FUNCTIONAL SERVICING AND STORMWATER MANAGEMENT REPORT

150 Steeles Avenue East

Town of Milton

Prepared for

150 Steeles Milton Inc.

Project #: 21-678

April 2026

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1. INTRODUCTION

Urbantech has been retained as consulting engineers by 150 Steeles Milton Inc. and directed to complete a Functional Servicing Report in support of the proposed residential development at the southeast corner of Steeles Avenue East and Bronte Road North in the Town of Milton. The property, located at 150 Steeles Avenue East which also includes parcels previously addressed as 250, 314 and 248 Martin Street, is herein referred to as the Subject Property.

The site has an area of 20.81 ha and currently consists of vacant lands as a former industrial site, which was demolished in 2021. The site is bounded:

- To the north by Steeles Avenue
- To the south by the Canadian National Railway
- To the east by Martin Street
- To the west by Bronte Street North

1.1 Purpose

This report presents functional design details and calculations related to drainage, wastewater servicing and water supply for the site in support of draft plan approval/rezoning applications, this report will:

1. Present recommended site grading, water supply and wastewater servicing strategies for the site.
2. Demonstrate compliance with Town, Conservation Halton and MECP design criteria for municipal services and stormwater management (SWM) measures.
3. Identify design measures that make accommodation for future development on the adjacent Honda Lands (170 Steeles Avenue East).

1.2 Planning Context

Prior to the industrial uses on the site, the entire tableland portion of the Subject Property was used for agriculture. The previous factory on the Subject Property was constructed in 1954. Over the life span of the manufacturing facility there were several additions completed to the building in 1957, 1965, 1973, 1988, 1994, 1998 and 1999. The building was originally tooled to manufacture automobile bumpers, which included a chrome plating process. In the 1970's, the factory was re-tooled and continually expanded to manufacture suspension springs for major car manufacturers. At full operational status, the factory had 8 operational manufacturing lines.

An unregulated landfill was created on the Subject Property in the early 1970's. The landfill was situated south of the previous factory and was used to dump waste material from the manufacturing process including mill scale, steel shot, brick and construction debris. The landfill was eventually capped in the late 1980's/early 1990's.

The previous factory uses and landfill resulted in various areas and types of contamination on the Subject Property, as described later in this report.

Major manufacturing operations on the Subject Property were discontinued in 2009 at which point, the factory was transitioned to general warehousing and storage, utilizing about 30% of the 300,000 sq. ft. building. The remainder of the building and Subject Property remained vacant / un-used.

The Subject Property was purchased by 150 Steeles Milton Inc. on April 7, 2021, from the Meritor Suspension Systems Company, Canada (MSSC). The factory was subsequently demolished in late 2021 and remediation activities lands in 2022 following the demolition. For the purposes of completing a Record of Site Condition (RSC) in phases, the Subject Property has been subdivided into six RSC areas/properties.

The servicing and development concept presented within this report are an extension of the information contained in the following reports:

1. Comprehensive Environmental Management Study (CEMS) – 150 Steeles Avenue East, Milton (August 2023) by Beacon et al.
2. Slope Stability Assessment – 150 Steeles Avenue East, Milton, Ontario (January 2023) by DS Consultants
3. Scoped Environmental Impact Assessment (EIA) – 150 Steeles Avenue East, Milton (February 2026) by Beacon Environmental Limited
4. Impact Slope Stabilization Methodology – 150 Steeles Avenue East, Milton by DS Consultants Ltd.

1.3 Development Concept and Phasing

Refer to the **Draft Plan of Subdivision** prepared by Urban Strategies in **Appendix D**. The development consists of:

- Public rights-of-way
- Stormwater management pond
- Park blocks
- Residential apartment blocks (low-rise and high-rise)
- Natural Heritage System (and associated buffer blocks)

While it is anticipated that the residential apartment blocks will proceed with variable timing once the roads and utilities that serve them are installed, the overall subdivision is intended to be separated into two major development phases. The southern phase, including the stormwater management pond and wastewater outlet which will serve the entire development, will proceed first, alleviating the need for temporary servicing solutions. Each phase also has two points of access from existing roadways; therefore, this report is generally intended to establish the ultimate conditions of the development only. Additional details with respect to phasing do not impact the Draft Plan and will be managed through the future detailed design process and engineering approvals.

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2. EXISTING CONDITIONS

2.1 Drainage Infrastructure

A portion of the subject property (7.94 ha) drains from the north to southwest, towards the Sixteen Mile Creek via an overland flow route and existing perched pipe in the valley. A portion of the site (7.63 ha) drains to the southeast towards an existing drainage swale that outlets to Sixteen Mile Creek. Prior to site remediation works, the property was developed and included approximately 75% impervious coverage in the north portion of the Subject Property, approximately 30% impervious coverage in the south-east portion of the Subject Property and no impervious areas in the south-west portion of the Subject Property. Refer to **Drawing STM-1** for the pre-development drainage plan.

Prior to demolition there was one stormwater sewer outfall from the developed portions of the Subject Property that drained into the Sixteen Mile Creek valley, and an overflow spillway from a tailings pond which discharged / spilled to the swale within the abandoned rail spur line. The line to the stormwater outfall was decommissioned as part of the demolition works and the tailings pond was removed and a restored wetland was created in the natural heritage system (NHS). In addition, as part of the site remediation works, the grades were altered such that overland flow is now directed to an erosion and sediment control (ESC) pond in the southeast corner of the Subject Property. As a result, the storm sewer and tailings pond area no longer convey any flows from the surface to Sixteen Mile Creek

Within Martin Street, there is an existing 300 mm stormwater sewer flowing south. There is also a 375 mm stormwater sewer extending from the intersection of Steeles Avenue and Martin Street flowing east (refer to **STM-1**).

2.2 Existing Conditions – Wastewater System

Wastewater generated from the 150 Steeles Avenue site will be directed south to the Mid-Halton Wastewater Treatment Plant via the Fulton Wastewater Pump Station and the Boyne Trunk Sewer.

Existing wastewater infrastructure immediately adjacent to the Subject Property includes:

- A 300 mm diameter pipe along Steeles Avenue.
- A 200-250 mm diameter pipe along Martin Street.
- A 1050 mm trunk sewer east of Martin Street on Woodward Avenue.

Refer to **Drawing SAN-1** for additional information.

2.3 Existing Conditions – Water System

The 150 Steeles Avenue site is located within Water Pressure Zone M5G, a groundwater-based service area. The Milton groundwater system is supplied through the existing Kelso Well Field and Kelso Water Purification Plant. Existing water distribution infrastructure immediately adjacent to the Subject Property includes:

1. A 300 mm diameter Zone M5L watermain (lake-based) on Steeles Avenue (TWL 267 m)
2. A 300 mm diameter Zone M5G watermain (groundwater service) along the south side of Steeles Avenue (TWL 257 m)
3. A 300 mm diameter Zone M5G watermain (groundwater service) along Martin Street (TWL 257 m)

There is also an existing service connection to the site, previously servicing the industrial building. Refer to **Drawing WM-1** for additional information.

2.4 Geotechnical and Hydrogeology Studies

In support of the application, the approved CEMS (Beacon, 2023) has been referenced for site specific soils and hydrogeological studies.

The topography of the site is relatively flat with a surface elevation of approximately 205-208 masl except for the landfill area (prior to its removal) at the southern portion of the site with maximum elevation of approximately 211 masl. The topography is generally flat with a gentle slope towards the south. The nearest surface water body is Sixteen Mile Creek, located on the southwest side of the Subject Property, which eventually drains into Lake Ontario. The local site topography generally slopes gently downwards towards the south and east.

Shale bedrock belonging to the Queenston Formation was found at approximate depths varying from 15.3 to 18.3m below the existing, pre-remediation ground, corresponding to elevations varying from 188.0 to 190.2m. According to the Ontario Geological Survey, the surficial geology is described as “Till, clay to silty-textured till (derived from glaciolacustrine deposit of shale”.

The hydrogeology at the Subject Property was evaluated using the on-site six (6) monitoring wells installed by DS and nine (9) additional existing monitoring wells installed by other consultants, local domestic wells and existing environmental reports for the area.

Based on the MECP water well records search, all wells within a 500 m radius of the Subject Property were noted as monitoring/test holes or not in use except for five (5) records for domestic, three (3) records for industrial and three (3) records for commercial purposes. The study area (500 m radius of the Subject Property) is fully serviced with municipal water.

Based on groundwater level measurements by DS Consultants, the groundwater table was found at a range between 6.87 to 13.06 mbgs (Elev. 197.15-200.44 masl). Based on groundwater elevations, the flow direction within the Subject Property is inferred to be southwest toward the Sixteen Mile Creek.

A total of fifteen (15) Single Well Response Tests (SWRTs) were completed by DS in monitoring wells on May 5 to 7, 2021 to estimate hydraulic conductivity (k). The values of calculated hydraulic conductivity (k) range from 9.56 × 10-7 to 1.12 × 10-4 m/s.

The CEMS study dated August 2023 is reproduced in **Appendix A**.

3. GRADING & ROAD DESIGN

The proposed grading design for the Subject Property takes into consideration the following requirements and constraints:

1. Conforms to the Town of Milton's design criteria.
2. Optimizes cut and fill operations to minimize import/export situations.
3. Matches existing boundary conditions and self-contain drainage.
4. Avoids or minimizes disturbance to natural features.
5. Provides overland flow conveyance for major storm conditions.
6. Minimizes the length and height of retaining walls.
7. Provides minimum cover on proposed servicing; and
8. Ensures compatibility with extensions of roads into surrounding lands.

Beacon Environmental has prepared a Tree Inventory and Preservation Plan in support of the application which denotes tree impacts associated with the proposed stormwater pond outlet through the abandoned rail spur line corridor immediately adjacent to the development (Town lands). The proposed access road and turnaround within the Town-owned lands have been designed to minimize impacts to existing trees; however, some tree removals are inevitable due to the limits of grading necessary to provide cover over the proposed servicing, and a potential at-grade access to the Martin Street School. Similarly, the open outfall swale beyond the turnaround and headwall has been designed with 2.5:1 side slopes to minimize the area of disturbance and preserve additional trees, although some additional removals beyond the swale footprint will be required for construction. No tree or vegetation removals beyond the limits of the Town's corridor are proposed.

The development includes 16.0m, 20.0m, 24.0m and 26.0m rights-of-way. Each section has been adapted from the Town standards to meet the unique traffic and landscaping requirements for the development. Roads have been graded in conformance with the Town of Milton criteria and are sized adequately to accommodate the required underground services for the development per the typical Town and Region requirements.

Refer to **Drawings GR-1 and ROW-1** for further details.

4. STORM DRAINAGE AND STORMWATER MANAGEMENT

4.1 Design Criteria

The Town of Milton outlines design requirements for SWM in the Engineering and Parks Standards Manual (2024). Where the Town does not provide specific criteria, the Ministry of Environment SWM Planning & Design Manual (2003) has been followed. The following summarizes the SWM targets and design criteria:

1. Provide extended detention drawdown volume for the 25 mm rainfall event based on the erosion threshold target flow rate and a minimum drawdown time within the SWM facility within a range of 24-48 hours.
2. Ensure adequate stormwater quality treatment of runoff is provided. Town requires Level 1 Protection (Enhanced – 80% Average Annual Removal of Total Suspended Solids) for all developments.
3. Maintain water balance to infiltrate the 90th percentile storm event (27 mm) as required by the CLI ECA.
4. Provide safe overland flow conveyance of the 100-year event.
5. Target release rates for post-development are the pre-development controls for the 2-year to 100-year event.
6. Assessing the necessity for Regional control to 16 Mile Creek.

The table below outlines the target flows which have been determined based on the following:

Table 1: Pre-Development Drainage Areas

Area (ha)	Imperviousness
7.17	75%
0.77	0%
7.63	30%
Overall	
15.57	49%

Table 2: Pre-development Target Flows

Storm Event	Flow (m^3/s)
2-Year	1.556
5-Year	2.277
10-Year	2.811
25-Year	3.532
50-Year	4.032
100-Year	4.642
Regional (Hazel)	2.245

4.2 Storm Sewer Design

Storm sewers within the subdivision are sized to convey the 5-year storm in accordance with the Town of Milton standards (Section 4.4.4.2), except for areas where overland flow cannot be maintained to the pond due to grading constraints, in which case the sewers have been sized for the 100-year storm. Local storm sewer pipes generally range in size from 375 mm to 1200 x 1800 mm box sewers. Box sewers are proposed as opposed to the equivalent circular pipe due to cover and crossing constraints. All stormwater within the subdivision is conveyed to the stormwater pond, which is situated in the southeast corner of the Subject Property.

Storm sewer design sheets are provided in **Appendix B**.

4.3 Extended Detention and Orifice

The stormwater pond design is required to provide a minimum 24 to 48-hour drawdown time of the 25 mm rainfall event in accordance with the MOE criteria (Section 4.6.2).

The drawdown time for the pond is 41 hours with the use of a 150 mm orifice tube, as per the Town of Milton standards. Refer to the SWM Calculations provided in **Appendix B**. As such, the proposed drawdown time is consistent with the minimum requirements.

4.4 Quality Control

Enhanced (Level 1) water quality protection through the removal of 80% of total suspended solids (TSS) will be provided, as required by the Town of Milton (Section 4.5.8.2). As per the MOE Stormwater Management Planning and Design Manual 2003, Table 3.2, the permanent pool storage requirement is 3,997.89 m^3 based on ~91% imperviousness. The provided permanent pool volume is 6,088 m^3 at an elevation of 201.70 m. Therefore, the permanent pool is sized to achieve 80% TSS removal. Calculations are included in **Appendix B**.

4.5 Quantity Control

A Visual Otthymo (VO6) hydrology model was used to determine the pond storage required to control post-development flows to the target release rates. In addition to runoff from the site, flows originating from the existing Honda Lands (170 Steeles Avenue East) where there will be future development (outside of this development application), are also to be conveyed to the SWM pond. Post-development drainage areas that were used for modelling are shown on **Drawing STM-2.** The below table summarizes all the proposed drainage areas within the proposed lands as well the corresponding runoff coefficient. The runoff coefficient has been converted to imperviousness using the formula Imp = (C-0.2)/0.7.

Table 3: Post Development Drainage Areas

Area (ha)	Runoff Coefficient
Subject Lands	
0.16	0.6
0.22	0.9
0.94	0.9

Area (ha)	Runoff Coefficient
Subject Lands	
0.62	0.95
0.48	0.9
0.52	0.9
0.7	0.9
0.24	0.9
0.29	0.95
1.38	0.9
1.04	0.4
0.38	0.95
0.41	0.9
0.24	0.9
0.09	0.6
0.39	0.95
0.15	0.95
0.45	0.9
0.72	0.75
0.14	0.95
0.13	0.95
0.32	0.95
0.19	0.95
0.48	0.95
0.49	0.9
0.41	0.9
0.51	0.9
0.35	0.95
1.54	0.75
0.25	0.95
0.06	0.95
0.21	0.95
0.9	0.5
0.13	0.75
Overall	
15.53	0.83
Honda Lands	
2.56	0.90

Post-development flows for the 2-year to 100-year storms, will be controlled to the pre-development flows of the site. The requirement for Regional controls has been assessed as outlined in Section 4.6 below. As such, no impacts to downstream flooding are expected.

A 24-hour Chicago storm distribution based on the Town of Milton IDF parameters (Table 4.4) was utilized as the design storm. Regional storm flows were calculated using AMCIII conditions. **Table 4** summarizes the flow and storage values required based on the VO6 model.

Table 4: Flow and Required Storage Volume Results

Storm Event	Pre-development Target Flow m^3/s	Post Development Pond Inflows m^3/s	Post Development Pond Outflows m^3/s	Required Volume (m^3)	Pond Elevation (m)
Extended Detention	-	1.75	0.06	3542	202.47
2	1.56	3.05	1.55	3695	202.50
5	2.28	4.25	2.28	4312	202.65
10	2.81	5.02	2.81	4813	202.75
25	3.26	6.01	3.25	5511	202.85
50	4.03	6.75	4.03	5885	202.95
100	4.64	7.50	4.63	6202	203.00
Regional (Hazel)	2.25	2.66	2.60	-	-

*Required active storage in addition to the 100-year required storage.

Therefore, the pond has been adequately sized to provide the required quantity control up to and including the 100-year event. Refer to the SWM calculations and VO6 model output provided in **Appendix B** and **Drawing STM-3**.

4.6 Regional Storm

As part of the pond sizing analysis, the necessity of providing Regional Storm controls was evaluated. Based on the Milton IDF parameters, the 100-year storm produces significantly higher peak flows than the Regional Storm and is therefore the governing event. The existing Regional flow from the subject lands is 2.25 m³/s, while the proposed condition results in 2.29 m³/s—an increase of approximately 40 L/s. In addition, 2.56 ha of the adjacent Honda Lands are proposed to be conveyed to the subject site, contributing an additional 0.38 m³/s. Although these lands are not currently tributary to this branch of Sixteen Mile Creek, they lie within the Sixteen Mile Creek watershed. Redirecting these flows through the subject property provides a more defined drainage outlet, eliminating uncontrolled overland flow to Steeles Avenue East and Martin Street that occurs under existing conditions. This diversion results in a net increase of approximately 0.36 m³/s to the creek based on hydrograph timing compared to existing conditions.

The Flood Hazard Mapping prepared as part of the *Urban Milton Final Report* did **not** include future stormwater management ponds in the hydraulic modelling for Sixteen Mile Creek. However, the study referenced previous investigations, which concluded that Regional Storm flow controls were not required. The subject property is situated immediately upstream of the Mill Pond (Flow Node 282) identified in the study, which has a total contributing drainage area of approximately 8,845 ha. At this location, the existing Regional flow was determined to be 261.2 m³/s, while the proposed condition flow was 254 m³/s, as shown in Table 4.22 of the

study. The reduction in peak flow was attributed to the redistribution of runoff timing in upstream catchments (including Catchment 1260, encompassing the subject lands) resulting from development.

It is noted that the diversion of the Honda Lands to the creek was not included in the Urban Milton modelling. This diversion represents an increase of only 0.02% in total drainage area and approximately 0.1% in peak flow. Even if this incremental increase coincided with the timing of the peak flow in the creek, the total flow would increase to 254.36 m³/s—still approximately 3% lower than existing conditions. Accordingly, Regional Storm control for the subject development is not required.

4.7 Emergency Outlet Design

A conventional emergency spillway is not practical for the proposed stormwater management pond due to its location. While it is possible to direct emergency overflow to the adjacent Town's lands (abandoned rail spur), and that edge of the pond is generally lower than the other sides, this approach would preclude the use of the corridor as a pedestrian pathway and connection to the Martin Street Public School, as indicated on the plans. Since the pond has adequate freeboard above the 100-year water level, it is instead recommended to equip the outlet structure with an emergency top grate for the unlikely event that the other outlets are completely blocked. The outlet pipe has adequate capacity for the uncontrolled 100-year outflow from the site. Additional details for the outlet structure and size will be provided at detailed design with a figure.

4.8 Thermal Mitigation

Although not explicitly proposed for thermal mitigation, several measures are proposed for the SWM facility, including those that research suggests will have an impact on the reduction of water temperature. Of specific interest is the Credit Valley Conservation (CVC) Study Report on *Thermal Impacts of Urbanization including Preventative and Mitigation Techniques* (CVC, January 2011). The CVC Thermal Impacts Report identified five "zones" where thermal mitigation measures can be implemented, as presented below.

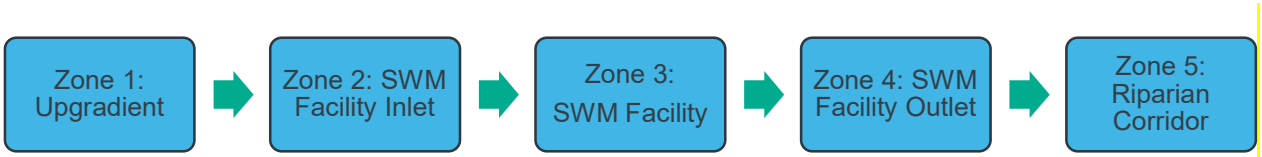

Table 12 outlines the thermal mitigation measures reviewed and those recommended for implementation in the proposed pond.

Table 5: Thermal Mitigation Measures

Mitigation Measure	Zone	Proposed Measures
Energy transfer between warm storm runoff and cool sub-surface storm sewers	Zone 1	✓
LID measures	Zone 1	✓
Buried inlet pipe	Zone 2	✓
Inlet plantings	Zone 2	✓
Shading of open water areas by maximizing canopy	Zone 3	✓
Reduce open water area	Zone 3	✓
Increased L:W ratio	Zone 3	✓
Outlet shading	Zone 4	✓
Concrete outlet pipe	Zone 4	✓
Reversed slope pond outlet / extra permanent pool depth at outlet	Zone 4	✓
Wetland at outfall	Zone 5	✓
Watercourse shading	Zone 5	✓

The proposed thermal mitigation measures are relatively low maintenance. Although difficult to quantify the effectiveness of the mitigation measures without monitoring data, the suggested measures can individually reduce thermal impacts and achieve a greater reduction in combination.

4.9 Outlet Construction through Town Lands

After extensive discussions and site meetings (Fall 2025) between the Applicant, the Town of Milton and Conservation Halton, it has been established that the pond will drain to Sixteen Mile Creek via a new outlet within the Town's lands adjacent to the Subject Property, partially piped and partially conveyed in an open channel, subject to the submission of the updated reports and impact assessment within the Scoped EIA (Beacon, 2026). The previously proposed direct outlet to the creek at the base of the valley wall, within a significant wetland, coupled with the Town's maintenance vehicle access requirements was deemed to be too disruptive to the natural heritage system. Accordingly, alternative options were explored in an effort to eliminate the requirement for an outlet within the valley that would necessitate a lengthy access road through the NHS. Based on an evaluation of alternatives, it was determined that the least environmentally impactful option for the storm outlet was the route shown through the Town's lands. However, the existing elevation of the adjacent swale in the Town's lands is too high to provide a gravity outlet for the pond without adverse upstream impacts, including raising of the site by several meters to provide adequate cover for servicing. This was deemed to be undesirable, not only for the existing residences along Martin Street, but also for the overall neighbourhood due to the extensive earthworks program that would be required to import several hundred thousand cubic meters of fill. The alternative outfall options, and associated grading, within the Town lands was coordinated with Beacon Environmental to minimize environmental impacts and tree removals. Appropriate erosion and sediment control measures

will be implemented for the duration of the outfall construction and a conceptual erosion control and staging plan has been included on **Drawing ESC-1.**

Additional details with respect to the ecological considerations can be found in the Scoped EIA (Beacon, 2026). Refer to **Drawing STM-3** for details with respect to the size and location of the outlet pipe and channel.

4.10 Water Balance and Low Impact Development

In accordance with the Town of Milton's CLI ECA requirements, post to pre-development water balance is required on site. DS Consultants completed a Water Balance Analysis (February 2026) which indicates that without mitigation there is an annual infiltration deficit of 10,372 m^3. The deficit will be mitigated using LID measures such as those outlines in **Table 6** below.

Table 6: Recommended LID Practises

LID BMP	Notes
Additional Topsoil	Minimum 300 mm of topsoil depth in all landscape areas (private and public) can enhance groundwater recharge and promote water balance.
Downspout Disconnection	Directing roofs to pervious areas (with additional topsoil) prior to capture in the storm system can enhance groundwater recharge for the low-rise / townhouse units.
Rear Yard Infiltration Trenches	Rear yard infiltration trenches with additional topsoil and granular storage media can provide additional infiltration on private lots. Swales over trenches to be graded positively to RLCBs or roadways following Town standards as Milton does not support ponding on private property.
Bioretention	Infiltration within high-density blocks may not be possible due to underground parking footprints, but bioretention / filtration / evapotranspiration may be achieved by directing impervious surfaces to rain gardens, planters, etc. prior to capture in the storm system.
Permeable Pavement	While not ideal due to long-term operation and maintenance concerns (i.e. clogging), permeable pavement may be used within various impervious areas such as parking areas, driveways to provide additional infiltration if required.
Grassed Swales	Similar to bioretention, runoff from impervious surfaces may be directed through vegetated swales prior to capture in the storm system to promote filtration and evapotranspiration where infiltration is not feasible.
Water Harvesting / Re-use	Mechanical and irrigation uses to be explored wherever possible for high-density blocks through future site plan application processes.

Please refer to **Drawing STM-4** for conceptual locations of LIDs within the development. Based on the preliminary Site Water Balance by DS Consultants, the proposed LID mitigation efforts will reduce the water balance deficit to approximately pre-development levels, although it is also noted that the pond will discharge to the new swale within the abandoned rail spur and the Sixteen Mile Creek wetland for additional opportunity to infiltrate. Further details on the LID measures will be provided through the appropriate stages of design and approvals to confirm compliance with the overall water balance recommendations for the Subject Lands.

Wetland Water Balance

The majority of the Subject Lands drain to the Sixteen Mile Creek wetland in existing conditions (either overland flow down the valley slope or via the swale within the abandoned rail spur). In the post-development condition, the majority of the site will be directed to the SWM Pond, which will continue to discharge to Sixteen Mile Creek via the proposed outfall sewer and swale within the Town lands. Due to regrading at the Martin Street intersections, a small amount of additional drainage will be directed towards the wetland; however, this is negligible relative to the wetland's contributing upstream drainage area, which exceeds 8,845 hectares. Should the Honda Lands proceed to develop in the future, those lands will also be diverted to the proposed SWM Pond, adding 2.46 hectares of drainage to the Sixteen Mile Creek wetland, but this is also considered negligible. Please refer to Drawing **STM-5** for details.

5. WASTEWATER SERVICING

5.1 Proposed Sanitary Servicing Strategy

Wastewater from the 150 Steeles Avenue development is proposed to drain from north to south through a network of pipes ranging in size from 200 mm to 450 mm in diameter along Street A, Street E, and Street D.

Flow conveyance will continue external to the site through a new 450 mm sewer along Martin Street from Street D (MH39A) to Woodward Avenue (MH41A), and a new 450 mm sewer along Woodward Avenue from MH41A eastward to the Region's 1050 mm trunk sewer. The existing 250 mm service on Martin Street and 200 mm service on Woodward Avenue are proposed to remain in place as service lateral connections to the new 450 mm sewer would not be permissible under Regional standards.

It is important to note that the sanitary design includes provision for future development of high-density built form on non-participating lands to the east (ex. Honda Lands at 170 Steeles Avenue East). This ensures the Region has an accurate representation of long-term servicing needs and an inclusive overall servicing plan that does not exclude adjacent properties.

Downstream, the Region's 1050 mm trunk sewer conveys flows south to the Fulton Wastewater Pump Station and then to the Boyne Trunk Sewer along Regional Road 25. This trunk serves as the primary wastewater conveyance system for Milton, ultimately directing flows to the Mid-Halton Wastewater Treatment Plant in Oakville.

For details on the site servicing layout and drainage areas, refer to **Drawing SAN-1.** Sanitary sewer design sheets are provided **in Appendix C**. Wastewater infrastructure will be designed in accordance with the Region of Halton's standards and specifications.

5.2 Estimated Wastewater Generation

The future sanitary generation rate for the 150 Steeles Avenue site has been calculated using the following information:

- Site statistics / land use, including unit counts and housing type (where available).
- Region of Halton Built Boundary Housing Occupancy Rates (per the 2022 DC Background Study, Table A-4).
- Region of Halton Water and Wastewater Linear Design Criteria (per capita generation rate, average day demand, peaking factor, and inflow / infiltration rate), as outlined in the 2025 Linear Design Manual.

The total wastewater generation rate projected for the site is as follows, with supporting calculations available in **Appendix C** (sanitary design sheet).

- Population (150 Steeles Avenue): 8,381 ppl
- Population (170 Steeles Avenue): 2,280 ppl
- Total Population: 10,661 ppl

- Avg. Domestic Per Capita Flow: 215 LPCD
- Peaking Factor (Modified Harmon): 2.93
- Inflow / Infiltration: 4.9 L/s
- Peak Wet Weather Flow: 82.5 L/s

5.3 Wastewater System Capacity and Phasing

The 150 Steeles Avenue site is located within the Town of Milton Built-Boundary area. In a March 25, 2024 Town of Milton report to Council, regarding the Region of Halton's proposed Allocation Program, the Town of Milton confirmed the following:

- The Town of Milton has been allocated water and wastewater servicing capacity for the equivalent of 12,816 housing units through 2031 to meet their housing pledge. These units can proceed without requiring major upgrades to the Region's water or wastewater system.
- Of these 12,816 units, approximately 3,072 units are currently reserved for Milton's Built Boundary area.
- The Town of Milton controls the distribution of allocated servicing capacity and can reallocate it based on monitoring, development applications received, and evolving needs.
- Development beyond the allocated total of 12,816 will depend on the completion of large-scale Regional capital projects. This includes the expansion of the Mid-Halton Wastewater Treatment Plant.

As outlined in the Integrated Master Plan (2026), upgrades to the Fulton Street Pumping Station, the associated forcemain, and the trunk sewer twinning, are also required to support the development of the Subject Lands. It is anticipated that these works will be completed by approximately 2030 and, in conjunction with the proposed 450mm trunk sewer on Martin Street and Woodward Ave, allow for full buildout of the Subject Lands.

It is anticipated that Blocks 2 and 4 (low-rise, townhouses) will comprise the first phase of development and that the higher density blocks will generally proceed at a later date, likely after the required external upgrades are completed. A conceptual interim wastewater servicing solution to connect Blocks 2 and 4 to the existing Martin Street system is illustrated on **Drawing SAN-1**, although this is subject to further analysis at detailed design to confirm adequate capacity. Presently, the Region has noted that the external 450mm sanitary sewer should be installed with the first phase of development to avoid negative downstream impacts. It is recommended that capacity constraints be evaluated at each stage of detailed design as individual blocks proceed.

6. WATER SERVICING

6.1 Proposed Water Servicing Strategy

Water infrastructure will be designed in accordance with the Region of Halton's standards and specifications:

- New water chambers are proposed at each new connection location.
- All high-rise condominium blocks to be provided with fire & domestic service connections per Region of Halton standards
- Low-rise condominium blocks to be provided with two connections for looping. Individual units to be provided with laterals per Region standards.
- Fire hydrants along municipal roads to be provided per Region standard spacing
- Watermain sizing to be verified through flow testing and detailed water modelling. Results to be coordinated with Region of Halton to confirm system capacity.
- It is proposed to connect the low-rise blocks (first phase of development) to the groundwater / well based watermain on Martin Street. Midrise blocks in the vicinity (i.e. Blocks 1, 3, 5, 6, 8) may be connected as well, pending capacity and flows. As the Region has indicated a preference to connect to the lake-based watermain network on Steeles Avenue, the remainder of the development is proposed to connect to that system instead. However, if it is not desirable to maintain the low-rise blocks from the well-based system on a long-term basis, the highlighted sections of watermain could be abandoned to effectively flip the entire system to the lake-based network when the second phase proceeds.

Preliminary watermain sizing and layout are indicated on **Drawings WM-1** and **WM-2** for the first phase of development, and ultimate development, respectively.

6.2 Estimated Water Demand

Proposed domestic water demand for the 150 Steeles Avenue site has been calculated using the following information:

- Site statistics / land use, including unit counts and housing type (where available).
- Region of Halton Built Boundary Housing Occupancy Rates (per the 2022 DC Background Study, Table A-4).
- Region of Halton Water and Wastewater Linear Design Criteria (per capita generation rate, average day demand, peaking factor, and inflow / infiltration rate), as outlined in the 2025 Linear Design Manual.

The domestic water demand projected for the site is as follows:

- Population (150 Steeles Avenue): 8,381 ppl
- Population (170 Steeles Avenue): 2,280 ppl
- Total Population: 10,661 ppl

- Avg. Domestic Per Capita Flow: 230 L/cap/d
- Average Day Demand: 28.4 L/s
- Max Day Demand (1.9): 53.9 L/s
- Max Hour Demand (3.0): 85.1 L/s

Fire flow will be estimated at the site plan stage using the Fire Underwriters Survey (2020) methodology when additional information is available regarding built-form, construction type, building use and sprinkler installations. Per Regional criteria, the water system will be designed for the higher of Max Hour or Max Day + Fire Flow.

Hydraulic modelling and hydrant testing will be undertaken to confirm flow and pressure.

6.3 Water System Capacity and Phasing

Similar to the wastewater discussion in Section 5.3, the Town of Milton has the ability to allocate water servicing capacity to built-boundary developments in accordance with Regional servicing capacity constraints through 2031.

However, unlike wastewater, water capacity for the 150 Steeles Avenue site is not dependent on large-scale Regional water infrastructure projects, as the site is serviced by the local groundwater-based system. However, the available capacity at the Kelso wellfield is finite, with no planned expansion of either the wellfield or the Kelso Water Treatment Plant. As growth continues in Milton's core, the Region plans to transition some areas from groundwater to lake-based water service to maintain an acceptable draw from the Kelso wellfields. Accordingly, it is proposed that the ultimate water servicing for the Subject Lands should be from the lake-based system as shown on **Drawing WM-2**.

Blocks 2 and 4 (low-rise blocks which are anticipated to form the first phase of development, comprised of approximately 110 townhouse units), may be temporarily connected to the well-based system via Martin Street, as shown on **Drawing WM-1**, and then "flipped" to the lake-based system when the infrastructure is in place (commissioning plans to be prepared and approved at detailed design and construction stage).

It is recommended that hydraulic modeling be conducted at the subsequent stages of approvals for each phase of development to confirm available flows and pressures.

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7. EROSION AND SEDIMENT CONTROL

Erosion and sediment controls will be implemented during all site construction works including topsoil stripping, bulk earthworks, servicing and building construction, and will conform to ESC guidelines (2019 STEP/TRCA). Typical measures will include:

- Heavy duty sediment fence along the perimeter of the site including double row silt fencing adjacent to the NHS.
- Mud mat at the construction site entrance(s).
- Wrapping the tops of all existing inlet structures with filter fabric and using install silt sacks.
- Sediment ponds or sediment traps at discharge locations
- Cut-off swales with check dams to direct flows to discharge locations

Additional details will be provided through the detailed design and permit applications. The conceptual erosion control & staging details are shown on **Drawing ESC-1.**

8. MONITORING

Construction Phase

All maintenance activities during the construction phase are the responsibility of the developer. Sediment and erosion control measures for the construction of the SWM facility must be in accordance with the approved engineering drawings to prevent sediment-laden drainage from discharging directly into the adjacent creek.

Prior to Assumption

Typical municipal design criteria recommend that prior to assumption, the municipality requires that the developer engage a professional engineer to carry out regular inspections, monitoring and performance assessment of the SWM facility for a period of two years after preliminary acceptance or until final acceptance of the pond by the municipality, whichever is greater.

If requested by the Town, an “Inspection and Monitoring Report” shall be submitted by the developer annually for two years, or until assumption, in order to monitor and evaluate the pond’s performance. Regular cleaning of the SWM pond shall be completed by the owner at the recommendation of the annual report, or at the discretion of the Town.

Prior to final acceptance of the SWM pond by the Town, sediment shall be removed and discarded off-site, and all deficiencies, repair works and planting restorations must be completed by the owner to the satisfaction of the Town.

Operations and Maintenance After Assumption

After assumption of the SWM pond, it is recommended that the Town follows the inspection and maintenance procedures detailed in the operation and maintenance report. The maintenance frequency of the SWM facility will be determined based on the results of regular inspections.

9. CONCLUSIONS

This report has demonstrated that:

- The proposed site can be graded to match to existing elevations at all property lines while generally adhering to Town of Milton grading standards and specifications.
- Storm sewers are generally sized based on the 5-year Town IDF parameters. 100-year capture is assumed for grading-constrained areas.
- Stormwater quality, quantity and erosion control targets outlined by the Town of Milton standards are accomplished in the proposed SWM pond (up to and including the 100-year storm event which governs over the Regional event), which will discharge to a proposed pipe and channel within the adjacent Town lands (abandoned corridor).
- Water balance requirements are achieved through passive and engineered Low Impact Development measures within the developed lands
- Wastewater servicing to the site will be provided by upgrading the existing sanitary sewer within Martin Street and Woodward Avenue.
- Water servicing to the site will be provided via the lake-based system from Steeles Avenue with the well-based system on Martin Street potentially servicing the first phase
- Erosion and sediment control measures will be implemented during all construction works and will be maintained and inspected regularly.

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