



**David Schaeffer Engineering Ltd.**  
600 Alden Road, Suite 606  
Markham, ON L3R 0E7  
905-475-3080  
dsel.ca

**FUNCTIONAL SERVICING,  
STORMWATER MANAGEMENT, AND  
PRELIMINARY DESIGN REPORT  
FOR  
MILTON LAND FOUR  
MILTON EDUCATION VILLAGE**

**TOWN OF MILTON  
REGION OF HALTON**

**PROJECT NO. 26-1511**

**JULY 2026**



**FUNCTIONAL SERVICING,  
STORMWATER MANAGEMENT, AND  
PRELIMINARY DESIGN REPORT  
FOR  
MILTON LAND FOUR  
MILTON EDUCATION VILLAGE**

**TOWN OF MILTON  
REGION OF HALTON**

**JULY 2026  
OUR FILE: 26-1511**

**TABLE OF CONTENTS**

|            |                                                 |           |
|------------|-------------------------------------------------|-----------|
| <b>1.0</b> | <b>INTRODUCTION .....</b>                       | <b>1</b>  |
| <b>2.0</b> | <b>PREVIOUS STUDIES AND REPORTS .....</b>       | <b>2</b>  |
| <b>3.0</b> | <b>PROPOSED LAND USE .....</b>                  | <b>4</b>  |
| 3.1        | Population Summary .....                        | 5         |
| <b>4.0</b> | <b>DEVELOPMENT PHASING.....</b>                 | <b>6</b>  |
| <b>5.0</b> | <b>WATER SERVICING.....</b>                     | <b>6</b>  |
| 5.1        | Water Supply Servicing Design Criteria .....    | 6         |
| 5.2        | Existing Water Services .....                   | 7         |
| 5.3        | External Water Supply Requirements.....         | 7         |
| 5.4        | Proposed Water Servicing.....                   | 8         |
| <b>6.0</b> | <b>WASTEWATER SERVICING .....</b>               | <b>9</b>  |
| 6.1        | Wastewater Design Criteria.....                 | 9         |
| 6.2        | Existing Wastewater Services.....               | 9         |
| 6.3        | External Wastewater Servicing Requirements..... | 10        |
| 6.4        | Proposed Wastewater Servicing.....              | 12        |
| <b>7.0</b> | <b>STORM DRAINAGE .....</b>                     | <b>12</b> |
| 7.1        | Existing Drainage Patterns .....                | 12        |
| 7.2        | Existing Storm Services .....                   | 12        |
| 7.3        | Minor System Design.....                        | 13        |
| 7.4        | Conveyance of Major Storm Flows .....           | 13        |
| 7.5        | External Drainage.....                          | 14        |

---

|             |                                              |           |
|-------------|----------------------------------------------|-----------|
| <b>8.0</b>  | <b>STORMWATER MANAGEMENT .....</b>           | <b>14</b> |
| <b>9.0</b>  | <b>LOW IMPACT DEVELOPMENT MEASURES .....</b> | <b>15</b> |
| <b>10.0</b> | <b>ROADS .....</b>                           | <b>15</b> |
| 10.1        | Pan Am Boulevard .....                       | 15        |
| <b>11.0</b> | <b>SIDEWALKS AND TRAILS .....</b>            | <b>15</b> |
| <b>12.0</b> | <b>GREENWAYS AND GREEN EDGES .....</b>       | <b>16</b> |
| <b>13.0</b> | <b>PRELIMINARY SITE GRADING .....</b>        | <b>16</b> |
| <b>14.0</b> | <b>CONSTRUCTION MANAGEMENT .....</b>         | <b>16</b> |
| <b>15.0</b> | <b>EROSION AND SEDIMENT CONTROL .....</b>    | <b>16</b> |
| <b>16.0</b> | <b>CONCLUSIONS .....</b>                     | <b>17</b> |

## **FIGURES**

|           |                                      |
|-----------|--------------------------------------|
| Figure 1  | Site Location Plan                   |
| Figure 2  | Draft Plan                           |
| Figure 3  | Phasing Plan                         |
| Figure 4  | Conceptual Watermain Servicing Plan  |
| Figure 5  | Conceptual Wastewater Trunks         |
| Figure 6  | Pre-Development Storm Drainage Areas |
| Figure 7  | 16m Road Allowance                   |
| Figure 8  | 18m Road Allowance                   |
| Figure 9  | 22m Road Allowance                   |
| Figure 10 | 23.5m Road Allowance                 |
| Figure 11 | 25m Road Allowance (Pan Am Blvd)     |
| Figure 12 | Sidewalk Location Plan               |
| Figure 13 | Construction Management Plan         |

## **DRAWINGS**

|           |                                    |
|-----------|------------------------------------|
| Drawing 1 | Conceptual Grading Plan            |
| Drawing 2 | Conceptual Storm Servicing Plan    |
| Drawing 3 | Conceptual Sanitary Servicing Plan |
| Drawing 4 | Profiles                           |
| Drawing 5 | Cross-Sections                     |

## **TABLES**

|                                                                    |    |
|--------------------------------------------------------------------|----|
| Table 3-1: Summary of Proposed Land Uses.....                      | 4  |
| Table 3-2: Draft Plan Population Summary.....                      | 5  |
| Table 3-3: Sanitary Drainage Plan Population Summary .....         | 5  |
| Table 3-4: Population Counts vs. JBPE .....                        | 6  |
| Table 5-1: Water Design Criteria.....                              | 7  |
| Table 5-3: Summary of Planned Water Infrastructure.....            | 8  |
| Table 6-1: Wastewater Design Criteria.....                         | 9  |
| Table 6-2: Summary of Existing Wastewater Sewers .....             | 10 |
| Table 6-3: Summary of Planned Trunk Wastewater Infrastructure..... | 11 |
| Table 7-1: Summary of Overland Flow Depth.....                     | 13 |
| Table 8-1: Drainage Area to Pond 1 Comparison .....                | 14 |

## **APPENDICES**

|            |                                          |
|------------|------------------------------------------|
| Appendix A | 2022 DC Update and 2026 IMP Excerpts     |
| Appendix B | Hydraulic Capacity and Modeling Analysis |
| Appendix C | Sanitary Design Sheets                   |
| Appendix D | Storm Design Sheets                      |
| Appendix E | Major System Conveyance Calculations     |
| Appendix F | Site Wide Water Balance SIS Excerpts     |
| Appendix G | Feature Based Water Balance SIS Excerpts |

**FUNCTIONAL SERVICING,  
STORMWATER MANAGEMENT, AND  
PRELIMINARY DESIGN REPORT FOR:  
MILTON LAND FOUR – MEV**

**TOWN OF MILTON  
REGION OF HALTON**

**JULY 2026  
OUR FILE: 26-1511**

## **1.0 INTRODUCTION**

The Milton Land Four – Milton Education Village (MEV) property is located within the MEV Secondary Plan Area as illustrated in **Figure 1**. The Milton Land Four – MEV lands are approximately 29.4 hectares bounded by the Enbridge (Union) Gas Transmission Pipeline and the Main Branch of Indian Creek to the north, Tremaine Road to the east, existing Greenbelt Plan area to the west and future residential development and the existing Schlegel Village Long Term Care Home to the south. The Milton Land Four – MEV property herein referred to as the Subject Lands is illustrated in **Figure 2**.

The following report is submitted in support of the Draft Plan Approval and is intended to expand and refine on the previous studies completed for the Subject Lands. The report will also provide further preliminary design details and demonstrate general conformance with Town of Milton and Region of Halton design criteria, the requirements of Conservation Halton (CH), and general industry practice.

At the time of writing the MEV Subwatershed Impact Study (**SIS**) has been deemed substantially complete and the Area Servicing Plan (**ASP**) for the MEV lands is currently under review by the respective agencies.

## 2.0 PREVIOUS STUDIES AND REPORTS

The following material has been reviewed in preparation of this report:

- **Sixteen Mile Creek Areas 2 and 7 Subwatershed Planning Study**  
Philips Engineering Ltd., January 2000  
**(SWS)**
- **Indian Creek / Sixteen Mile Creek Sherwood Survey Subwatershed Management Study**  
Philips Engineering Ltd., December 2004  
**(SMS)**
- **Sixteen Mile Creek Areas 2 and 7 Subwatershed Update Study**  
AMEC, November 2015  
**(FSEMS)**
- **Milton Education Village Functional Stormwater and Environmental Management Strategy**  
Wood plc. (*last update by WSP Inc.*), February 2023  
**(FSEMS)**
- **Subwatershed Impact Study for the Milton Education Village<sup>1</sup>**  
David Schaeffer Engineering Ltd. et al., December 2025  
**(SIS)**
- **Engineering and Parks Standards Manual**  
Town of Milton, October 2024  
**(Town Standards)**
- **Water and Wastewater Linear Design Manual, Version 6.0**  
Region of Halton, November 2024  
**(Region Standards)**
- **Design Criteria for Sanitary Sewers, Storm Sewers and Forcemains**  
Ministry of the Environment, Conservation and Parks, May 2023  
**(MECP Standards)**

---

<sup>1</sup> Minor revisions to the SIS are expected to satisfy the respective agencies remaining comments

- **Conservation Halton Guidelines for Stormwater Management Engineering Submissions**  
Conservation Halton, June 2024  
**(CH SWM Guidelines)**
- **Water and Wastewater Area Servicing Plan for Milton Education Village<sup>2</sup>**  
David Schaeffer Engineering Ltd., December 2025  
**(ASP)**
- **2022 Development Charges Water/Wastewater Technical Report**  
Region of Halton, December 2021  
**(2022 DC Update)**
- **Integrated Master Plan – Water, Wastewater, and Transportation Executive Summary**  
Region of Halton, March 2026  
**(2026 IMP)**
- **Erosion & Sediment Control Guide for Urban Construction**  
TRCA, 2019  
**(ESC Guidelines)**
- **O. Reg. 476/21: Zoning Order – Milton Education Village, Town of Milton**  
Ministry of Municipal Affairs and Housing, June 2021  
**(MZO)**

---

<sup>2</sup> The ASP for MEV is subject to review by the respective agencies

### 3.0 PROPOSED LAND USE

The Subject Lands are proposed to be developed for residential and related purposes. The development concept, shown in **Figure 2**, includes the following land uses listed in **Table 3-1**.

**Table 3-1: Summary of Proposed Land Uses**

| Land Use                       | Area (ha)    |
|--------------------------------|--------------|
| Single Detached                | 7.99         |
| Street Townhouse               | 1.59         |
| Back-to-Back Townhouse         | 1.18         |
| Future Site Plan Block         | 1.90         |
| High Density Residential       | 2.06         |
| Secondary School               | 4.16         |
| Park                           | 1.07         |
| Mutual Access Easement         | 0.24         |
| Open Space (Pipeline Corridor) | 1.22         |
| Vista                          | 0.08         |
| Green Corridor                 | 0.10         |
| Gateway                        | 0.12         |
| Reserve                        | 0.13         |
| Walkway (11m)                  | 0.02         |
| 16.0m ROW (2712m)              | 4.42         |
| 18.0m ROW (654m)               | 1.19         |
| 22.0m ROW (665m)               | 1.49         |
| 23.5m ROW (74m)                | 0.18         |
| 26m ROW (83m)                  | 0.24         |
| <b>TOTAL</b>                   | <b>29.38</b> |

### 3.1 Population Summary

The proposed populations for this draft plan are summarized in **Table 3-2**. The population densities or where available, the unit counts were applied to establish the proposed populations for the draft plan.

**Table 3-2: Draft Plan Population Summary**

| Population Based on Densities           |                      |              |
|-----------------------------------------|----------------------|--------------|
| Land Use                                | Density<br>(pp / ha) | Population   |
| Single Detached                         | 95                   | 759          |
| Street Townhouses & Back-to-Backs       | 260                  | 720          |
| Future Site Plan Block (Private School) | 50                   | 95           |
| School                                  | 50                   | 208          |
| Population Based on Unit Count          |                      |              |
| Land Use                                | Unit Count           | Population   |
| High Density Residential                | 300                  | 510          |
| <b>Total</b>                            |                      | <b>2,292</b> |

Populations shown in **Drawing 3 – Conceptual Sanitary Servicing Plan** were simplified for the purposes of the sanitary design at this design stage and therefore were lumped into catchments based on land use (or unit counts where available). These are summarized in **Table 3-3**:

**Table 3-3: Sanitary Drainage Plan Population Summary**

| Population Based on Densities           |                   |                      |              |
|-----------------------------------------|-------------------|----------------------|--------------|
| Land Use                                | Catchment<br>(ha) | Density<br>(pp / ha) | Population   |
| Single Detached                         | 13.17             | 95                   | 1,251        |
| Street Townhouses & Back-to-Backs       | 5.56              | 260                  | 1,446        |
| Future Site Plan Block (Private School) | 1.89              | 50                   | 95           |
| School                                  | 4.16              | 50                   | 208          |
| Population Based on Unit Count          |                   |                      |              |
| Land Use                                | Unit Count        | pp / unit            | Population   |
| High Density Residential                | 300               | 1.7                  | 510          |
| <b>Total</b>                            |                   |                      | <b>3,509</b> |

The population count shown on the sanitary drainage plan (**Table 3-3**) is considerably higher than those noted based on the draft plan (**Table 3-2**). At this stage of the design, the higher population has been used to allow for flexibility in the design and shall be refined at detailed design stage.

The population counts noted in **Table 3-2** and **Table 3-3** are used to calculate the net population density to compared against the Joint Best Planning Estimates (**JBPEs**) established by the Town of Milton and Halton Region are presented in **Table 3-4**.

**Table 3-4: Population Counts vs. JBPE**

| Reference Population Summary                | Population         | Total Area (ha)    | Net Density (pp/ha) |
|---------------------------------------------|--------------------|--------------------|---------------------|
| Draft Plan ( <b>Table 3-2</b> )             | 2,292              | 29.38              | 78                  |
| Sanitary Drainage Plan ( <b>Table 3-3</b> ) | 3,509              | 29.38              | 119                 |
| <b>JBPE</b> (611.01 <sup>1</sup> )          | 4,678 <sup>1</sup> | 36.31 <sup>1</sup> | 129                 |

1 – JBPE Location ID 611.01 covers the Milton Land Four draft plan. 2051 population (residential and employment) and total area provided extends beyond the Milton Land Four draft plan.

Based on the population densities noted in **Table 3-4**, the proposed draft plan densities and resultant populations are below the **JBPE** densities established by the Town and Region.

## 4.0 DEVELOPMENT PHASING

The Subject Lands are divided into two phases. Phase 1 includes the core infrastructure required to bring the development online, including Street ‘C’ and the extensions of Dymott Avenue and Pan Am Boulevard. Phase 2 include the northern limits of the draft plan to the future channel block and Union Gas Pipeline. The draft plan is phased due to the re-zoning application required for the Phase 2 lands.

Phase 1 allows the initial phases of the Schlegel Village Long Term Care Facility to transition from the interim stormwater management pond (SWM) to the ultimate SWM Pond. Phases 1 and 2 are expected to commence earthworks in 2026 with servicing anticipated in 2027. Although the works for Phase 1 and Phase 2 are anticipated to proceed concurrently, Phase 1 can proceed in advance and independently of Phase 2 as it includes all the supporting infrastructure and access points required.

The proposed phases of the Subject Lands are illustrated on **Figure 3**. Further refinements to the phasing are anticipated at the detailed design stage.

## 5.0 WATER SERVICING

### 5.1 Water Supply Servicing Design Criteria

The water supply servicing for the Subject Lands will be designed in accordance with **Region Standards**. The design criteria to demonstrate adequate water supply is based on the criteria listed in **Table 5-1** and the population criteria as outlined in **Section 3.1**.

**Table 5-1: 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     |
| Community Services                   | 2.25     |
| Park                                 | 2.25     |

The development must meet the Region of Halton pressure criteria for domestic flow conditions between 40 psi (275 kPa) and 100 psi (690 kPa) and fire flow conditions should be maintained above 20 psi (140 kPa). The Ontario Building Code requires individual pressure regulating valves if operating pressures are anticipated above 80 psi (550 kPa).

## 5.2 Existing Water Services

The site is located within the Region of Halton's Pressure District Zone 4 regional water system; this may change as the Region continues to transition their water pressure zones. Existing watermains are available in the vicinity of the site as shown in **Table 5-2**.

**Table 5-2: Summary of Existing Water Infrastructure**

| Street                   | Size   | Location                                               |
|--------------------------|--------|--------------------------------------------------------|
| McJannet Avenue          | 300mm  | Internal to existing subdivision east of Tremaine Road |
| Dymott Avenue            | 300mm  | Tremaine Road to Future Street                         |
| Pan Am Boulevard         | 300 mm | Louis St. Laurent Avenue Extension to the Velodrome    |
| Louis St. Laurent Avenue | 750 mm | Tremaine Road to Fourth Line                           |
|                          | 300 mm | Pan Am Boulevard to Tremaine Road                      |

The existing watermains are illustrated in **Figure 4**.

## 5.3 External Water Supply Requirements

The **2022 DC Update** and the **2026 IMP** outline the latest servicing strategy for future watermains to support development in Halton Region. The **2022 DC Update** did not include watermain projects in proximity to MEV. The anticipated watermain projects proposed through **2026 IMP** in vicinity of MEV is summarized in **Table 5-3**.

**Table 5-3: Summary of Planned Water Infrastructure**

| Street         | Regional ID | Size   | Anticipated Service Year | Location                                        |
|----------------|-------------|--------|--------------------------|-------------------------------------------------|
| Tremaine Road  | W54         | 750mm  | 2036                     | From Britannia Road to Louis St. Laurent Avenue |
| Britannia Road | W55         | 1350mm | 2036                     | From Britannia Road to First Line               |
|                | W56         | 1200mm | 2036                     | Tremaine Road to Regional Road 25               |
|                | W58         | PRV    | 2034                     | At Britannia, east of Regional Road 25          |

Excerpts from the **2022 DC Update** and the **2026 IMP** are included in **Appendix A**.

## 5.4 Proposed Water Servicing

The Subject Lands will be serviced by a conventional water supply system designed in accordance with **Region Standards** and as outlined in the **ASP**.

The Subject Lands will be serviced by the existing 300mm watermain on McJannet Avenue, the 300mm watermain on Louis St. Laurent Avenue and the 300mm watermain on Dymott Avenue. These connections allow the water system to form loops providing reliable supply. The watermains have been sized appropriately to feed the entire draft plan.

The watermain analysis completed by GeoAdvice for the **ASP** conducted modelling under interim conditions (2026) with the Region's existing pressure districts, and under ultimate conditions (2031) with the Region's future pressure districts.

Under Average Day Demand (ADD), the pressures are expected to range from 79 psi (545 kPa) to 88 psi (607 kPa) under interim conditions and 79 psi (545 kPa) to 89 psi (614 kPa) under ultimate conditions. The pressures for both the interim and ultimate conditions are within the **Region Standards** for water distribution systems.

Under Peak Hour Demand (PHD), the pressures are expected to range from 47 psi (324 kPa) to 56 psi (379 kPa) under interim conditions and 38 psi (262 kPa) to 47 psi (324 kPa) under ultimate conditions. In the ultimate conditions, 38 psi is below the **Region Standards** of 40 psi and is noted to be due to insufficient pump capacity however shall be reviewed with the Region to determine if there are external upgrades which may mitigate this minor discrepancy.

Pressure reducing valves (PRVs) on individual services may be required as the pressures are expected to exceed the 80 psi (550 kPa) required by OBC guidelines but not exceed the 100 psi (690 kPa) required by the **Region Standards**. The need for PRVs should be reviewed through detailed design submissions.

The available fire flow for the Subject Lands is expected to range between 295 L/s and >500 L/s under the interim (2026) and range between 270 L/s and >500 L/s under the ultimate condition (2031).

As noted in **Section 1.0**, further revisions to the **ASP** are expected to address agency comments. Any impacts to the Subject Lands resulting from these refinements will be addressed during detailed design.

The MEV watermain analysis prepared by GeoAdvice Engineering Inc. is included in **Appendix B**. The conceptual watermain design is illustrated in **Figure 4**.

## 6.0 WASTEWATER SERVICING

### 6.1 Wastewater Design Criteria

Wastewater design flows will be designed according to the criteria listed in **Table 6-1**:

**Table 6-1: 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    | Dia. > 450mm – Max Capacity = 70% Full<br>Dia. =< 450mm – Max Capacity = 60% Full |

As outlined in the **ASP**, the **Region Standards** have been applied to establish the populations and summarized in **Section 3.1**.

Further, wastewater connections from the mainline to proposed development blocks are considered “laterals” and should be slope at a minimum of 2.0% per **Region Standards**.

### 6.2 Existing Wastewater Services

Existing wastewater sewers are available to the site as shown in **Table 6-2**.

**Table 6-2: Summary of Existing Wastewater Sewers**

| Street                   | Size                  | Location                                                                                |
|--------------------------|-----------------------|-----------------------------------------------------------------------------------------|
| Dymott Avenue            | 300 mm Gravity Sewer  | Tremaine Road to future Pan Am Boulevard                                                |
| Pan Am Boulevard         | 300 mm Gravity Sewer  | The Velodrome to Louis St. Laurent Avenue                                               |
| Louis St. Laurent Avenue | 525 mm Gravity Sewer  | Pan Am Boulevard to the Tremaine Wastewater Pumping Station (on Louis west of Savoline) |
|                          | Twin 400 mm Forcemain | Tremaine WWPS to Bronte Street                                                          |

The existing wastewater sewers are illustrated in **Figure 4**.

### 6.3 External Wastewater Servicing Requirements

In accordance with the **2022 DC Update**, the Region is planning future wastewater infrastructure that will support the Subject Lands. The preferred wastewater servicing strategy, that includes the general location of trunk sewers, pump stations and forcemains approved as part of the **2022 DC Update** is summarized in **Table 6-3**.

**Table 6-3: Summary of Planned Trunk Wastewater Infrastructure**

| Street                         | Regional ID | Size                                              | Anticipated Service Year | Location                                                                         |
|--------------------------------|-------------|---------------------------------------------------|--------------------------|----------------------------------------------------------------------------------|
| New Roads<br>(Internal to MEV) | 7534        | 450mm Gravity Sewer                               | 2027                     | From Dymott Avenue to Louis St. Laurent Avenue                                   |
|                                | 6552        | 450mm Gravity Sewer                               | 2027                     | From Louis St Laurent Avenue Extension to Britannia Road                         |
|                                | 6561        | 450mm Gravity Sewer                               | 2027                     | From MEV future collector road to Tremaine Road                                  |
| Tremaine Road                  | 6559        | 525mm Gravity Sewer                               | TBD                      | From Britannia Road to approx. 1050m south of Britannia Road                     |
|                                | 6557        | 600mm Gravity Sewer                               | TBD                      | From approximately approx. 1500m south of Britannia Road to Lower Base Line WWPS |
|                                | 6555        | Lower Base Line Wastewater Pumping Station (WWPS) | TBD                      | New 225 L/s WWPS at Lower Base Line at Regional Road 25                          |
| Lower Base Line                | 6556        | Twin 400mm Forcemains                             | TBD                      | From WWPS on Tremaine Rd to approx. 650m West of 1 <sup>st</sup> Line            |
|                                | 6554        | 600mm Gravity Sewer                               | TBD                      | Lower Base Line twin Forcemains to Regional Road 25                              |

\*All sizes are subject to change pending population confirmations for the MEV Employment Lands south of Britannia Road

The preferred servicing figures from the **2022 DC Update**, illustrating the above projects are included in **Appendix A**. An update to external wastewater servicing DC projects #6555, 6556, 6554 are anticipated based on the **2026 IMP**. The **2026 IMP** reveals that the Lower Base Line Pump Station and forcemains have been removed in favor gravity sewers to Regional Road 25. The updates to the DC wastewater system noted in the **2026 IMP** are downstream of any of the proposed works in the Subject Lands however external gravity sewers in the DC update shall ensure that they are coordinated with the size, flows, and depths of the MEV sewers as they have existing constraints which may influence the overall depth of the downstream wastewater system.

We understand the Region is continuing updates to their servicing strategy as part of a comprehensive **2026 IMP** to the Region's Master Plan, the design will take these changes into account as they are released by Halton Region.

## 6.4 Proposed Wastewater Servicing

The Subject Lands will be serviced by a conventional (gravity) wastewater system designed in accordance with **Region Standards** and as outlined in the **ASP**. The conceptual wastewater trunk servicing scheme for the Subject Lands is illustrated on **Figure 5**.

Flows from the Subject Lands will be conveyed south to the future external wastewater trunk sewer proposed between Dymott Avenue and Louis St. Laurent (DC Project 7534), where flows will continue south through the MEV Secondary Plan Area to Tremaine Road and Britannia Road (DC Projects 6552 & 6551). As outlined in the **2026 IMP**, the Tremaine Road WWPS will be decommissioned in the future and thus flows will be conveyed south to Lower Base Line via the Tremaine Road Trunk Sewer.

Under existing conditions, wastewater flows from the Schlegel Village LTC are conveyed west on Dymott Avenue and south on Pan Am Boulevard via the existing wastewater sewers within the Subject Lands. These flows will be redirected south with the rest of the wastewater flows from the Subject Lands via the future trunk sewer. The existing sewers within Dymott Avenue and Pan Am Boulevard will be decommissioned as required.

The wastewater design sheets and drainage area plans are included in **Appendix C**. Preliminary trunk sewer profiles are included in **Drawing 4** and the pipe sizing is illustrated on **Drawing 5**.

## 7.0 STORM DRAINAGE

### 7.1 Existing Drainage Patterns

The topography of the Subject Lands is generally very flat with minimal sloping in western direction. The Subject Lands generally drain towards the Natural Heritage System, Indian Creek, and ultimately Bell School Line.

The Subject Lands are within the Indian Creek Watershed. The existing storm drainage areas have been delineated in the **SIS** and are also illustrated in **Figure 6**.

### 7.2 Existing Storm Services

There are existing storm sewers in Dymott Avenue that convey flows from the Schlegel Village LTC to the interim stormwater management pond located on the Subject Lands. As outlined in the **SIS**, once the ultimate stormwater management pond for the MEV development (SWM Pond 1) is constructed, the interim Schlegel SWM Pond will be decommissioned and its flows will be redirected to SWM Pond 1. Details related to the decommissioning of the interim SWM Facility are provided on **Figure 7**.

The Region maintains an 8.5m easement along the western edge of Tremaine Road for grading and storm related purposes, which includes parts of the Subject Lands. Upon implementation of the Stormwater strategy noted in **Section 8.0**, this easement can be dissolved.

### 7.3 Minor System Design

The Subject Lands will be serviced by a conventional storm sewer system designed in accordance with **Town Standards** and sized using the 5-year return frequency and Town of Milton IDF curves.

Storm flows from the Subject Lands will generally be directed to the northern inlet of SWM Pond 1, where the runoff will be treated for water quality, erosion, and quantity control.

The conceptual storm servicing scheme is illustrated in **Drawing 2** and preliminary profiles are included in **Drawing 4** which illustrate all storm trunk sewers within the Subject Lands. The design sheets and drainage area plans are included in **Appendix D**.

### 7.4 Conveyance of Major Storm Flows

A continuous overland flow route will be provided through the Subject Lands in order to safely convey major system flows in excess of the minor system and up to the 100-year event. The **Town Standards** require a lane of travel (assumed to be a minimum of 3.0m wide) be maintained on collector and arterial roads that can be traversed with minimal overland flow depth. **Table 7-1** below summarizes the overland flow depth and available flow at critical sections within the Subject Lands. The locations of the critical sections are indicated on **Drawing 1**.

**Table 7-1: Summary of Overland Flow Depth**

| Critical Section | Location                          | Cross-Section Width (m) | 100-Year Design Storm Overland Flow Depth (m) |
|------------------|-----------------------------------|-------------------------|-----------------------------------------------|
| 1                | Street N<br>(MH86 – MH87)         | 16.0                    | 0.12                                          |
| 2                | Street M<br>(MH 55 – MH 87)       | 18.0                    | 0.00                                          |
| 3                | Pan Am Boulevard<br>(MH25 – MH29) | 22.0                    | 0.16                                          |
| 4                | Dymott Avenue<br>(MH 28 – MH 29)  | 23.5                    | 0.07                                          |
| 5                | Street N<br>(MH 88 – MH 89)       | 26.0                    | 0.00                                          |

The major system flow will not exceed the width of the road allowance, and in no case will the depth of flow exceed 0.15 metres above the crown of the road or impede the 3.0m lane of travel required by **Town Standards** during a 100-year event.

Major system conveyance calculations have been included in **Appendix E**. Major system flows will not be directed towards the lands within the Greenbelt Plan area.

The conceptual major storm system is illustrated in **Drawing 1**.

## 7.5 External Drainage

As discussed in Section 7.2, currently external storm drainage from the Dymott Extension and the Schlegel Village LTC is conveyed to an interim SWM Facility located on the Subject Lands.

Approximately 7.25 ha of external drainage is conveyed through the Subject Lands to SWM Pond 1 located west of the development. This includes 3.44ha from Schlegel Village LTC, 0.42 ha from the Dymott Extension ROW, 0.25 ha from future Street 'A' ROW, 1.67 ha of future residential drainage and 1.47 ha from the Town owned block located south of Street 'N'.

The external drainage areas are illustrated in **Figure 6**.

## 8.0 STORMWATER MANAGEMENT

Stormwater treatment for the site will be provided by the stormwater management pond proposed west of the Subject Lands. **Table 8-1** below compares the drainages areas to Pond 1 through the **SIS** design and the Draft Plan Application for the Subject Lands shown in **Figure 6**.

**Table 8-1: Drainage Area to Pond 1 Comparison**

| Contributing Study Area | SIS       |                    | FSR       |                    |
|-------------------------|-----------|--------------------|-----------|--------------------|
|                         | Area (ha) | Runoff Coefficient | Area (ha) | Runoff Coefficient |
| Subject Lands           | 35.3      | 0.78               | 28.4      | 0.80               |
| External Lands          |           |                    | 7.3       | 0.90               |
| <b>Total</b>            | 35.3      | 0.78               | 35.6      | 0.82               |

As outlined in the table above, the runoff coefficients discharging to Pond 1 in the FSR design have increased slightly compared the **SIS** due to the more detailed drainage boundary breakdown provided through the FSR and modifications to the land use. However, the minor increase in drainage is within the design tolerances for the SWM Pond 1 carried forward in the SIS and will be further refined through detailed design stage to address minor updates such as this.

The operating and design characteristics of Pond 1 are outlined in the **SIS**.

## 9.0 LOW IMPACT DEVELOPMENT MEASURES

A preliminary water balance was completed as part of the **SIS** to assess the infiltration volume for both pre- and post-development conditions. A treatment train model was used to determine a net-zero infiltration volume change between pre and post development site conditions through the use of lot level, conveyance, and end of pipe Low Impact Development (LID) control options.

The water balance analysis report included in the **SIS** demonstrates that through the implementation of additional topsoil depth, rooftop disconnect for residential units, and the installation of pocket wetlands within the channel blocks the pre-development infiltration target can be met in the site's urbanized condition for the entire community. The findings and implementation of these recommendations shall be incorporated into the subdivision detailed designs.

## 10.0 ROADS

The property is accessible by Tremaine Road via Dymott Avenue, Pan Am Boulevard and Street 'C'. Municipal right of way widths proposed in the draft plan include 26m, 23.5m, 22m, 18m, and 16m. Modifications to external roads right of way widths are proposed for the 23.5 and 22m roadways within the Subject Lands.

The **Town Standard** and modified cross sections are illustrated in **Figures 8 to 11**.

### 10.1 Pan Am Boulevard

The existing Pan Am Boulevard located south of the Subject Lands is a 26m ROW, however as outlined in the **SIS**, existing Pan Am Boulevard will be narrowed from 23.5m ROW and transition to a 22m ROW north of Dymott Avenue.

## 11.0 SIDEWALKS AND TRAILS

Sidewalks are proposed on both sides of all the roadways within the Subject Lands and will provide pedestrian access from Tremaine Road at Street 'C', Dymott Avenue and Pan Am Boulevard. Sidewalks will be widened on all ROWs 18m and larger to 1.8m (18m & 22m ROW) and 2.0m (23.5m & 26m ROW) width to provide additional pedestrian capacity and satisfy AODA (*Accessibility for Ontarians with Disabilities Act*) requirements. In addition, a 3.0m trailway is proposed along the Greenbelt lands limits from the Future SWM Pond 1 and along the west and north limits of the Subject Lands to Tremaine Road to tie into the proposed 3.0m wide MUP along the west side of Tremaine Road.

The proposed sidewalk plan has been illustrated in **Figure 13**.

## 12.0 GREENWAYS AND GREEN EDGES

The **SIS** included a framework for the Greenways and Green Edges within the MEV Lands. Greenways can be part of the active transportation network, within NHS buffers, provide views to the Niagara Escarpment and provide visual or physical connections to parks, schools and private open spaces. A green corridor is proposed in Block 260 to provide a connection between Pan Am Boulevard and the Greenway Trailway. Greenway alignments may be incorporated in the future but are subject to review through the Subdivision Plan Approval stage to ensure conformity with the Urban Design.

Green Edges are intended to provide space between the proposed development and the Regional Roads. A Green Edge between the development and 3.0m MUP is proposed along the west side of Tremaine Road. Further details regarding this space shall be outlined through the Subdivision Plan Approval stage.

## 13.0 PRELIMINARY SITE GRADING

A preliminary grading plan has been prepared for the Subject Lands based on the engineering constraints identified above. The conceptual grading is illustrated in **Drawing 1** and includes preliminary road and block grading. The internal road network has incorporated an effective road grade of 0.3% however intermediate low points will be shown at detailed design and provide a minimum road grade of 0.5% in conformance with **Town Standards**. This grading is effective at managing earthworks and grade transitions including against the NHS and boundary roads.

## 14.0 CONSTRUCTION MANAGEMENT

Construction access for the Subject Lands is proposed via Pan Am Boulevard and Tremaine Road at future Street 'C'. Coordination will be required between the various MEV landowners to ensure adequate time and spacing is provided during construction.

The construction management plan is provided on **Figure 14**.

## 15.0 EROSION AND SEDIMENT CONTROL

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

- Environment fencing
- Stone mud mat at all construction entrances
- Erosion and Sediment Control Ponds

- Regular inspection and monitoring of the erosion and sediment control devices
- Removal and disposal of erosion and sediment control devices after the site has been stabilized

## 16.0 CONCLUSIONS

This Functional Servicing, Stormwater Management, and Preliminary Design Report provides an overview of the Subject Lands within the MEV Secondary Plan.

This report demonstrates the availability of water, wastewater, and storm services for the proposed subdivision in accordance with Town of Milton and Region of Halton design criteria, the requirements of Conservation Halton, the **SIS**, **ASP**, and general industry practice.

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

Prepared by,  
**David Schaeffer Engineering Ltd**



Claire Di Prisco

1511\_260721\_FSR\_Subm1.doc

Reviewed by,  
**David Schaeffer Engineering Ltd**



Tim Edmondson, P.Eng.