

**FUNCTIONAL SERVICING &
PRELIMINARY STORMWATER MANAGEMENT REPORT
FOR
202 BROCK STREET EAST
TOWNSHIP OF UXBRIDGE**

July 2023

Ref No.: 23623

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TABLE OF CONTENTS

SECTION	PAGE
1.0 INTRODUCTION.....	1
1.1 Background.....	1
1.2 Site Description.....	1
1.3 Proposed Development	1
1.4 Existing Topography	1
2.0 EXISTING MUNICIPAL INFRASTRUTURE.....	2
3.0 SANITARY SEWER SYSTEM	2
3.1 Existing Sanitary Sewer Drainage System	2
3.2 Existing Sanitary Flows	3
3.3 Proposed Sanitary Flows	3
4.0 WATER DISTRIBUTION SYSTEM	3
4.1 Existing Water Distribution System	3
4.2 Proposed Water Connections	4
4.3 Fire Fighting.....	4
5.0 STORMWATER MANAGEMENT & STORM DRAINAGE	4
5.1 Peak Flow and Quantity Control	4
5.2 Quantity Control Mitigation.....	9
5.3 Water Balance.....	9
5.3 Water Quality Control - TSS Removal	9
5.4 Erosion and Sediment Control During Construction	10
6.0 PROPOSED GRADING.....	10
7.0 SUMMARY.....	10

LIST OF FIGURES AND TABLES

DESCRIPTION	PAGE
FIGURE 1	KEY PLAN 2
FIGURE 2	PRE-DEVELOPMENT SURFACES 5
FIGURE 3	POST DEVELOPMENT SURFACES 7
FIGURE 4	TABLE 3.2 – 2003 MOE SWM PLANNING & DESIGN MANUAL 10
TABLE 1	PRE-DEVELOPMENT EQUIVALENT POPULATION 3
TABLE 2	POST DEVELOPMENT EQUIVALENT POPULATION 3
TABLE 3	PRE-DEVELOPMENT COMPOSITE RUNOFF COEFFICIENT 4
TABLE 4	POST DEVELOPMENT UNCONTROLLED STORM PEAK FLOWS 4
TABLE 5	POST DEVELOPMENT COMPOSITE RUNOFF COEFFICIENT 6
TABLE 6	POST DEVELOPMENT UNCONTROLLED PEAK FLOWS..... 6
TABLE 7	COMPARISON OF UNCONTROLLED PRE TO POST DEVELOPMENT STORM PEAK FLOWS 8
TABLE 8	POST DEVELOPMENT ALLOWABLE STORM PEAK FLOWS..... 8
TABLE 9	STORM DETENTION VOLUMES REQUIRED..... 8
TABLE 10	SOAKAWAY PIT BREAKDOWN 9

APPENDIX 1 - PRE-CONSULTATION COMMENTS

APPENDIX 2 - DETAILED STORMWATER MANAGEMENT CALCULATIONS

APPENDIX 3 - INFILTRATION CALCULATIONS

DRAWINGS:

Drawing No. 101	Preliminary Site Servicing & Grading Plan
Drawing No. 102	Preliminary Erosion & Sediment Control Plan

1.0 INTRODUCTION

1.1 Background

Politis Engineering Ltd. has been retained by Coral Creek Homes to prepare a functional servicing and preliminary stormwater management report in support of the proposed residential development located at 202 Brock Street East in the Township of Uxbridge.

The purpose of this report is to provide site-specific information for the Township and Region to review with respect to municipal infrastructure required to support the proposed development regarding sanitary sewers, water supply and storm drainage. The Pre-Consultation comments are enclosed in **Appendix 1** for reference.

The following documents were reviewed and referenced as part of the preparation of this report:

- Topographic Survey prepared by H.F. Grander Co. Ltd., OLS dated May 15, 2023.
- Nelkydd Lane Plan & Profile Sta. 0+000 to Sta. 0+220, drawing number PP-1 prepared by Vincent & Associates, dated July 2000, Revision 1 dated Oct/05 – As-Constructed.
- Brock Street Plan & Profile Sta. 0+900 to Sta. 1+100, drawing number PP-03 prepared by Cole Engineering Group Ltd., dated December 2018, Revision 8 dated January 16, 2020 – Issued for Construction, not As-Constructed.
- General Plan - West, drawing number GP-01 prepared by Cole Engineering Group Ltd., dated December 2019, Revision 8 dated January 16, 2020 – Issued for Construction, not As-Constructed.
- “A Report to Coral Creek Homes - A Soil Investigation for Proposed Residential Subdivision, Part of Lots 29 and 30, Concession VII, Township of Uxbridge” prepared by Soil-Eng Limited, dated July 1999.

1.2 Site Description

The subject property is approximately 1440 square meters or 0.144 Ha in size and is located at the south east corner of Nelkydd Lane and Brock Street East as shown in **Figure 1**. It is comprised of Part of Lot 30, Concession 7 and Part of Lots 51 and 52, Plan H50061, in the Township of Uxbridge and Regional Municipality of Durham. The property is occupied by a 1 storey brick house with an integrated double car garage. The existing house is accessed by a paved driveway from Nelkydd Lane and has a relatively large paved parking lot on the south side of the building. There is a second driveway from Brock Street that is partially paved and gravel surface that extends to the paved parking lot.

1.3 Proposed Development

The intention is to demolish the existing building to re-develop the property into a 4 unit freehold townhouse residential development.

1.4 Existing Topography

A topographic survey prepared by H.F. Grander shows that the property slopes generally south to north with a portion draining west to Nelkydd Lane. There is a stormwater management pond to the south that does not receive drainage from this property.

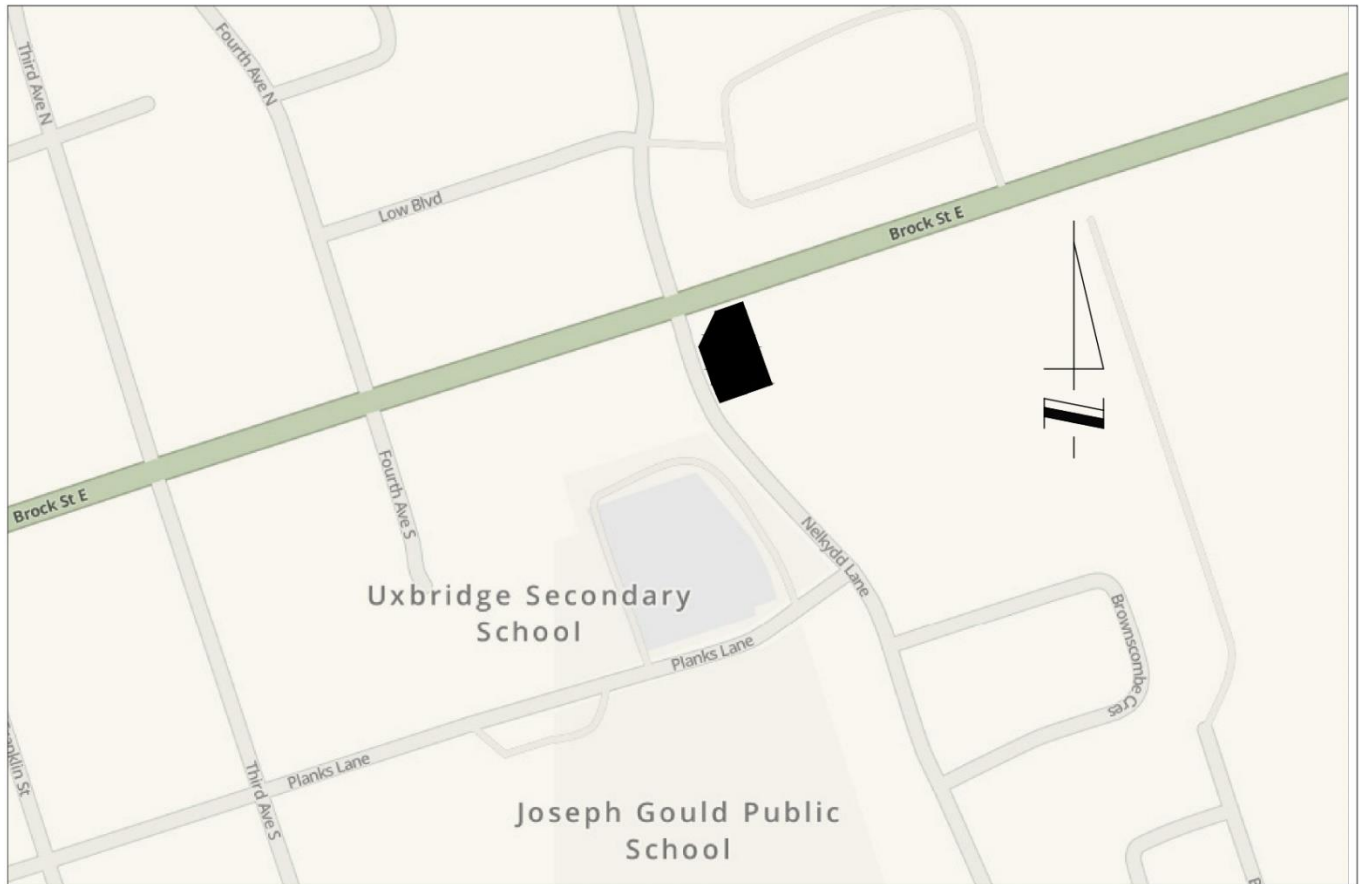


Figure 1 – Key Plan (Not to Scale)

2 EXISTING MUNICIPAL INFRASTRUCTURE

There is existing storm sanitary and water systems available to service the subject property. Drawing No. 101 which was prepared to accompany this report shows the existing municipal infrastructure in the vicinity of the subject property on Nelkydd Land and Brock Street East:

- 200 mm sanitary sewer on Nelkydd that drains to the north.
- 300 mm watermain located on the east side of the pavement of Nelkydd and on the south side of Brock.
- 300 mm and 750 mm storm sewers on Nelkydd that drain to the north and a ditch inlet catchbasin (DICB) and a ditch inlet catchbasin manhole (DICBMH) and 300 mm diameter storm sewers located in the boulevard to the north of the subject property that directs storm drainage west on Brock.

3 SANITARY SEWER SYSTEM

3.1 Existing Sanitary Sewer Drainage System

The Region of Durham has indicated through the Pre-Consultation process that sanitary servicing is available from the existing 200 mm PVC sanitary sewer on Nelkydd Lane and any existing connections shall be capped at the back of the curb and abandoned.

3.2 Existing Sanitary Flows

The existing sanitary design flows generated by the existing house is calculated based on the Region of Durham design criteria which stipulates an average residential flow of 364 litres per person per day. The "equivalent population" is 3.5 persons per single detached dwelling. A peaking factor using the Harmon peaking factor with a maximum of 3.8 is used and an infiltration allowance of 22.5 cu.m. per gross hectare per day is applied where foundation drains are not connected to the sanitary sewer, as is the case for this project.

Table 1 - Pre-Development Equivalent Population			
Dwelling Type	No. Units	P/Unit	Population
S.F. Dwelling	1	3.5	3.5
Total Population =			3.5

Using a maximum peaking factor of 3.8 and applying the average residential flow, the daily sanitary flow is 4841.2 litres per day. The gross sanitary tributary area is 1325 sq.m. (0.1325 Ha) resulting in an infiltration daily volume of 2.98125 cu.m. per day or 2,981.3 litres per day for a total sanitary design flow of 7,822.5 litres per day or 0.09 litres per second.

3.3 Proposed Sanitary Flows

The "equivalent population" is 3.0 persons per townhouse unit, for a total population of 12 which is an increase of 8.5 persons.

Table 2 - Post Development Equivalent Population			
Dwelling Type	No. Units	P/Unit	Population
Townhouses	4	3	12
Total Population =			12

The daily sanitary flow including peaking is 16,598.4 litres per day including peaking. Adding the infiltration of 2,980 L/day, the total flow including infiltration is 19,578.4 L/day or 0.27 L/s which is an increase of 0.18 L/s.

Sanitary sewer service connections will be provided to each unit from the existing 200 mm diameter sanitary sewer main per the applicable Region of Durham standards and criteria and based on the inverts shown on the original engineering drawings for Nelkydd and Brock Street E., there is sufficient depth to provide gravity connections to each of the proposed units.

4 WATER DISTRIBUTION SYSTEM

4.1 Existing Water Distribution System

The Region of Durham has indicated through the Pre-Consultation that the proposed development is located within the Uxbridge Water Pressure Zone 1. The estimated static water pressure exceeds 550 Kpa or 80 psi, therefore pressure reducing valves will be required and the water supply is available from the existing 300mm PVC watermain on Nelkydd Lane.

4.2 Proposed Water Service Connections

Individual water service connections will be provided to each unit from the existing 300 mm diameter watermain per the applicable Region of Durham standards and criteria.

Any existing connections not utilized shall be capped at the main with a brass fitting and abandoned.

4.3 Fire Fighting

There is an existing fire hydrant located on the east boulevard of Nelkydd Lane at the south end of the property and another hydrant on the south boulevard of Brock Street at the north west corner of the property. These hydrants will provide sufficient coverage for the proposed development.

5 STORMWATER MANAGEMENT & STORM DRAINAGE

The Township of Uxbridge has indicated that the property is included in the service area for the existing SWM Pond on the Barton Farm Subdivision located north of Brock St E. The runoff coefficient for the development shall not exceed 0.45 and all of the site drainage needs to be conveyed to the existing storm sewers on Nelkydd Lane and/or Brock St E.

5.1 Peak Flow and Quantity Control

Based on the existing surfaces shown in **Figure 2**, the pre-development composite runoff coefficient is calculated in **Table 3** and **Table 4** calculates the peak flows for the different storm events:

Table 3 - Pre-Development Composite Runoff Coefficient			
Surface	Area (sq.m.)	C	C x A
Roof	174.2	0.95	165.5
Paved	445.3	0.95	423.0
Gravel	55.4	0.50	27.7
Landscape	765.10	0.20	153.0
Total	1440		
Composite C =		0.53	

Table 4 - Post Development Uncontrolled Peak Storm Flows			
Return Period	Rainfall Intensity (mm/hour)	Runoff Coefficient C	Peak Flow (L/s)
2	76.76	0.53	16.3
5	107.01	0.53	22.7
10	126.06	0.53	26.7
25	154.64	0.53	32.8
100	200.63	0.53	42.5
Total Area =		1440.0	sq.m.
Impervious Area =		674.9	sq.m.
Pervious Area =		765.1	sq.m.
Impervious C =		0.20	
Pervious C =		0.95	

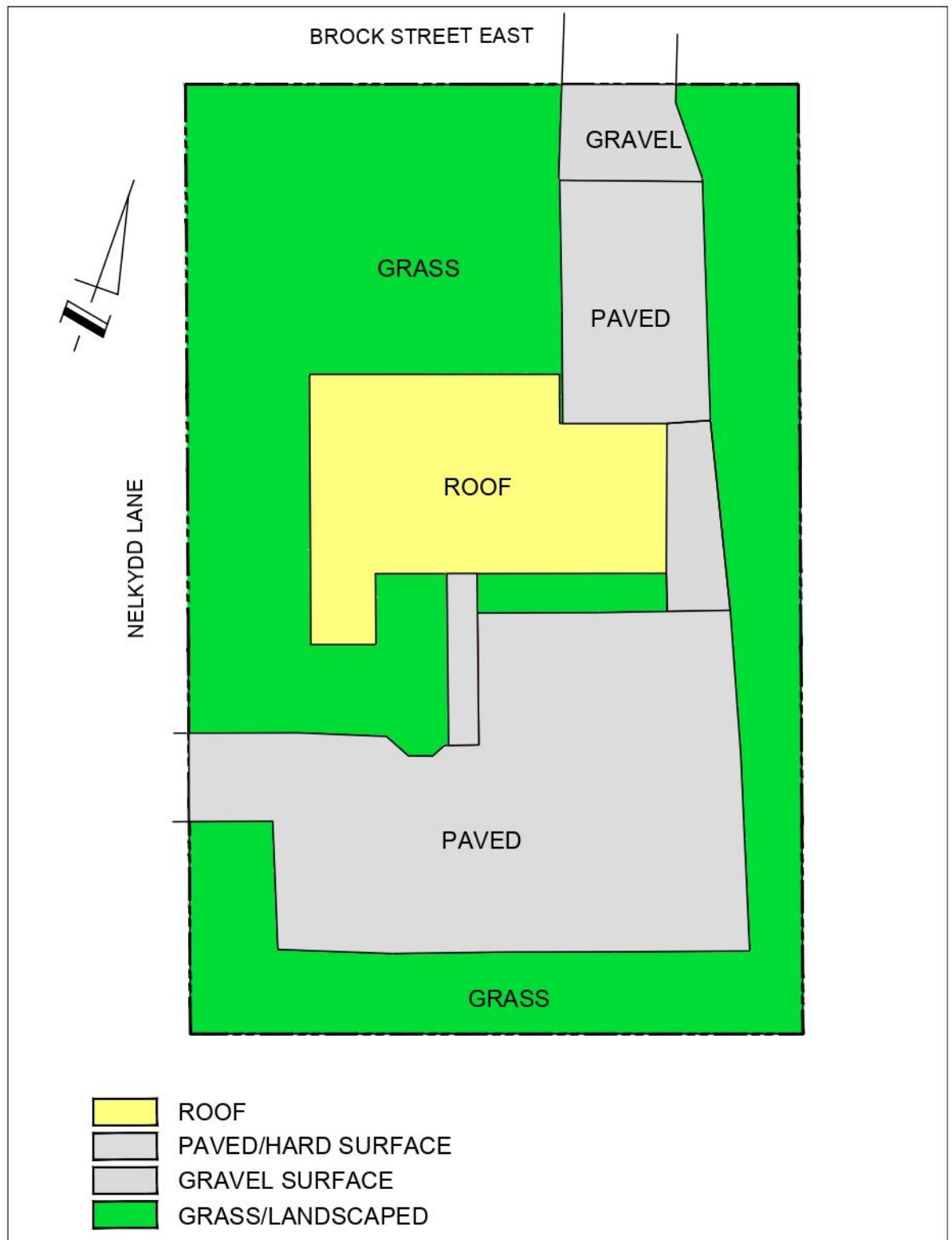


Figure 2 – Pre-Development Surfaces (Not to Scale)

Table 5 is the post development runoff coefficient calculation and is based on the surfaces shown in **Figure 3** and **Table 6** calculates the uncontrolled peak storm flows:

Table 5 - Post Development Composite Runoff Coefficient			
Surface	Area (sq.m.)	C	C x A
Roof	513.8	0.95	488.1
Paved	221.9	0.95	210.8
Porch/Stairs	48.4	0.95	46.0
Grass	655.9	0.20	131.2
Total	1440		
Composite C =		0.61	

Table 6 - Post Development Uncontrolled Storm Peak Flows			
Return Period	Rainfall Intensity (mm/hour)	Runoff Coefficient C	Peak Flow (L/s)
2	76.76	0.61	18.7
5	107.01	0.61	26.0
10	126.06	0.61	30.7
25	154.64	0.61	37.6
100	200.63	0.61	48.8
Total Area =		1440.0 sq.m.	
Impervious Area =		784.1 sq.m.	
Pervious Area =		655.9 sq.m.	
Impervious C =		0.20	
Pervious C =		0.95	

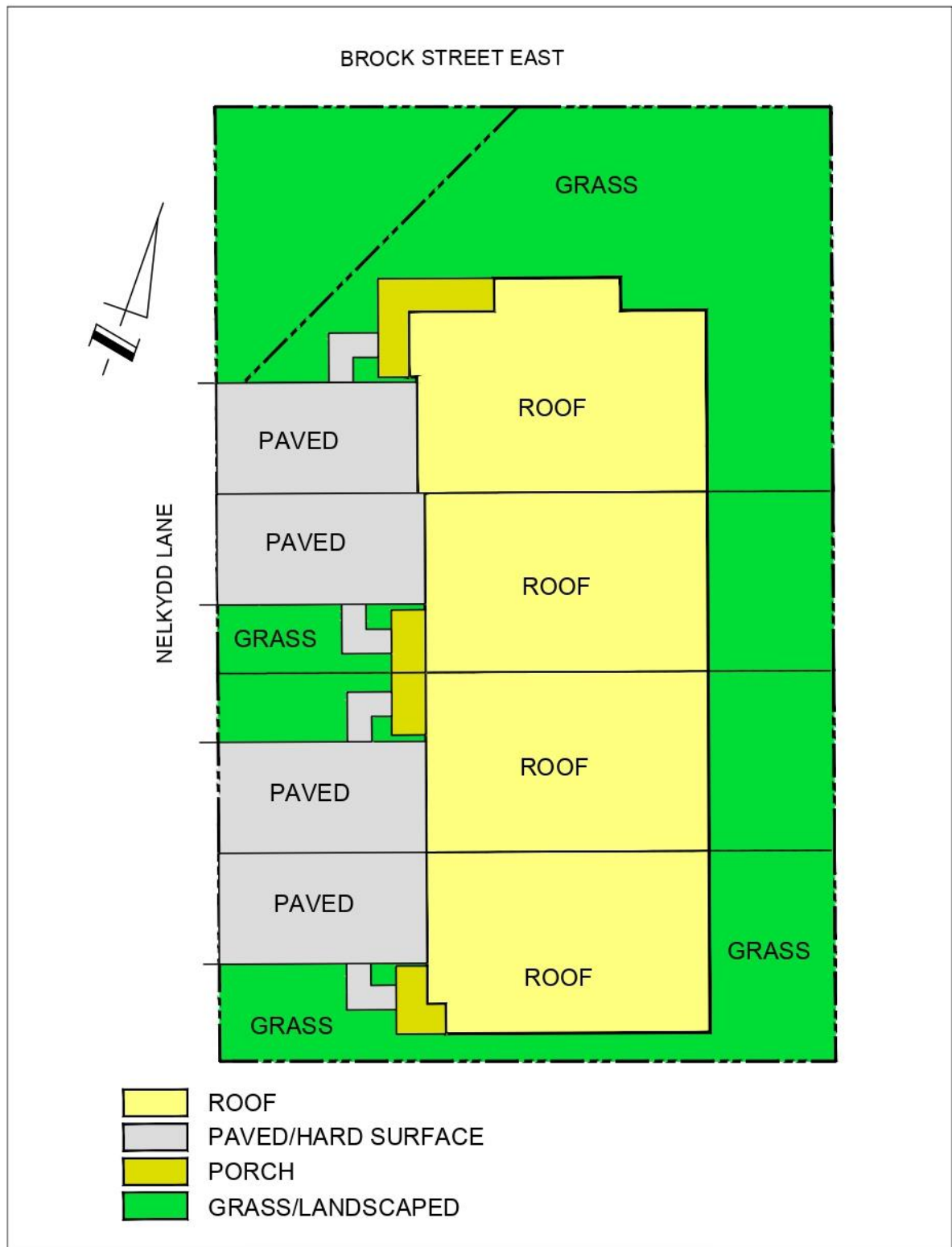


Figure 3 – Post-Development Surfaces (Not to Scale)

Table 7 compares the uncontrolled pre and post development peak flows:

Table 7 - Comparison of Uncontrolled Pre to Post Development Storm Peak Flows			
Storm Event	Pre L/s	Post L/s	Change L/s
2	16.3	18.7	2.4
5	22.7	26.0	3.3
10	26.7	30.7	4.0
25	32.8	37.6	4.8
100	42.5	48.8	6.3

In order to comply with the Township of Uxbridge requirement that the peak storm runoff be controlled based on a runoff coefficient of 0.45. **Table 8** calculates the “allowable” discharge rate for the different storm events:

Table 8 - Post Development Allowable Peak Storm Flows			
Return Period	Rainfall Intensity (mm/hour)	Runoff Coefficient C	Peak Flow (L/s)
2	76.76	0.45	13.8
5	107.01	0.45	19.3
10	126.06	0.45	22.7
25	154.64	0.45	27.8
100	200.63	0.45	36.1
Total Area =		1440.0	sq.m.

Table 9 is a summary of the detention volumes required to maintain the allowable peak flows to the downstream storm system. The detailed calculations are found in **Appendix 2**:

Table 9 - Storm Detention Volumes Required		
Storm Event	Controlled Peak Flow (L/s)	Detention Volume (cu.m.)
2	13.8	3.0
5	19.3	4.1
10	22.7	4.8
25	27.8	6.0
100	36.1	7.7

5.2 Quantity Control Mitigation

In order to maintain the peak flows to the allowable levels, it is proposed to pipe the downspouts to soakaway pits and retain the required volumes. The maximum retention volume required is 7.7 cu.m. and soakaway pits will be provide for each unit to provide the required volumes. The detailed calculations to size the soakaway pits are provided in **Appendix 3** and the total contact area required is 7.7 sq.m. Table 9 calculates the soakaway pit area required for each unit based on a weighted roof area:

Table 10 - Soakaway Pit Breakdown			
	Roof		Soakaway
	Area	Ratio	Pit Area
Unit	(sq.m.)	(%)	(sq.m.)
PART 1	124.5	24.2%	3.25
PART 2	124.5	24.2%	3.25
PART 3	124.4	24.2%	3.24
PART 4	140.5	27.3%	3.66
Totals =	513.9	100.0%	13.4
Total Soakaway Area Required =			13.4

The proposed soakaway pits have been shown on the drawing and have a total area of 13.49 sq.m. with a proposed depth of 1.5 m results in a total retention volume of 8.1 cu.m.

5.3 Water Balance

Typically retaining 5 mm of rainfall from impervious areas meets the water balance criteria as landscaped areas are considered to retain at least 5 mm. The pre-development condition has an impervious area of 674.9 sq.m. and therefore would be deficient by 3.4 cu.m. while the proposed development has a total impervious area of 784.1 sq.m. and is deficient by 3.9 cu.m. In essence, retaining 0.2 cu.m. will maintain the current water balance for the site.

5.4 Water Quality Control - TSS Removal

The proposed development has driveways that drain to the road as is typical. The roof discharge is directed to soakaway pits. Figure 4 shows Table 3.2 from the 2003 MOE SWM Planning and Design Manual, infiltration techniques provide water quality benefits. The proposed development has an imperviousness of 54.5% and from Table 3.2, a storage volume of 30 cu.m./ha provides 80% TSS removal. The proposed 7.7 cu.m. of retention is equal to 53.5 cu.m. /Ha which far exceeds the requirement.

Table 3.2 Water Quality Storage Requirements based on Receiving Waters^{1, 2}

Protection Level	SWMP Type	Storage Volume (m³/ha) for Impervious Level			
		35%	55%	70%	85%
<i>Enhanced</i> 80% long-term S.S. removal	Infiltration	25	30	35	40
	Wetlands	80	105	120	140
	Hybrid Wet Pond/Wetland	110	150	175	195
	Wet Pond	140	190	225	250
<i>Normal</i> 70% long-term S.S. removal	Infiltration	20	20	25	30
	Wetlands	60	70	80	90
	Hybrid Wet Pond/Wetland	75	90	105	120
	Wet Pond	90	110	130	150
<i>Basic</i> 60% long-term S.S. removal	Infiltration	20	20	20	20
	Wetlands	60	60	60	60
	Hybrid Wet Pond/Wetland	60	70	75	80
	Wet Pond	60	75	85	95
	Dry Pond (Continuous Flow)	90	150	200	240

¹Table 3.2 does not include every available SWMP type. Any SWMP type that can be demonstrated to the approval agencies to meet the required long-term suspended solids removal for the selected protection levels under the conditions of the site is acceptable for water quality objectives. The sizing for these SWMP types is to be determined based on performance results that have been peer-reviewed. The designer and those who review the design should be fully aware of the assumptions and sampling methodologies used in formulating performance predictions and their implications for the design.

²Hybrid Wet Pond/Wetland systems have 50-60% of their permanent pool volume in deeper portions of the facility (e.g., forebay, wet pond).

Figure 4 – Table 3.2 - 2003 MOE SWM Planning & Design Manual

5.5 Erosion and Sediment Control During Construction

Due to the very nature of construction and development, the potential for erosion and migration of sediment from the site is increased. By implementing “good housekeeping” measures such as providing silt fences around the perimeter of the site, silt filters at catchbasins, temporary tracking control at the construction vehicle entrance to the site, rock check dams with filter cloth in any temporary drainage swale, and stabilizing the site as soon as possible, the potential for erosion and sediment migration can be minimized. and shall be in accordance with the GTA CA's Erosion & Sediment Control Guidelines for Urban Construction (2006).

6 PROPOSED GRADING

The proposed grading will provide for a self-contained storm drainage system that will ultimately direct the fronts of the buildings and driveways to Nelkydd Lane and the rear yards to the storm inlets located on the south Brock Road boulevard.

7 SUMMARY

The total area of the subject property is 1440 square meters or 0.144 Ha.

The intention is to demolish the existing building to re-develop the property into a 4 unit freehold townhouse residential development.

A topographic survey prepared by H.F. Grander shows that the property slopes generally south to north with a portion draining west to Nelkydd Lane. There is a stormwater management pond to the south that does not receive drainage from this property.

There is existing storm sanitary and water systems available to service the subject property.

The development will increase the population contributing sanitary drainage to the existing sanitary sewer on Nelkydd Lane by 8.5 Persons and results in an increase peak flow of 0.18 L/s which is assumed can be accommodated by the existing downstream system.

Sanitary sewer service connections will be provided to each unit from the existing 200 mm diameter sanitary sewer main per the applicable Region of Durham standards and criteria and based on the inverts shown on the original engineering drawings for Nelkydd and Brock Street E., there is sufficient depth to provide gravity connections to each of the proposed units.

The Region of Durham has indicated through the Pre-Consultation that the proposed development is located within the Uxbridge Water Pressure Zone 1. The estimated static water pressure exceeds 550 Kpa or 80 psi, therefore pressure reducing valves will be required and the water supply is available from the existing 300mm PVC watermain on Nelkydd Lane.

The Township of Uxbridge has indicated that the property is included in the service area for the existing SWM Pond on the Barton Farm Subdivision located north of Brock St E. The runoff coefficient for the development shall not exceed 0.45 and all of the site drainage needs to be conveyed to the existing storm sewers on Nelkydd Lane and/or Brock St E.

The proposed development results in a composite runoff coefficient of 0.61 and therefore mitigation is required to maintain the peak flows at an equivalent runoff coefficient of 0.45. In order to maintain up to the 100 year post development peak flow at the required runoff coefficient, a total volume of 7.7 cu.m. needs to be detained.

The proposed SWM system includes piping the roof leaders to soakaway pits located in the rear and front yards of the proposed dwellings. The retention volume provided of 8.1 cu.m. exceeds the volume required to maintain up to the 100 year storm event at the allowable peak flow. Therefore the quantity control requirement is met.

In order to meet the water balance criteria of 5 mm of rainfall being retained a total volume of 3.9 cu.m. is required. The proposed soakaway pits will infiltrate 8.1 cu.m. over 48 hours and therefore meets and exceeds this requirement.

The soakaway pits also provide for water quality treatment and will provide for 80% TSS removal based on the volume infiltrated considered over the entire area of the site.

Due to the very nature of construction and development, the potential for erosion and migration of sediment from the site is increased. By implementing "good housekeeping" measures such as providing silt fences around the perimeter of the site, silt filters at catchbasins, temporary tracking control at the construction vehicle entrance to the site, rock check dams with filter cloth in any temporary drainage swale, and stabilizing the site as soon as possible, the potential for erosion and sediment migration can be minimized. and shall be in accordance with the GTA CA's Erosion & Sediment Control Guidelines for Urban Construction (2006).

The proposed grading will provide for a self-contained storm drainage system that will ultimately direct the fronts of the buildings and driveways to Nelkydd Lane and the rear yards to the storm inlets located on the south Brock Road boulevard, as required by the Town of Uxbridge

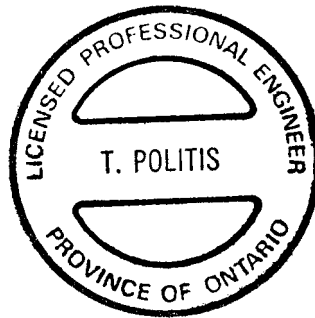
Respectfully submitted

Politis Engineering Ltd.



Per:

Tim Politis, P.Eng.



APPENDIX 1



March 22, 2023

RE: RECORD OF PRE-CONSULTATION FOR ZONING BY-LAW AMENDMENT APPLICATION

PROPERTY LOCATION: PT LTS 51 & 52, PL H50061 & PT W 1/2 LT 30, CON 7, UXBRIDGE, PT 1, 40R4323

MUNICIPALITY: TOWNSHIP OF UXBRIDGE

The details of the meeting are as follows:

Pre-consultation Date: February 27, 2023

Parties in attendance: **Proponents**
Fabio Furlan - Owner
Ralph Grander - Agent

Township of Uxbridge Representatives

Kyle Rainbow, Director of Development Services
Michael Klose, Township Chief Building Official
Aj Singh, Planning Technician
Todd Snooks, Ward 4 Councillor/Planning Chair
Zed Pickering, Ward 3 Councillor
Peter Middaugh, AECOM
Laura Tafreshi, Planner – LSRCA

Description of Proposal:

A proposed Zoning By-Law Amendment Application for 4 townhome units at 202 Brock Street East. A quilt shop currently runs at the subject site.

Township of Uxbridge Zoning By-law Designation: PT LTS 51 & 52, PL H50061 & PT W 1/2 LT 30, CON 7, UXBRIDGE, PT 1, 40R4323 TOWNSHIP OF UXBRIDGE

Is the proposal in conformity with the Township of Uxbridge Zoning By-law?

The proposal is not in conformity with the Zoning By-law 81-19 and amendment is required.

The site 202 Brock Street East is zoned currently zoned for Commercial (C2-4). According to 4.15.1 a "Residential uses are prohibited except where one (1) dwelling unit only is located within a portion of a non-residential building permitted within the

Local Commercial Zone.” Based on the site plan submitted as part of pre-consultation, the proposal is seeking 4 townhome units at the site, which would not conform with the current C2-4 zone. In addition there are a number of other regulations will require amendments (e.g. required landscaped open space, parking area and side yards) if site plan is approved as proposed.

Please submit a completed application including relevant studies, requirements along with appropriate fees to the Development Services Department. Please contact Jennifer Beer, Permits & Approvals Analyst at 905-852-9181 ext. 225 or by email at jbeer@uxbridge.ca for further information.

Note: *Please refer to the ‘Pre-Consultation Form’ package provided secondary to the record of pre-consultation meeting which will identify relevant studies, requirements and materials that need to be submitted with your planning application.*

Township of Uxbridge Official Plan Designation: The 202 Brock Street East is designated as Brock Street Mixed use Area on Township Official Plan.

Is the proposal in conformity with the Township Official Plan:

According to section 2.5.25.2 iv) medium or higher density residential uses, including dwelling units above at-grade commercial development, with a minimum density of 35 units per net hectare (14 units per net acre) and a maximum density of 65 units per net hectare (26 units per net acre). The proposed 4 townhome units would conform with the Township Official Plan.

Other Requirements:

Region of Durham Works Department Comments dated Mar. 16/23::

‘Regional Works has reviewed the pre-consultation application and provides the below comments.

202 Brock Street East

Municipal Servicing

Water Supply:

- The proposed development is located within the Uxbridge Water Pressure Zone 1. The estimated static water pressure exceeds 550 Kpa or 80 psi, therefore pressure reducing valves will be required.*
- Water Supply is available from the existing 300mm PVC watermain on Nelkydd Lane*
- Any existing connections not utilized shall be capped at the main with a brass fitting and abandoned.*

Sanitary Servicing:

- Sanitary Servicing is available from the existing 200mm PVC sanitary sewer on Nelkydd Lane.
- Any existing connections shall be capped at the back of curb and abandoned.

Transportation

- Brock Street (Regional Highway 47) is a Type 'B' arterial road. As per the Regional Official Plan (Schedule E, Table E7), the ROW width should be 30 m. No widening is required.
- A 15 m x 15 m Sight triangle dedication will be required at the intersection of the Brock Street and Nelkydd Lane, and has been represented on the conceptual plan
- The Region is currently designing for signal installation at the intersection. Although the driveway locations are not ideal for a signalized intersection, given the limitations of the site and low traffic volumes, we will accept the 2 shared driveway locations as shown.
- The developer should note that as part of the traffic signal installation, on-street parking will be restricted along the site frontage.

Development Charges

- The proposed development is subject to residential charges that are due prior to issuance of a building permit

Region of Durham Planning Division's Preliminary Comments dated Feb. 24/23:

'The subject land is located at the northeast corner Brock Street East and Nelkydd Lane within the limits of the Uxbridge Urban Area. The site is approximately .14 hectares and is currently occupied by an existing dwelling proposed to be demolished.

The applicant is proposing to redevelop the property for four (4) townhome units fronting Nelkydd Lane. The applicant will be required to apply for a Zoning By-law Amendment to permit the proposed development.

We offer the following preliminary Regional planning comments.

Conformity to the Regional Official Plan

The subject land is designated as "Living Areas" in the Regional Official Plan (ROP). Brock Street East is a designated Type "B" arterial road in the ROP.

Lands within the Living Areas designation shall be developed with a mix of housing types, sizes and tenure to meet the diverse housing needs of the residents of Durham Region.

Living Areas shall be developed in compact form through higher densities and by intensifying and redeveloping existing areas, particularly along arterial roads.

The proposed townhouse development supports mix of housing options for the residents of Durham Region, compact urban form, and pedestrian-friendly environment.

The proposed housing type fits with the character of the existing neighbourhood and conforms with the ROP.

Delegated Provincial Plan Review Responsibilities

We have reviewed the subject land for delegated Provincial plan review responsibilities

Site-Screening Questionnaire

A Qualified Person (QP) must complete and sign the Region's Site-Screening Questionnaire (SSQ) for the subject land (refer to Attachment 1). If potential contaminating activity is found at the site, at the minimum, a Record of Site Condition Compliant "Phase One Environmental Site Assessment" (Phase One ESA) must be completed for the proposed development in accordance with Durham Region's Soil and Groundwater Assessment Protocol.

Noise Impact Study

The subject land is adjacent to Brock Street East, a designated Type "B" arterial road and an existing commercial use to the east. A "Noise Impact Study" is required to assess the potential impact of traffic and stationary noise sources on the proposed development.

We will require any noise control recommendations from the Noise Impact Study to be implemented in the related Township of Uxbridge's Site plan/Development agreement to the satisfaction of the Region of Durham.

Regional Servicing, Transportation, and Durham Regional Transit

Regional servicing, transportation and transit requirements will be provided by the respective commenting agencies.

Regional Planning Development Review Fee

The Region's review fee for a Zoning By-law application is \$1500.00

*Please see the attachment for **Site-Screening Questionnaire (SSQ)**.'*

Lake Simcoe Region Conservation Authority Comments dated Mar. 02/23:

***Please see the attached** for comments from the Lake Simcoe Region Conservation Authority.*

Township of Uxbridge

Township of Uxbridge Fire Department

The fire department did not provide comments prior to the pre-consultation meeting but the Township of Uxbridge Development Services staff will follow-up with the Fire Department for comments they have surrounding this proposal.

Township of Uxbridge Engineering Comments (AECOM) dated Mar. 16/23

'We have reviewed the conceptual site plan for the development of the 4 residential lots on the south east corner of Nelkydd Lane and Brock St E.

The Township Engineering comments are as follows:

1. This property is included in the service area for the existing swm pond on the Barton Farm Subdivision located north of Brock St E. The runoff coefficient for the development shall not exceed 0.45. All of the site drainage needs to be conveyed to the existing storm sewers on Nelkydd Lane and / or Brock St E.

2. Given the site is currently serviced by an existing SWM pond, the subdivision agreement for the design and construction of the existing SWM pond includes a Best Efforts condition for the recovery of costs for the oversizing of downstream drainage / swm facilities that services these lands. For further details please contact Jim Teefy, P.Eng at the following email address: jim.teefy@aecom.com.

3. A functional servicing report shall be prepared to address how the proposed lots will be serviced and how all of the surface drainage will be collected and conveyed to the existing storm sewers along the frontage of Nelkydd Lane and Brock St.

4. The functional servicing report shall also address the how the applicant will address the requirements of the phosphorous reduction policy. For further details please contact Jim Teefy, P.Eng as per comment 2.

5. The functional servicing report shall also address the minimum setback a driveway can be located from Brock St E to address road safety.

6. Township Design Criteria and Standards provide further guidance for the preparation of the site developments for proposed redevelopment of the property. A copy of the Township Design Criteria can be purchased from the Township.

7. The following drawings will need to be prepared and submitted with the Site Plan Development application:

7.1. Servicing Plan

7.2. Lot Grading Plan

7.3. Plan and profiles for the modifications to both Nelkydd Lane and Brock St E.

7.4. Erosion and sedimentation control plans.

Additional Minute details from Feb. 27/23 Pre-Consultation meeting:

The owner of 202 Brock Street East, Fabio Furlan, proposed a development plan to build four townhome units at the site, requiring a re-zoning. The councillors expressed positive feedback with the proposed development but raised concerns over traffic and speed at the site, the location of the first driveway, and drainage management. The proposed development complied with the Official Plan Designation for Brock Street Mixed Use Area, permitting low-medium density units as long as the front of the units faced Brock Street. Development charges were applicable, and the developer needed to obtain approvals for sewage and servicing of the site, stormwater management, and erosion and sedimentation control plans. The LSRCA had no jurisdiction over the site, and an Official Plan Amendment would be required if the development didn't implement the corner treatment.

Contact Information:

1.	Kurt Niles, Region of Durham Works Department	Telephone: 905-668-4113 ext. 2819 Email: kurt.kniles@durham.ca
2.	Paul Davis, Region of Durham Health Department	Telephone: 905-723-3818 ext. 4637 Email: paul.davis@durham.ca
3.	Laura Tafreshi, Planner LSRCA	Email: L.Tafreshi@lsrca.on.ca
4.	Peter Middaugh, Township of Uxbridge Engineering – AECOM	Telephone: 905-767-1407 Email: peter.middaugh@aecom.com
7.	Kyle Rainbow, Director of Development Services, Township of Uxbridge	Telephone: 905-852-9181 ext. 219 Email: krainbow@uxbridge.ca
8.	Mike Klose, Chief Building Official	Telephone: 905-852-9181 ext. 214 Email: mklose@uxbridge.ca
9.	Ken Maynard, Township of Uxbridge Fire Department	Telephone: 905-852-9181 ext. 306 Email: kmaynard@uxbridge.ca
10.	Aj, Planning Technician, Township of Uxbridge	Telephone: 905-852-9181 ext. 212 Email: asingh@uxbridge.ca
11.	Zed Pickering, Ward 3 Councillor	Email: zpickering@uxbridge.ca
12.	Todd Snooks, Ward 4 Councillor	Email: tsnooks@uxbridge.ca

APPENDIX 2

2 YEAR STORAGE REQUIREMENTS

SUBJECT SITE
 AREA (ha) = 0.144
 C = 0.61

ALLOWABLE DISCHARGE RATE (m3/s) = 0.0138

RAINFALL INTENSITY

$$I = A / (C + T)^B$$

Where A= 645
 B= 0.786
 C= 5

REQUIRED STORAGE VOLUME (m3) = 3.0

TIME (min)	INTENSITY (mm/hr)	PEAK FLOW (m3/s)	RUNOFF VOLUME (m3)	DISCHARGE VOLUME (m3)	STORAGE VOLUME (m3)
10.0	76.76	0.019	11.2	8.3	3.0
11.0	72.97	0.018	11.8	9.1	2.6
12.0	69.57	0.017	12.2	9.9	2.3
13.0	66.51	0.016	12.7	10.8	1.9
14.0	63.75	0.016	13.1	11.6	1.5
15.0	61.23	0.015	13.4	12.4	1.0
16.0	58.92	0.014	13.8	13.2	0.6
17.0	56.81	0.014	14.1	14.1	0.1
18.0	54.86	0.013	14.5	14.9	0.0
19.0	53.05	0.013	14.8	15.7	0.0
20.0	51.38	0.013	15.0	16.6	0.0
21.0	49.82	0.012	15.3	17.4	0.0
22.0	48.36	0.012	15.6	18.2	0.0
23.0	47.00	0.011	15.8	19.0	0.0
24.0	45.72	0.011	16.1	19.9	0.0
25.0	44.52	0.011	16.3	20.7	0.0
26.0	43.39	0.011	16.5	21.5	0.0
27.0	42.32	0.010	16.7	22.4	0.0
28.0	41.31	0.010	16.9	23.2	0.0

5 YEAR STORAGE REQUIREMENTS

SUBJECT SITE
 AREA (ha) = 0.144
 C = 0.61

ALLOWABLE DISCHARGE RATE (m3/s) = 0.0193

RAINFALL INTENSITY

$$I = A / (C + T)^B$$

Where A= 904
 B= 0.788
 C= 5

REQUIRED STORAGE VOLUME (m3) = 4.1

TIME (min)	INTENSITY (mm/hr)	PEAK FLOW (m3/s)	RUNOFF VOLUME (m3)	DISCHARGE VOLUME (m3)	STORAGE VOLUME (m3)
10.0	107.01	0.026	15.7	11.6	4.1
11.0	101.70	0.025	16.4	12.7	3.6
12.0	96.96	0.024	17.0	13.9	3.1
13.0	92.69	0.023	17.6	15.1	2.6
14.0	88.82	0.022	18.2	16.2	2.0
15.0	85.30	0.021	18.7	17.4	1.4
16.0	82.08	0.020	19.2	18.5	0.7
17.0	79.13	0.019	19.7	19.7	0.0
18.0	76.41	0.019	20.1	20.8	0.0
19.0	73.89	0.018	20.6	22.0	0.0
20.0	71.55	0.017	20.9	23.2	0.0
21.0	69.37	0.017	21.3	24.3	0.0
22.0	67.34	0.016	21.7	25.5	0.0
23.0	65.43	0.016	22.0	26.6	0.0
24.0	63.65	0.016	22.4	27.8	0.0
25.0	61.97	0.015	22.7	29.0	0.0
26.0	60.39	0.015	23.0	30.1	0.0
27.0	58.90	0.014	23.3	31.3	0.0
28.0	57.49	0.014	23.6	32.4	0.0

10 YEAR STORAGE REQUIREMENTS

SUBJECT SITE
 AREA (ha) = 0.144
 C = 0.61

ALLOWABLE DISCHARGE RATE (m3/s) = 0.0227

RAINFALL INTENSITY

$$I = A / (C + T)^B$$

Where A= 1065
 B= 0.788
 C= 5

REQUIRED STORAGE VOLUME (m3) = 4.8

TIME (min)	INTENSITY (mm/hr)	PEAK FLOW (m3/s)	RUNOFF VOLUME (m3)	DISCHARGE VOLUME (m3)	STORAGE VOLUME (m3)
10.0	126.06	0.031	18.5	13.6	4.8
11.0	119.81	0.029	19.3	15.0	4.3
12.0	114.22	0.028	20.1	16.3	3.7
13.0	109.19	0.027	20.8	17.7	3.1
14.0	104.64	0.026	21.4	19.1	2.4
15.0	100.49	0.025	22.1	20.4	1.6
16.0	96.70	0.024	22.7	21.8	0.9
17.0	93.22	0.023	23.2	23.2	0.0
18.0	90.01	0.022	23.7	24.5	0.0
19.0	87.04	0.021	24.2	25.9	0.0
20.0	84.29	0.021	24.7	27.2	0.0
21.0	81.72	0.020	25.1	28.6	0.0
22.0	79.33	0.019	25.6	30.0	0.0
23.0	77.09	0.019	26.0	31.3	0.0
24.0	74.99	0.018	26.3	32.7	0.0
25.0	73.01	0.018	26.7	34.1	0.0
26.0	71.15	0.017	27.1	35.4	0.0
27.0	69.39	0.017	27.4	36.8	0.0
28.0	67.73	0.017	27.8	38.1	0.0

25 YEAR STORAGE REQUIREMENTS

SUBJECT SITE
 AREA (ha) = 0.144
 C = 0.61

ALLOWABLE DISCHARGE RATE (m3/s) = 0.0278

RAINFALL INTENSITY

$$I = A / (C + T)^B$$

Where A= 1234
 B= 0.787
 C= 4

REQUIRED STORAGE VOLUME (m3) = 6.0

TIME (min)	INTENSITY (mm/hr)	PEAK FLOW (m3/s)	RUNOFF VOLUME (m3)	DISCHARGE VOLUME (m3)	STORAGE VOLUME (m3)
10.0	154.64	0.038	22.6	16.7	6.0
11.0	146.46	0.036	23.6	18.3	5.2
12.0	139.21	0.034	24.5	20.0	4.4
13.0	132.72	0.032	25.3	21.7	3.6
14.0	126.89	0.031	26.0	23.4	2.7
15.0	121.60	0.030	26.7	25.0	1.7
16.0	116.79	0.028	27.4	26.7	0.7
17.0	112.39	0.027	28.0	28.4	0.0
18.0	108.35	0.026	28.6	30.0	0.0
19.0	104.62	0.026	29.1	31.7	0.0
20.0	101.18	0.025	29.6	33.4	0.0
21.0	97.98	0.024	30.1	35.0	0.0
22.0	95.00	0.023	30.6	36.7	0.0
23.0	92.22	0.023	31.1	38.4	0.0
24.0	89.62	0.022	31.5	40.0	0.0
25.0	87.18	0.021	31.9	41.7	0.0
26.0	84.88	0.021	32.3	43.4	0.0
27.0	82.72	0.020	32.7	45.0	0.0
28.0	80.68	0.020	33.1	46.7	0.0

100 YEAR STORAGE REQUIREMENTS

SUBJECT SITE
 AREA (ha) = 0.144
 C = 0.61

ALLOWABLE DISCHARGE RATE (m3/s) = 0.0361

RAINFALL INTENSITY

$$I = A / (C + T)^B$$

Where A= 1799
 B= 0.81
 C= 5

REQUIRED STORAGE VOLUME (m3) = 7.7

TIME (min)	INTENSITY (mm/hr)	PEAK FLOW (m3/s)	RUNOFF VOLUME (m3)	DISCHARGE VOLUME (m3)	STORAGE VOLUME (m3)
10.0	200.63	0.049	29.4	21.7	7.7
11.0	190.41	0.046	30.7	23.8	6.8
12.0	181.29	0.044	31.8	26.0	5.9
13.0	173.09	0.042	32.9	28.2	4.8
14.0	165.67	0.040	34.0	30.3	3.6
15.0	158.93	0.039	34.9	32.5	2.4
16.0	152.77	0.037	35.8	34.7	1.1
17.0	147.12	0.036	36.6	36.8	0.0
18.0	141.92	0.035	37.4	39.0	0.0
19.0	137.11	0.033	38.1	41.2	0.0
20.0	132.65	0.032	38.8	43.3	0.0
21.0	128.50	0.031	39.5	45.5	0.0
22.0	124.63	0.030	40.1	47.7	0.0
23.0	121.01	0.030	40.7	49.8	0.0
24.0	117.62	0.029	41.3	52.0	0.0
25.0	114.44	0.028	41.9	54.2	0.0
26.0	111.44	0.027	42.4	56.3	0.0
27.0	108.61	0.027	42.9	58.5	0.0
28.0	105.93	0.026	43.4	60.6	0.0

APPENDIX 3

Infiltration System Design Calculations:

Design Assumptions:

1. The required volume to retain and infiltrate is 7.7 cu.m.
2. The Silty Fine Sand native soil with an estimated coefficient of permeability of 10^{-3} to 10^{-4} cm/sec. (refer to Borehole 1 - Soil-Eng Limited "A Report to Coral Creek Homes, A soil Investigation for Proposed Residential Subdivision, Part of Lots 29 and 30, Concession VII, Town of Uxbridge" dated July 1999) will have a percolation rate in the range of 75 mm/hour (based on estimated value).
3. A 2.5 factor of safety is applicable.
4. The factored infiltration design rate is 30.0 mm/hr.
5. Infiltration system will be soakaway pits with perforated pipes that the downspouts will be directed to.
6. Clear stone has a porosity of 0.4.

Infiltration Gallery Design Calculations:

Infiltration system footprint is calculated by using the following equation from the 2003 MECP SWMPDM:

$$A = 1000V/Pn\Delta t$$

Where,

A = bottom area (m^2)
V = runoff volume to be infiltrated (m^3)
P = percolation of surrounding native soil (mm/h)
n = porosity of the storage media (0.4 for clear stone)
 Δt = retention time (24 to 48 hours)

$$A = 1000 \times 7.7 / (30.0 \times 0.4 \times 48)$$
$$A = 13.37 \text{ sq.m.}$$

The contact area for soakaway pits is 13.4 sq.m.