98	2.83	8.38	3.83	5.90
1.00	16.33	2.00	14.70	3.00	7.79	4.00	5.64

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.802	0.011
0.090	0.004	0.903	0.012
0.192	0.005	1.005	0.012
0.294	0.007	1.106	0.013
0.395	0.008	1.208	0.014
0.497	0.009	1.310	0.014
0.598	0.010	1.360	0.014
0.700	0.010	1.386	0.015

NATIVE SOIL LAYER:  
Infiltration (m/hr) = 0.0300

AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW:ID= 2	1.31	0.381	1.33
OUTFLOW:ID= 1	1.31	0.011	4.00
OVERFLOW:ID= 3	0.00	0.000	0.00

```
CALIB |
| STANDHYD ( 0001) | Area (ha)= 1.31
|ID= 1 DT= 5.0 min | Total Imp(%)= 79.00 Dir. Conn.(%)= 79.00
```

Volume Reduction Rate[(RVin-RVout)/RVin] (%)= 57.38  
Time to reach Max storage (Hr)= 4.00  
Volume of water for drawdown in LID (cu.m.)= 540.08  
Volume of maximum water storage (cu.m.)= 562.76  
Calculated Drawdown Time (Hr)= 17.50

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| Junction Command(0101) |

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	6.34	1.083	31.84	2.083	12.58	3.08	7.30
0.167	6.34	1.167	31.84	2.167	12.58	3.17	7.30
0.250	7.08	1.250	131.63	2.250	11.08	3.25	6.87
0.333	7.08	1.333	131.63	2.333	11.08	3.33	6.87
0.417	8.07	1.417	39.74	2.417	9.96	3.42	6.50
0.500	8.07	1.500	39.74	2.500	9.96	3.50	6.50
0.583	9.51	1.583	23.97	2.583	9.08	3.58	6.18
0.667	9.51	1.667	23.97	2.667	9.08	3.67	6.18
0.750	11.82	1.750	17.98	2.750	8.38	3.75	5.90
0.833	11.82	1.833	17.98	2.833	8.38	3.83	5.90
0.917	16.33	1.917	14.70	2.917	7.79	3.92	5.64
1.000	16.33	2.000	14.70	3.000	7.79	4.00	5.64

AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3 ( 0010)	0.00	0.00	0.00
OUTFLOW: ID= 2 ( 0101)	0.00	0.00	0.00

| Junction Command(0100) |

AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1 ( 0010)	1.31	0.01	4.00
OUTFLOW: ID= 2 ( 0100)	1.31	0.01	4.00

```
Max.Eff.Inten.(mm/hr)= 131.63 13.63
over (min) = 5.00 10.00
Storage Coeff. (min)= 2.20 (ii) 5.92 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.30 0.15
```

```
*TOTALS*
PEAK FLOW (cms)= 0.38 0.01 0.381 (iii)
TIME TO PEAK (hrs)= 1.33 1.42 1.33
RUNOFF VOLUME (mm)= 68.38 11.81 56.50
TOTAL RAINFALL (mm)= 69.38 69.38 69.38
RUNOFF COEFFICIENT = 0.99 0.17 0.81
```

\*\*\*\*\* WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PVIOUS LOSSES:  
CN\* = 58.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

**50-YEAR STORM**

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
V V I SSSSS U U A L (v 6.1.2002)
V V I SS U U A A L
V V I SS U U AAAAA L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL
```

```
CHAMBER ( 0010) | OUTFLOW: ON, UNDERDRAIN: OFF, INFIL: ON
|IN= 2--> OUT= 3 | CHAMBER:
| DT= 5.0 min | MAX STO VOL (cu.m.)= 746.99 Bottom Area(m2) = 648.89
```

```
OOO TTTT TTTT H H Y Y M M OOO TM
O O T T H H Y Y M M O O
O O T T H H Y Y M M O O
OOO T T H H Y Y M M OOO
```

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\*\*\*\*\* D E T A I L E D O U T P U T \*\*\*\*\*

```
Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voain.dat
Output filename: C:\Users\Keegan\AppData\Local\Civica\WH5\f825abd2-5f32-4c68-9c0f-9f2fb80764f6\c4a8c3a6-c310-4267-a4ca-eb9a4d7c5de2\scena
Summary filename: C:\Users\Keegan\AppData\Local\Civica\WH5\f825abd2-5f32-4c68-9c0f-9f2fb80764f6\c4a8c3a6-c310-4267-a4ca-eb9a4d7c5de2\scena
```

DATE: 01-30-2023 TIME: 07:54:15

USER:

COMMENTS: \_\_\_\_\_

```
*****
** SIMULATION : 05_50-Year Norfolk **
*****
```

```
CHICAGO STORM | IDF curve parameters: A= 766.038
| Ptotal= 78.32 mm | B= 1.898
| C= 0.668
```

used in: INTENSITY = A / (t + B)^C

Duration of storm = 4.00 hrs  
Storm time step = 10.00 min  
Time to peak ratio = 0.33

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.17	7.35	1.17	35.40	2.17	14.38	3.17	8.44
0.33	8.19	1.33	146.50	2.33	12.71	3.33	7.96
0.50	9.32	1.50	43.93	2.50	11.45	3.50	7.55
0.67	10.95	1.67	26.91	2.67	10.46	3.67	7.18
0.83	13.53	1.83	20.36	2.83	9.66	3.83	6.85
1.00	18.53	2.00	16.73	3.00	9.00	4.00	6.56

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	991.00	392.62
25.00	6.59	1016.00	405.58
51.00	13.18	1041.00	418.43
76.00	19.77	1067.00	431.17
102.00	26.36	1092.00	443.80
127.00	32.96	1118.00	456.30
152.00	39.55	1143.00	468.66
178.00	46.14	1168.00	480.90
203.00	52.73	1194.00	492.98
229.00	59.32	1219.00	504.92
254.00	65.91	1245.00	516.69
279.00	72.50	1270.00	528.30
305.00	79.09	1295.00	539.72
330.00	85.69	1321.00	550.94
356.00	92.28	1346.00	561.96
381.00	98.87	1372.00	572.76
406.00	105.46	1397.00	583.31
432.00	112.05	1422.00	593.60
457.00	118.64	1448.00	603.60
483.00	125.23	1473.00	613.27
508.00	131.82	1499.00	622.57
533.00	146.08	1524.00	631.39
559.00	160.27	1549.00	639.47
584.00	174.42	1575.00	646.94
610.00	188.51	1600.00	654.17
635.00	202.56	1626.00	661.18
660.00	216.56	1651.00	667.90
686.00	230.50	1676.00	674.49
711.00	244.40	1702.00	681.08
737.00	258.23	1727.00	687.67
762.00	272.00	1753.00	694.26
787.00	285.71	1778.00	700.85
813.00	299.35	1803.00	707.44
838.00	312.92	1829.00	714.03
864.00	326.41	1854.00	720.62
889.00	339.83	1880.00	727.22
914.00	353.16	1905.00	733.81
940.00	366.41	1930.00	740.40
965.00	379.56	1956.00	746.99

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.802	0.011
0.090	0.004	0.903	0.012
0.192	0.005	1.005	0.012
0.294	0.007	1.106	0.013
0.395	0.008	1.208	0.014
0.497	0.009	1.310	0.014
0.598	0.010	1.360	0.014
0.700	0.010	1.386	0.015

NATIVE SOIL LAYER:  
Infiltration (m/hr) = 0.0300

```
CALIB |
| STANDHYD ( 0001) | Area (ha)= 1.31
| ID= 1 DT= 5.0 min | Total Imp(%)= 79.00 Dir. Conn.(%)= 79.00
```

AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW:ID= 2	1.31	0.426	1.33
OUTFLOW:ID= 1	1.31	0.012	4.00
OVERFLOW:ID= 3	0.00	0.000	0.00

```
Surface Area (ha)= 1.03
Dep. Storage (mm)= 1.00
Average Slope (%)= 1.00
Length (m)= 93.45
Mannings n = 0.013
```

```
Volume Reduction Rate[(RVin-RVout)/RVin] (%)= 53.85
Time to reach Max storage (Hr)= 4.00
Volume of water for drawdown in LID (cu.m.)= 626.87
Volume of maximum water storage (cu.m.)= 651.59
Calculated Drawdown Time (Hr)= 18.92
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| Junction Command(0101) |

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	7.35	1.083	35.40	2.083	14.38	3.08	8.44
0.167	7.35	1.167	35.40	2.167	14.38	3.17	8.44
0.250	8.19	1.250	146.50	2.250	12.71	3.25	7.96
0.333	8.19	1.333	146.50	2.333	12.71	3.33	7.96
0.417	9.32	1.417	43.93	2.417	11.45	3.42	7.55
0.500	9.32	1.500	43.93	2.500	11.45	3.50	7.55
0.583	10.95	1.583	26.91	2.583	10.46	3.58	7.18
0.667	10.95	1.667	26.91	2.667	10.46	3.67	7.18
0.750	13.53	1.750	20.36	2.750	9.66	3.75	6.85
0.833	13.53	1.833	20.36	2.833	9.66	3.83	6.85
0.917	18.53	1.917	16.73	2.917	9.00	3.92	6.56
1.000	18.53	2.000	16.73	3.000	9.00	4.00	6.56

AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3 ( 0010)	0.00	0.00	0.00
OUTFLOW: ID= 2 ( 0101)	0.00	0.00	0.00

| Junction Command(0100) |

AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1 ( 0010)	1.31	0.01	4.00
OUTFLOW: ID= 2 ( 0100)	1.31	0.01	4.00

```
Max.Eff.Inten.(mm/hr)= 146.50
over (min)= 5.00
Storage Coeff. (min)= 2.11 (ii)
Unit Hyd. Tpeak (min)= 5.00
Unit Hyd. peak (cms)= 0.31
```

```
*TOTALS*
PEAK FLOW (cms)= 0.42 0.01 0.426 (iii)
TIME TO PEAK (hrs)= 1.33 1.42 1.33
RUNOFF VOLUME (mm)= 77.32 15.55 64.35
TOTAL RAINFALL (mm)= 78.32 78.32 78.32
RUNOFF COEFFICIENT = 0.99 0.20 0.82
```

\*\*\*\*\* WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

FINISH

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 58.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.

100-YEAR STORM

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
V V I SSSS U U A L (v 6.1.2002)
V V I SS U U A A L
V V I SS U U AAAA L
V V I SS U U A A L
VV I SSSS UUUU A A LLLL
```

```
CHAMBER( 0010) | OUTFLOW: ON, UNDERDRAIN: OFF, INFIL: ON
|IN= 2--> OUT= 3 | CHAMBER:
| DT= 5.0 min | MAX STO VOL (cu.m.)= 746.99 Bottom Area(m2) = 648.89
```

```
OOO TTTT TTTT H H Y Y M M OOO TM
O O T T H H Y Y M M O O
O O T T H H Y Y M M O O
OOO T T H H Y Y M M OOO
```

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	991.00	392.62
25.00	6.59	1016.00	405.58
51.00	13.18	1041.00	418.43
76.00	19.77	1067.00	431.17
102.00	26.36	1092.00	443.80
127.00	32.96	1118.00	456.30
152.00	39.55	1143.00	468.66
178.00	46.14	1168.00	480.90
203.00	52.73	1194.00	492.98
229.00	59.32	1219.00	504.92
254.00	65.91	1245.00	516.69
279.00	72.50	1270.00	528.30
305.00	79.09	1295.00	539.72
330.00	85.69	1321.00	550.94
356.00	92.28	1346.00	561.96
381.00	98.87	1372.00	572.76
406.00	105.46	1397.00	583.31
432.00	112.05	1422.00	593.60
457.00	118.64	1448.00	603.60
483.00	125.23	1473.00	613.27
508.00	131.82	1499.00	622.57
533.00	146.08	1524.00	631.39
559.00	160.27	1549.00	639.47
584.00	174.42	1575.00	646.94
610.00	188.51	1600.00	654.17
635.00	202.56	1626.00	661.18
660.00	216.56	1651.00	667.90
686.00	230.50	1676.00	674.49
711.00	244.40	1702.00	681.08
737.00	258.23	1727.00	687.67
762.00	272.00	1753.00	694.26
787.00	285.71	1778.00	700.85
813.00	299.35	1803.00	707.44
838.00	312.92	1829.00	714.03
864.00	326.41	1854.00	720.62
889.00	339.83	1880.00	727.22
914.00	353.16	1905.00	733.81
940.00	366.41	1930.00	740.40
965.00	379.56	1956.00	746.99

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\*\*\*\*\* D E T A I L E D O U T P U T \*\*\*\*\*

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DATE: 01-30-2023 TIME: 07:54:15

USER:

COMMENTS: \_\_\_\_\_

```
*****
** SIMULATION : 05_50-Year Norfolk **
*****
```

```
CHICAGO STORM | IDF curve parameters: A= 766.038
| Ptotal= 78.32 mm | B= 1.898
| | C= 0.668
```

used in: INTENSITY = A / (t + B)^C

Duration of storm = 4.00 hrs  
Storm time step = 10.00 min  
Time to peak ratio = 0.33

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.17	7.35	1.17	35.40	2.17	14.38	3.17	8.44
0.33	8.19	1.33	146.50	2.33	12.71	3.33	7.96
0.50	9.32	1.50	43.93	2.50	11.45	3.50	7.55
0.67	10.95	1.67	26.91	2.67	10.46	3.67	7.18
0.83	13.53	1.83	20.36	2.83	9.66	3.83	6.85
1.00	18.53	2.00	16.73	3.00	9.00	4.00	6.56

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.802	0.011
0.090	0.004	0.903	0.012
0.192	0.005	1.005	0.012
0.294	0.007	1.106	0.013
0.395	0.008	1.208	0.014
0.497	0.009	1.310	0.014
0.598	0.010	1.360	0.014
0.700	0.010	1.386	0.015

NATIVE SOIL LAYER:  
Infiltration (m/hr) = 0.0300

```
CALIB |
| STANDHYD ( 0001) | Area (ha)= 1.31
| ID= 1 DT= 5.0 min | Total Imp(%)= 79.00 Dir. Conn.(%)= 79.00
```

AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW:ID= 2	1.31	0.426	1.33
OUTFLOW:ID= 1	1.31	0.012	4.00
OVERFLOW:ID= 3	0.00	0.000	0.00

Volume Reduction Rate[(RVin-RVout)/RVin] (%) = 53.85  
Time to reach Max storage (Hr) = 4.00  
Volume of water for drawdown in LID (cu.m.) = 626.87  
Volume of maximum water storage (cu.m.) = 651.59  
Calculated Drawdown Time (Hr) = 18.92

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| Junction Command(0101) |

--- TRANSFORMED HYETOGRAPH ---

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	7.35	1.083	35.40	2.083	14.38	3.08	8.44
0.167	7.35	1.167	35.40	2.167	14.38	3.17	8.44
0.250	8.19	1.250	146.50	2.250	12.71	3.25	7.96
0.333	8.19	1.333	146.50	2.333	12.71	3.33	7.96
0.417	9.32	1.417	43.93	2.417	11.45	3.42	7.55
0.500	9.32	1.500	43.93	2.500	11.45	3.50	7.55
0.583	10.95	1.583	26.91	2.583	10.46	3.58	7.18
0.667	10.95	1.667	26.91	2.667	10.46	3.67	7.18
0.750	13.53	1.750	20.36	2.750	9.66	3.75	6.85
0.833	13.53	1.833	20.36	2.833	9.66	3.83	6.85
0.917	18.53	1.917	16.73	2.917	9.00	3.92	6.56
1.000	18.53	2.000	16.73	3.000	9.00	4.00	6.56

AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3( 0010)	0.00	0.00	0.00
OUTFLOW: ID= 2( 0101)	0.00	0.00	0.00

| Junction Command(0100) |

AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1( 0010)	1.31	0.01	4.00
OUTFLOW: ID= 2( 0100)	1.31	0.01	4.00

FINISH

```
Max.Eff.Inten.(mm/hr)= 146.50 18.29
over (min) = 5.00 10.00
Storage Coeff. (min)= 2.11 (ii) 5.67 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.31 0.15
```

```
*TOTALS*
PEAK FLOW (cms)= 0.42 0.01 0.426 (iii)
TIME TO PEAK (hrs)= 1.33 1.42 1.33
RUNOFF VOLUME (mm)= 77.32 15.55 64.35
TOTAL RAINFALL (mm)= 78.32 78.32 78.32
RUNOFF COEFFICIENT = 0.99 0.20 0.82
```

\*\*\*\*\* WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PVIOUS LOSSES:  
CN\* = 58.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.

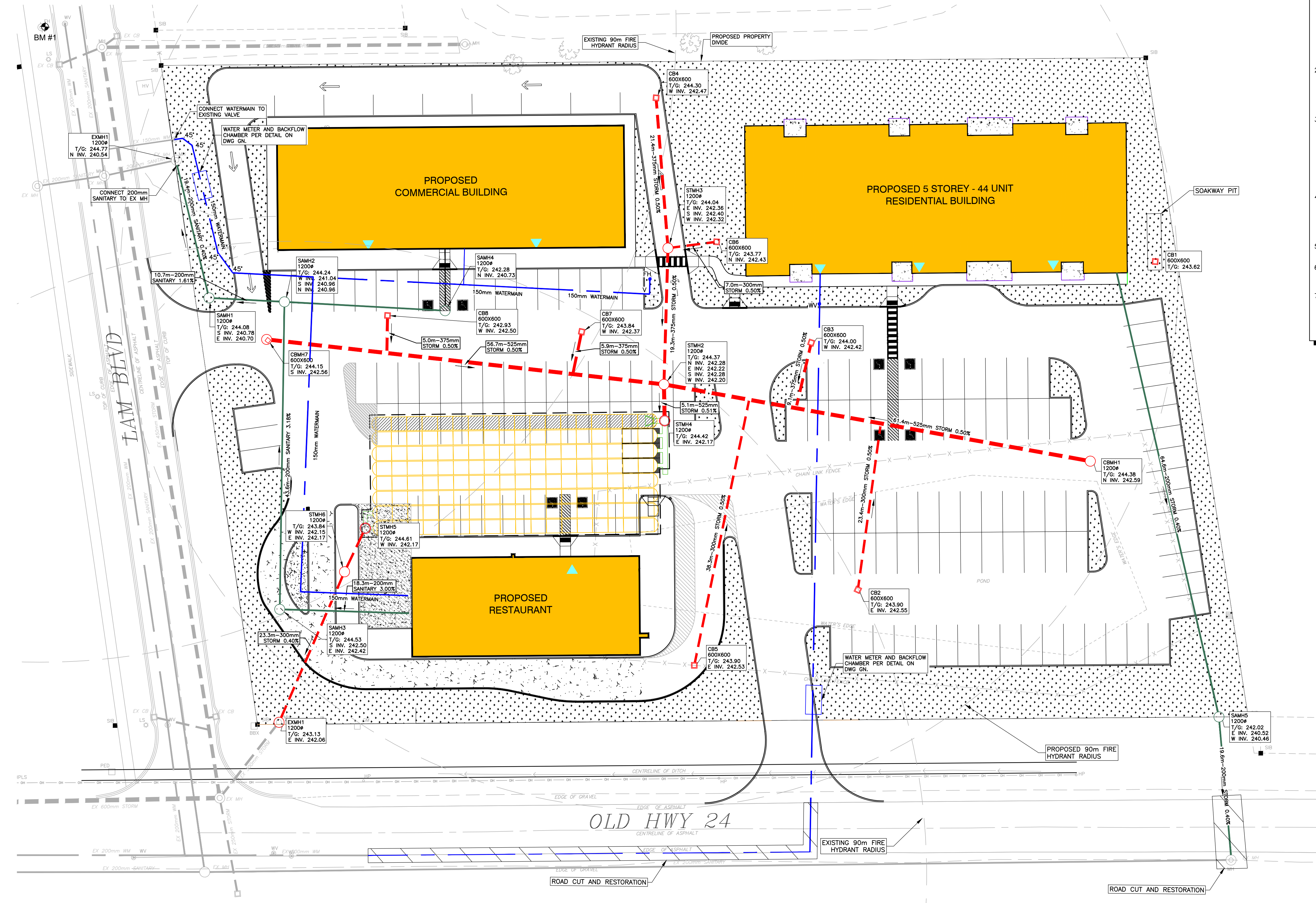
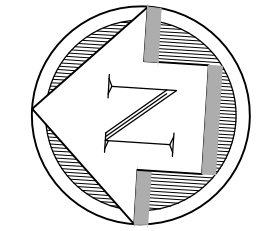
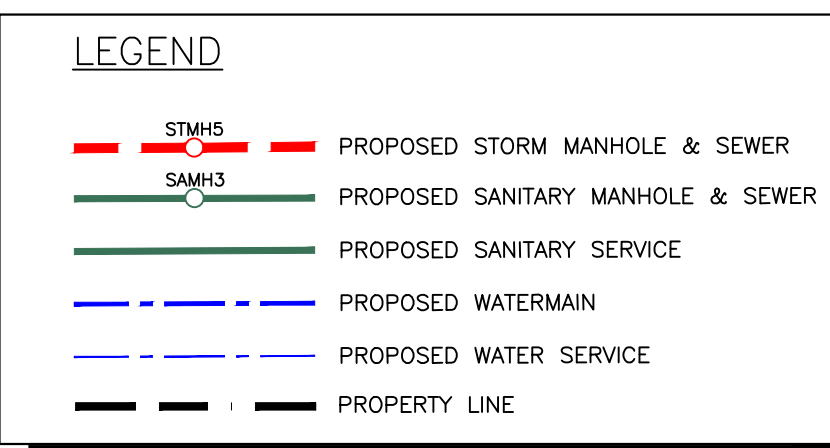


## **Appendix E**

### **C101 – Site Servicing Plan**



- NOTES:**
- PROPOSED SEWERS TO ADHERE TO THE FOLLOWING OPSD:
    - 1200mm MAINTENANCE HOLE STRUCTURE OPSD 701.010
    - 1200mm CATCH BASIN MAINTENANCE HOLE GRATE OPSD 400.010
  - ALL COMPONENTS OF THE PROPOSED STORM SEWERS ARE TO ADHERE TO DIVISION 700 OF THE OPSD.
  - RESTORE EXISTING COUNTY INFRASTRUCTURE TO COUNTY STANDARDS:
    - REFER TO TRENCHING RESTORATION DETAIL ON DRAWING GN.
    - CONCRETE CURB TO MATCH EXISTING.
    - CONCRETE SIDEWALK TO MATCH EXISTING WIDTH.
    - CONSTRUCTION PER OPSS AND OPSD.
  - ALL WATERMAIN TO BE RESTRAINED AT ALL BENDS, TEES, REDUCERS, DEAD-ENDS, AND VALVES AS PER DETAILS ON DWG. GN.



- NOTES:**
- PARKING AND AISLE PAVEMENT TO ADHERE TO PAVEMENT DESIGNS CONTAINED WITHIN THE GEOTECHNICAL REPORT AND NORFOLK COUNTY DESIGN CRITERIA:
    - LIGHT DUTY:
      - 40mm HL3
      - 50mm HL8
      - 150mm GRANULAR A
      - 300mm GRANULAR B
  - GENERAL CONTRACTOR TO COORDINATE ALL WORK WITHIN THE SITE WITH THE COUNTY AND OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM LOCAL AUTHORITIES. EXECUTE ALL WORK AS PER NORFOLK COUNTY REQUIREMENTS.
  - GENERAL CONTRACTOR TO EXECUTE WORK TO CONSTRUCTION SITE ACCESS UNDER SUPERVISION OF THE ENGINEER. REFER TO ENTRANCE PERMIT REQUIREMENTS WHERE APPLICABLE. DRIVEWAY ENTRANCE TO BE MODIFIED OR INSTALLATION OF NEW ENTRANCE AS PER NORFOLK COUNTY REQUIREMENTS. PROVIDE NEW CONC. ENTRANCE CURBS TO MATCH EXISTING AS REQUIRED.
  - PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, ALL BENCHMARKS, ELEVATIONS, DIMENSIONS AND GRADES MUST BE CHECKED BY THE CONTRACTOR AND ANY DISCREPANCIES REPORTED TO THE ENGINEER.
  - AT LEAST TWO DIFFERENT BENCHMARKS MUST BE REFERRED TO AT ALL TIMES.
  - COORDINATE WITH SITE GRADING PLAN FOR PROPOSED FINAL FINISH GRADE ELEVATIONS AND DRAINAGE SLOPES.
  - TRAFFIC CONTROL SHALL BE IMPLEMENTED BY THE CONTRACTOR IN ACCORDANCE WITH OTM TEMPORARY CONDITIONS BOOK 7. APPROVAL FOR THE TRAFFIC CONTROL WILL BE SOUGHT FROM THE MUNICIPALITY BY THE CONTRACTOR.

REV. No.	DATE	REVISION
0	JULY 18, 2023	ISSUED FOR ZONING AMENDMENT

**NOTE:**  
THE CONTRACTOR IS CAUTIONED THAT ALL OF THE EXISTING UTILITIES ARE NOT INDICATED ON THIS DRAWING. THE CONTRACTOR MUST ARRANGE FOR LOCATES FROM EACH AREA UTILITY COMPANY PRIOR TO ANY CONSTRUCTION OR EXCAVATION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES INCLUDING THOSE NOT INDICATED ON THIS DRAWING. G. DOUGLAS VALLEE LTD. CANNOT ACCEPT RESPONSIBILITY FOR DAMAGE TO ANY EXISTING UTILITY WHICH MAY OR MAY NOT BE INDICATED ON THIS DRAWING.

ALL WORK, MATERIALS AND PROCESSES TO ABIDE TO NORFOLK COUNTY STANDARDS AND SPECIFICATIONS.

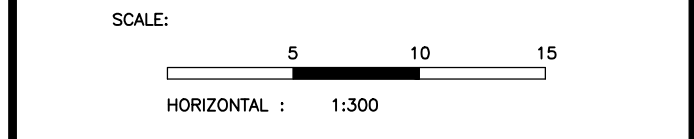
**LEGAL DESCRIPTION**  
PLAN 378-87, BLOCK 81, ROLL NUMBER 33605062868 IN THE TOWN OF WATERFORD IN NORFOLK COUNTY.

**APPLICANT INFORMATION**  
APPLICANT: VILLAGES OF WATERFORD  
TELEPHONE: 1-866-781-7653  
ADDRESS: BOX 1152, 28 MAIN STREET, WATERFORD, N0E 1Y0

**BENCHMARKS**  
BM #1: TOP OF LARGE PUMPER NOZZLE OF FIRE HYDRANT ON NORTH SIDE OF LAM BOULEVARD ACROSS FROM PROPERTY #26 LAM BOULEVARD. 245.91m ELEV.

**DRAWING LIST**  
G. DOUGLAS VALLEE LIMITED DRAWINGS

- 20-128-COV COVER PAGE
- 20-128-C101 SERVICING PLAN
- 20-128-C102 GRADING PLAN
- 20-128-GN GENERAL NOTES AND DETAILS
- 20-128-SAN SANITARY DRAINAGE AREAS PLAN
- 20-128-STM STORM DRAINAGE AREAS PLAN



**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  
**ORCHARD SQUARE**  
WATERFORD, NORFOLK COUNTY

Drawing Title  
**SERVICING PLAN**

Designed by : KRA	Drawn By : KRA
Checked by : JTI	Date Started : 7/18/2023
Drawing Scale : 1:300	Drawing No. <b>C101</b>
Project No. <b>20-128</b>	





## Pre-Submission Consultation Meeting Notes

**Date:** February 1, 2023

**Description of Proposal:** The development of a mixed-use site including an 875m2 commercial building and a 5-storey, 44-unit residential condominium.

**Property Location:** 750 Old Hwy 24, Waterford

**Roll Number:** 33605062868

**Please read all the information contained in this document, as it pertains to the requirements for future development planning applications.** As a result of the information shared at the pre-consultation meeting dated February 1, 2023, the following applications and qualified professional documents / reports are required as part of a complete application. Failure to include all listed items with the application will deem the application incomplete. The County reserves the right to change, reduce or add requirements for a complete application, particularly if the submission does not match the proposal as reviewed during the pre-submission consultation meeting.

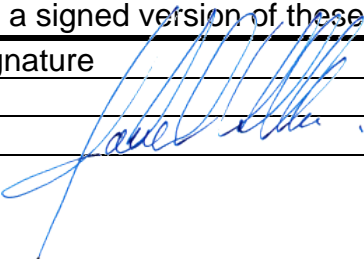
Please note that various fees are associated with each application and there are also costs for qualified professionals retained to complete various documents / reports. All requirements identified are minimum and determined as of the date of the pre-consultation meeting with the information available at that time. As the proposal proceeds and more information is made available, additional applications, studies, reports, etc. may be required.

The information contained in this document is applicable for a maximum of one (1) year from the date of meeting. If an application is not received within that time frame or any component of the proposal changes, a new pre-submission consultation meeting is required.

**All applications are required to include information outlined in the Pre-submission consultation meeting notes; failure to include all items with the application submission without prior approval will necessitate a notice of incomplete application response by the County.**

**Before you submit your application, please contact the assigned Planner to confirm submission requirements and the applicable fee.**

As part of a complete application, a signed version of these meeting notes is required.

Proponent / Agent Name	Signature	Date
John D. Vallee, P.Eng.		August 3, 2023

Sign Here

## Attendance List

Proponent	Click here to enter text.
Community Development – Planning and Agreement	Tricia Givens, Director, Planning (Chair) Mohammad Alam, Senior Planner Annette Helmig, Agreement and Development Coordinator
Community Development – Building and Zoning	Scott Northcott, Senior Building Inspector Jonathon Weir, Building Inspector Roxanne Lambrecht, Zoning Administrator
Environment & Infrastructure Services – Development Engineering	Tim Dickhout, Project Manager, Development Stephen Gradish, Development Technologist
Community Services – Fire	Katie Ballantyne, Community Safety Officer
Community Development – Economic Development	Chris Garwood, Economic Development Supervisor
Paramedic Services	Stuart Burnett, Deputy Chief
Operations – Forestry	Adam Biddle, Supervisor of Forestry
Operations – Parks and Facilities	Todd Shoemaker, Director, Parks
Corporate Support Services – Realty Services	Lydia Harrison, Specialist, Realty Services Kelly Darbishire, Specialist, Realty Services Karen Lambrecht, Corporate Support Generalist
Corporate Support Services – Accessibility	Sam McFarlane, Manager, Accessibility and Special Projects
Haldimand Norfolk Health Unit	
Long Point Regional Conservation Authority	Leigh-Anne Mauthe, Supervisor of Planning Services Isabel Johnson, Resource Planner
Community Development – Heritage and Culture	Melissa Collver, Director Heritage and Culture
Community Development – Recreation	Nikki Slote, Director Recreation

**Privileged Information and Without Prejudice**

**Table of Contents**

Pre-Submission Consultation Meeting Notes ..... 1

Attendance List ..... 2

Table of Contents ..... 3

List of Application Requirements\* and General Comments..... 4

    Planning Department ..... 4

    Planning Comments ..... 5

    Development Engineering ..... 8

    Agreements ..... 8

    Building ..... 9

    Corporate Support Services – Realty Services..... 10

    Fire Department..... 11

Appendix A: Planning Reference Materials ..... 11

    Provincial Policy Statement, 2020 ..... 11

    Norfolk County Official Plan  
    <https://www.norfolkcounty.ca/government/planning/official-plan/>..... 11

    Norfolk County Zoning By-Law 1-Z-2014  
    <https://www.norfolkcounty.ca/government/planning/new-zoning-by-law/> ..... 12

**Privileged Information and Without Prejudice**

**List of Application Requirements\* and General Comments**

**Planning Department**

<b>Planning application(s) required to proceed</b>		<b>Required</b>	
Add Retail	Official Plan Amendment Application Choose an item.		
	Zoning By-law Amendment Application Choose an item.		
Application	Site Plan Application Choose an item.	X	
	Draft Plan of Subdivision Application		
	Draft Plan of Condominium Application		
	Part Lot Control Application		
	Consent / Severance Application	X (TBD)	
	Minor Variance Application		
	Removal of Holding Application		
	Temporary Use By-Law Application		
	Other - <a href="#">Click here to enter text.</a>		
	<b>Planning requirements for a complete application</b> The items below are to be submitted as part of the identified Planning Application(s). ** electronic/PDF copies of all plans, studies and reports are required**	<b>Required at OPA/ Zoning Stage (TBD)</b>	<b>Required at Site Plan Stage</b>
Site Dwg	Proposed Site Plan / Drawing	X	
PJR	Planning Impact Analysis Report / Justification Report	X	
	Environmental Impact Study Choose an item.		
	Neighbourhood Plan (TOR (Terms of Reference) must be approved by the County)		
	Agricultural Impact Assessment Report		
	Archaeological Assessment		
	Heritage Impact Assessment		
	Market Impact Analysis		
	Dust, Noise and/or Vibration Study		
	MOE D-Series Guidelines Analysis		
	Landscaping Plan		
	Site Section (between proposed buildings and eastern side existing residences)		X
	Photometrics (Lighting) Plan		X
	Odour mitigation plan (in relation to Cannabis Production and Processing Facilities)		

## Privileged Information and Without Prejudice

Shadow Analysis Report		
Record of Site Condition		
Contaminated Site Study		
Minimum Distance Separation Schedule		
Parking Assessment		
Hydrogeological Study		
Restricted Land Use Screening Form		
Topographical Survey Drawing		X
<b>Additional Planning requirements</b>		<b>Required</b>
Development Agreement		X
Parkland Dedication/Cash-in-lieu of Parkland		X

\*The list of Planning Department requirements is based on the information submitted and as presented for this specific pre-consultation meeting. Norfolk County reserves the right to adjust requirements including identifying additional requirements or reducing requirements. Any changes to a proposal may necessitate changes to Planning Department submission requirements. Furthermore, reports and studies are subject to peer review.

Community Development fees, applications, and helpful resources can be found can be found by visiting <https://www.norfolkcounty.ca/government/planning/>

### Planning Comments

*Note: All comments are general in nature and subject to change pending modifications to the proposal and full analysis at the application submission stage.*

**Historical Planning Applications:** historically the subject lands are farm lands, later changed to medium density apartment block and supporting service commercial zoning in 2012 for 44 apartment units and supportive commercial uses.

7-OP-2007 and 49-Z-2007: In 2007, Council passed a combined Official Plan and Zoning By-Law amendment to expand the Waterford urban boundary and change the Official Plan designation from 'Agricultural' to 'Highway Commercial' for the lands fronting Old Highway 24. The zoning amendment also changed the subject lands to 'Highway Commercial (CH).' The subject lands are included in this Official Plan and Zoning amendment.

11-OP-2007: A site-specific Official Plan amendment was executed to the subject lands fronting on Old Highway 24 that limits the commercial uses to motels, restaurants, auto service facilities, farm produce outlets and implement dealerships, building supply and lumberyard, and other commercial types primarily catering to the travelling public and neighbourhood commercial uses.

## Privileged Information and Without Prejudice

28T-2007-004: The subject lands are shown as Block 61 in the original Yin Subdivision phase-5, which was registered in 2011. The intended use of these lands was 'Highway Commercial' to facilitate the neighbouring properties, travellers, and highway activities.

4-OP-2012 and 46-Z-2012: In 2012, the Council passed an Official Plan amendment and a Zoning By-Law amendment to redesignate a portion of the 'Commercial' land to 'Urban Residential' and rezoned the land to Residential Type 5 (R5) with Holding (H). The redesignation and rezoning were intended to develop a higher-density apartment development with 44 units geared towards senior citizens. The Holding provision was to ensure that a site plan agreement was executed.

**Official Plan:** The subject property is partly designated as Commercial and partly Urban Residential.

1. 'Commercial' – northern portion of the lands with a site specific policy 7.11.3.11 Waterford – Yin Subdivision Site Specific Policy Area

On land designated Commercial – Site Specific Policy Area 7.11.3.11 on Schedule "B" of the Official 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.

2. 'Urban Residential'- southern portion of the lands for higher density development such as apartment buildings.

How does this apply to this application?

Section 8.9.3 related to Servicing Allocation states that when unallocated servicing capacity does not exist for a proposed development, the County shall defer the processing of the planning application until capacity is available, or until a servicing agreement is in place to ensure that such capacity will be available to service the development.

### **Zoning By-law:**

**R5(H):** Part of the site is zoned as Urban Residential Type 5 (R5) with a Holding (H). The Holding was imposed through 46-Z-2012 to ensure an appropriate development agreement is executed. Permitted uses include:

- a. dwelling, apartment
- b. home occupation
- c. retirement home

There is a Special Provision 14.845 associated with this portion of land which was the result of a zoning by-law amendment 46-Z-2012. The special provision permits 44 apartment units with the following provisions:

- Minimum Front Yard: 60 metres
- Maximum Dwelling Units: 44



## Privileged Information and Without Prejudice

- Maximum number of visitor parking spaces: 11
- Parking permitted in the front yard

What about retail?

The proposed development appears to comply with the existing zoning with a Holding (H).

**CS(H)** Part of the site is zoned as Service Commercial (CS) with a Holding (H).

What about retail?

A zoning by-law amendment would not be required if all zoning provisions are satisfied. A detailed commercial use would be required to confirm if a Zoning by-law amendment would be required or not.

### **Site Plan Control:**

The subject lands are under site plan control. A site plan application will be required.

### **Design Considerations:**

- Staff recommends commercial and residential traffics are separated by applying urban design measures;
- A continuous sidewalk from commercial and residential buildings to the existing and future public sidewalks;
- Location of all garbage collection, loading area and snow storage facilities;
- A section between the residential and commercial building and adjacent residential building to the east.
- Fire Route;

Severance

Staff would support a severance application once it is confirmed that all OP policies and zoning requirements are met. If a severance is proposed, two separate site plan applications would be required. Staff recommends that the Applicant go through all requirements and documents checklist with Planning staff before a planning application is submitted.

Note: Endangered and threatened species and their habitat are protected under the provinces Endangered Species Act, 2007 (ESA), O. Reg. 242/08 & O. Reg. 830/21. The Act prohibits development or site alteration within areas of significant habitat for endangered or threatened species without demonstrating that no negative impacts will occur. The Ministry of Environment, Conservation and Parks provides the service of responding to species at risk information requests and project screenings. The proponent is responsible for discussing the proposed activity and having their project screened with MECP (Ministry of Environment, Conservation and Parks).

### **Assigned Planner:**

Mohammad Alam  
Principal Planner  
Extension 1828  
[Mohammad.Alam@norfolkcounty.ca](mailto:Mohammad.Alam@norfolkcounty.ca)

## Privileged Information and Without Prejudice

### Development Engineering

Development Engineering comments have not been made available at this time. Once they become available, this document will be updated, and you will be provided with that updated document. For status updates, please contact [developmentengineering@norfolkcounty.ca](mailto:developmentengineering@norfolkcounty.ca).

Stephen Gradish  
Development Technologist  
Extension 1702  
[Stephen.Gradish@norfolkcounty.ca](mailto:Stephen.Gradish@norfolkcounty.ca)

Tim Dickhout  
Project Manager, Development  
Extension 1700  
[Tim.Dickhout@norfolkcounty.ca](mailto:Tim.Dickhout@norfolkcounty.ca)

### Agreements

A recommended condition of your planning application approval will be to enter into a development agreement with the County that will be registered on title to the subject lands, at the Owner's expense. The additional requirements for a development agreement could include, but are not limited to the following:

- Engineering drawing review
- Engineer's schedule of costs for the works
- Clearance letter and supporting documentation to support condition clearance
- User fees and performance securities
- Current property identification number (PIN printout) (can be obtained by visiting <https://help.onland.ca/en/home/>)
- Owner's commercial general liability insurance to be obtained and kept in force during the terms of the agreement
- Postponement of interest. If there are mortgages / charges on your property identifier, your legal representative will be required to obtain a postponement from your bank or financial institution to the terms outlined in your development agreement
- Transfers and / or transfer easements along with registered reference plan

Annette Helmig  
Agreement and Development Coordinator  
Extension 8053  
[Annette.Helmig@norfolkcounty.ca](mailto:Annette.Helmig@norfolkcounty.ca)

## Privileged Information and Without Prejudice

### Building

#### Zoning Administrator:

Zoning table on proposal was well done. The proposal meets all zoning requirements as proposed. Once the commercial unit(s) use is confirmed, please refer to section 4 of the Zoning Bylaw for parking calculations and requirements for non-residential uses. Each Unit/use in the commercial building will require its own parking calculation.

If there is potential for future severance, ensure all parking spaces are to be wholly provided on the lot occupied by the building, structure or use for which the parking spaces are required. If severance is not an option, the front lot lines on the proposal are incorrect and a new zoning review would be required to ensure compliance.

Just a reminder to keep an eye on the sight triangle. Please refer to section 3.31 of the Zoning Bylaw.

We will require a Zoning Table to be provided on the final site plan stating the required zoning provisions of the zone, what you are proposing and highlighting any deficiencies.

The table should include the total usable floor area, the lot area and coverage, height of the buildings and all setbacks from the buildings to all property lines. The zoning table should include a parking table showing the required spaces and what is being provided. The parking spaces should be labelled and dimensioned on the site plan. Please refer to section 4 of the Zoning Bylaw for parking requirements including parking aisle width requirements. Any proposed balconies or decks should be shown on the site plan with dimensions including the setbacks to the property lines.

Roxanne Lambrecht  
Zoning Administrator  
Extension 1839  
[Roxanne.Lambrecht@norfolkcounty.ca](mailto:Roxanne.Lambrecht@norfolkcounty.ca)

Kacie Vandenbulck  
Zoning Administrator  
Extension 8097  
[Kacie.vandenbulck@norfolkcounty.ca](mailto:Kacie.vandenbulck@norfolkcounty.ca)

#### Building Inspector:

The proposed construction is considered an A2 type occupancy for the restaurant when seating is for more than 30, a D and/or E type occupancy for the commercial building and a C type occupancy for the 44 unit residential building as defined by the Ontario Building Code (OBC). You will need to retain the services of an Architect and a Professional Engineer to complete the design documentation for this application.

The Designer will need to provide an OBC matrix that represents selected elements from the detailed code analysis and presents a quick overview to the municipal building official of the key OBC factors concerning your design. The matrix will need to include

## Privileged Information and Without Prejudice

items from the OBC pertaining to occupancy loads, fires separations, building size and construction relative to occupancy, OBC Section 3.2.5. Provisions for Firefighting, safety within floors areas, exits and barrier free design.

The local fire department should be consulted prior to the design and construction of access routes.

Signs proposed due to development will require a permit as part of Norfolk's Sign Bylaw and may need a Building Permit according to the OBC.

### Items for Site Plan

Site plan drawings need to have enough detail, to determine compliance with the code references listed.

1. Indicate location of access route and access route design [OBC 3.2.5.4 to 3.2.5.6]
2. Revised fire water pond design and calculations. [OBC 3.2.5.7]
1. Indicate location of existing and new fire department connections. Dimensions between hydrants and building entrances is required.  
[OBC 3.2.5.16]
3. Location and specifications of exterior lighting. Lighting to be included in SB-10 report – energy efficiency
4. Indicate barrier free path of travel from parking area to building entrance. Construction of curb cuts and location of tactile attention indicators is required. [OBC 3.8.1.3, & 3.8.3.2]
5. Location of revised septic system (if required)
6. Provide building elevations and cross section, showing building massing, location of proposed entrances and exits, barrier free controls, exterior lighting locations, and exterior signage.  
[Planning Act 41(4).2]

### Items for Building Permit

"-Industrial Commercial Institutional (ICI)" "Sign Permit" & "Applicable Law Checklist" Step by Step Guide Building Permit Package has been attached to the minutes herein, this contains information on drawing requirements, designers, forms, contact information for Building Department etc.

If you have any questions on the building permit process or plans required, please contact [permits@norfolkcounty.ca](mailto:permits@norfolkcounty.ca) or 519-426-5870 ext. 6016

Jonathan Weir  
Building Inspector III  
Extension 1832  
Jonathan.weir@[norfolkcounty.ca](mailto:norfolkcounty.ca)

### Corporate Support Services – Realty Services

1. If a Site Plan Agreement is required, then the County will require postponements of any charges/mortgages (if any) on title to the County's Site Plan Agreement. We recommend that you connect with your Lender(s) (if any) and/or your solicitors as early in the process as possible to avoid any delays.

## **Privileged Information and Without Prejudice**

2. The Owner should connect with their solicitor to obtain advice about removing the restrictive covenants registered on title as this may be a requirement if this project doesn't comply with same.

Karen Lambrecht  
Corporate Services Generalist, Realty Services  
Extension 8140  
[Karen.Lambrecht@norfolkcounty.ca](mailto:Karen.Lambrecht@norfolkcounty.ca)

### **Fire Department**

Norfolk County Fire has the following comments for this proposal:

- Hydrants to be provided as per OBC 3.2.5. (we realize there is one across the road, however the applicants need to ensure there is adequate water supply and that the 90m requirement is met)
- Ensure internal roadways provide a fire access route where required with adequate width for fire department apparatus
- Ensure adequate water supply is available for any required fire protection systems

Katie Ballantyne  
Community Safety Officer  
Extension 2423  
Katie.Ballantyne@[norfolkcounty.ca](mailto:norfolkcounty.ca)

## **Appendix A: Planning Reference Materials**

Following is a summary of some land use planning reference materials. It is the requirement of the applicant to ensure compliance with applicable legislation, policies and regulations.

### **Provincial Policy Statement, 2020**

<https://www.ontario.ca/page/provincial-policy-statement-2020>

### **Norfolk County Official Plan**

<https://www.norfolkcounty.ca/government/planning/official-plan/>

Section 9.6.1 outlines requirements in relation to requests to amend the Official Plan.

Section 9.6.2 outlines requirements in relation to requests to amend the Zoning By-law.

**Privileged Information and Without Prejudice**

**It is the responsibility of the proponent to review and ensure relevant Official Plan policies are addressed in any future development application.**

**Norfolk County Zoning By-Law 1-Z-2014**

<https://www.norfolkcounty.ca/government/planning/new-zoning-by-law/>

The provisions of the Norfolk County Zoning By-Law shall apply to all lands within the boundaries of Norfolk County. No land, building or structure shall be used, erected, or altered in whole or in part except in conformity with the provisions of this By-Law. No land, building or structure shall be used or occupied except for uses that are specifically identified in the By-Law as permitted uses by the relevant zoning category.

**It is the responsibility of the proponent to review and ensure relevant Zoning By-law provisions are addressed in any future development application**

**REQUIRED INFORMATION**

Name of Owner \_\_\_\_\_

Property Legal Description \_\_\_\_\_

Roll Number \_\_\_\_\_

PIN Number \_\_\_\_\_

Type and Number of Units

Single Detached \_\_\_\_\_

Semi-Detached \_\_\_\_\_

Duplex \_\_\_\_\_

Triplex \_\_\_\_\_

Four-plex \_\_\_\_\_

Street Townhouse \_\_\_\_\_

Stacked Townhouse \_\_\_\_\_

Apartment \_\_\_\_\_

Transfer Easements Block Number and Purpose \_\_\_\_\_

Transfer Block Number and Purpose \_\_\_\_\_

Geotechnical Report prepared for Lands	YES	NO	UNKNOWN
Lands are Within the Source Water Protection Area	YES	NO	UNKNOWN
Lands Contain any Contaminated or Impacted Soil	YES	NO	UNKNOWN
Lands Contain any Natural Watercourse	YES	NO	UNKNOWN
Lands Contain any Wetlands	YES	NO	UNKNOWN
Lands Contain any Archaeological Sites	YES	NO	UNKNOWN
Lands Contain an Existing Well and or Septic Field	YES	NO	UNKNOWN
Species at Risk Branch MECP Screening	YES	NO	UNKNOWN
Lands Contain any Endangered Species	YES	NO	UNKNOWN

**OWNER INFORMATION**

NAME AND CONTACT \_\_\_\_\_

ADDRESS WITH POSTAL CODE \_\_\_\_\_

PHONE NUMBER \_\_\_\_\_

EMAIL \_\_\_\_\_

**AGENT INFORMATION**

NAME AND CONTACT \_\_\_\_\_

ADDRESS WITH POSTAL CODE \_\_\_\_\_

PHONE NUMBER \_\_\_\_\_

EMAIL \_\_\_\_\_

**ENGINEER INFORMATION**

NAME AND CONTACT \_\_\_\_\_

ADDRESS WITH POSTAL CODE \_\_\_\_\_

PHONE NUMBER \_\_\_\_\_

EMAIL \_\_\_\_\_

**LAWYER INFORMATION**

NAME AND CONTACT \_\_\_\_\_

ADDRESS WITH POSTAL CODE \_\_\_\_\_

PHONE NUMBER \_\_\_\_\_

EMAIL \_\_\_\_\_

**INSURANCE PROVIDER INFORMATION**

NAME AND CONTACT \_\_\_\_\_

ADDRESS WITH POSTAL CODE \_\_\_\_\_

PHONE NUMBER \_\_\_\_\_

EMAIL \_\_\_\_\_

**FINANCIAL INSTITUTION INFORMATION (IF APPLICABLE)**

NAME AND CONTACT \_\_\_\_\_

ADDRESS WITH POSTAL CODE \_\_\_\_\_

PHONE NUMBER \_\_\_\_\_

EMAIL \_\_\_\_\_

**MORTGAGEE INFORMATION (IF APPLICABLE)**

NAME AND CONTACT \_\_\_\_\_

ADDRESS WITH POSTAL CODE \_\_\_\_\_

PHONE NUMBER \_\_\_\_\_

EMAIL \_\_\_\_\_

**SPECIES AT RISK SCREENING**

The Ontario Endangered Species Act inquiries and Species at Risk screening are now handled by the Ministry of the Environment, Conservation and Parks, specifically the "Species at Risk Branch" and the new e-mail address for handling these inquiries is now SAROntario@ontario.ca.

**TRANSFERS, EASEMENTS AND POSTPONEMENT OF INTEREST**

The owner acknowledges and agrees that, it is their solicitor's responsibility on behalf of the owner for the registration of all transfer(s) of land to the County, free and clear of any charges or encumbrances, and/or transfer(s) of easement in favour of the County and/or utilities at no cost to the County. In addition, 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 to the County's agreements.



### **INSURANCE CERTIFICATES**

Prior to the execution of the development agreement, the owner shall at their expense obtain and keep in force, during the term of this development agreement, commercial general liability insurance coverage satisfactory to the County. The owner further acknowledges and agrees that he/she has authorized the County to discuss with their insurance provider the specific insurance requirements of the County for agreement purposes. In addition, the County will require any professionals hired to carry professional liability insurance to provide coverage for acts, errors and omissions arising from their professional services performed.

### **OWNER'S AUTHORIZATION**

I/We \_\_\_\_\_ am/are the registered owner(s) of the lands that is the subject of this site plan agreement.

I/We authorize our Agent \_\_\_\_\_ to provide information on my/our behalf and to provide any of my/our personal information necessary for the processing of this site plan agreement. Moreover, this shall be your good and sufficient authorization for so doing.

I/We authorize the Agreement Administrator to provide and receive information on my/our behalf in connection to the insurance coverage, letter of credit and agreement registration of my/our development.

I/We acknowledge that if there are any new charges or mortgage holders on the property they will be added to the development agreement and will be required to postpone their interest on the property to the County's development conformity interest.

Owner Signature

Date

**To start your agreement, please return the required supporting information and fees along with the first three pages of this document completed and signed.** Provide your payments by the mail or courier to the address below or drop off at ServiceNorfolk customer service desk on the first floor 185 Robinson Street, Simcoe ON N3Y 5L6 Monday to Friday from 9 am to 4 pm. Please make your cheque payable to the Corporation of Norfolk County. If paying by credit card please contact ServiceNorfolk at 519 426-5870 Ext. 4636.

### **CONTACT FOR FURTHER INFORMATION AND QUESTIONS**

Annette Helmig, Agreement and Development Coordinator  
Norfolk County, Community Development Division, Planning Department, Agreement Services  
185 Robinson Street Suite 200, Simcoe ON N3Y 5L6  
226.777.1445  
[annette.helmig@norfolkcounty.ca](mailto:annette.helmig@norfolkcounty.ca)

**DOCUMENTATION AND FEES REQUIRED**

- Owner's agreement authorization
- Postponement of interest from mortgagee / chargee (if applicable)
- Current parcel register (property identifier or PIN printout)
- Owner's commercial general liability certificate of insurance
- Construction estimates (100% for external works and 10% of internal works)
- Professional liability insurance for surveyor and / or engineer
- Final reference plan for any easements and lands to be conveyed
- Letter from owner requesting holding (H) symbol be removed from the subject lands
- Letter of credit or certified cheque for performance securities
- Current property taxes paid
- User fee (if time is of the essence a certified cheque is required)
  - \$2,780 for preparation of the site plan agreement
  - \$924 to remove the holding from the zoning on the property (if applicable)
  - \$447 for financial administration of this agreement
  - \$542 per tree cash-in-lieu of trees (if applicable)
  - 2% or 5% land appraisal cash-in-lieu of parkland as per consolidated by-law 2016-126 (if applicable)



## 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](mailto: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)

\_\_\_\_\_

Zoning Bylaw Amendment to add retail as a permitted use within a Service Commercial Zone (CS)

\_\_\_\_\_

Land Severance (Consent) on the Subjects Lands.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Property Assessment Roll Number:** 33605062868

**A. Applicant Information**

**Name of Owner** Verlinda Homes (C/O Tom O'Hara)

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** 26 Main St S Box 1152

**Town and Postal Code** Waterford, ON N0E 1Y0

**Phone Number** 1-866-781-7653

**Cell Number** 705-205-3235

**Email** tom@teamohara.com

**Name of Applicant** Verlinda Homes (C/O Tom O'Hara)

**Address** Same as above

**Town and Postal Code** Same as above

**Phone Number** 1-866-781-7653

**Cell Number** 705-205-3235

**Email** tom@teamohara.com

**Name of Agent** G. Douglas Vallee Limited

**Address** 2 Talbot St. North

**Town and Postal Code** Simcoe N3Y 3W4

**Phone Number** 519-426-6270

**Cell Number** \_\_\_\_\_

**Email** scottpuillandre@gdvallee.ca

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:

none



**B. Location, Legal Description and Property Information**

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

Plan 37M-57 Block 61

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Municipal Civic Address: 750 Main Street South, Waterford, Ontario

Present Official Plan Designation(s): Urban Residential and Commercial

Present Zoning: R5(H) and CS

---

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

Yes  No If yes, please specify corresponding number:

14.845

---

3. Present use of the subject lands:

Vacant

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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:

Vacant

---

---

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.

NA

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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:

See site plan

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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:

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

Vacant

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9. Existing use of abutting properties:

Parkland and Residential

---

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:

Addition of retail shops on the commercial site.

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

The property is designated as Service Commercial Zone(CS) which does not include retail as a permitted use.

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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:

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

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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: **Residential Lot**

Frontage: 64

Depth: 94m

Width: 64m

Lot Area: 6034m<sup>2</sup>

Present Use: Vacant

Proposed Use: Residential as per current zoning

Proposed final lot size (if boundary adjustment): Approx 6,034 m<sup>2</sup>

If a boundary adjustment, identify the assessment roll number and property owner of the lands to which the parcel will be added: N/A

Description of land intended to be retained in metric units: **Commercial**

Frontage: 75m

Depth: 94m

Width: 75m

Lot Area: 7069m<sup>2</sup>

Present Use: Vacant

Proposed Use: Commercial

Buildings on retained land: No existing buildings on site.

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): **Unknown**

9. Site Information **Commerical Lot Zoning**

**Proposed**

Please indicate unit of measurement, for example: m, m<sup>2</sup> or %

Lot frontage	16.5m	75m
Lot depth		94m
Lot width		75m
Lot area	495m <sup>2</sup>	7069m <sup>2</sup>
Lot coverage	35%	35%
Front yard	3m	8.9m
Rear yard	9m	9m
Left Interior side yard	N/A	N/A
Right Interior side yard	3m	11m
Exterior side yard (corner lot)	3m	12.6m
Landscaped open space	N/A	N/A
Entrance access width	7.3m	7.3m
Exit access width	7.3m	7.3m
Size of fencing or screening		
Type of fencing		
10. Building Size		
Number of storeys	N/A	N/A
Building height	11m	<11m
Total ground floor area	N/A	Max 2,474 m <sup>2</sup>
Total gross floor area	N/A	
Total useable floor area	N/A	
11. Off Street Parking and Loading Facilities		
Number of off street parking spaces	67	70
Number of visitor parking spaces	N/A	
Number of accessible parking spaces	3	4
Number of off street loading facilities	N/A	



12. Residential (if applicable) *No residential uses*

Number of buildings existing: N/A

Number of buildings proposed: N/a

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: Zero Vacant land

Number of buildings proposed: 2

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

If yes, describe:

N/A

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

Restaurant approx 465 m2

Mixed commercial with retail approx: 875 m2

Seating Capacity (for assembly halls or similar): N/A

Total number of fixed seats: N/A

Describe the type of business(es) proposed: Restaurant, retail, mixed commercial

Total number of staff proposed initially: Unknown

Total number of staff proposed in five years: Unknown

Maximum number of staff on the largest shift: Unknown

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:

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14. Institutional (if applicable) [No Institutional use proposed.](#)

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):

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15. Describe Recreational or Other Use(s) (if applicable) [No recreational use proposed.](#)

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**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:

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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:

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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:

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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:

Not in wellhead protection area

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 60m

**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: Old Highway 24 and Lam Blvd.

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**G. Other Information**

1. Does the application involve a local business?  Yes  No

If yes, how many people are employed on the subject lands?

Subject lands are vacant

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.

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## 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.

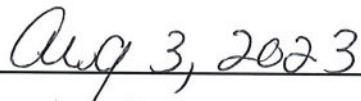
**K. Permission to Enter Subject Lands**

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.

  
\_\_\_\_\_  
Tom O'Hara  
Owner/Applicant Signature

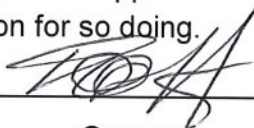
  
\_\_\_\_\_  
Date

**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 Verlinda Homes 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.

  
\_\_\_\_\_  
Owner

  
\_\_\_\_\_  
Date

\_\_\_\_\_  
Owner

\_\_\_\_\_  
Date



**N. Declaration**

I, Thomas O'Hara of Waterford, ON.

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*.

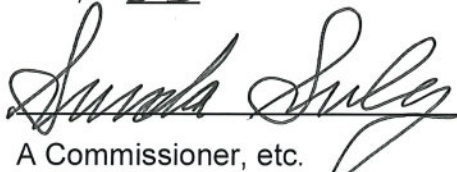
Declared before me at:

\_\_\_\_\_  
Brenda Joanne Bruley, a  
Commissioner, etc., Province of Ontario.  
for the Corporation of Norfolk County.  
Expires September 2, 2024.  
In \_\_\_\_\_

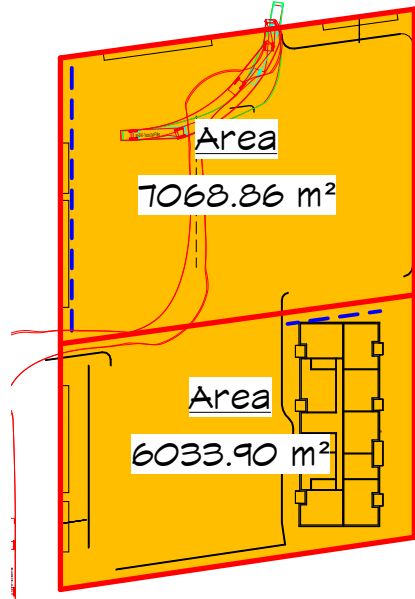
\_\_\_\_\_  
  
Owner/Applicant Signature

This 3 day of Aug

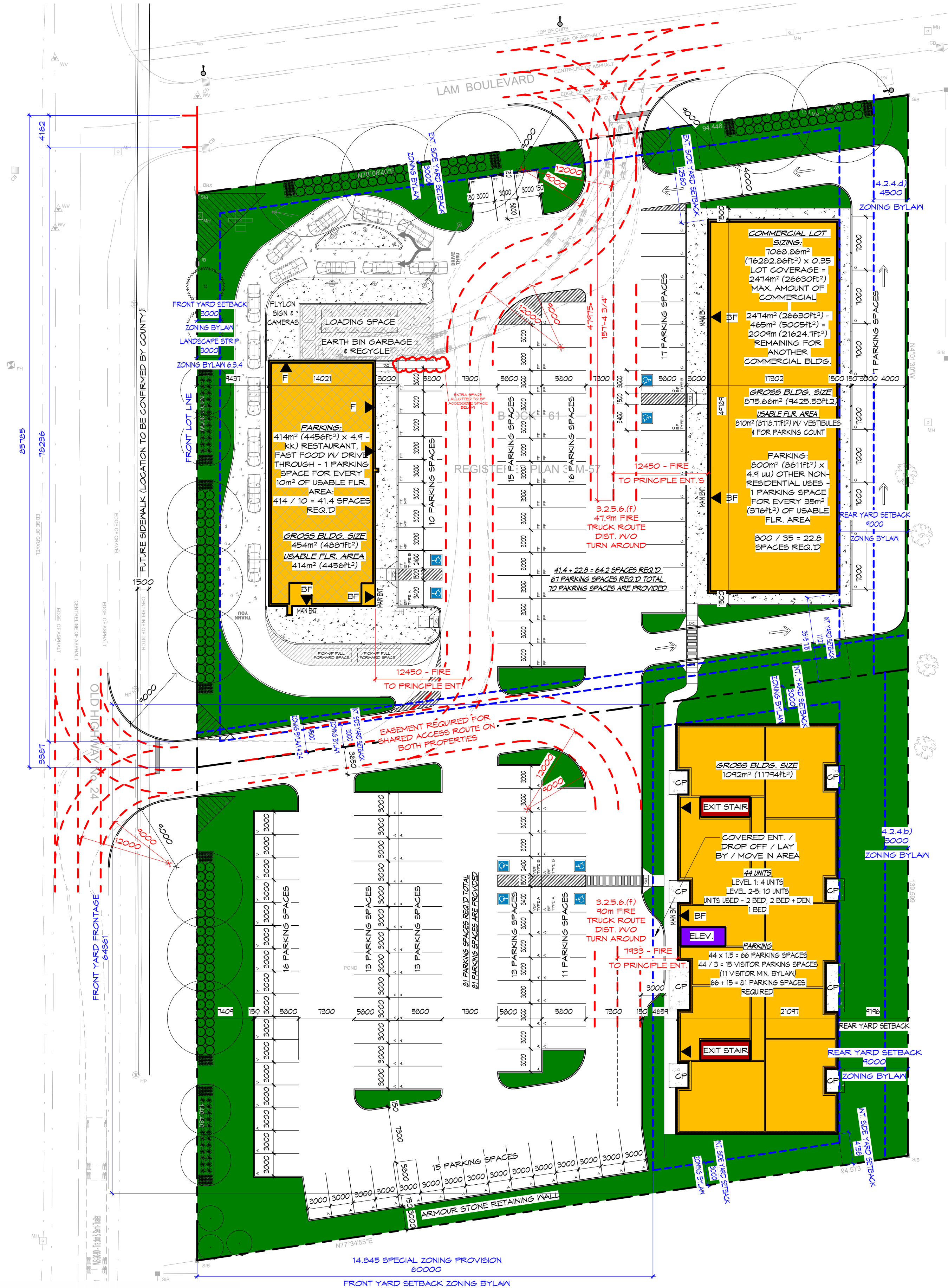
A.D., 2023

  
\_\_\_\_\_  
A Commissioner, etc.



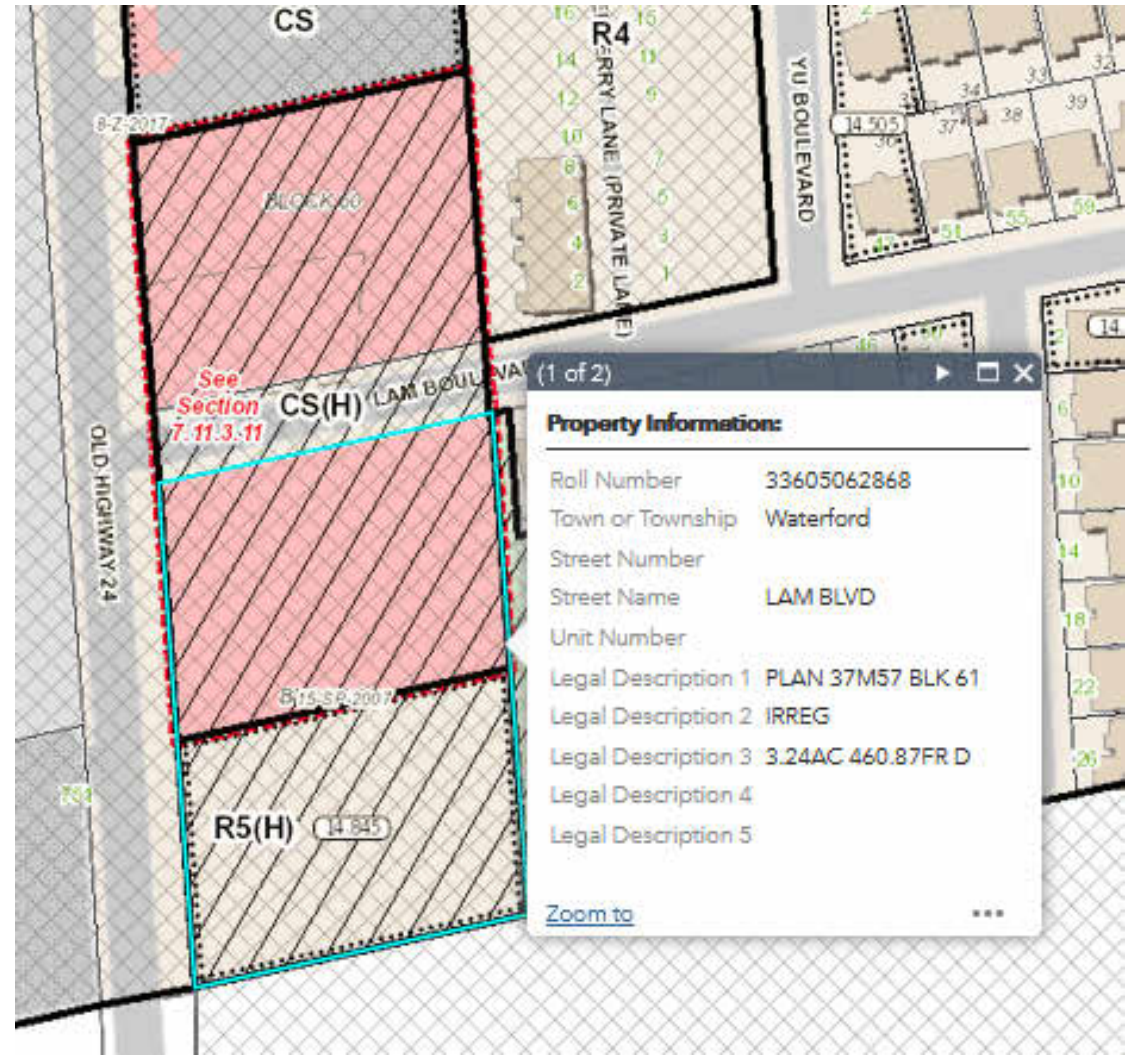


GROSS SITE PLAN - ZONING AMENDMENT - IND. ZONE  
SCALE 1:2000



1 SITE PLAN PROPOSED - ZONING AMENDMENT R5 & CS  
SCALE 1:950

- SITE PLAN LEGEND**
- MAIN ENT. MAIN / PRINCIPAL ENTRANCE / EXIT DOOR
  - ENTRANCE / EXIT DOOR
  - ENTRANCE / EXIT DOOR (FLUSH)
  - ENTRANCE / EXIT DOOR (BARRIER FREE OPERATOR)
  - PROPERTY BOUNDARY LINE(S)
  - SETBACKS
  - SNOW STORAGE (SS) (ALL ADDITIONAL SNOW TO BE TAKEN AWAY BY OWNER)
  - FIRE ROUTE (6M WIDE / 12M CENTER RADIUS)
  - COVERED ENTRANCE
  - COVERED PATIO (ON GRADE)
  - PAINTED GRAPHICS ON ASPHALT / CONC. (COORD. W/ THE CITY / TOWN HAVING JURISDICTION GUIDELINES)
  - WHEELCHAIR SIGN ON ASPHALT / CONC. (WHITE & BLUE COLOUR)
  - DIRECTIONAL SIGNS ON ASPHALT / CONC. (WHITE COLOUR)
  - CROSSWALK / CROSSING (WHITE COLOUR)
  - VEHICULAR STALL MARKINGS
  - V - VISITOR
  - VF - VISITOR BARRIER FREE
  - BF - BARRIER FREE
  - A - APARTMENT DWELLING PARKING
  - FF - FAST FOOD BARRIER FREE
  - G BF - COMMERCIAL BARRIER FREE
  - FF - FAST FOOD PARKING
  - FF MF - FAST FOOD MOBILE PICK-UP PARKING
  - C - COMMERCIAL PARKING
  - DIAGONAL MARKINGS (YELLOW COLOUR)
  - STOP SIGN VEHICULAR MARKINGS (WHITE COLOUR)
  - DROP CURB
  - PERENNIAL DROUGHT RESISTANT GRASSES
  - NEW CONIFEROUS TREE
  - NEW DECIDUOUS TREE (-4500MM TREE RADIUS @ FULL GROWTH)
  - VISIBILITY TRIANGLES / SIGHT / DAYLIGHT TO BE MAINTAINED (REMAIN CLEAR) @ BOTH SIDES OF ALL LANEWAY / DRIVENWAYS @ INTERSECTIONS. THE MAX. HEIGHT OF ANY OBJECT OR MATURE VEGETATION WITHIN THE VISIBILITY TRIANGLE IS NOT TO EXCEED REQ'D HEIGHT ABOVE THE CENTRELINE OF THE CORRESPONDING ADJACENT STREET
  - NORFOLK COUNTY 5M X 5M LANEWAY 9M X 9M INTERSECTION / STREET LINES 1M HEIGHT N/A CBD ZONE NO PARKING ALLOWED
  - EX LIGHT STD.
- HATCH IDENTIFICATION LEGEND**
- AREA OF ASPHALT
  - CONC. SIDEWALK / PAD / CROSSWALK / SIDEWALK / LANEWAY / STAIRS / ETC.
  - AREA OF ASPHALT
  - AREA OF PARKING
  - LANDSCAPING
  - NEW BUILDING(S)



1 SITE MAP - ZONING AMENDMENT  
SCALE 1:100



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



Project Title  
**ORCHARD SQUARE**  
OLD HWY 24 / NORFOLK COUNTY  
RD. 24 & LAM BLVD.  
WATERFORD, ONTARIO, CANADA,

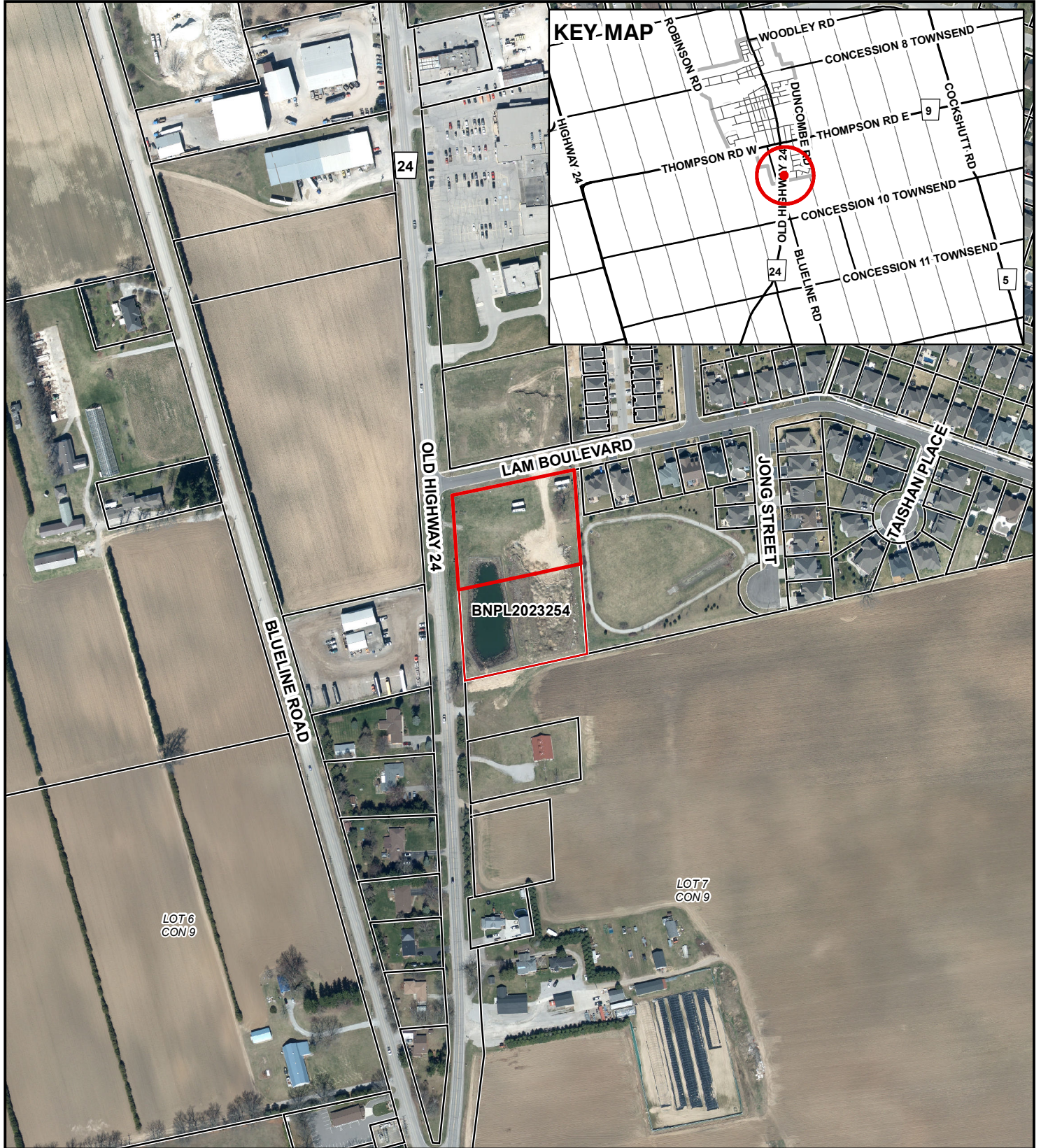
**PRELIMINARY  
NOT FOR  
CONSTRUCTION**

PROJECT No.  
**20-128**  
Drawing Title  
**ZONING AMENDMENT**  
Drawing No.  
**Z101**



**MAP A**  
**CONTEXT MAP**  
 Urban Area of WATERFORD

ZNPL2023275

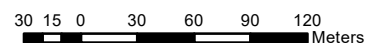
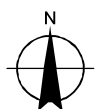


**Legend**

- Subject Lands
- Lands Owned

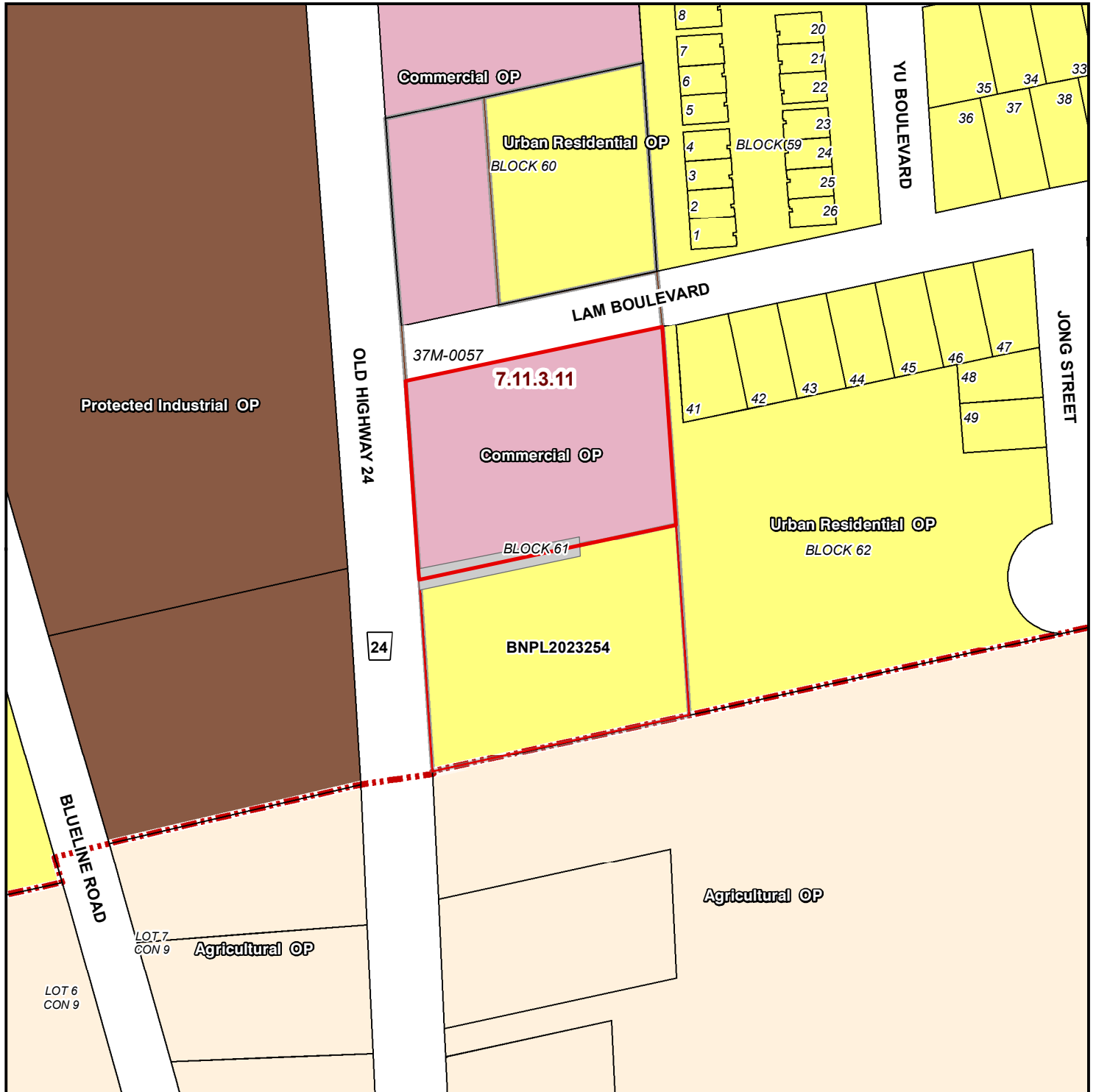
2020 Air Photo

9/8/2023






**MAP B**  
**OFFICIAL PLAN MAP**  
 Urban Area of WATERFORD






ZNPL2023275



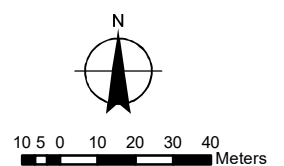
**Legend**

-  Subject Lands
-  Lands Owned
-  Proposed Easement

**Official Plan Designations**

-  Agricultural
-  Urban Residential
-  Commercial
-  Protected Industrial
-  Urban Area Boundary

9/8/2023



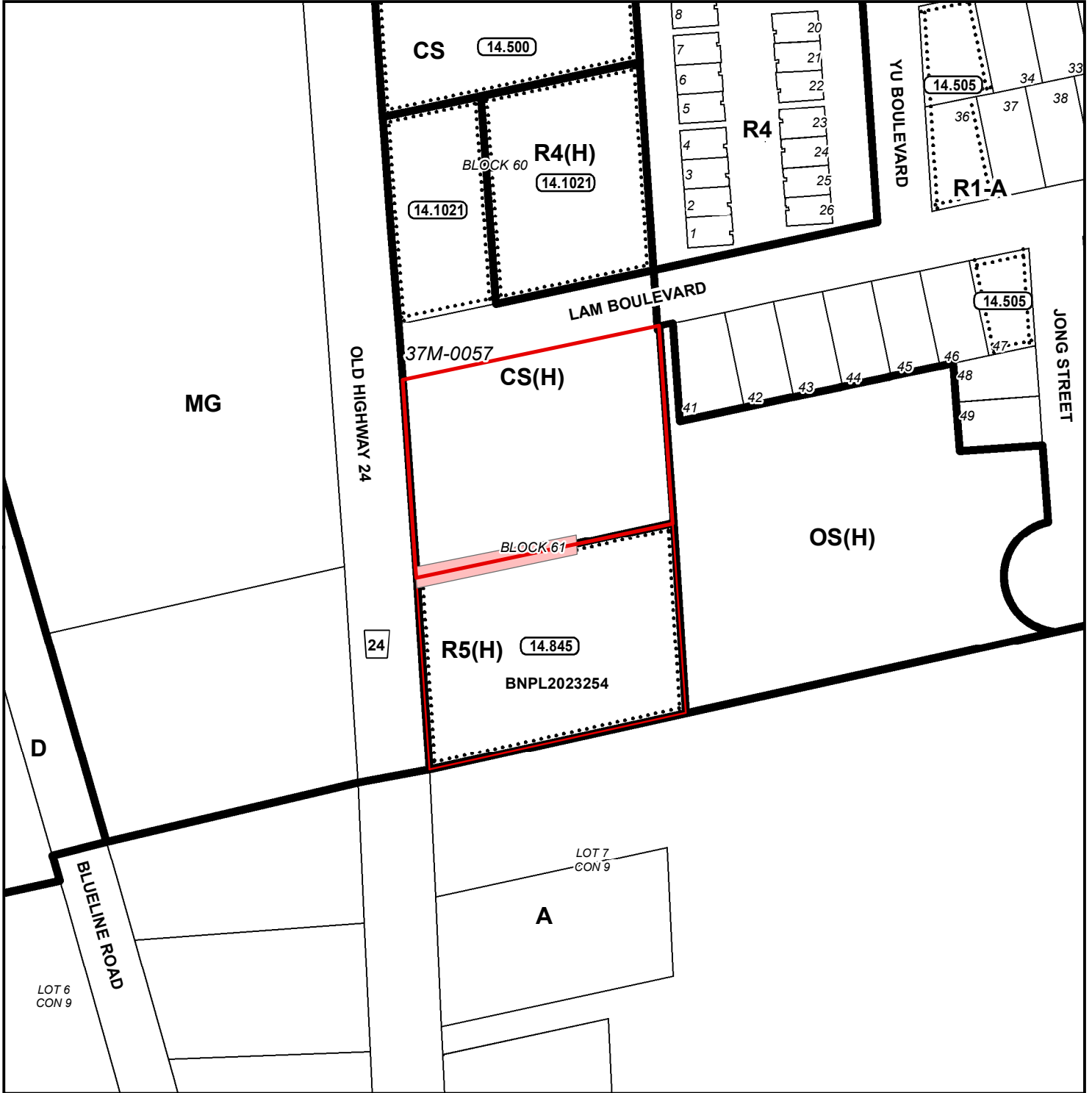


**MAP C**

ZNPL2023275

**PROPOSED ZONING BY-LAW AMENDMENT MAP**

Urban Area of WATERFORD



ZONING BY-LAW 1-Z-2014

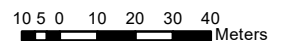
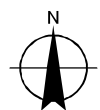
9/8/2023

**LEGEND**

- Subject Lands
- Lands Owned
- Proposed Easement

- (H) - Holding
- A - Agricultural Zone
- CS - Service Commercial Zone
- D - Development Zone
- MG - General Industrial Zone
- OS - Open Space Zone
- R1-A - Residential R1-A Zone
- R4 - Residential R4 Zone
- R5 - Residential R5 Zone

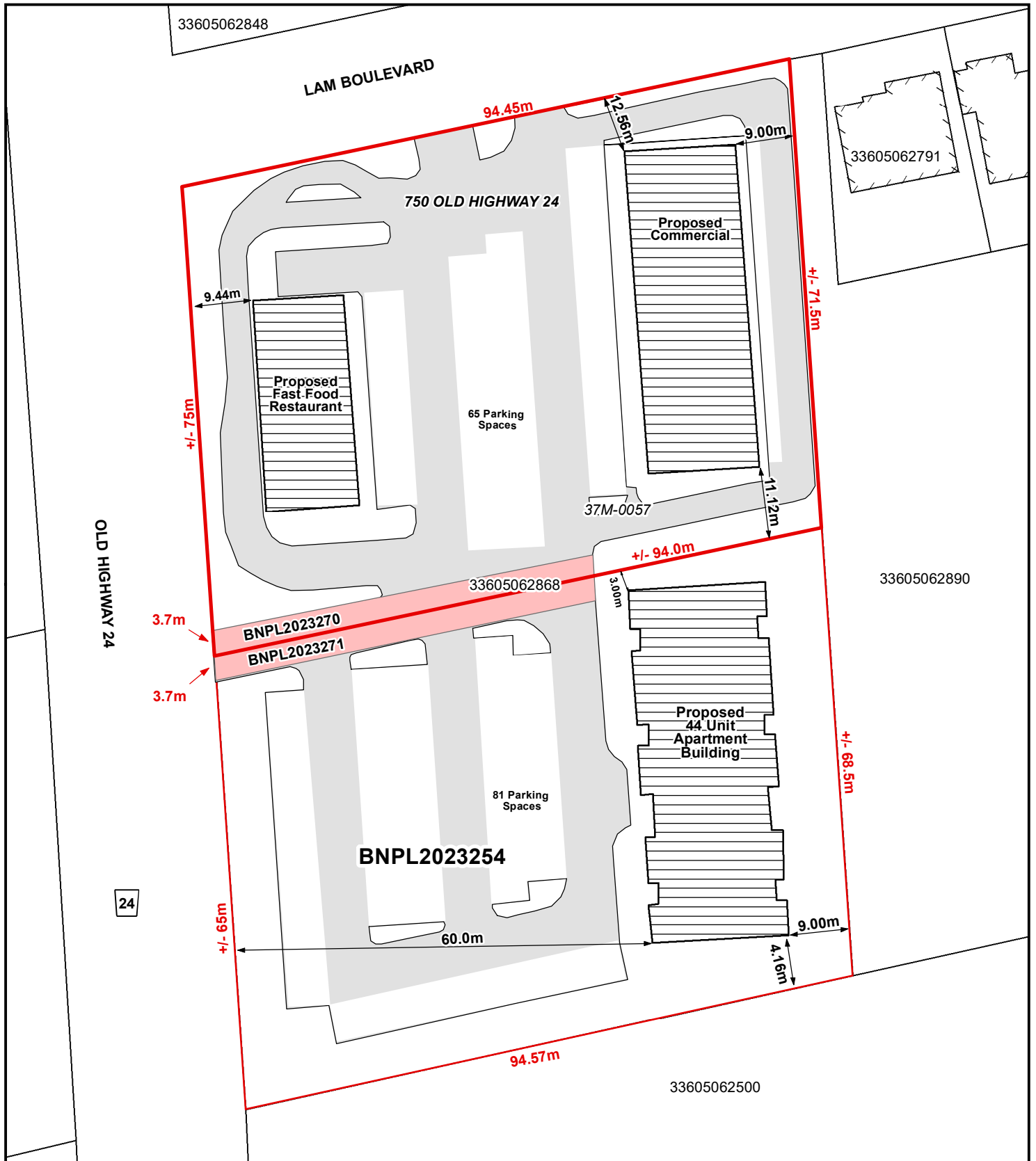
**From: CS(H)  
To: CS(H) with Special Provision 14.1043**





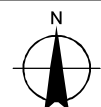
CONCEPTUAL PLAN

Urban Area of WATERFORD

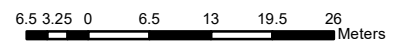


Legend

- Subject Lands
- Proposed Easement
- Lands Owned

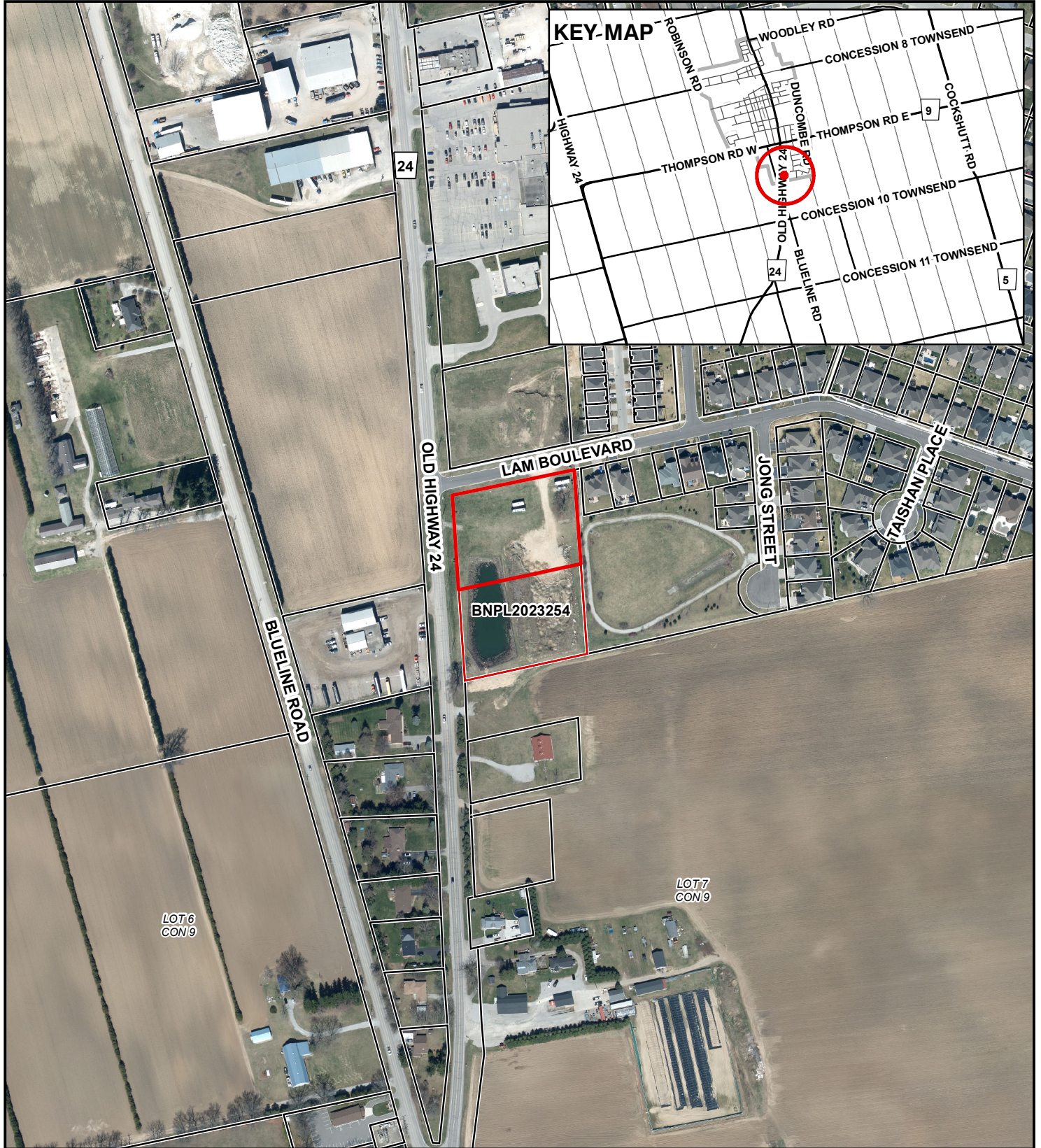


9/8/2023





**MAP A**  
**CONTEXT MAP**  
Urban Area of WATERFORD

ZNPL2023275

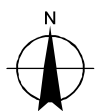


**Legend**

 Subject Lands

 Lands Owned      2020 Air Photo

9/8/2023



30 15 0 30 60 90 120 Meters

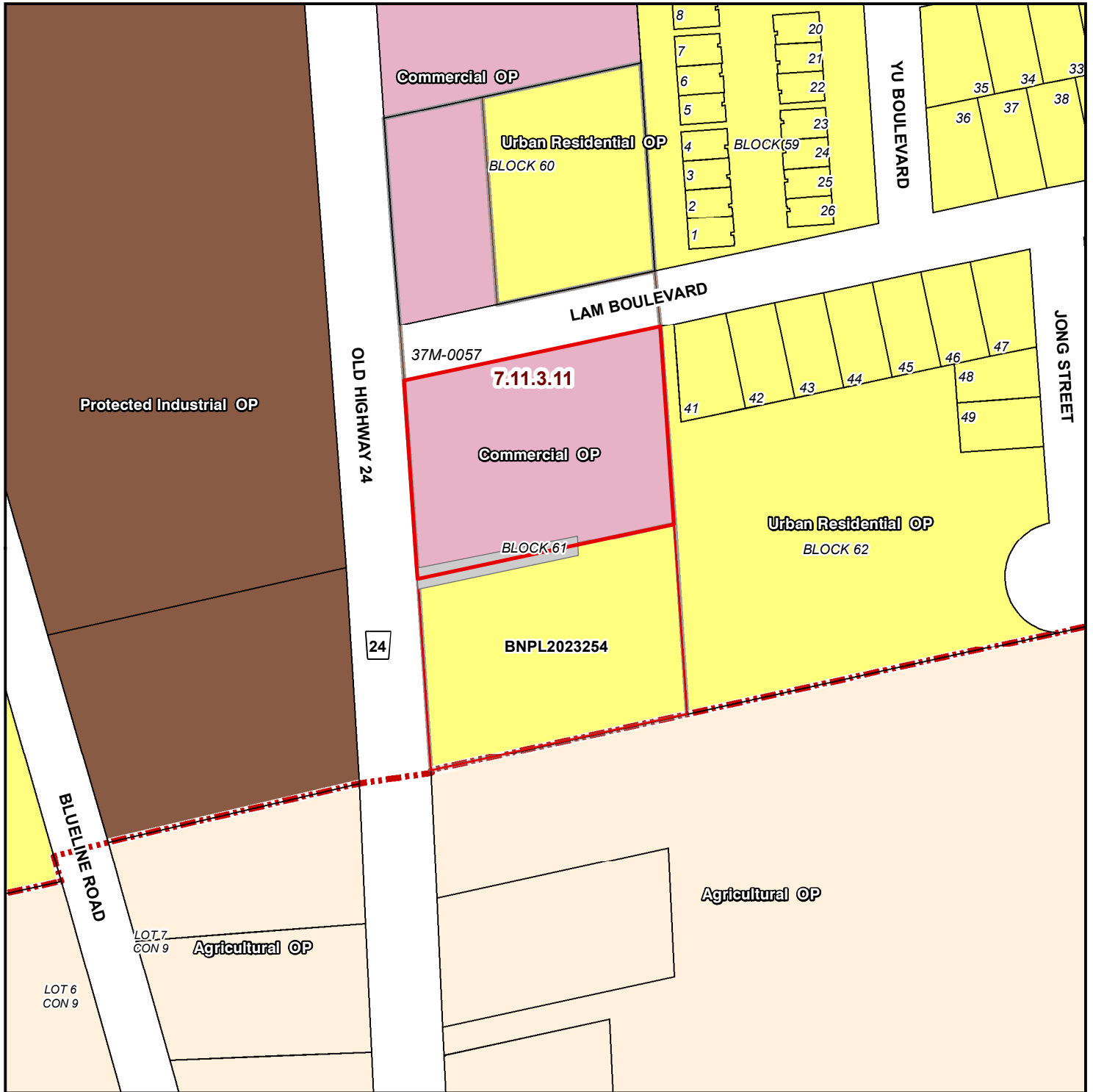


# MAP B

ZNPL2023275

## OFFICIAL PLAN MAP

Urban Area of WATERFORD



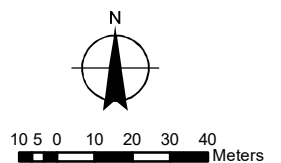
### Legend

- Subject Lands
- Lands Owned
- Proposed Easement

### Official Plan Designations

- Agricultural
- Urban Residential
- Commercial
- Protected Industrial
- Urban Area Boundary

9/8/2023

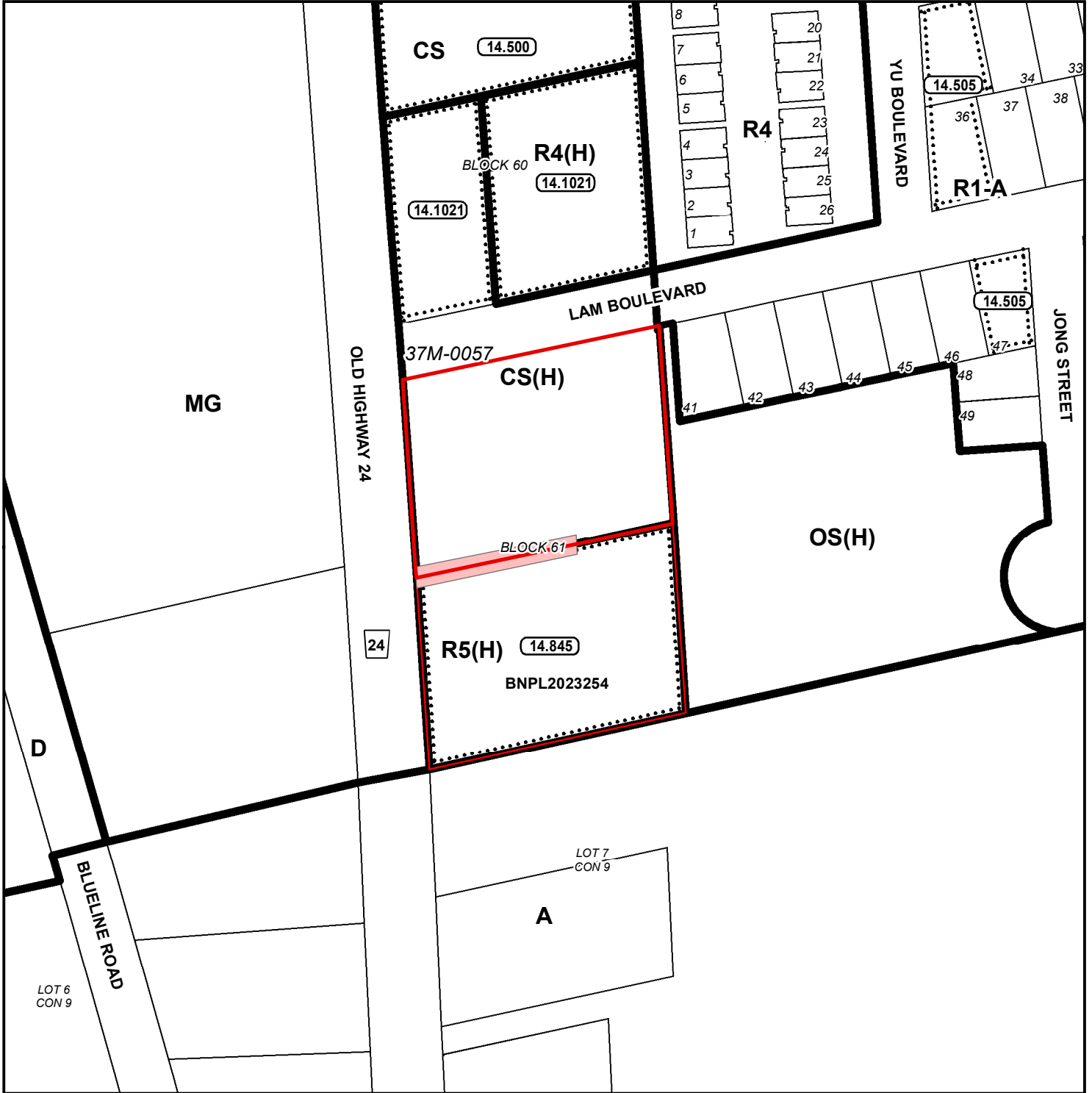


**MAP C**

ZNPL2023275

**PROPOSED ZONING BY-LAW AMENDMENT MAP**

Urban Area of WATERFORD



ZONING BY-LAW 1-Z-2014

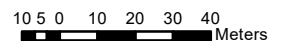
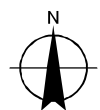
9/8/2023

**LEGEND**

- Subject Lands
- Lands Owned
- Proposed Easement

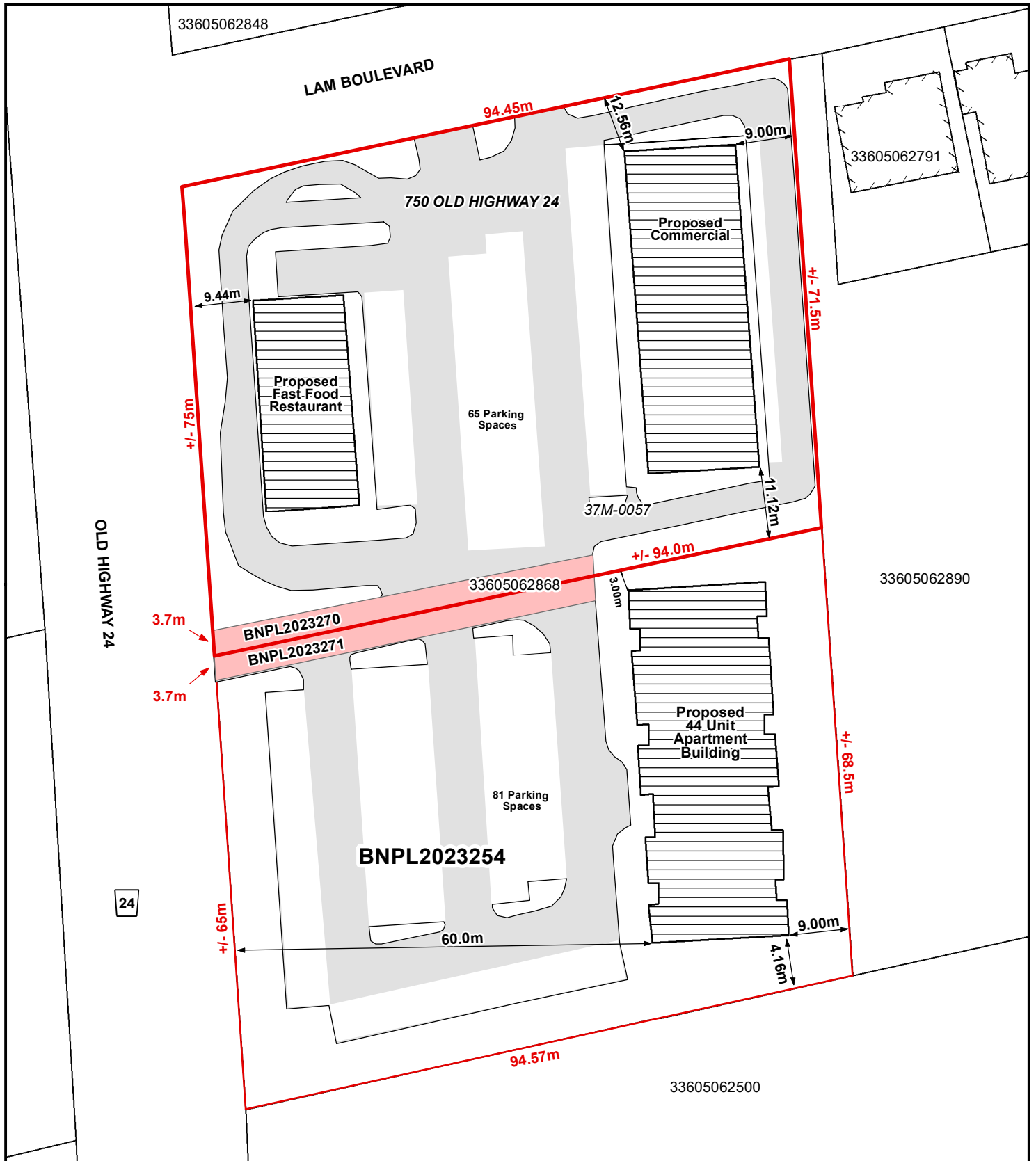
- (H) - Holding
- A - Agricultural Zone
- CS - Service Commercial Zone
- D - Development Zone
- MG - General Industrial Zone
- OS - Open Space Zone
- R1-A - Residential R1-A Zone
- R4 - Residential R4 Zone
- R5 - Residential R5 Zone

**From: CS(H)**  
**To: CS(H) with Special Provision 14.1043**



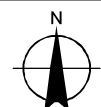
CONCEPTUAL PLAN

Urban Area of WATERFORD



Legend

- Subject Lands
- Proposed Easement
- Lands Owned



9/8/2023

