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**FUNCTIONAL SERVICING AND
STORMWATER MANAGEMENT REPORT
FOR THE
MATTAMY – TOR
MINOR SUBNODE BLOCK 1**

**TOWN OF MILTON
REGION OF HALTON**

**PROJECT NO. 24-1377
April 2024
Revised October 2024**

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**OCTOBER 2024
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1.0 INTRODUCTION

Mattamy (Brownridge) Limited retained David Schaeffer Engineering Limited (DSEL) to prepare a Functional Servicing and Stormwater Management Report (FSR) in support of their application for site plan control (SPC) to develop Draft Plan Block 1 in a future phase of the Tor (Garito-Barbuto) Subdivision.

The proposed development of approximately 3.03 hectares is bounded by Louis St Laurent Avenue and the French Catholic Elementary School to the north, the Omagh Woodlot and Tor Phase 1 subdivision to the west and the Tor Phase 1 subdivision to the south and east, as illustrated in **Figure 1**. Referred to as the “Subject Lands”, it is located within the Town of Milton in the Boyne Survey Lands and were studied further in the Subwatershed Impact Study Addendum for Area 5B.

The site will be developed for residential purposes, comprised of 77 townhomes, two 8 story condominiums and one 12 story condominium connect via private laneways. A reduced copy of the architectural site plan has been included at the end of this report for reference, enclosed as **Figure 2**.

Pedestrian access to the subject property is available from the north, east, south, and west and vehicular access is provided from Ferguson Drive and Stirling Todd Terrace. The private laneways will connect directly to Ferguson Drive and Stirling Todd Terrace as well as four sidewalk connections, as illustrated on **Figure 2**.

The objective of this report is to support the application for SPC by providing sufficient detail to demonstrate that the proposed development is supported by existing and proposed municipal servicing infrastructure and that the site design conforms to Town of Milton and Region of Halton design criteria, Ministry of the Environment, Conservation and Parks design guidelines, the requirements of Conservation Halton, and general industry practice.

2.0 PREVIOUS STUDIES AND REPORTS

The following material has been reviewed in order to identify the constraints, which govern development within the Subject Lands:

- **Subwatershed Impact Study for Areas 5A, 5B, and 6**
David Schaeffer Engineering Ltd., September 2018
(SIS)
- **Subwatershed Impact Study for Areas 5A, 5B, and 6; Omagh Tributary Addendum**
David Schaeffer Engineering Ltd., February 2023
(SIS Addendum)
- **Water and Wastewater Area Servicing Plan for the Boyne Survey Lands (East)**
David Schaeffer Engineering Ltd., March 2018
(ASP)
- **Functional Servicing and Stormwater Management Report for the Mattamy – Garito Barbuto Tor Development**
David Schaeffer Engineering Ltd., February 2023
(FSR)
- **Mattamy – Tor (Phase 1) – Detailed Engineering Design**
David Schaeffer Engineering Ltd., August 2024
(Phase 1 Detailed Design)
- **Stormwater Management Report for Mattamy – Garito Barbuto TOR Subdivision – Phase 1**
David Schaeffer Engineering Ltd., April 2024
(SWM Report)
- **Town of Milton Engineering and Parks Standards Manual**
Town of Milton, March 2019
(Town Standards)
- **Water and Wastewater Linear Design Manual, Version 5**
Region of Halton, October 2019
(Region Standards)
- **Design Guidelines for Sanitary Sewers, Storm Sewers and Forcemains**
Ministry of the Environment, 2023
(MECP Guidelines)
- **O. Reg. 332/12 Ontario Building Code**
Ministry of Municipal Affairs and Housing, 2019

- **Design Guidelines for Drinking Water Systems**
Ministry of the Environment, 2008
- **Stormwater Management Planning and Design Manual**
Ministry of the Environment, March 2003
- **Erosion & Sediment Control Guidelines for Urban Construction**
Toronto and Region Conservation Authority, December 2019

3.0 WASTEWATER SERVICING

3.1 Wastewater Design Criteria

The sanitary flow for the site has been designed according to the following **Region Standards & MECP Guidelines**:

Table 3-1 Wastewater Design Criteria

Demand Type	Criteria
Average dry weather flow	275 litres per capita per day
Infiltration	0.28 litres per second per hectare
Peaking Factor	Peak Flow Factor – Modified Harmon Formula
Maximum Capacity Used	Maximum 60% full flow capacity

At the request of Halton Region, where the **MECP Guideline** is more conservative in approach than the **Region Standards** (e.g. Infiltration), the **MECP Guidelines** were implemented.

3.2 Existing Wastewater Services

The supporting proposed sanitary sewers that will be available in the vicinity of the site are shown in **Table 3-2**.

Table 3-2 Summary of Tor Phase 1 Wastewater Infrastructure

Street	Size	Location
Stirling Todd Terrace	250mm	From Control MH 113A to 114A, 115A to 123A on Ferguson Drive
Ferguson Drive	300 mm	From Control MH 1301A to 1300A, 122A, and from Control MH 119A to 122A, 123A, 228A, 140A, 246A, 247A, 248A to Whitlock Avenue 249A
Whitlock Avenue	450 mm	From MH 249A, 250A, 265A to plug on Whitlock Avenue approximately 15m west of MH 226A

The sanitary sewers noted above will be constructed and active prior to the minor subnode block.

3.3 Proposed Wastewater Servicing

In accordance with the **ASP** and **Tor FSR**, the Subject Lands will outlet to the local sewers in the Tor Phase 1 subdivision, which flow to the existing trunk sewers on Whitlock Avenue. The Subject Lands will be serviced by 200/250mm sanitary sewers in the private laneways, which will outlet to Control Manholes 113A, 1301A and 119A proposed as part of Tor Phase 1. The flows from control manhole 113A are conveyed east along Stirling Todd Terrace and then south on Ferguson Drive along with the flows from control manholes 1301A and 119A, where reach the Whitlock Avenue sanitary trunk, which eventually joins wastewater flows headed for the James Snow Parkway sanitary trunk. The sanitary servicing scheme for the site is illustrated in **Drawing 4**.

Table 3-3 summarizes the estimated average and peak wastewater flows for the Subject Lands. See **Appendix B-1** for detailed calculations from the **Tor Phase 1** subdivision, and **Appendix B-2** for the Minor Subnode Block.

Table 3-3 Wastewater Flow

Design Parameter	Flow to Stirling Todd (L/s)	Flow to Ferguson Drive (L/s)
	MH 113A	MH 119A
Estimated Average Dry Weather Flow	3.56	0.41
Estimated Peak Dry Weather Flow	13.36	1.64
Estimated Peak Wet Weather Flow	13.84	1.90

The Subject Lands were accounted for in the detailed design of the **Tor Phase 1** subdivision; please see **Appendix B-1** for the sanitary drainage plan and design sheets. The proposed flow from the Subject Lands to the Tor subdivision are generally consistent with anticipated flows in the **Tor Phase 1** design. It is confirmed that there is sufficient capacity in the downstream system for the condominium block.

4.0 WATER SERVICING

4.1 Water Supply Design Criteria

The water supply for **Tor Phase 1** has been designed in accordance **Region Standards** by taking into consideration watermain sizing, depth, crossings, valves, hydrants, and service connections such that adequate pressures and fire flows can be achieved with the criteria listed below:

Table 4-1 Water Design Criteria

Demand Type	Criteria
Average Daily Demand (L/capita/day)	275
Maximum Daily Demand Peaking Factor	2.25
Maximum Hourly Demand Peaking Factor Residential	4.00

Region Standards requires domestic flows to be maintained between 40 psi (275 kPa) and 100 psi (690 kPa) and fire flow conditions maintained above 20 psi (140 kPa). The Ontario Building Code requires individual pressure regulating valves if static pressures are above 80 psi (550 kPa).

4.2 Existing Water Services

The supporting proposed watermains that will be available in the vicinity of the site are shown in **Table 4-2**.

Table 4-2 Summary of Existing Watermains

Street	Size	Location
Stirling Todd Terrace	300mm	Approximately 15 m west of site within the Tor Phase 1 subdivision
		Approximately 10 m south of site within the Tor Phase 1 subdivision
Ferguson Drive	300mm	Approximately 10 m east of site within the Tor Phase 1 subdivision

The watermains noted above will be constructed and active prior to the minor subnode block.

4.3 Proposed Water Servicing

The **ASP** and **Tor FSR** proposed three connections to the watermain networks within the Mattamy Phase 1 subdivision; two on Stirling Todd Terrace and one on Ferguson Drive. During the Tor Phase 1 subdivision design an additional watermain connection was added to Ferguson Drive, the watermain servicing scheme for this site illustrated in **Drawing 2**.

The Subject Lands were accounted for in the detailed design of the Tor Phase 1 subdivision. Municipal Engineering Solutions (‘MES’) prepared a watermain analysis for the Tor Phase 1 & 2 site which accounted for the Site Plan demands, their report is included in **Appendix C-1. Table 4-3** compares the population assumed for the minor subnode block to complete the watermain analysis to the anticipated population determined during the site plan design.

Table 4-3 Water Demand Population Comparison

Plug Location	Tor Phase 1	Site Plan Application
	Estimated Site Plan Population	Site Plan Population
Ferguson Connection (J-1002)	404	1113.7*
Stirling Todd Terrace (J-1017)	400	
Stirling Todd Terrace (J-1013)	400	

*Population determined using Population Per Unit (PPU) values from the Town of Milton’s 2023 Growth Study

As outlined above, the expected demand of the site plan is less than expected during the Phase 1 design. **Table 4-4** outlines the watermain pressure and fire flow demands at the minor subnode block connections determined through the subdivision design.

Table 4-4 Summary of Watermain Pressure & Fire Flow at Site Plan Connections

Plug Location	Tor Phase 1	
	Pressure (psi)	Available Fire Flow (L/s)
Ferguson Connection (J-1002)	57.59	649.99
Stirling Todd Terrace (J-1013)	57.71	356.28
Stirling Todd Terrace (J-1017)	59.08	439.15

The Site Plan generally follows the proposed design advanced through Tor Phase 1; thus, there are no perceived negative impacts to the watermain system. The development meets the **Region Standards** for domestic flow conditions and fire flow conditions. Given the expected service pressures, pressure reducing values are not required. Also, in accordance with the **Region Standards**, an isolation valve will be provided at either end of the watermain as it enters the Site Plan.

5.0 STORM DRAINAGE

5.1 Existing Drainage Patterns

Prior to the Tor Phase 1 development, stormwater runoff from the Subject Lands generally drained by sheet flow to the Omagh Channel (Tributary SE-3-B), located in the Tor Phase 1 limits. As outlined in **Drawings 15 - 18** in **Appendix E**, the minor subnode block will be graded to a base condition with the construction of the Phase 1 site, with drainage conveyed to Storm Control Manholes 113, 118 and 1301 via temporary cut-off swale prior to development.

5.2 Proposed Storm Servicing

The **SIS Addendum** and **Tor FSR** states that all flows from the Subject Lands will be conveyed through the Tor Phase 1 subdivision to proposed SWM Pond S5b-4, where runoff will be treated for water quality, quantity, and erosion control and ultimately outlet to the realigned Omagh Channel. The design sheets for the minor system through Tor Phase 1 can be found in **Appendix D-1**.

5.3 Minor System Design

The minor subnode block flows will generally be conveyed overland within the site to a series of catchbasins, and 300 mm to 675 mm storm sewers leading to STM Control manholes 113, 118 and 1301, which are connected to proposed storm sewers on Stirling Todd Terrace to the south and Ferguson Drive to the east (this is illustrated through **Drawing 2**). A storm sewer design sheet has been provided in **Appendix D-2**.

As outlined in **Drawing 6**, approximately 3.03 ha of the site drains to the SWM Pond via Stirling Todd Terrace and Ferguson Drive sewers, proposed through Tor Phase 1.

The proposed minor storm system conveys flows to proposed SWM Pond S5b-4 for treatment. The storm design is further discussed in **Section 6** below.

5.4 Conveyance of Major System Flows

Major system runoff in excess of the minor system will be conveyed through the site's laneways and proposed surrounding road network via a continuous overland flow route established through Tor Phase 1. In no case does the depth of major system flow exceed 0.15 metres above the crown of the road in accordance with **Town Standards**.

Major system runoff from the development will be conveyed on Stirling Todd Terrace and Ferguson Drive to SWM Pond S5b-4. The major system of Tor Phase 1 is illustrated in **Drawings 24 - 27** in **Appendix D-1**.

6.0 STORMWATER MANAGEMENT

Generally, stormwater runoff from the Subject Lands will be conveyed via the adjacent subdivision’s major and minor system, ultimately treated by SWM Pond S5b-4 before discharging to the realigned Tributary SE-3-B (Omagh Channel). These flows will generally be conveyed via Stirling Todd Terrace and Ferguson Drive storm sewers. **Table 6-1** below outlines the drainage areas to each street anticipated through the Tor Phase 1 design (and **SWM Report** modelling) and compares it to the actual minor system areas proposed through this Site Plan submission. **Table 6-1** identifies that MH 113 and MH 1301 will have less storm drainage contributions from the site plan than anticipated in the subdivision while MH 118 has a slight increase however there is ample downstream capacity to support the additional flows. **Table 6-2** outlines the cumulative runoff coefficient and drainage area for the minor subnode block, compared to the anticipated values.

Table 6-1 Runoff-Coefficient Comparison

Capture Location	Tor Phase 1		Site Plan Application	
	Drainage Area (Ha)	Runoff Coefficient / Percent Impervious	Drainage Area (Ha)	Runoff Coefficient / Percent Impervious
Stirling Todd Terrace (MH 113)	1.99	0.90 / 100%	1.88	0.81 / 88%
Ferguson Drive (MH 118)	0.64	0.90 / 100%	0.79	0.83 / 90%
Ferguson Drive (MH 1301)	0.39	0.90 / 100%	0.16	0.84 / 92%

Table 6-2 Overall SWM Comparison

Design	Drainage Area (Ha)	Runoff Coefficient / Percent Impervious
Tor Phase 1 (SWM Report)	3.03	0.90 / 100%
Site Plan	3.03	0.81 / 87%

As the total drainage area to Pond S5b-4 is unchanged and the imperviousness is less than in the Tor Phase 1 SWM Report, it is not anticipated that there will be any negative impacts to the storm system and pond or channel function.

6.1 Site Easement Conveyance

Approximately 0.8 ha, encompassing buildings A and B with drive aisles and parking, drains to MH 113 during the minor event, but greater storm events spill to the east through Lane A and Lane D to Ferguson Drive. The major system stormwater runoff from the existing French Catholic

Elementary School (FCES) lands, located north-east of the Subject Lands, is also conveyed through the Site Plan to the entrance on Ferguson Drive. An easement through the block has been provided. Modeling completed through **Appendix D-3** determined that the major system flows from the FCES, buildings A and B, as well as the lands draining directly to the easement amounts to 0.61m³/s major flows over the Lane's to Ferguson Drive. As a conservative check, the ROW capacity of Lane A with a pavement width of 6.7m was evaluated. At a depth of 0.13m within the easement, the 100-year design storm, less the 5-year storm conveyed underground, can be conveyed through to Ferguson Drive. It was ensured that this depth does not encroach within 0.3m of the buildings, or spill to the Building C ramp. See **Appendix D-3** for complete calculations.

7.0 EROSION AND SEDIMENT CONTROL

An erosion and sediment control strategy will be implemented during the construction of services, including the following:

- Siltation control fencing,
- Stone mud mat at all construction entrances,
- Regular inspection and monitoring of the erosion and sediment control devices,
- Removal and disposal of the erosion and sediment control devices after the site has been stabilized,

Please refer to **Drawing 17** for Erosion and Sediment Control drawing.

8.0 CONCLUSIONS

This Functional Servicing and Stormwater Management Report provides an overview of the servicing plan for the Minor Subnode development (Block 458) in the Mattamy – Tor Property, located within the Town of Milton. This report demonstrates the availability of water, wastewater, and storm services for the proposed site in accordance with Municipal and Regional criteria, and general industry practice based on the design of the **Tor Phase 1** subdivision.

We trust you will find the contents of this report satisfactory.

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