Stylux Caledon Inc.

Functional Servicing Report

April 2020

Submitted by:

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Project Number: 2185

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SUBMISSION HISTORY

Submission	Date	In Support Of	Distributed To
1st	April 2020	Draft Plan of Subdivision and Rezoning	Town of Caledon, and Client

1.0 INTRODUCTION

SCS Consulting Group Ltd. has been retained by Stylux Caledon Inc. to prepare a Functional Servicing (FSR) Report for a proposed residential development located at Old Church Road and Marilyn Street in the Town of Caledon.

1.1 Purpose of the Report

The Functional Servicing Report has been prepared in support of the draft plan of subdivision and rezoning application for the proposed development. The Draft Plan is provided in **Appendix A**.

The purpose of this report is to demonstrate that the proposed development can be graded and serviced in accordance with the Town of Caledon, Region of Peel, Toronto and Region Conservation Authority and the Ministry of Environment, Conservation and Parks (MECP) development criteria.

It is important to outline that the grading and servicing designs for the proposed development will be provided such that there is allowance for potential future development of the adjacent lands to the west. Should the lands to the west become developed, the extension of the proposed municipal right-of-way (ROW) and laneway will be required. At such time, the proposed temporary laneway will be decommissioned to accommodate the future road and laneway extensions. The decommissioning of the proposed laneway will also result in the creation of additional single detached and townhouse dwellings. For the purpose of this report, the potential future development has been identified as “future development” on the draft plan.

1.2 Study Area

The subject lands are comprised of existing single detached dwellings and a private road (i.e. Russell Mason Court) located within the Humber River watershed in the Town of Caledon. As shown on **Figure 1.1**, the study area is bound by:

- Existing residential development to the north;
- Old Church Road to the south;
- Existing residential development to the east; and
- Future development and Marilyn Street to the west.

All existing infrastructure and utilities within the existing Russell Mason Court will require removal and disposal as part of this proposed development.

The proposed development is approximately 1.78 ha in size and consists of single detached and townhouse dwellings, and municipal right-of-ways (refer to the Draft Plan in **Appendix A**). Access to the proposed development is proposed off of Old Church Road.

1.3 Background Servicing Information

The following drawings have been referenced for the purpose of completing the design for the proposed development (relevant excerpts are included in **Appendix B**):

- Preliminary Geotechnical and Hydrogeological Report, Old Church Road Caledon, prepared by Golder Associates dated Feb 25, 2020;
- Marilyn Street Sanitary Sewers STA. 0+000 to STA. 0+240 Plan No. 22721-D, prepared by KMK Consultants Limited dated May 1, 1996;
- Old Church Road (from Innis Lake Rd to Marilyn St.) Prop. 400mm Watermain STA. 0+920 to STA. 1+120 Plan No. 43328-D, prepared by Region of Peel dated October 2013;
- Old Church Road (From Old Church Rd to Old Church Rd) Prop. 150mm/300mm/400 mm Watermain STA. 0+000 to STA. 0+260 Plan No. 43329-D, prepared by Region of Peel dated October 2013.

2.0 STORMWATER MANAGEMENT

2.1 Stormwater Runoff Control Criteria

The following stormwater runoff control criteria have been established based on the Town of Caledon design criteria (2009) and the MECP Stormwater Management Planning and Design Manual (2003). The stormwater runoff criteria are summarized below in **Table 2.1**.

Table 2.1: Stormwater Runoff Control Criteria

Criteria	Control Measure
Quantity Control	Control proposed peak flows to Old Church Road storm sewer to the 10 year existing runoff for storms up to and including the 100 year storm event.
Quality Control	Provide MECP Enhanced (Level 1) Protection for 80% TSS Removal.
Erosion Control	The minimum erosion control requirement for all watercourses within the TRCA jurisdiction is retention of the first 5 mm of every rainfall event.
Water Budget	Maintain existing groundwater recharge rates and appropriate distribution, ensuring the protection of related hydrology ecologic functions. At a minimum retain the equivalent of 5 mm of rainfall over the proposed development if feasible.

2.2 Allowable Release Rate

Runoff from storms up to and including the 100 year storm event are proposed to be controlled to the runoff produced from a 10 year storm event from an area of 2.31 ha with an existing runoff coefficient of 0.39. The allowable release rate to Old Church Road considers the drainage from the proposed development (Catchment 101, **Figure 2.1**) and the existing external drainage to the northwest (Catchment 202, **Figure 2.1**). The rational method was used to determine the target release rates from the site based on Intensity-Duration-Frequency (IDF) rainfall curves from the Town of Caledon Design Standards. Supporting calculations are provided in **Appendix C**. The allowable release rate is 333.3 L/s based on an area of 2.31 ha and an existing runoff coefficient of 0.39.

If the westerly external lands (Catchment 201, **Figure 2.1**) become developed into future residential development, the allowable release rate will be revised to account for the additional 0.34 ha of external drainage from Catchment 201.

2.3 Existing Drainage

The majority of the existing lands (Catchment 101, 1.53 ha, **Figure 2.1**) drains southeast to Old Church Road via overland flow and via ditches along Marilyn Street (west) to an existing ditch inlet catchbasin which outlets to the existing 675 mm diameter storm sewer on Old Church Road. An external drainage area (Catchment 202, 0.78 ha, **Figure 2.1**) drains via overland flow through Catchment 101 to Old Church Road. The lands adjacent to Catchment

101 (Catchment 201, 0.34 ha, **Figure 2.1**) drain to Old Church Road via the existing Marilyn Street (west) storm sewers and overland flow. The remainder of the existing lands (Catchment 102, 0.14 ha, **Figure 2.1**) drains northeast to the adjacent existing residential dwellings and ultimately to Old Church Road via Marilyn Street (east).

2.4 Best Management Practices

In accordance with the Ministry of Environment, Conservation and Parks Stormwater Management Planning and Design Manual (2003), a review of stormwater management best practices was completed using a treatment train approach, which evaluated lot level, conveyance system and end-of-pipe alternatives. The potential best management practices were evaluated based on the stormwater management objectives listed in **Table 2.1**.

The following site characteristics were taken into consideration:

- Developable area of 1.78 ha consisting of single detached residential dwelling development and high density townhouse dwellings;
- The general soil type found through the preliminary geotechnical report are silty sand to sandy silt;
- Groundwater depth was typically found at 6.1 m to 7.3 m below existing ground surface;
- Estimated hydraulic conductivity values range from $1x10^{-6}$ to $5x10^{-6}$ m/s.

Per the Town of Caledon engineering standards, the Town of Caledon does not support the use of the following infiltration measures: reduced lot grading, roof leader and sump pump discharge to soakaway pits, rear yard ponding, vegetative swales, soakaway pits, pervious pipe and pervious catchbasin systems and therefore, will not be recommended. The following are examples of lot level, conveyance and end-of-pipe controls that were evaluated for use in the proposed development.

2.4.1 Lot Level Controls

Lot-level controls are at-source measures that reduce runoff prior to stormwater entering the conveyance system. These controls are proposed on private properties. Incorporating controls that do not require maintenance can be an effective method in the treatment train approach to SWM. The following lot level controls have been evaluated for use in the proposed development:

Increased Topsoil Depth – An increase in the restored topsoil depth on lots can be used to promote lot level infiltration and evapotranspiration. Increased topsoil depth will contribute to lot level quality and water balance control. A minimum depth of 0.3 m is proposed.

Passive Landscaping/Bio-Retention – Planting of gardens and other vegetation designed to minimize local runoff or use rainwater as a watering source can be used to reduce rainwater runoff by increasing evaporation, transpiration, and infiltration. By promoting infiltration through passive landscaping, water quality and quantity control is provided for the volume of water retained. Passive landscaping can provide significant SWM benefits as part of the overall treatment train approach for the proposed development. Bio-retention is proposed within the municipal right-of-way (ROW), a conceptual detail is included in **Appendix E**.

Roof Runoff to Soak-away Pits – Directing roof runoff to subsurface soak-away pits can be used to promote infiltration. By promoting infiltration water quality and quantity control is provided for the volume of water retained. Infiltration of roof runoff can provides a significant SWM benefits as part of the overall treatment train approach for the proposed development. As discussed above, soak-away pits are not endorsed by the Town of Caledon.

Roof Runoff to Retention Cisterns – Directing roof runoff to rainwater retention cisterns (i.e. rain barrels or greywater re-use) will contribute to water quality and water balance control. The retained rainwater can be harvested for re-use such as irrigation and/or greywater use. A typical rain barrels ranges in size from 190 to 400 liters. Rain barrels are recommended and will be explored at the detailed design stage.

Green Roofs – Best suited for flat roofs, greenroofs provide rainwater retention in the growing medium where it is evaporated, evapo-transpirated, or slowly drains away after the rainfall event. The proposed development will have peaked roofs and are thereby not suitable.

Rooftop and/or Parking Lot Detention Storage – Often employed with large rooftop or parking lot footprints, flow attenuation for quantity or extended detention control can be provided via a flow restriction with stormwater storage provided via ponding either on rooftops or parking lots. The proposed development does not have flat rooftops or parking lots, therefore this is not suitable.

Roof overflow to Grassed Areas – Directing roof leaders to grassed areas will contribute to water quality and water balance control by encouraging stormwater retention. Roof leaders are proposed to be directed to grassed areas where there is grass, however, if there is no grass, roof leaders should be connected to the storm sewer to eliminate the hazard of ice accumulation.

Pervious Pavement – By encouraging infiltration and filtration, pervious pavement can contribute to water quality, balance and erosion control. The Town of Caledon does not endorse previous pavement on municipal roads.

Vegetated Filter Strip – At source filtration and infiltration may be encouraged through the use of vegetated filter strips by directing sheet flow from impermeable areas to the strip prior to being collected via the storm system. Vegetated filter strips are best suited to parking lot areas with landscaped borders or islands. There is not an opportunity within the proposed development, therefore vegetated filter strips are not suitable.

A summary of the suitability of potential lot level controls for the proposed development is provided in **Table 2.2**.

2.4.2 Conveyance Controls

Conveyance controls provide treatment of stormwater during the transport of runoff from individual lots to the receiving watercourse or end-of-pipe facility and present opportunities to distribute stormwater management techniques throughout a development. The following conveyance controls have been evaluated for use in the proposed development:

Grassed Swales – A grassed swale will promote infiltration, filtration, and evapotranspiration, contributing to water quality and quantity control. Grassed swales need an unimpeded and relatively wide stretch of landscaped area, such as within a wide boulevard with no driveways, to function properly. Grassed swales are proposed at the individual lot grading level and located in the rear yards of proposed lots.

Exfiltration at Rear Lot Catchbasins – Where rear lot catchbasins are required due to grading constraints, a perforated pipe system could be incorporated into the rear lot catchbasin design to promote infiltration of 'clean' stormwater runoff. By promoting infiltration, water quality and quantity control is provided for the volume of water retained. As discussed, exfiltration at rear lot catchbasins are not endorsed by the Town of Caledon.

Catchbasin Exfiltration Trenches – Long infiltration trenches designed for infiltration of stormwater runoff can be incorporated with the storm sewer design. Catchbasin exfiltration trenches allow for infiltration of runoff from the storm sewer into a gravel storage trench. Pre-treatment is recommended prior to draining into the catchbasin exfiltration trenches. Catchbasins with extra deep sumps and skimming devices to trap trash, coarse sediment and floatables in the catchbasin can be incorporated. Due to the size of the proposed storage solution, catchbasin exfiltration trenches are not recommended due to the space constraints.

A summary of the suitability of potential conveyance controls for the proposed developments is provided in **Table 2.2**.

2.4.3 End-of-Pipe Controls

Stormwater management facilities at the end-of-pipe receive stormwater flows from a conveyance system and provide treatment of stormwater prior to discharging flows to the receiving watercourse. While lot level and conveyance system controls are valuable components of the overall SWM plan, on their own they are not sufficient to meet the quantity and quality control objectives for the proposed development. The following end-of-pipe controls have been evaluated for use in the proposed development:

Stormwater Detention Facility – To meet quantity erosion control targets, stormwater runoff storage and attenuation through the use of flow restrictors can be used to control stormwater release rates. To accommodate the reduced release rate, stormwater detention facilities are required to store stormwater runoff. Stormwater storage is proposed be provided by large storm sewers (superpipe) and controlled with flow restrictors prior to discharging to the receiving infrastructure.

Wet Ponds, Wetlands, Dry Ponds – Sized in accordance with the MECP criteria, these end-of-pipe facilities can provide water quality, quantity, and erosion control treatment. Due to the size of the proposed development, an end-of-pipe wet pond is not feasible.

Manufactured Treatment Device

A properly sized manufactured treatment device (MTD) can provide MECP Enhanced (Level 1) treatment and contribute to the treatment train approach for water quality control. The MTD unit specified is required to have ETV certification. Based on ETV certification, an OGS sized per ETV particle size distribution can provide 60% TSS removal. The lot level

and conveyance controls will work in conjunction with the MTD to provide overall Enhanced quality control.

2.4.4 Selection of Low Impact Development Practices

Table 2.2 summarizes the suitability of the various stormwater management controls identified for the proposed development.

Table 2.2 - Recommended Stormwater LID Practices

STORMWATER MANAGEMENT PRACTICE	FEASIBLE (Yes/No)	RECOMMENDED (Yes/No)
Increased Topsoil Depth	Yes	Yes
Passive Landscaping/Bio-Retention	Yes	Yes
Roof Leader to Soak-away Pits*	Yes	No
Roof Runoff to Retention Cisterns	Yes	Yes
Green Roofs	No	No
Rooftop and/or Parking Lot Detention Storage	No	No
Roof overflow to Grassed Areas	Yes	Yes
Pervious Pavement*	Yes	No
Vegetated Filter Strips	No	No
Grassed Swales	Yes	Yes
Exfiltration at Rear Lot Catchbasins*	Yes	No
Catchbasin Exfiltration Trenches	No	No
Stormwater Detention Facility	Yes	Yes
Wet Ponds, Wetlands, Dry Ponds	No	No
Manufactured Treatment Device	Yes	Yes

*Note, Town of Caledon does not support these LID practices.

At the detailed design stage, a water balance evaluation will be incorporated into the detailed stormwater management report that discusses the selection of LIDs and quantifies the proposed rainwater retention volume.

2.5 Proposed Storm Drainage

The proposed major and minor system flow patterns and drainage areas are shown on **Figure 2.2**. As illustrated, the proposed development will convey runoff to Old Church Road.

Major and minor system flows from the majority of the proposed development will be captured via a proposed internal storm sewer system (Catchment 301, **Figure 2.2**) and detained on-site in an underground storage system consisting of superpipes. Drainage from the remainder of the proposed development (Catchment 303, **Figure 2.2**) will be conveyed uncontrolled to Old Church Road. External drainage from Catchment 202 (**Figure 2.2**), will continue to drain through the proposed development.

Should the potential future development be developed, the drainage from Catchment FUT1 (**Figure 2.2**) will drain uncontrolled to the proposed development and be controlled within the underground storage system consisting of superpipes. Until the development redevelops, the drainage from Catchment FUT1 will continue to drain to Marilyn Street (west).
At the detailed design stage, an interim scenario will be assessed to ensure existing drainage from the potential future development is still maintained should the parcel not develop in parallel.

2.5.1 Quantity Control

The proposed 100 year piped release rate from the proposed development will be controlled to the existing 10 year peak runoff rate to Old Church Road via an orifice tube located on the downstream face of the control manhole (**Figure 2.2**). The size and length of the superpipe required to detain 653 m^3 of storage is shown schematically on **Figure 2.2** as 149 m of 3.7 m wide by 1.2 m high concrete box culvert superpipe. The required storage volume and subsequent size and length of the required superpipe will be further refined at the detailed design stage.

Proposed release rates and required storage volumes were calculated using the modified rational method and the IDF rainfall curves from the Town of Caledon Design Standards. Calculations are included in **Appendix C**.

Table 2.3 provides a comparison of the allowable release rate to the proposed 100 year released rate for the proposed development to Old Church Road.

Table 2.3: Comparison of Allowable Release Rates and Proposed Release Rates

Allowable Release Rate to Storm Sewer (L/s)	Controlled Site Release Rate (L/s)	Uncontrolled Site Release Rate (L/s)	Total Proposed Site Release Rate (L/s)
333.3	254.8	78.5	333.3

Should Catchment FUT1 be developed and contribute runoff into the proposed development, the 3.7 m by 1.2 m concrete box culvert superpipe will need to be extended.

2.5.2 Quality Control

Quality control will be provided by a treatment train of Low Impact Development (LID) techniques which will include additional topsoil depth on all grassed areas, passive landscaping, roof overflow to grassed areas and an end-of-pipe manufactured treatment device (MTD).

The MTD will be sized for a minimum of 60% TSS removal per ETV standards. It is recognized that OGS units are only credited for 60% TSS removal. Therefore, treatment of 20% net TSS removal is required by the LID's. Alternatively, should LID's not be endorsed by the municipality, a MTD that is credited with 80% TSS removal, such as a Jellyfish Unit, could be provided.

2.5.3 Erosion Control

The erosion control criteria is to provide a minimum of 24 hour extended detention of the runoff from a 25 mm rainfall event. However, since the proposed development is less than 2.0 ha, the proposed development is too small to practically detain this runoff volume over 24 hours. Therefore the minimum criteria as identified in **Table 2.1** will be provided through the detention of the first 5 mm of rainfall over impervious surfaces.

2.5.4 Water Balance

The water balance criteria is a best efforts approach to retain the equivalent of 5 mm of rainfall over impervious surfaces within the proposed development. Through the on-site retention measures as described in **Table 2.2** above, best efforts has been provided to retain the required volume of 31.9 m^3. Per **Figure 2.2**, proposed LID's are to include rear yard infiltration trenches.

2.6 Storm Servicing

The storm sewer system (minor system) with be designed for the 10 year return storm per the Town of Caledon standards.

The storm sewer system will typically be designed with grades between 0.5% and 2%. Throughout the proposed development, if feasible, the storm sewer system will be constructed at a minimum depth of 2.75 m to collect foundation drains. Proposed Blocks 13, 14 and 19 will connect to the existing sewer along Old Church Road. All lots connected to the internal storm sewer system will be sump pumps due to connection to superpipe.

The storm sewer system will be designed in accordance with the Town of Caledon and MECP guidelines, including the following:

- Pipes to be sized to accommodate runoff from a 10 year storm event
- Minimum Pipe Size: 300 mm diameter
- Maximum Flow Velocity: 4.0 m/s
- Minimum Flow Velocity: 0.75 m/s
- Minimum Pipe Depth: 1.0 m below basement floor elevation if foundation drains are connected; minimum frost cover of 1.5 m if no foundation drains are connected.

The following rainfall intensity will be calculated as follows, where 'i' is the rainfall intensity (mm/hour) and A, B, and C are as per **Table 2.4**:

Table 2.4: Rainfall Intensity Parameters

Return Period Storm	A	B	C
10 Year	2221	12	0.9080
100 Year	4688	17	0.9624

*Note: Based on Intensity formula of I = A/(t + B)^C, with a Tc of 10 min

3.0 SANITARY SERVICING

3.1 Existing Sanitary Sewer System

As indicated on Drawing 43328-D (**Appendix B**), the existing 250 mm diameter sanitary sewer along Old Church Road flows to the west.

The existing sanitary system is illustrated in **Figure 3.1**.

3.2 Proposed Sanitary Sewer System

The preliminary layout for the proposed sanitary sewer system within the proposed development is provided on **Figure 3.1**. The proposed sanitary sewer system is proposed to connect to the existing 250 mm diameter PVC sanitary sewer on Old Church Road at the south entrance of the proposed development. Every effort will be made such that the connection is made to the existing sanitary manhole (No.309219). However, if this is not possible, a new manhole will be installed on the existing 250 mm diameter sewer. The existing sanitary sewer has approximately 5.6 m of cover at the proposed service connection, which is sufficient to service the proposed development

The sanitary sewers within the proposed development will have slopes ranging between 0.5% and 2% (typically) and will be provided at 3 m to 5 m deep.

The sanitary sewer system will be designed in accordance with the Region of Peel and MECP criteria, including but not limited to:

- Residential Sanitary Generation Rate: 302.8 l/c/d
- Population Density: 50 people/hectare (single detached), 175 people/hectare (row dwellings)
- Peaking Factor: Harmon
- Infiltration Rate: 0.2 L/s/ha
- Minimum Pipe Size: 250 mm diameter
- Minimum Pipe Cover: 2.5 m
- Minimum Actual Velocity: 0.75 m/s
- Maximum Velocity: 3.5 m/s

Proposed Blocks 13, 14 and 19 will connect to the existing 250 mm diameter sewer along Old Church Road. Due to the depth of the existing sewer (i.e. approximately 6 metres), risers will be required for the individual connections.

Through discussions with the Region, it is anticipated that the existing sanitary sewer downstream of the proposed development will have sufficient capacity for the proposed development.

4.0 WATER SUPPLY AND DISTRIBUTION

4.1 Existing Water Distribution

As indicated on Drawing 43328-D (**Appendix B**), there is an existing 300 mm diameter PVC and a 400 mm diameter PVC watermain along Old Church Road.

The existing watermain system is illustrated in **Figure 4.1**.

4.2 Proposed Water System

The preliminary layout for the proposed watermain system is provided on **Figure 4.1**. The proposed watermain system will connect to the existing 300 mm diameter watermain on Old Church Road.

The watermain system will be designed in accordance with the Region of Peel and MECP criteria including:

- Residential water usage rate: 280 l/c/d
- Population Density: 3.2 people/unit (single detached)
- Minimum Pipe Size: 150 mm diameter
- Minimum Pipe Depth: 1.7 m
- Maximum Hydrant Spacing: 150 m (single detached)

Proposed Blocks 13, 14 and 19 will connect to the existing 300 mm watermain along Old Church Road.

The proposed watermain system will be subject to the Region of Peel's confirmation for sufficient capacity in the existing distribution system. However, it is anticipated that the existing system will have sufficient capacity for the proposed development.

5.0 SITE GRADING

5.1 Existing Grading Conditions

The subject lands comprises of existing residential single dwelling homes. The topography is relatively flat with the ground surface elevations through the study area ranging from approximately 295.0 m to 296.5 m.

5.2 Proposed Grading Concept

In general, the proposed development will be graded in a manner which will satisfy the following goals:

- Satisfy the Town of Caledon lot and road grading criteria including:
  - Minimum Road Grade: 0.5%
  - Maximum Road Grade: 6.0%
  - Minimum Lot Grade: 2%
  - Maximum Lot Grade: 5%
- Provide continuous road grades for overland flow conveyance;
- Minimize the need for retaining walls;
- Minimize the volume of earth to be moved and minimize cut/fill differential;
- Minimize the need for rear lot catchbasins; and
- Achieve the stormwater management objectives required for the site.

A temporary laneway is proposed at the western boundary of the proposed development and temporary sloping will be required to match to existing.

A preliminary grading plan is provided on **Figure 5.1**.

At the detailed design stage, the preliminary grading will be subject to a more in-depth analysis in an attempt to minimize the cut and fill volumes, and minimize slopes and walls.

6.0 RIGHT-OF-WAYS AND SIDEWALKS

A standard 8.0 m Town of Caledon right-of-way (ROW) and a modified 18.0 m Town of Caledon ROW are proposed for the development. The proposed ROW cross-sections are provided in **Appendix D**. A temporary 6.0 m wide temporary asphalt laneway (with asphalt curb) is also proposed to allow for traffic flow.

The proposed sidewalk location plan is provided on **Figure 6.1**. For the areas where sidewalk will be provided along one side of the street, sidewalks will be typically be located on north or east side of the boulevard or the boulevard side where the larger number of frontages can be serviced.

7.0 EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION

During the detailed design stage, standard erosion and sediment control measures will be designed, including but not limited to perimeter controls, a construction access, inlet control devices, check dams and temporary sediment control devices. These measures will be designed and constructed as per the "Erosion and Sediment Control Guideline for Urban Construction" document (December 2006). A preliminary erosion and sediment control plan is shown on **Figure 7.1**. A detailed erosion and sediment control plan will be prepared for review and approval by the Town of Caledon prior to any site grading being undertaken. This plan will address phasing, inspection and monitoring aspects of erosion and sediment control. All reasonable measures will be taken to ensure sediment loading to the adjacent infrastructure is minimized both during and following construction.

8.0 UTILITY CONSIDERATIONS

External utility infrastructure is not anticipated to be required as the proposed development is located within an existing community.

All utility requirements and relocations will be confirmed at the detailed design stage.

9.0 SUMMARY

This Functional Servicing Report has been prepared in support of the Draft Plan of Subdivision and Zoning By-law Amendment applications for the proposed development in the Town of Caledon. This report outlines the means by which the proposed development can be graded and serviced in accordance with the Town of Caledon, Region of Peel, and the Ministry of Environment, Conservation and Parks design criteria and policies.

General Information

- The existing land use consists of existing residential single dwelling homes;
- The site is located in the Humber River Watershed; and
- The proposed development consists of single dwelling homes, townhomes, a municipal right-of-way and laneway, and a temporary laneway.

Stormwater Management and Storm Servicing

- Quantity Control: Quantity control will be provided a superpipe system to control proposed runoff rates in the 2 through 100 year storm events;
- Quality Control: MECP Enhanced (Level 1) water quality protection can be provided through the use of a treatment train approach of low impact development techniques and a manufactured treatment device;
- Erosion Control: The runoff volume from a 5 mm rainfall event will be retained via low impact development;
- Water Budget: A best efforts approach to maintain existing recharge and at a minimum retain the equivalent of 5 mm over the proposed development;
- Storm Servicing:
  - Storm runoff will be conveyed by storm sewers designed in accordance with the Town of Caledon and MECP criteria; and
  - Storm sewers will generally be designed for the 10 year storm event.
- Existing external drainage will be accommodated through the proposed development.

Sanitary Sewage Disposal

- The existing 250 mm diameter municipal sanitary sewer on Old Church Road has sufficient capacity for the proposed development.

Water Supply

- There are existing 300 mm and 400 mm diameter watermains on Old Church Road
- The proposed development is proposed to be serviced with a proposed watermain system connecting to the existing 300 mm diameter watermain on Old Church Road.

Site Grading

- The site grading has been developed to match to the existing surrounding grades, and provide conveyance of stormwater runoff, including external drainage; and
- The lot grading will be subject to further grading design at the architectural design stage prior to the building permit applications.

Right-of-Ways and Sidewalks

- Standard Town of Caledon right-of-ways are proposed, as well as a temporary asphalt laneway; and
- Sidewalks are proposed on one side of the local right-of-way.

Erosion and Sediment Control during Construction

- An erosion and sediment control plan will be prepared at the detailed engineering stage, in accordance with the "Erosion and Sediment Control Guideline for Urban Construction" document (December 2006).

Respectfully Submitted:

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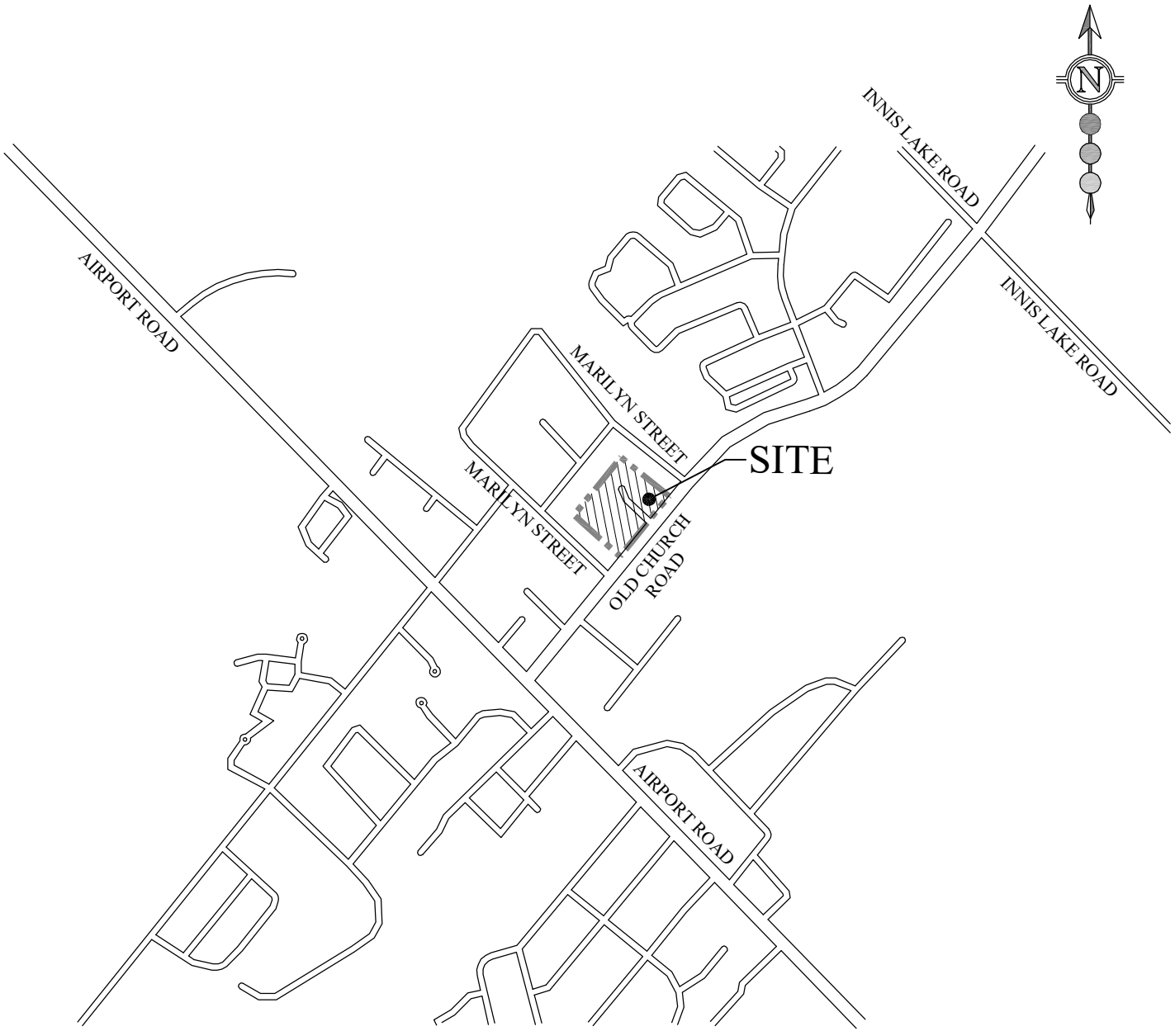

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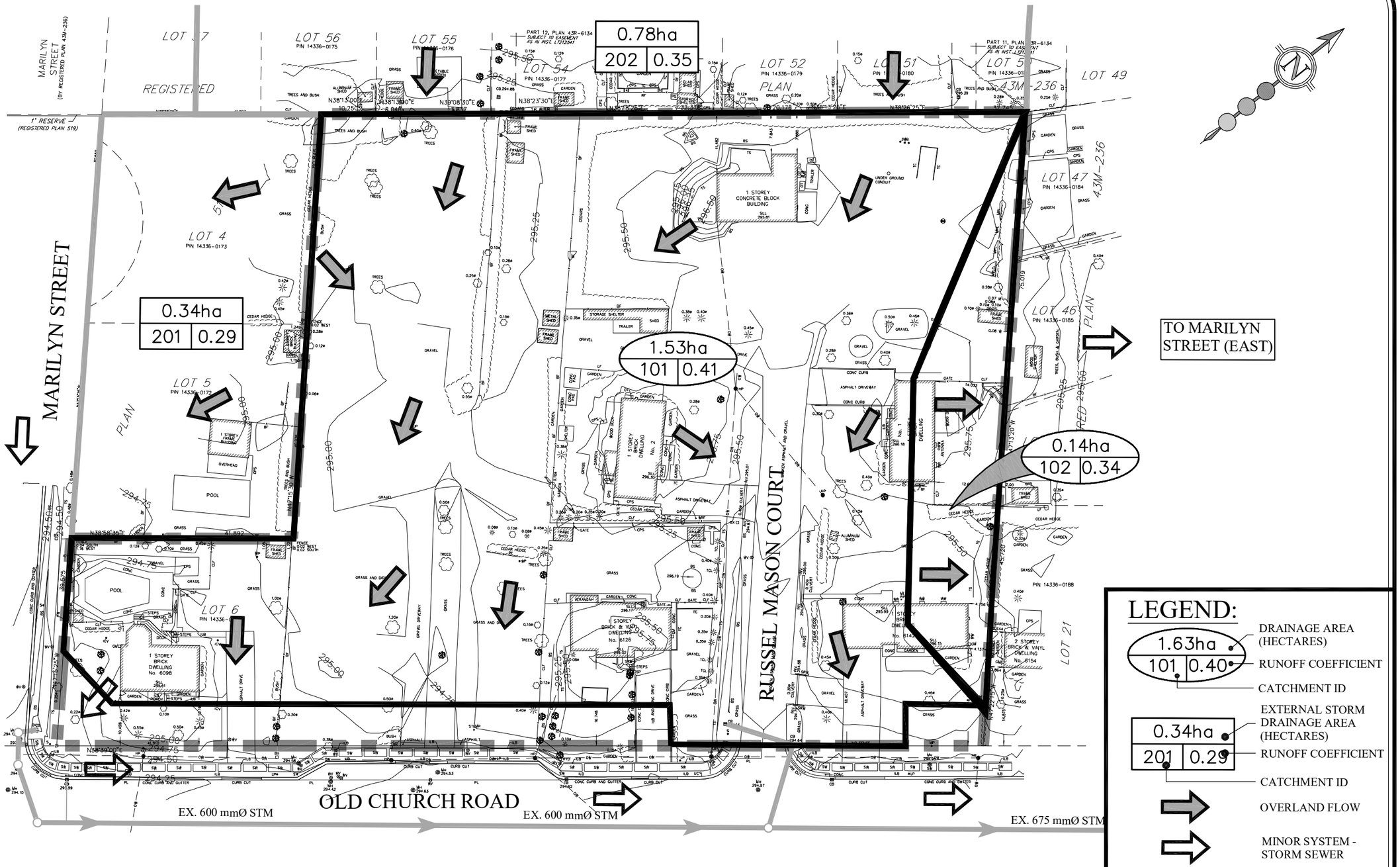
LEGEND:

SITE BOUNDARY

STYLUX CALEDON EAST FSR

SITE LOCATION PLAN

DESIGNED BY: C.J.C.	CHECKED BY: D.W.	PROJECT No: 2185	FIGURE No: 1.1
SCALE: N.T.S.	DATE: APRIL 2020		



LEGEND:

- 1.63ha / 101 / 0.40 — DRAINAGE AREA (HECTARES), RUNOFF COEFFICIENT, CATCHMENT ID
- 0.34ha / 201 / 0.29 — EXTERNAL STORM DRAINAGE AREA (HECTARES), RUNOFF COEFFICIENT, CATCHMENT ID
- OVERLAND FLOW
- MINOR SYSTEM - STORM SEWER

LEGEND:

- SITE BOUNDARY
- 265.00 — EXISTING CONTOUR AND ELEVATION
- PROPOSED DRAINAGE BOUNDARY
- EXTERNAL DRAINAGE BOUNDARY
- EXISTING STORM SEWER

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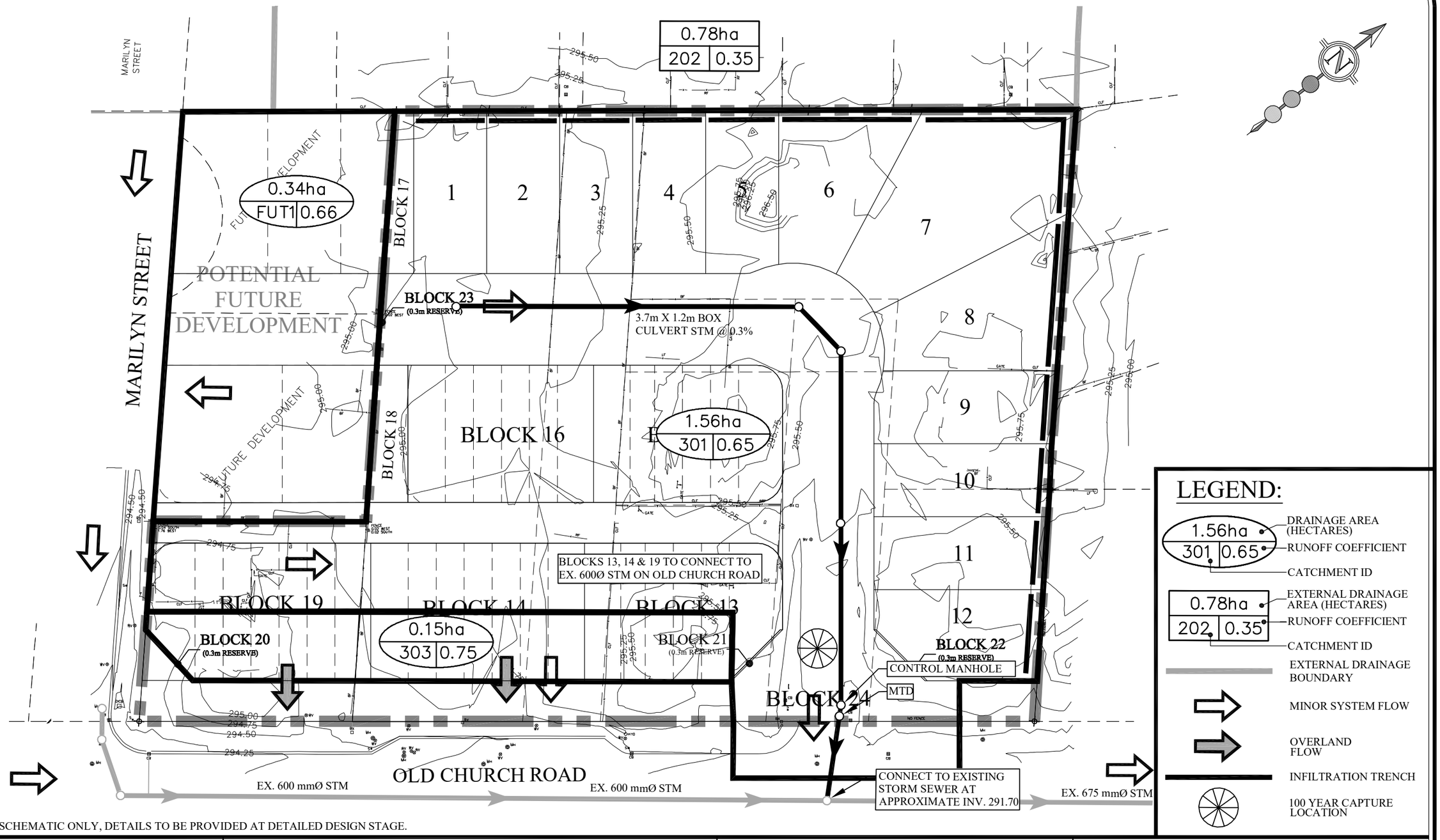
STYLUX CALEDON EAST FSR

EXISTING STORM DRAINAGE PLAN

DESIGNED BY: P.A.T	CHECKED BY: D.W.	PROJECT No: 2185	FIGURE No: 2.1
SCALE: 1:750	DATE: APRIL 2020		

File: P:\2185 Stylux Caledon East\Drawings\FSP\Fig\Report Figures\2185P-PRED-2.1.dwg - Revised by <CMCCARTHY> : Mon, Apr 13 2020 - 9:46am



*NOTE: LAYOUT IS SCHEMATIC ONLY, DETAILS TO BE PROVIDED AT DETAILED DESIGN STAGE.

STYLUX CALEDON INC.

SCS consulting group ltd
30 CENTURIAN DRIVE, SUITE 100
MARKHAM, ONTARIO L3R 8B8
TEL: (905) 475-1900
FAX: (905) 475-8335

LEGEND:

SITE BOUNDARY
265.00 EXISTING CONTOUR AND ELEVATION
DRAINAGE BOUNDARY
EXISTING STORM TRUNK SEWER
PROPOSED STORM TRUNK SEWER

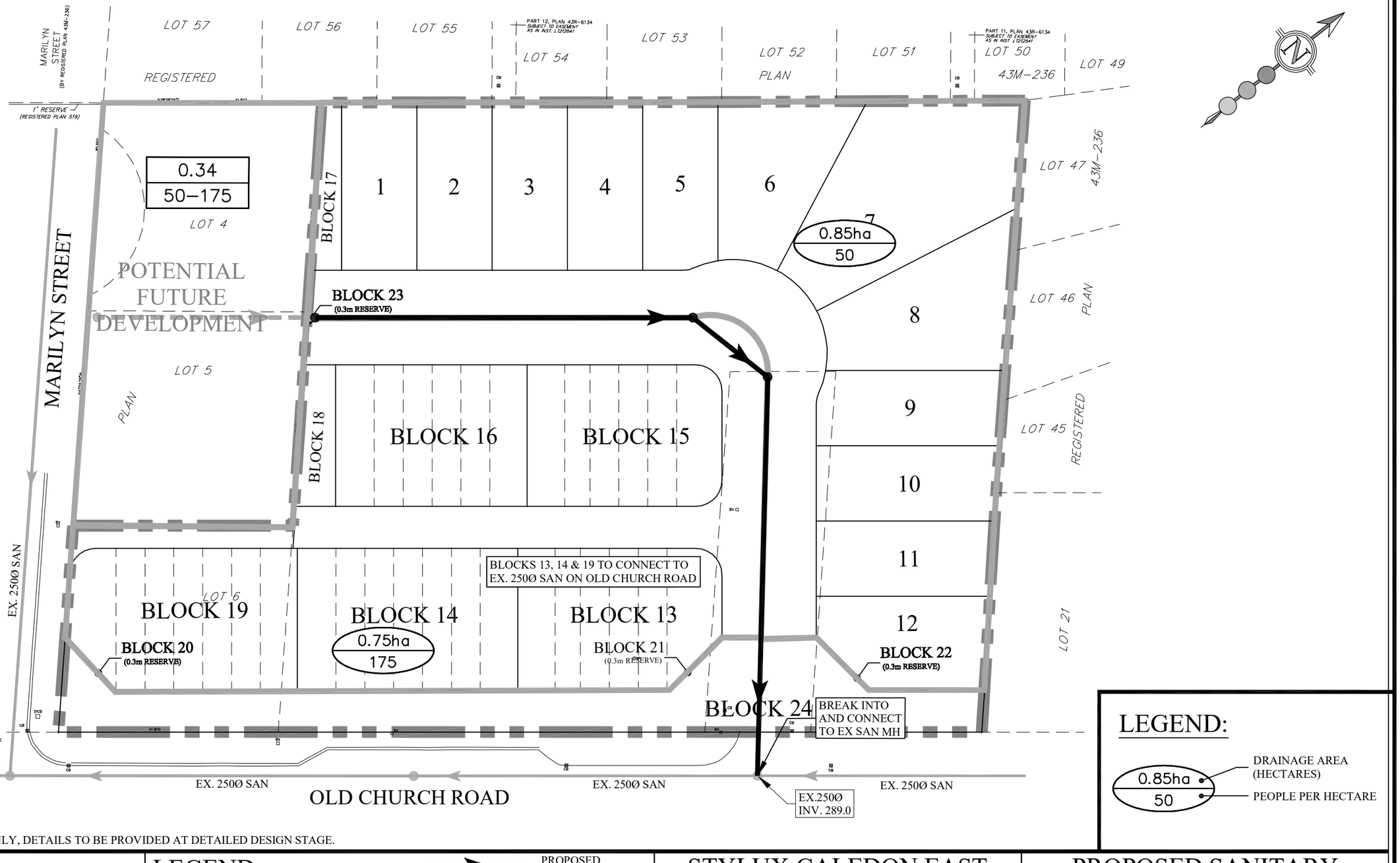
STYLUX CALEDON EAST FSR

DESIGNED BY:	P.A.T	CHECKED BY:	D.W.
SCALE:	1:750	DATE:	APRIL 2020

PROPOSED STORM DRAINAGE PLAN

PROJECT No:	FIGURE No:
2185	2.2

File: P:\2185 Stylux Caledon East\Drawings\FSP\Fig\Report Figures\2185P-POST-2.2.dwg – Revised by <CMCCARTHY> : Mon, Apr 13 2020 – 9:48am

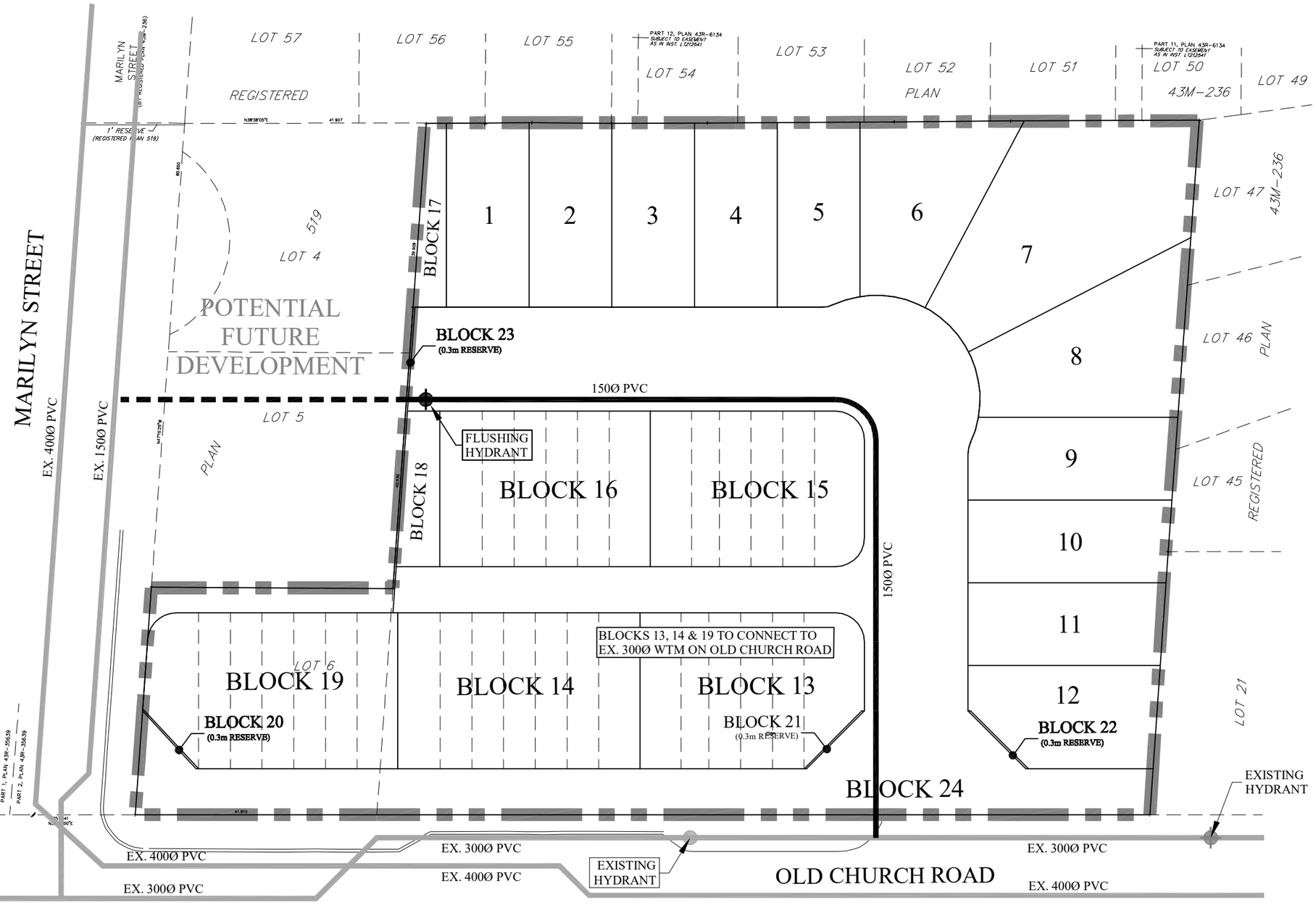


LEGEND:

0.85ha / 50 — DRAINAGE AREA (HECTARES) / PEOPLE PER HECTARE

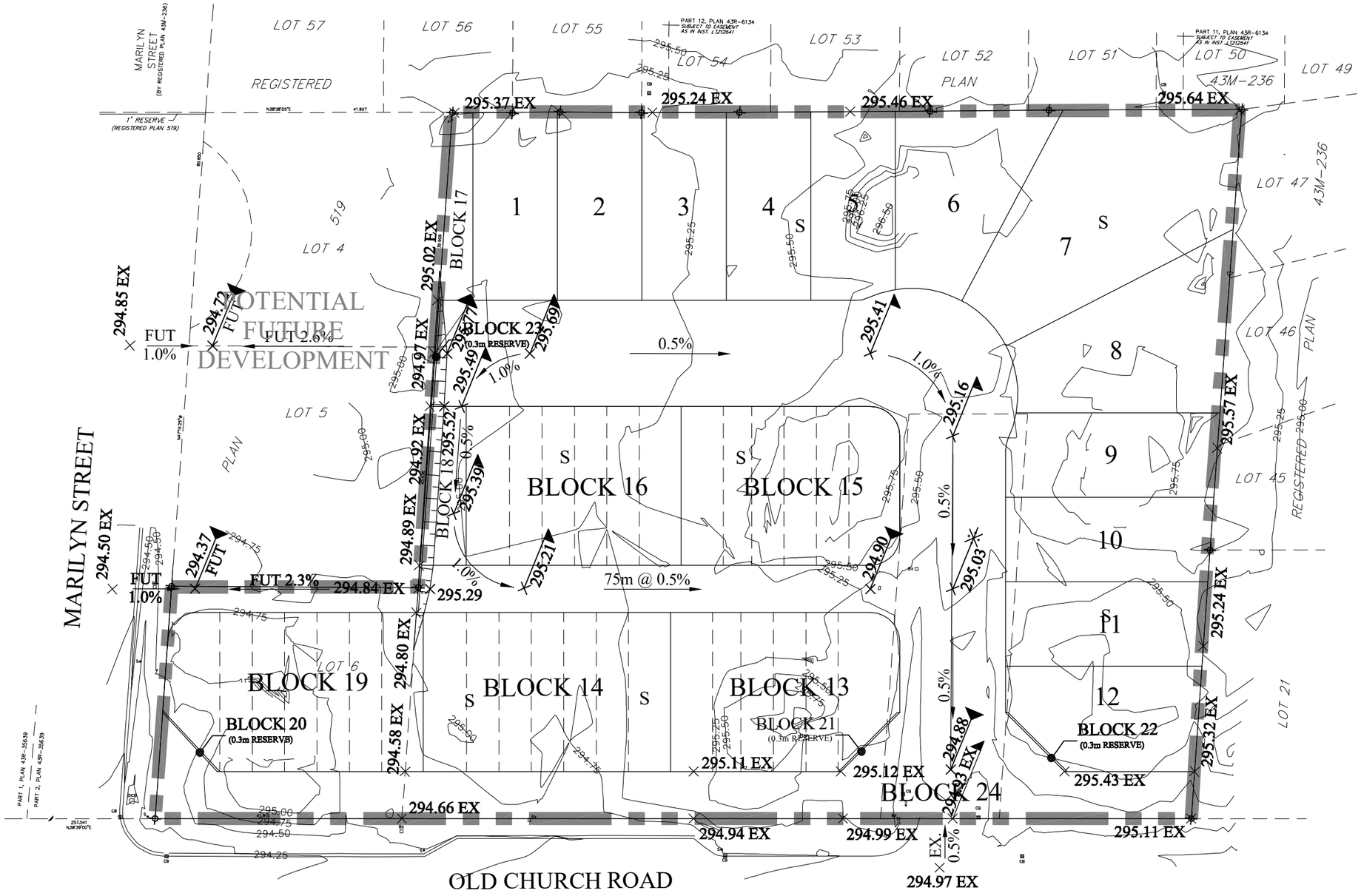
*NOTE: LAYOUT IS SCHEMATIC ONLY, DETAILS TO BE PROVIDED AT DETAILED DESIGN STAGE.

STYLUX CALEDON INC.	LEGEND:	STYLUX CALEDON EAST FSR	PROPOSED SANITARY DRAINAGE PLAN
SCS consulting group ltd 30 CENTURIAN DRIVE, SUITE 100 MARKHAM, ONTARIO L3R 8B8 TEL: (905) 475-1900 FAX: (905) 475-8335	SITE BOUNDARY DRAINAGE BOUNDARY EXISTING SANITARY SEWER PROPOSED SANITARY SEWER POTENTIAL/FUTURE SANITARY SEWER 0.34 / 50-175 — FUTURE DRAINAGE AREA (HECTARES) / PEOPLE PER HECTARE	DESIGNED BY: P.A.T CHECKED BY: D.W. SCALE: 1:750 DATE: APRIL 2020	PROJECT No: 2185 FIGURE No: 3.1



*NOTE: LAYOUT IS SCHEMATIC ONLY, DETAILS TO BE PROVIDED AT DETAILED DESIGN STAGE.

STYLUX CALEDON INC.	LEGEND:	STYLUX CALEDON EAST FSR	PROPOSED WATER DISTRIBUTION PLAN
SCS consulting group ltd 30 CENTURIAN DRIVE, SUITE 100 MARKHAM, ONTARIO L3R 8B8 TEL: (905) 475-1900 FAX: (905) 475-8335	SITE BOUNDARY PROPOSED WATERMAIN EXISTING WATERMAIN POTENTIAL/FUTURE WATERMAIN	DESIGNED BY: P.A.T CHECKED BY: D.W. SCALE: 1:750 DATE: APRIL 2020	PROJECT No: 2185 FIGURE No: 4.1



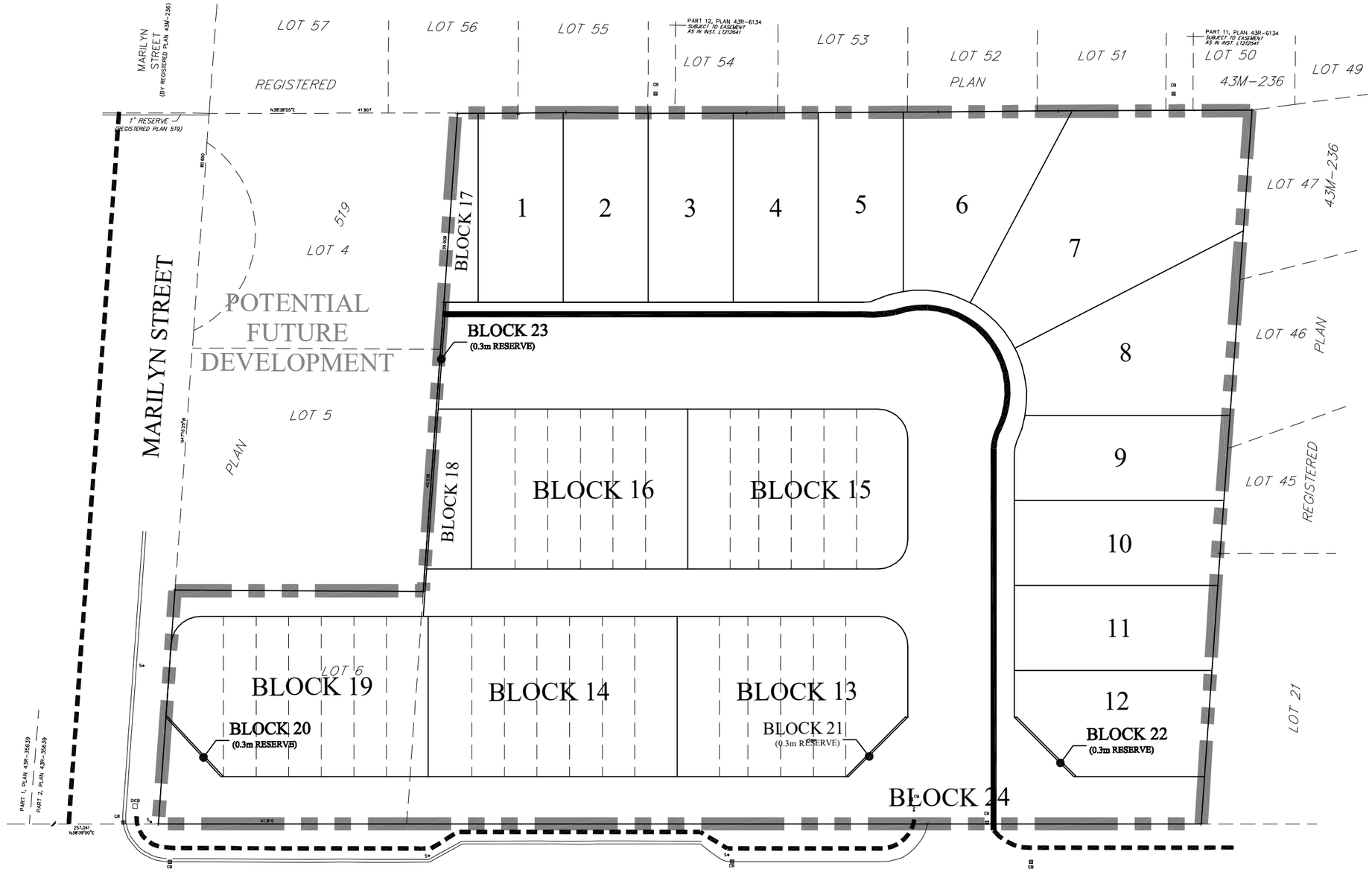
*NOTE: LAYOUT IS SCHEMATIC ONLY, DETAILS TO BE PROVIDED AT DETAILED DESIGN STAGE.

STYLUX CALEDON INC.	LEGEND:		STYLUX CALEDON EAST FSR
SCS consulting group ltd 30 CENTURIAN DRIVE, SUITE 100 MARKHAM, ONTARIO L3R 8B8 TEL: (905) 475-1900 FAX: (905) 475-8335	SITE BOUNDARY 265.00 EXISTING CONTOUR AND ELEVATION × 270.10 PROPOSED ELEVATION × 270.10FUT POTENTIAL FUTURE ELEVATION × 270.10EX EXISTING ELEVATION 3.5% ROAD GRAD FLOW DIRECTION		DESIGNED BY: P.A.T CHECKED BY: D.W. SCALE: 1:750 DATE: APRIL 2020

PRELIMINARY GRADING PLAN

PROJECT No: 2185

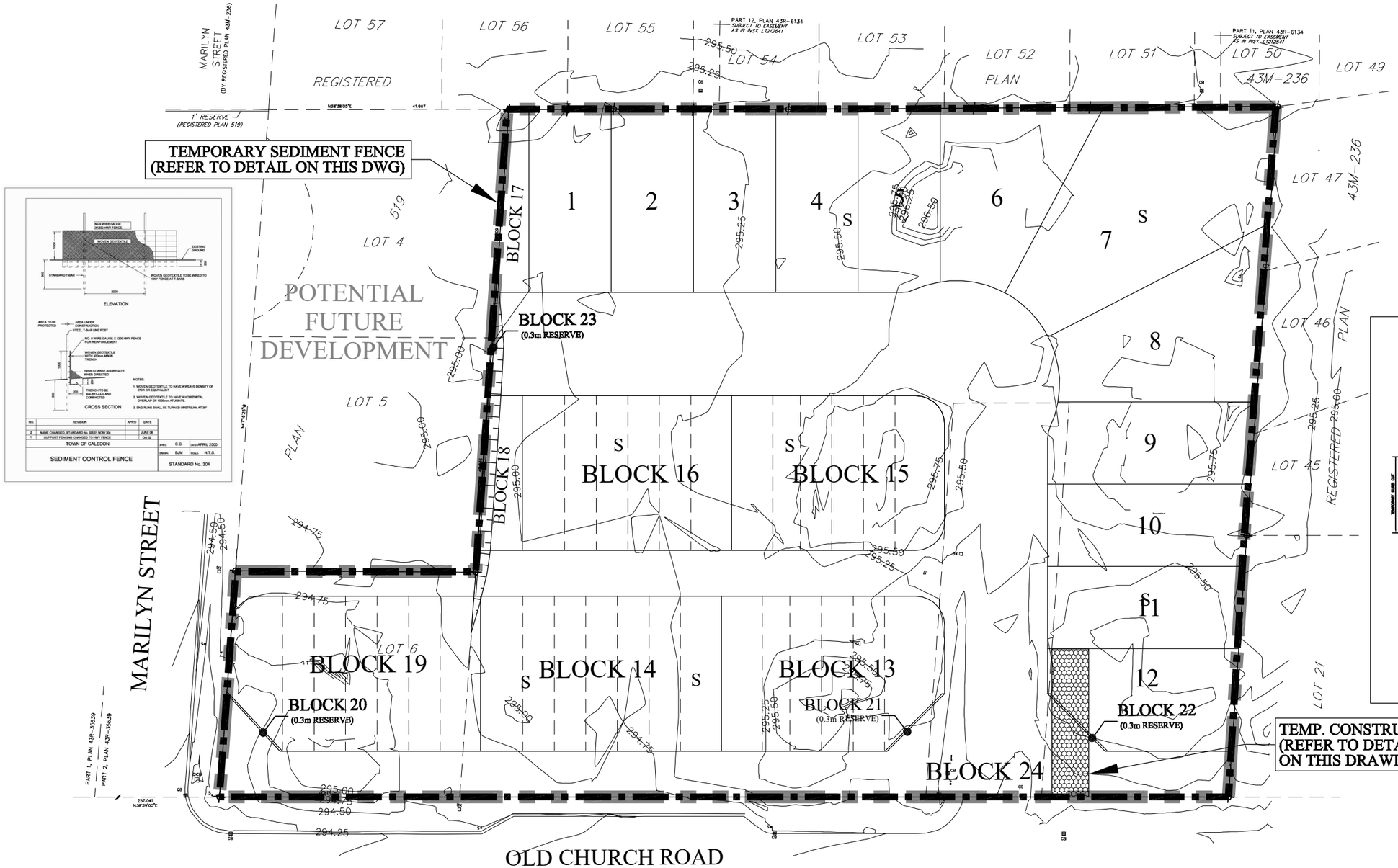
FIGURE No: 5.1

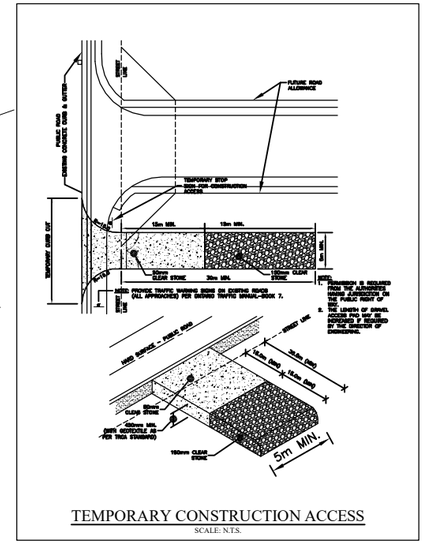


*NOTE: LAYOUT IS SCHEMATIC ONLY, DETAILS TO BE PROVIDED AT DETAILED DESIGN STAGE.

STYLUX CALEDON INC.	LEGEND:	STYLUX CALEDON EAST FSR	SIDEWALK LOCATION PLAN
SCS consulting group ltd 30 CENTURIAN DRIVE, SUITE 100 MARKHAM, ONTARIO L3R 8B8 TEL: (905) 475-1900 FAX: (905) 475-8335	SITE BOUNDARY PROPOSED 1.5m SIDEWALK EXISTING SIDEWALK	DESIGNED BY: P.A.T CHECKED BY: D.W. SCALE: 1:750 DATE: APRIL 2020	PROJECT No: 2185 FIGURE No: 6.1

File: P:\2185 Stylux Caledon East\Drawings\FSP\Fig\Report Figures\2185P-SDWK-6.1.dwg – Revised by <CMCCARTHY> : Mon, Apr 13 2020 – 9:57am





*NOTE: LAYOUT IS SCHEMATIC ONLY, DETAILS TO BE PROVIDED AT DETAILED DESIGN STAGE.

STYLUX CALEDON INC.

SCS consulting group ltd
30 CENTURIAN DRIVE, SUITE 100
MARKHAM, ONTARIO L3R 8B8
TEL: (905) 475-1900
FAX: (905) 475-8335

LEGEND:

- SITE BOUNDARY
- TEMPORARY CONSTRUCTION ACCESS
- 265.00 EXISTING CONTOUR AND ELEVATION
- EROSION SEDIMENTATION CONTROL SILT FENCE

STYLUX CALEDON EAST FSR

DESIGNED BY: P.A.T	CHECKED BY: D.W.
SCALE: 1:750	DATE: APRIL 2020

PRELIMINARY EROSION AND SEDIMENT CONTROL PLAN

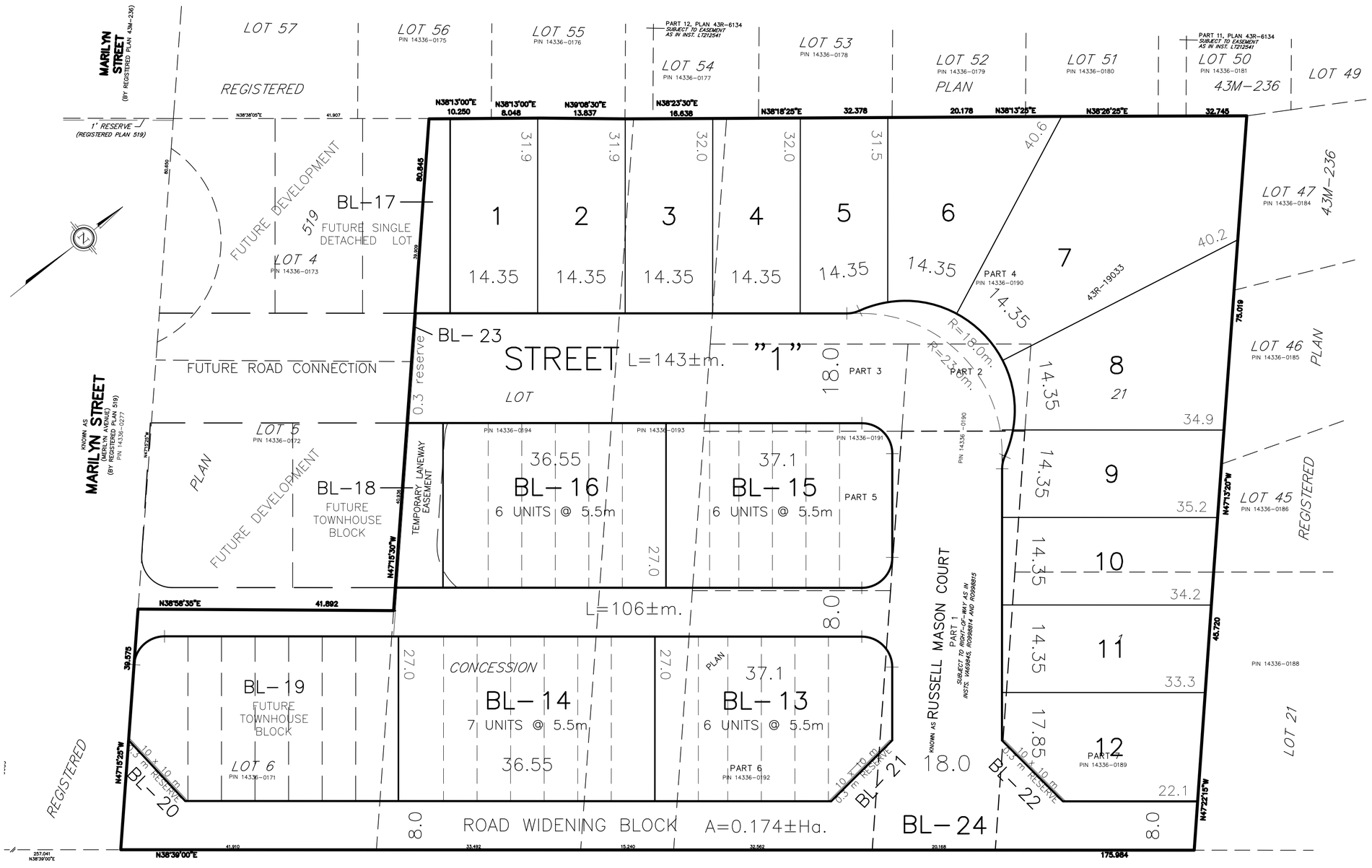
PROJECT No:	FIGURE No:
2185	7.1

File: P:\2185 Stylux Caledon East\Drawings\FSP\Fig\Report Figures\2185P-EROS-7.1.dwg – Revised by <STAN> : Mon, Mar 30 2020 – 4:05pm

APPENDIX A

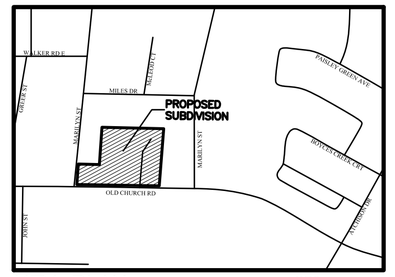
DRAFT PLAN

DRAFT PLAN OF SUBDIVISION
LOT 6, REGISTERED PLAN 519 AND PART OF LOT 21, CONCESSION 1
(GEOGRAPHIC TOWNSHIP OF ALBION)
TOWN OF CALEDON
REGIONAL MUNICIPALITY OF PEEL



KNOWN AS **OLD CHURCH ROAD**
ROAD ALLOWANCE BETWEEN LOTS 20 AND 21, CONCESSION 1
PIN 14336-0405

DRAFT PLAN T–



KEY PLAN N.T.S

SECTION 51, PLANNING ACT, ADDITIONAL INFORMATION

A. AS SHOWN ON DRAFT PLAN
B. AS SHOWN ON DRAFT PLAN
C. AS SHOWN ON DRAFT PLAN
D. SEE SCHEDULE OF LAND USE
E. AS SHOWN ON DRAFT PLAN
F. AS SHOWN ON DRAFT PLAN
G. AS SHOWN ON DRAFT PLAN
H. MUNICIPAL PIPED WATER AVAILABLE AT TIME OF DEVELOPMENT
I. CLAY–LOAM
J. AS SHOWN ON DRAFT PLAN
K. SANITARY AND STORM SEWERS, GARBAGE COLLECTION, FIRE PROTECTION
L. AS SHOWN ON DRAFT PLAN

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED AS SHOWN ON THIS PLAN, AND THEIR RELATIONSHIP TO THE ADJACENT LAND ARE ACCURATELY AND CORRECTLY SHOWN.

HOLDING JONES VANDERVEEN INC.

DATE ----------, 2019

GARY B. VANDERVEEN
ONTARIO LAND SURVEYOR

OWNER'S CERTIFICATE

I AUTHORIZE KLM PLANNING PARTNERS INC. TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION TO THE TOWN OF CALEDON FOR APPROVAL.

OWNER

STYLUX CALEDON INC.

40 VOGELL ROAD
UNIT 51
RICHMOND HILL, ONT
L4B 3N6

MUHAMMAD USMAN A.S.O.

SCHEDULE OF LAND USE

TOTAL AREA OF LAND TO BE SUBDIVIDED = 1.775±Ha. (4.386±Acs)

DETACHED DWELLINGS	BLOCKS	LOTS	UNITS	±Ha.	±Acs.
LOTS 1–12 MIN. LOT FRONTAGE=14.3m. MIN LOT AREA=443.3sq.m.		12	12	0.688	1.700
TOWNHOUSE DWELLINGS					
LOTS 13–16 MIN. FRONTAGE 5.5m.	4		25	0.410	1.013
SUBTOTAL	4	12	37	1.098	2.713
BLOCKS 17–19 – FUTURE DEVELOPMENT	3			0.145	0.358
BLOCKS 20–23 – 0.3m. RESERVE	4			0.003	0.008
BLOCK 24 – ROAD WIDENING	1			0.174	0.430
STREET AND LANEWAY				0.355	0.877
18.0m. WIDE TOTAL LENGTH= 151±m. AREA= 0.270±Ha.					
8.0m. WIDE TOTAL LENGTH= 106±m. AREA= 0.085±Ha.					
TOTAL LENGTH= 257±m. AREA= 0.322±Ha.					
TOTAL	12	12	37	1.775	4.386

NOTE – ELEVATIONS RELATED TO CANADIAN GEODETIC DATUM

PROJECT No. P-2967
SCALE 1:500 JAN 8, 2020
(2967DES8) X-REF: (2967MAS1 & 2967TOPO)
DWG. No. - 20:2

KLM PLANNING PARTNERS INC.
64 JARDIN DRIVE - UNIT 1B, CONCORD ONTARIO L4K 3P3
TEL: (905)669-4055 FAX: (905)669-0097 design@klmplanning.com

Planning ● Design ● Development

APPENDIX B

RELEVANT EXCERPTS

SCS consulting group ltd

GOLDER

REPORT

Preliminary Geotechnical and Hydrogeological Investigation Report

Proposed Residential Development at Old Church Road, Caledon East, Ontario

Submitted to:

Stylux Caledon Inc.
40 Vogell Road, Suite 51
Richmond Hill, ON
L4B 3N6

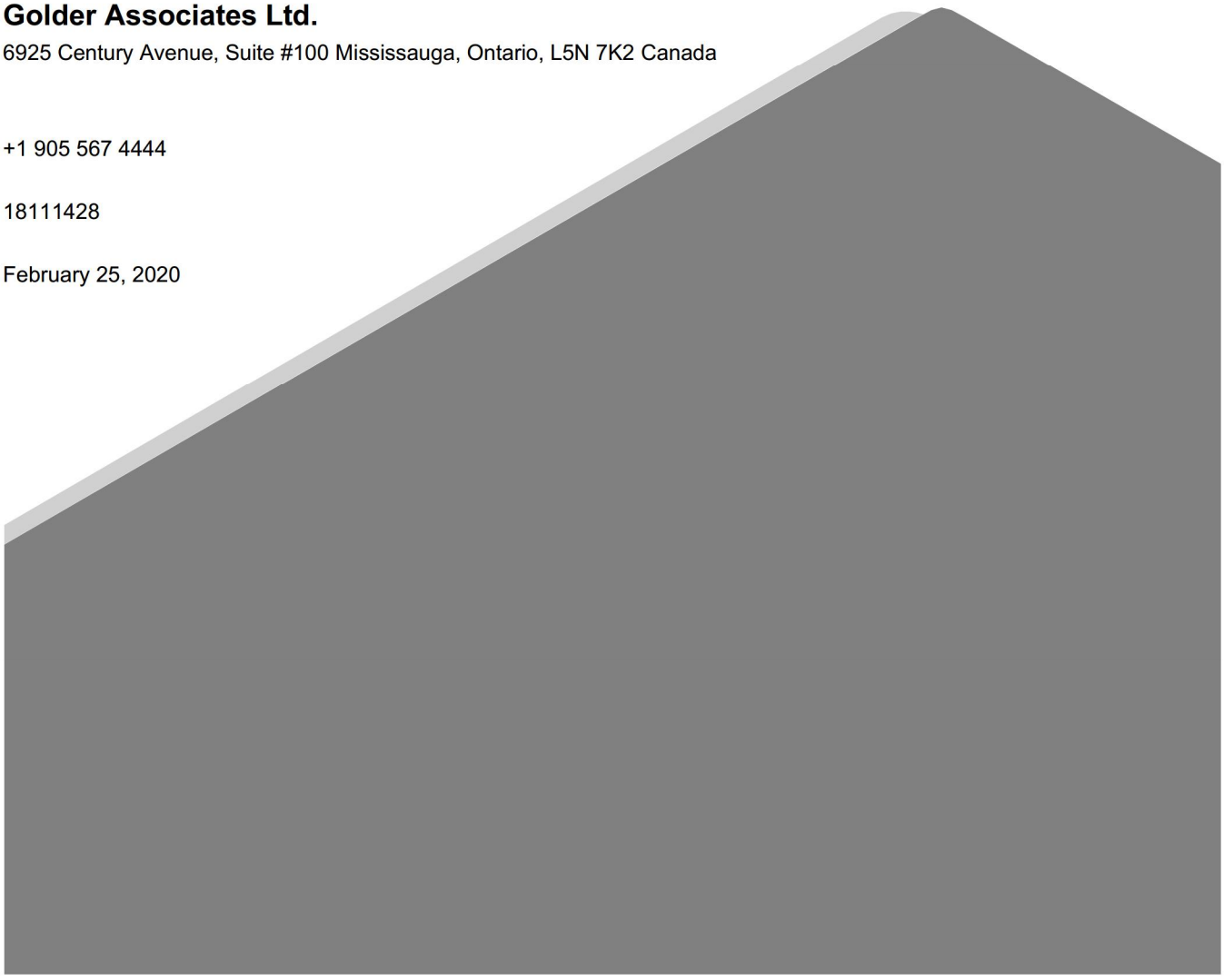
Submitted by:

Golder Associates Ltd.
6925 Century Avenue, Suite #100 Mississauga, Ontario, L5N 7K2 Canada

+1 905 567 4444

18111428

February 25, 2020



4.1 Topsoil

Topsoil materials were encountered in Borehole BH19-4 with an approximate thickness of about 150 mm.

Materials identified as topsoil in this report were classified based on visual and textural evidence as no other testing for organic content or other nutrients was carried out. As such, the ability for these materials to support vegetation has not been assessed.

4.2 (SM) Surficial Fill Materials - Silty Sand

A non-cohesive silty sand fill was encountered in Boreholes BH19-1 and BH19-3 at existing ground surface and BH19-4 below the topsoil layer. The existing surficial fill material consists of various amounts of gravel, some to mixed organics, plastic fines, and rootlets and is generally brown to dark brown in colour. The thickness of the fill material ranges from about 0.3 m to 0.6 m.

The SPT 'N' values measured in this fill layer ranged from about blows 19 to 36 blows per 0.3 m of penetration, indicating a compact to dense compactness.

The natural water content measured on the silty sand fill layer ranged from about 14 per cent to 27 per cent.

4.3 (SM/ML) Silty Sand to Sandy Silt

A non-cohesive silty sand to sandy silt deposit was encountered at ground surface at BH19-2 and BH19-5 and underneath the fill/topsoil in Boreholes BH19-1, BH19-3 and BH19-4 and ranged from about 4.4 m to 9.8 m in thickness. BH19-1, BH19-2, BH19-3 and BH19-4 terminated within this deposit. The silty sand to sandy silt deposit consists of various amount of gravel with periodic silt seams and is light brown to grey in color. Cobbles and/or boulders are inferred to be present in borehole BH19-1 by auger grinding at a depth of about 5.8 m below ground surface.

The SPT 'N' values of this non-cohesive deposit ranged from about 3 blows to 53 blows per 0.3 m of penetration, indicating a compactness ranging from very loose to very dense, but generally was found to be compact throughout the deposit.

The natural water content measured within this deposit ranged from about 3 per cent to about 19 per cent, but generally was found to be less then 10 per cent.

The results of grain size distribution test carried out on four samples of the silty sand are shown on Figure B1-A.

The results of grain size distribution test carried out on three samples of the sandy silt to sand and silt are shown on Figure B2.

4.4 Gravelly Sand

A non-cohesive gravelly sand was encountered underneath the non-cohesive silty sand at borehole BH19-5 at a depth of about 7.0 m below existing ground surface. Borehole BH19-5 was terminated within this deposit.

The SPT 'N' value of this deposit was measured to be 9 blows per 0.3 m of penetration, indicating a loose, compactness.

The result of a grain size distribution test carried out on a sample of this deposit is presented in Figure B3.

The water content of selected samples ranged from about 8.2 per cent.

4.5 Groundwater Levels

Groundwater observations were carried out in the open boreholes during and upon completion of drilling. Subsequent water level measurements in the monitoring wells installed at Boreholes BH19-1, BH19-2 and BH19-4 were also carried out. The shallow groundwater levels measured in the monitoring wells on selected dates are summarized as follows:

Table 1: Groundwater Level Measurements

Borehole No.	Measurements Upon Completion of Drilling		Measurements in Monitoring Wells			
	Approximate Groundwater Depth (mbgs)	Date	Approximate Groundwater Depth (mbgs)	Date	Approximate Groundwater Depth (mbgs)	Date
BH19-1	7.2	March 26, 2019	7.2	April 3, 2019	7.3	April 17, 2019
BH19-2	6.1	March 25, 2019	6.6	April 3, 2019	6.8	April 17, 2019
BH19-3	Dry (>4.4)	March 25, 2019	No monitoring well installed			
BH19-4	7.0	March 25, 2019	7.3	April 3, 2019	7.3	April 17, 2019
BH19-5	Dry (>8.2)	March 26, 2019	No monitoring well installed			

Note:
mbgs = meters below ground surface.

It should be noted that the groundwater level in the area is subject to seasonal fluctuations and precipitation events and should be expected to be higher during wet periods of the year.

4.6 Hydraulic Testing

To estimate the hydraulic conductivity of the soils adjacent to the screened interval in the monitoring wells installed in Boreholes BH19-1, BH19-2 and BH19-4, single-well response tests were carried out by Golder on April 3, 2019. The tests were carried out by rapidly purging a known volume of water with a dedicated Waterra tube and footvalve and monitoring the subsequent water level recovery.

The Bouwer-Rice (1976) method was applied to rising head test data using the unconfined solution. The data was analyzed using the AQTESOLV for Windows version 4.50 Professional software. The estimated hydraulic conductivity values obtained from the rising head tests are summarized in the table below. A summary of the single-well response test data and the AQTESOLV printouts are provided in Appendix C.

Monitoring Well ID	Screened Interval Depth (mbgs)	Groundwater Condition	Screened Stratigraphy	Est. Hydraulic Conductivity (m/s)
BH19-1	6.1 to 9.1	Unconfined	SILTY SAND	1×10^{-6}
BH19-2	4.6 to 7.6	Unconfined	SILTY SAND / sandy SILT	5×10^{-6}
BH19-4	6.1 to 9.1	Unconfined	SILTY SAND / SAND and SILT	1×10^{-6}

Notes:
mbgs = meters below ground surface
m/s = metres per second

The estimated hydraulic conductivity values are considered reasonable for the units tested.

5.0 GEOTECHNICAL ENGINEERING DISCUSSION

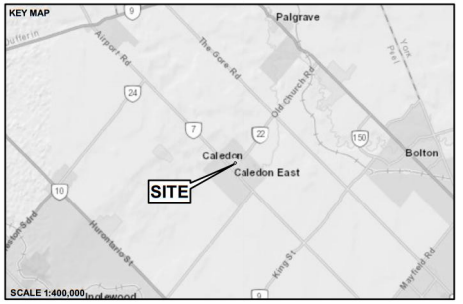
This section of the report provides preliminary geotechnical engineering recommendations on the geotechnical aspects of the proposed development based on our interpretation of the limited borehole information and on our understanding of the project scope and requirements. The information in this portion of the report is provided for the guidance of the design engineers and professionals. Where comments are made on construction, they are provided only in order to highlight aspects of construction which could affect the design of the project. Contractors bidding on or undertaking any work at the site should examine the factual results of the investigation, satisfy themselves as to the adequacy of the information for construction and make their own interpretation of the factual data as it affects their proposed construction techniques, schedule, equipment capabilities, costs, sequencing and the like.

This report addresses only the geotechnical (physical) aspects of the subsurface conditions at this site. The geo-environmental (chemical) aspects, including the consequences of possible surface and/or subsurface contamination resulting from previous activities or uses of the site and/or resulting from the introduction onto the site of materials from off-site sources, are outside of the terms of reference for this report.

Based on the results of this preliminary investigation, the subsurface soil conditions encountered at the site are considered to generally be suitable for the proposed residential development which is understood to comprise of residential houses with one underground basement level, underground services and paved driveways, roads or laneway. However, at the time of preparation of this report, proposed design grades (i.e., finished floor, pavement subgrade and utility invert levels) were not available for the proposed development. The following engineering recommendations regarding the geotechnical design aspects of the project including underground services, pavements and building foundations should be considered as preliminary only and should be reviewed when the final design grades and utility invert levels have been finalized to confirm that they are still applicable.

LEGEND

- APPROXIMATE BOREHOLE LOCATION
- APPROXIMATE BOREHOLE AND MONITORING WELL LOCATION
- CURRENT PROPOSED SITE DEVELOPMENT BOUNDARY
- FUTURE PROPOSED DEVELOPMENT SITE BOUNDARY



0 20 40
1:1,000 METRES

NOTE(S)
1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)
BASE DATA: MNR LIO (2018)
IMAGERY: © 2019 MICROSOFT CORPORATION © 2019 DIGITALGLOBE ©CNES (2019) DISTRIBUTION AIRBUS DS
SOURCES: ESRI, HERE, GARMIN, USGS, INTERMAP, INCREMENT P, NRCAN, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), ESRI KOREA, ESRI (THAILAND), NGCC, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 1983 UTM ZONE 17N

CLIENT
STYLUX CALEDON INC.

PROJECT
PROPOSED DEVELOPMENT AT MARILYN STREET AND OLD CHURCH ROAD, CALEDON EAST, ONTARIO

TITLE
SITE AND BOREHOLE LOCATION PLAN

CONSULTANT
GOLDER

YYYY-MM-DD	2019-05-06
DESIGNED	LMM
PREPARED	LMM
REVIEWED	EM
APPROVED	JET

PROJECT NO.	CONTROL	REV.	FIGURE
18111428	-	-	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI B
25mm
0

PATH: S:\Clients\Stylux_Caledon_Inc\Caledon_East\99_PRO\18111428\99_PRO\001\001_GeoTech\18111428-001-R01-RevA.mxd PRINTED ON: 2019-05-06 AT: 10:27:05 AM

REFER TO 43334-D

REFER TO 43328-D

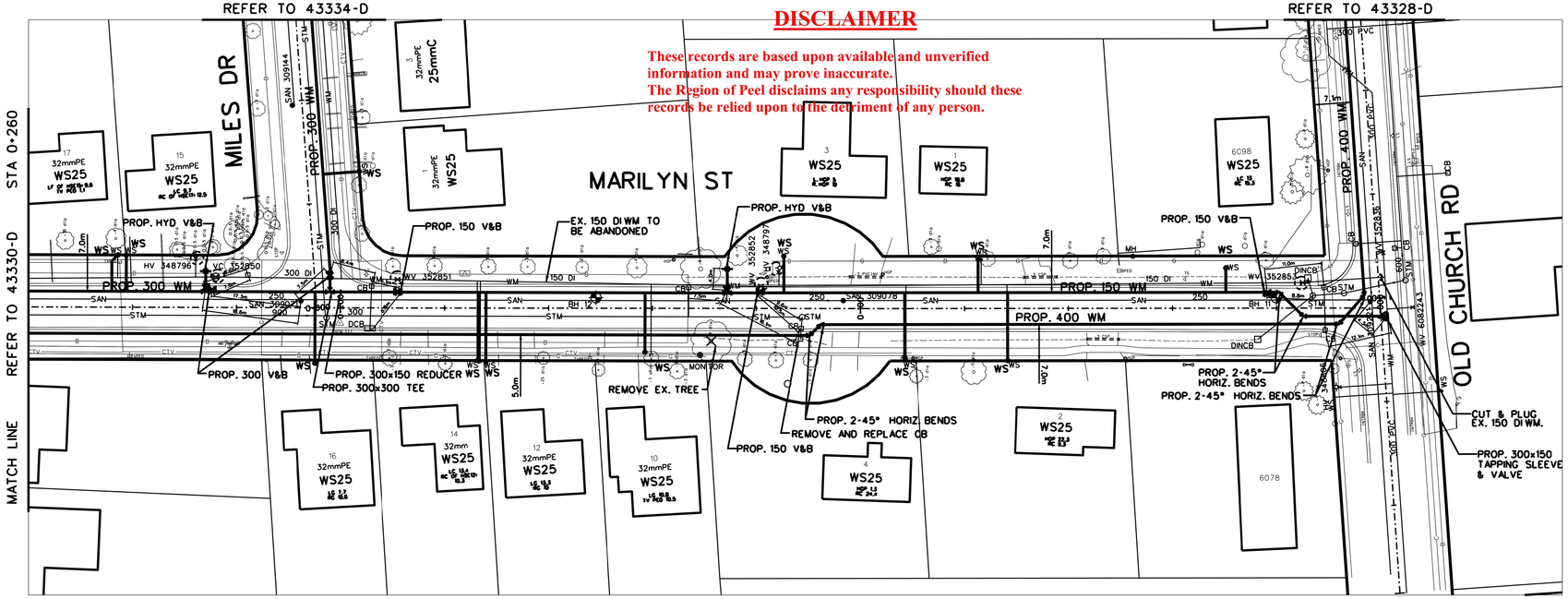
REFER TO 43330-D

MATCH LINE

STA 0+260

DISCLAIMER

These records are based upon available and unverified information and may prove inaccurate.
The Region of Peel disclaims any responsibility should these records be relied upon to the detriment of any person.

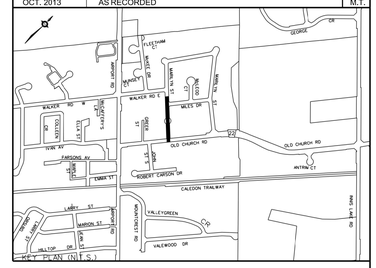


SERVICE DATA

SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN. SEWERS			GAS MAINS	Dec. 07, 2010	MT
STORM SEWERS			BELL U/G CABLE	Nov. 23, 2010	MT
WATERMAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE	Nov. 19, 2010	MT
PARKS & REC.			CTV	Nov. 11, 2010	MT
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS

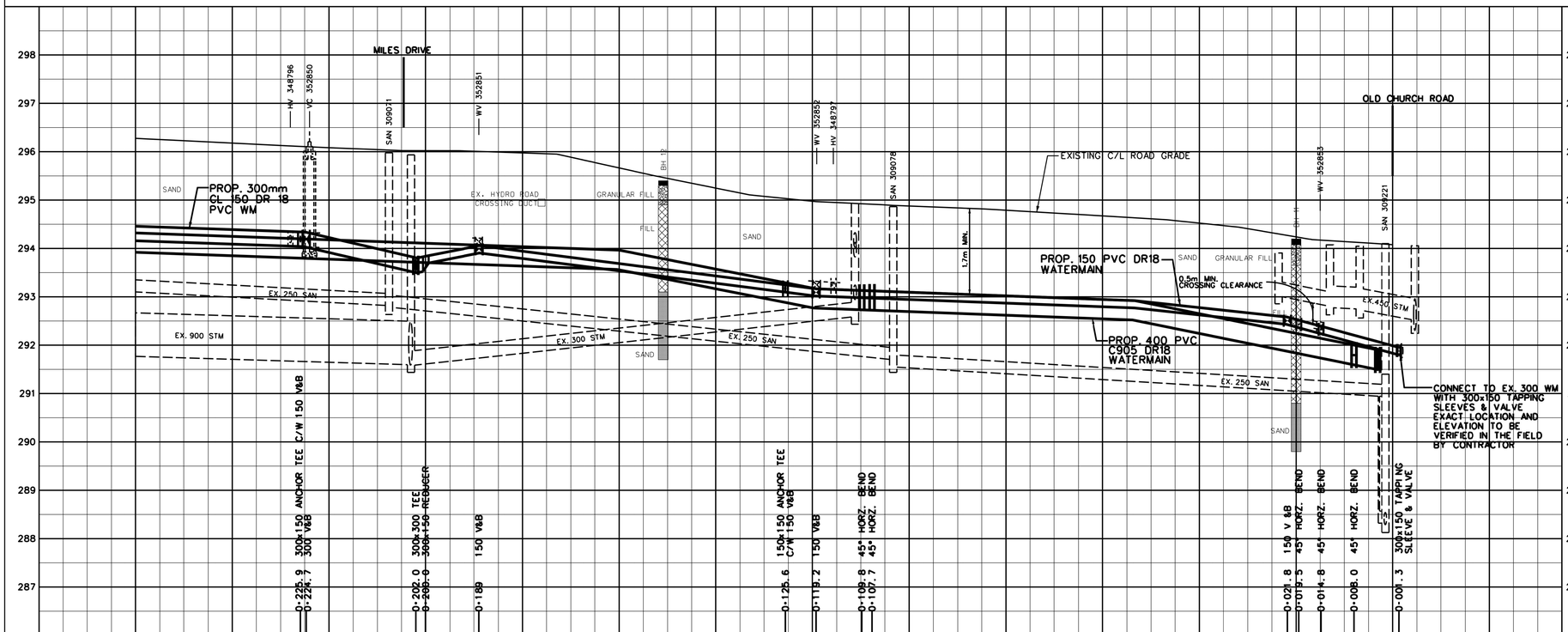
DATE	DETAILS	INIT.
MAR 05, 2012	ISSUED FOR PUCC	M.T.
APR 18, 2012	ISSUED FOR TENDER	M.T.
MAY 03, 2012	REVISION FOR BELL LOCATIONS	M.T.
MAY 24, 2012	ISSUED FOR CONSTRUCTION	M.T.
OCT. 2013	AS RECORDED	M.T.



KEY PLAN (N.T.S.)

FOR GENERAL NOTES, DETAILS AND LEGEND SEE DRAWING No. 43339-D.

THIS DRAWING TO BE USED FOR WATERMAIN CONSTRUCTION ONLY.



294.16	294.09	293.92	293.70	293.79	293.54	293.28	293.02	292.94	292.87	292.79	292.63	292.38	291.83	(150/300mm) BOT.EL. OF WM.
293.92	293.85	293.78	293.52	293.64	293.56	293.17	292.77	292.69	292.62	292.54	292.24	291.84		(400mm) BOT.EL. OF WM.
296.28	296.18	296.08	295.94	295.98	295.67	295.25	294.98	294.88	294.79	294.67	294.52	294.24	294.08	EX. ROAD ELEV.
0+260	0+240	0+220	0+200	0+180	0+160	0+140	0+120	0+100	0+080	0+060	0+040	0+020	0+000	ROAD CHAINAGE

General Notes

- All Driveways ASPHALT Unless Otherwise Noted.
- All Service Locations Are Approximate And Must Be Located Accurately In The Field
- Denotes Building - Not Located
- Denotes Building Located Type 'B' Bedding Unless Otherwise Noted (SAN)

B.M. No. Elev.

The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction Location of Existing Utilities Approximate Only, To Be Verified In Field By Contractor.

Designed by | Approved by

Chkd.

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

THE REGIONAL MUNICIPALITY OF PEEL
CITY OF MISSISSAUGA WORKS DEPT.
CITY OF BRAMPTON WORKS DEPT.
TOWN OF CALEDON WORKS DEPT.
BELL CANADA
ENBRIDGE INCORPORATED-GAS DISTRIBUTION
ONTARIO MINISTRY OF TRANSPORTATION
ONTARIO CLEAN WATER AGENCY
HYDRO ONE NETWORKS
ENERSOURCE, HYDRO MISSISSAUGA
HYDRO ONE BRAMPTON

CABLE TELEVISION/FIBREOPTIC PROVIDERS:
BELL CANADA
ENERSOURCE TELECOM
HYDRO ONE TELECOM
ROGERS CABLE
ALLSTREAM
PSN (PUBLIC SECTOR NETWORK)
FUTUREWAY (FCI BROADBAND)

10m 0 10 20 30m — HORIZONTAL SCALE
1m 0 1 2 3m — VERTICAL SCALE

Region of Peel
Working for you

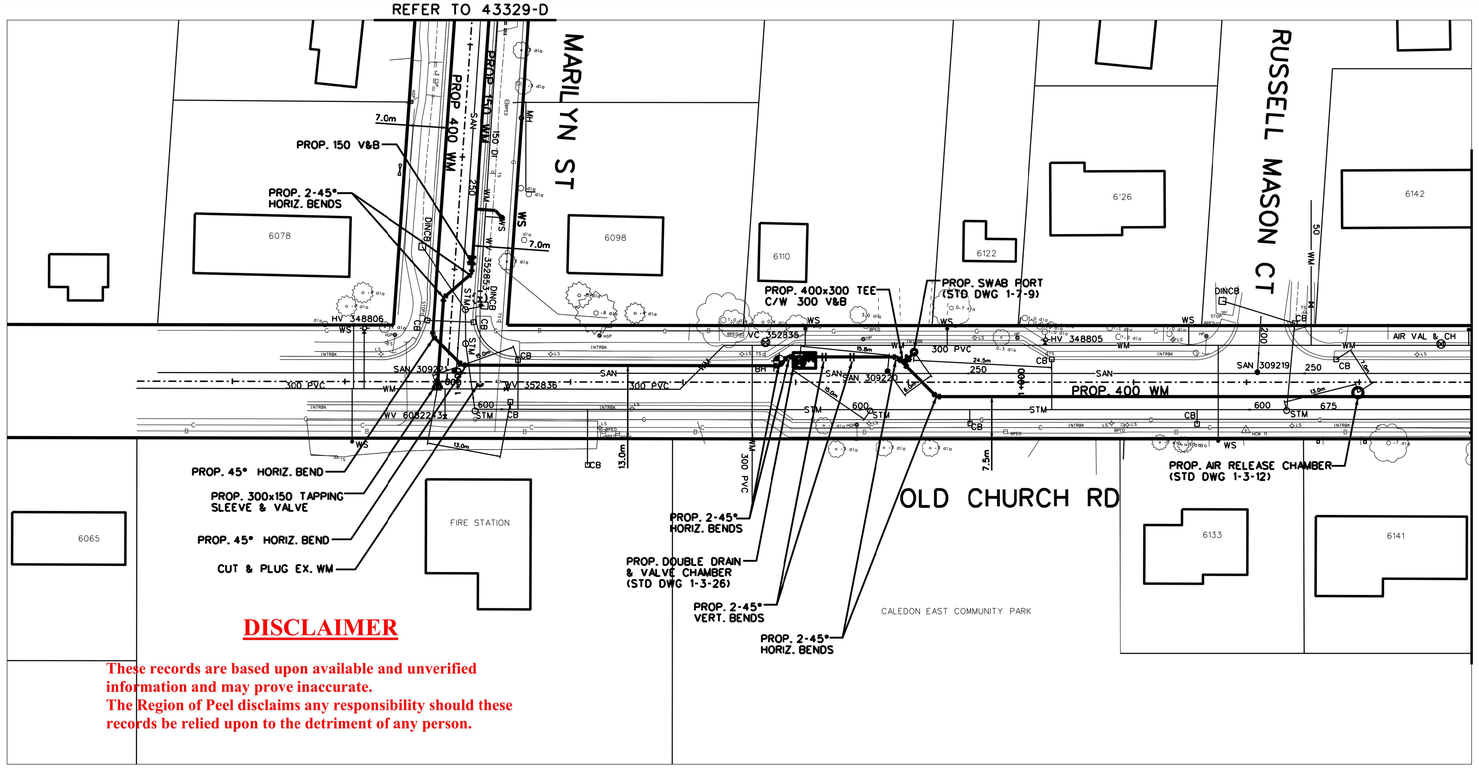
MARILYN STREET

(FROM OLD CHURCH RD TO OLD CHURCH RD)

PROP. 150mm/300mm/400mm WATERMAIN

STA 0+000 TO STA 0+260

CAD Area	Area C-48	Project No.	11-1330, 11-1190
Checked by	Drawn by M.T		
Date MAY 2011	Sheet 6 of 18	Plan No.	43329-D

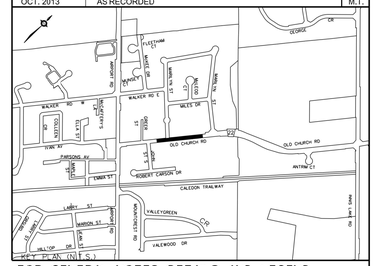


SERVICE DATA

SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN. SEWERS			GAS MAINS	Dec 07, 2010	MT
STORM SEWERS			BELL U/G CABLE	Nov 23, 2010	MT
WATERMAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE	Nov 19, 2010	MT
PARKS & REC.			CTV	Nov 11, 2010	MT
ONT. CLEAN WATER			COMMUNIC. CABLES		

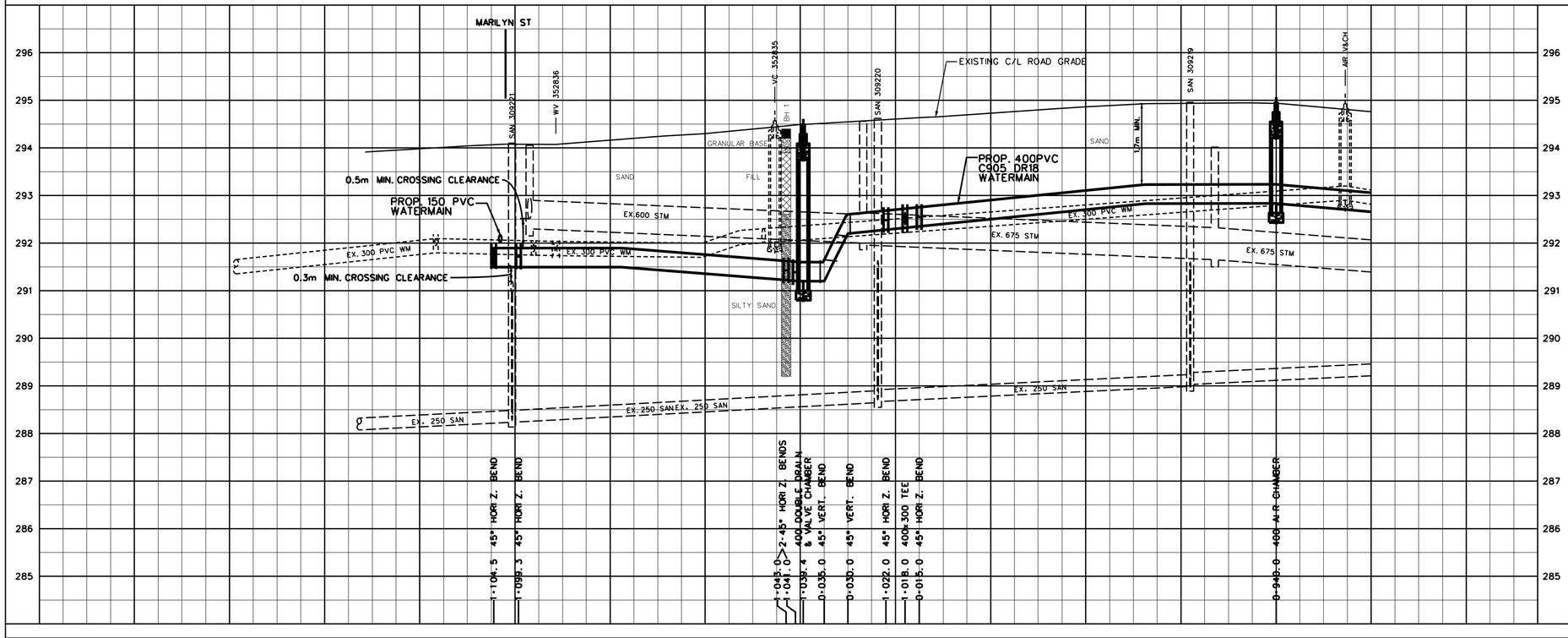
REVISIONS

DATE	DETAILS	INIT.
MAR 05, 2012	ISSUED FOR PUCC	M.T.
APR 18, 2012	ISSUED FOR TENDER	M.T.
MAY 03, 2012	REVISION FOR BELL LOCATIONS	M.T.
MAY 24, 2012	ISSUED FOR CONSTRUCTION	M.T.
OCT. 2013	AS RECORDED	M.T.



FOR GENERAL NOTES, DETAILS AND LEGEND SEE DRAWING No. 43339-D.

THIS DRAWING TO BE USED FOR WATERMAIN CONSTRUCTION ONLY.



General Notes

- All Driveways ASPHALT Unless Otherwise Noted.
- All Service Locations Are Approximate And Must Be Located Accurately In The Field
- Denotes Building - Not Located
- Denotes Building Located. Type 'B' Bedding Unless Otherwise Noted (SAN)

B.M. No. Elev.

The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction Location of Existing Utilities Approximate Only, To Be Verified In Field By Contractor.

Designed by ____ Chkd. ____ Approved by ____

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

THE REGIONAL MUNICIPALITY OF PEEL
CITY OF MISSISSAUGA WORKS DEPT.
CITY OF BRAMPTON WORKS DEPT.
TOWN OF CALEDON WORKS DEPT.
BELL CANADA
ENBRIDGE INCORPORATED-GAS DISTRIBUTION
ONTARIO MINISTRY OF TRANSPORTATION
ONTARIO CLEAN WATER AGENCY
HYDRO ONE NETWORKS
ENERSOURCE, HYDRO MISSISSAUGA
HYDRO ONE BRAMPTON

CABLE TELEVISION/FIBREOPTIC PROVIDERS:
BELL CANADA
ENERSOURCE TELECOM
HYDRO ONE TELECOM
ROGERS CABLE
ALLSTREAM
PSN (PUBLIC SECTOR NETWORK)
FUTUREWAY (FCI BROADBAND)

10m 0 10 20 30m HORIZONTAL SCALE
1m 0 1 2 3m VERTICAL SCALE

Region of Peel
Working for you

OLD CHURCH ROAD

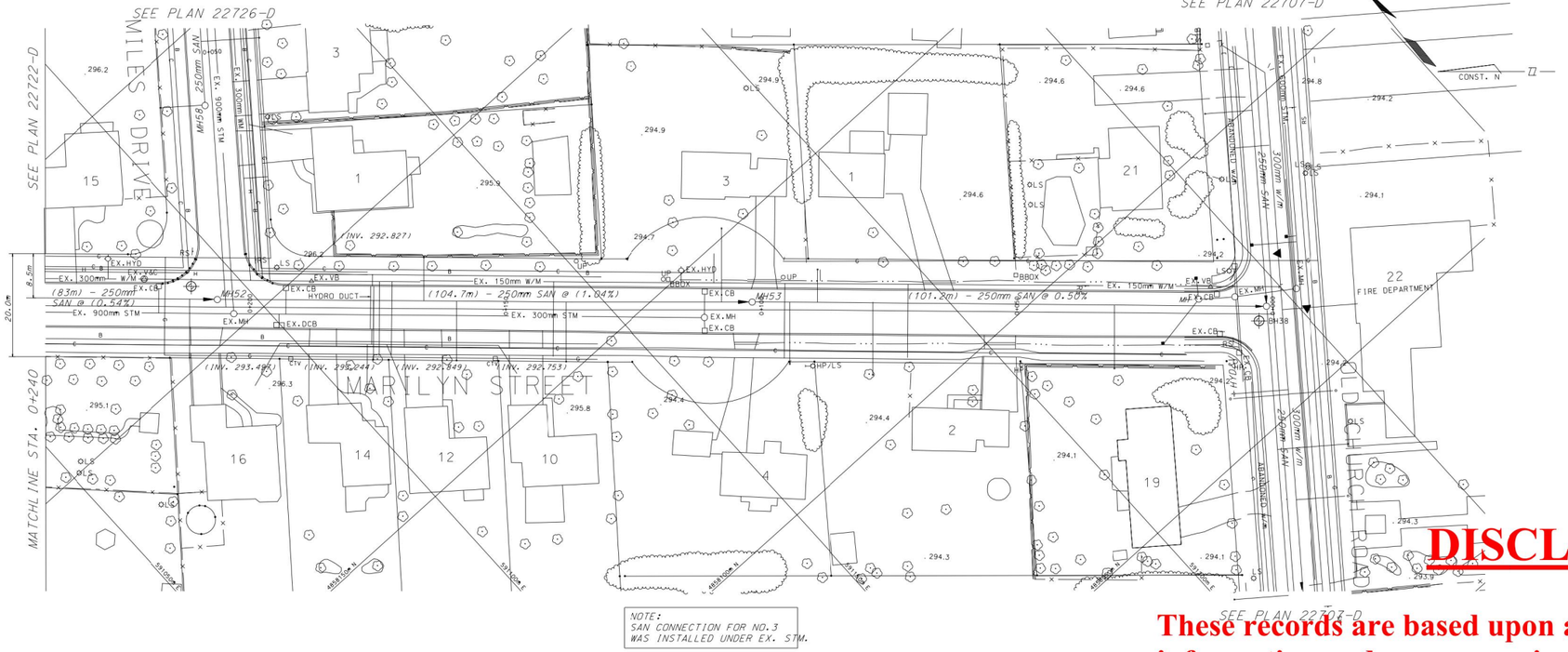
(FROM INNIS LAKE RD TO MARILYN ST)

PROP. 400mm WATERMAIN

STA 0+920 TO STA 1+120

		291.50	291.50	291.36	291.20	292.30	292.50	292.70	292.83	292.83	292.66	BOT.EL. OF WM.
293.98	294.08	294.16	294.30	294.49	294.61	294.73	294.86	294.94	294.93	294.81		EX. ROAD ELEV.
1+120	1+100	1+080	1+060	1+040	1+020	1+000	0+980	0+960	0+940	0+920		ROAD CHAINAGE

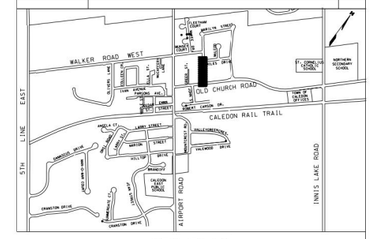
CAD Area | Area C-48 | Project No. 11-1190
Checked by | Drawn by M.T
Date MAY 2011 | Sheet 5 of 18 | Plan No. 43328-D



NOTE:
SAN CONNECTION FOR NO.3
WAS INSTALLED UNDER EX. STM.

SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATERMAINS			HYDRO U/G CABLE		

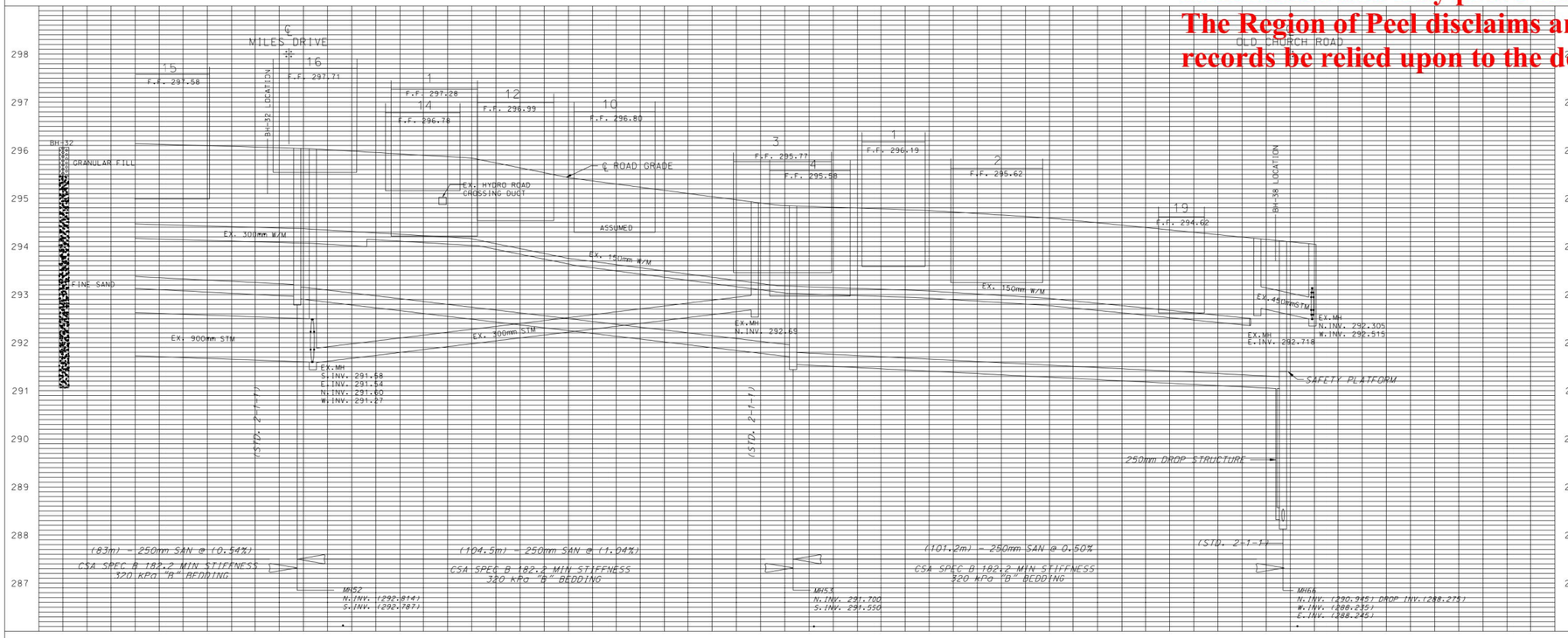
REVISIONS		
DATE	DETAILS	INIT.
15 JUNE 94	SANITARY INVERTS REVISED	M.T.
1 MAY 96	CONSTRUCTION RECORD	B.D.



KEY PLAN
SCALE - 1:25,000

NOTE:
THE CONSTRUCTION RECORD DATA INCLUDED ON THIS DRAWING WAS A COMPILATION OF ALL SANITARY, STORM, WATERMAIN AND RECONSTRUCTION DRAWINGS FOR THIS AREA. ALL OTHER DRAWINGS FOR THIS AREA HAVE BECOME OBSOLETE.

ALL CONSTRUCTION DATA IS IN BRACKETS "( )"



General Notes
All Dimensions Are In Millimetres Unless Otherwise Noted.
All Service Locations Are Approximate And Must Be Located Accurately In The Field.
Denotes Building Located.
Type 'B' Bedding Unless Otherwise Noted (SAN)

B.M. No.23 Elev308.197

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KMK Consultants Limited
Brampton • Kitchener Cobalt

Approved by _____

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

THE REGIONAL MUNICIPALITY OF PEEL
TOWN OF CALEDON WORKS DEPT.
BELL TELEPHONE COMPANY
CONSUMERS GAS COMPANY
MINISTRY OF TRANSPORTATION
MINISTRY OF ENVIRONMENT
HYDRO ELECTRIC POWER COMM. OF ONTARIO
ORANGEVILLE CABLE VU LTD.

Region of Peel

Department of Public Works

CALEDON EAST SANITARY SERVICING

MARILYN STREET
SANITARY SEWERS

STA. 0+000 TO STA. 0+240

Lots:		File Ref:	Project No.94-2135
Scale:	Hor. 1:500 Ver. 1:50	Drawn by:G.D.	Checked by:M.T.
Date:	27 APR 94	Sheet: 85 OF 240	Plan No.22721-D

22721-D (85)

REFER TO 43333-D

REFER TO 43328-D STA 0+920

MATCH LINE

MARILYN ST

OLD CHURCH RD

TRCA REGULATED AREA

PROP. VALVE, DOUBLE DRAIN & AIR CHAMBER (STD DWG 1-3-26)

REMOVE EX. BEND AND CONNECT TO EX. 300 PVC WM

CUT & PLUG EX. WM

PROP. 45° BEND

EXACT WS LOCATION AND SIZE TO BE VERIFIED IN THE FIELD BY CONTRACTOR

TEMPORARY CONCRETE BARRIER (END TREATMENT TO OPSD 911.233)

PROP. 11.25° BEND

PROP. 300x150 TEE WITH PLUG TAPPED FOR 50 WITH 50 CORPORATION STOP (STD. DWG 1-7-3)

FUTURE WM (BY OTHERS)

TEMPORARY ASPHALT WIDENING

PROP. 300x150 ANCHOR TEE C/W 150 V&B

PROP. 300x300 TEE C/W 300 V&B

FUTURE WATER SERVICE (BY OTHERS)

TEMPORARY WORK ZONE AS PER OTM BOOK 7 TEMPORARY CONDITIONS

HEAVY DUTY SILT FENCE OPSD 219.130

BOYCES CREEK

SENDING PIT

VERT. BEND & COUPLING

185m - 500mm DR 11 HDPE PIPE

RECEIVING PIT

CALEDON O.P.P.

CALEDON EAST COMMUNITY COMPLEX

PROP. SWAB PORT (STD DWG 1-7-9)

PROP. WATER SAMPLING STATION AS PER STD 1-7-6

APPROX. DRILL RIG LOCATION SEE NOTE

PROP. 400x300 TEE C/W 300 V&B

PROP. 400 WM

REFER TO 43326-D STA 0+640

MATCH LINE

79 32mmPE 25mmC

88 32mmPE 25mmC

6154

6161

6167

BH 2

BH 11-8

BH 3

BH 4

BH 11-10

BH 11-11

SAN 309214

SAN 309209

HV "A"

VC 352833

VC 352832

VC 352842

HV 348810

R=400

R=800

R=500

7.5m

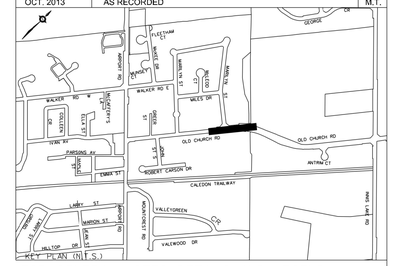
16.0m

SERVICE DATA

SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS	Dec 07, 2010	MT
STORM SEWERS			BELL U/G CABLE	Nov 23, 2010	MT
WATERMAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE	Nov 19, 2010	MT
PARKS & REC.			CTV	Nov 11, 2010	MT
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS

DATE	DETAILS	INIT.
FEB 14, 2012	ISSUED FOR TRCA	M.T.
MAR 05, 2012	ISSUED FOR PUCC	M.T.
APR 18, 2012	ISSUED FOR TENDER	M.T.
MAY 03, 2012	REVISION FOR BELL LOCATIONS	M.T.
MAY 24, 2012	ISSUED FOR CONSTRUCTION	M.T.
OCT. 2013	AS RECORDED	M.T.



FOR GENERAL NOTES, DETAILS AND LEGEND SEE DRAWING No. 43339-D.

CATCH BASIN SEDIMENT CONTROL DEVICE SEE DETAILS SHEET

DISCLAIMER

These records are based upon available and unverified information and may prove inaccurate.
The Region of Peel disclaims any responsibility should these records be relied upon to the detriment of any person.

THIS DRAWING TO BE USED FOR WATERMAIN CONSTRUCTION ONLY.

MARILYN ST

EXISTING C/L ROAD GRADE

CONNECT TO EX. 300 PVC WM WITH 11.25° VERTICAL BEND (EX. DWG. No. 6578-D) EXACT LOCATION AND ELEVATION TO BE VERIFIED IN THE FIELD BY CONTRACTOR

EX. 300 PVC WM

EX. 675 STM

EX. 1050 STM

EX. 950 x 1500 STORM

EX. 2400x1900 CMP

EX. 250 SAN

PROP. 400 PVC C905 DR18 WATERMAIN

PROP. 300 PVC DR18 WATERMAIN

PROP. 500 DR 11 HDPE PIPE

PROP. VALVE, DRAIN & AIR CHAMBER 0+896.0

PROP. VALVE, DRAIN & AIR CHAMBER 400x400x300 TEE 0+693.8

0+691.8

PROP. WATER SAMPLING STATION 0+688.6

11.25° HORZ. BEND 0+686.0

300x150 TEE WITH PLUG TAPPED FOR 50 0+681.6

11.25° HORZ. BEND 0+678.5

300x150 ANCHOR TEE C/W 150 V&B 0+674.6

400x300 TEE & 300x300 TEE 0+673.5

HORZ. BEND 0+735.2

45° HORZ. BEND

SAND

SILTY SAND

SILTY FINE SAND

GRAVELLY SAND

SAND & GRAVEL

SANDY SILT

GRANULAR BASE

FILL

W.L

12.0m

8.0m

3.0m

1.7m MIN.

2.1m MIN.

General Notes

- All Driveways ASPHALT Unless Otherwise Noted.
- All Service Locations Are Approximate And Must Be Located Accurately In The Field
- Denotes Building - Not Located
- Denotes Building Located
- Type 'B' Bedding Unless Otherwise Noted (SAN)

B.M. No. Elev.

The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction Location of Existing Utilities Approximate Only, To Be Verified In Field By Contractor.

Designed by

Approved by

Chkd.

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

THE REGIONAL MUNICIPALITY OF PEEL	CABLE TELEVISION/FIBREOPTIC PROVIDERS:
CITY OF MISSISSAUGA WORKS DEPT.	BELL CANADA
CITY OF BRAMPTON WORKS DEPT.	ENERSOURCE TELECOM
TOWN OF CALEDON WORKS DEPT.	HYDRO ONE TELECOM
BELL CANADA	ROGERS CABLE
ENBRIDGE INCORPORATED-GAS DISTRIBUTION	ALLSTREAM
ONTARIO MINISTRY OF TRANSPORTATION	PSN (PUBLIC SECTOR NETWORK)
ONTARIO CLEAN WATER AGENCY	FUTUREWAY (FCI BROADBAND)
HYDRO ONE NETWORKS	
ENERSOURCE, HYDRO MISSISSAUGA	
HYDRO ONE BRAMPTON	

10m 0 10 20 30m HORIZONTAL SCALE

1m 0 1 2 3m VERTICAL SCALE

Region of Peel
Working for you

OLD CHURCH ROAD

(FROM INNIS LAKE RD TO MARILYN ST)

PROP. 300mm/400mm WATERMAIN

STA 0+640 TO STA 0+920

										290.52	291.39	291.97	292.56	292.98	293.21	(300mm) BOT.EL. OF WM.
292.66	292.11											291.75	292.05	292.37	292.70	(400mm) BOT.EL. OF WM.
294.81	294.49	294.09	293.61	293.11	292.79	292.60	292.66	292.91	293.21	293.74	294.36	294.91	295.38	295.69		EX. ROAD ELEV.
0+920	0+900	0+880	0+860	0+840	0+820	0+800	0+780	0+760	0+740	0+720	0+700	0+680	0+660	0+640		ROAD CHAINAGE

CAD Area		Area	C-48
Checked by		Drawn by	M.T
Date	MAY 2011	Sheet	4 of 18

Project No. 11-1190

Plan No. 43327-D

APPENDIX C

STORMWATER MANAGEMENT CALCULATIONS

SCS consulting group ltd

EXISTING WEIGHTED RUNOFF COEFFICIENT

Stylux Caledon East
Project Number: 2185
Date: April 2020
Designer Initials: P.A.T.

Catchment 101 Outlets to: Old Church Road

	Runoff Coefficient	Area (ha)	Weighted Runoff Coefficient
Asphalt	0.90	0.24	0.14
Rooftops	0.90	0.10	0.06
Gravel	0.40	0.07	0.02
Grass	0.25	1.11	0.18
TOTAL		1.53	0.41

Catchment 102 Outlets to: North Outlet

	Runoff Coefficient	Area (ha)	Weighted Runoff Coefficient
Rooftops	0.90	0.02	0.12
Grass	0.25	0.12	0.22
TOTAL		0.14	0.34

Catchment 202 Outlets to: Old Church Road

	Runoff Coefficient	Area (ha)	Weighted Runoff Coefficient
Asphalt	0.90	0.02	0.02
Rooftops	0.90	0.10	0.12
Grass	0.25	0.66	0.21
TOTAL		0.78	0.35

Old Church Road Total

Catchment	Runoff Coefficient	Area	Weighted Runoff Coefficient
101	0.41	1.53	0.27
202	0.35	0.78	0.12
TOTAL		2.31	0.39

North Outlet Total

102	0.34	0.14	0.34
TOTAL		0.14	0.34

Overall Total

Catchment	Runoff Coefficient	Area	Weighted Runoff Coefficient
101	0.41	1.53	0.25
102	0.34	0.14	0.02
202	0.35	0.78	0.11
TOTAL		2.45	0.38

ALLOWABLE RELEASE RATE

Stylux Caledon East
Project Number: 2185
Date: April 2020
Designer Initials: P.A.T.

10 Year storm

IDF Parameters*

a = 2221
t = 10 min
b = 12
c = 0.908

Runoff Coefficient:

C1 = 0.39
C2 = 0.34

Allowable Release Rate Calculation

Outlet ID	Area	time t	Intensity i=a/(t+b)^c	Flow Q=CiA/360
	ha	*min*	*mm/hr*	*l/s*
Old Church Road	2.310	10.00	134.16	333.3
North Outlet	0.140	10.00	134.16	17.5

* a,b,c's per Town of Caledon

Proposed Development Including Ext. Drainage to Old Church Road (Catchment 101+202) = 333.3 L/s

SCS consulting group ltd

PROPOSED WEIGHTED RUNOFF COEFFICIENT

Stylux Caledon East
Project Number: 2185
Date: April 2020
Designer Initials: P.A.T.

Catchment 301	Runoff Coefficient	Area (ha)	Outlets to: Old Church Road Weighted Runoff Coefficient
18.0 m ROW	0.60	0.37	0.14
8.0 m ROW	0.74	0.08	0.04
Single Dwelling Lots	0.62	0.71	0.28
Townhouse Dwellings	0.75	0.39	0.19
TOTAL		1.56	0.65

Catchment 303	Runoff Coefficient	Area (ha)	Outlets to: Old Church Road Weighted Runoff Coefficient
Townhouse Dwellings	0.75	0.15	0.75
TOTAL		0.15	0.75

Catchment 202	Runoff Coefficient	Area (ha)	Outlets to: Old Church Road Weighted Runoff Coefficient
Asphalt	0.90	0.02	0.02
Rooftops	0.90	0.10	0.12
Grass	0.25	0.66	0.21
TOTAL		0.78	0.35

Old Church Road Total			
301	0.65	1.56	0.41
303	0.75	0.15	0.05
202	0.35	0.78	0.11
TOTAL		2.49	0.46

SCS consulting group ltd

SUMMARY

Stylux Caledon East
Project Number: 2185
Date: April 2020
Designer Initials: P.A.T.

					100 Year						
Catchment ID	Routing		Runoff Coef.	Area (ha)	Release Rate (L/s) [2]	Storage Required (m^3) [2]	Storage Available (m^3) [3]	Draw Down Time (mins) [5]	Orifice Size (mm) [4]	Orifice Release Rate (L/s)	Uncontrolled Release Rate (L/s)
301	is routed through		0.82	1.56	254.8	653.1	654.1	0	281.28	254.8	
303	is routed through		0.94	0.15	78.5	0.0	0.0	0	uncontrolled	-	78.5
202	is routed through	301	0.44	0.78	191.5	0.0	0.0	0	uncontrolled	-	191.5
Total				2.49	333.3	653.1	654.1	-	-	-	

Old Church Road Allowable Release Rate 333.3 L/s
Old Church Road Proposed Release Rate 333.3 L/s

[2] Per Modified Rational Calculations (attached)

MODIFIED RATIONAL METHOD

Stylux Caledon East
Project Number: 2185
Date: April 2020
Designer Initials: P.A.T.

Area ID: 301

Area = **1.560** ha
"C" = **0.82**
AC= **1.2760**
Tc = **10.0** min
Time Increment = **2.0** min
Release Rate = **254.80** l/s
Max.Storage = **653.1** m^3

Town of Caledon 100 Year
a= 4688
b= 17
c= 0.9624

NOTE: Catchment 202 is routed through Catchment 301

Time (min)	Rainfall Intensity (mm/hr)	Storm Runoff [1] (l/s)	Runoff Volume (m^3)	Released Volume (m^3)	Storage Volume (m^3)	
10.0	196.5	884.65	530.8	152.9	377.9	
12.0	183.5	825.85	594.6	168.2	426.4	
14.0	172.1	774.51	650.6	183.5	467.1	
16.0	162.0	729.28	700.1	198.7	501.4	
18.0	153.1	689.13	744.3	214.0	530.2	
20.0	145.1	653.25	783.9	229.3	554.6	
22.0	138.0	620.97	819.7	244.6	575.1	
24.0	131.5	591.79	852.2	259.9	592.3	
26.0	125.6	565.28	881.8	275.2	606.7	
28.0	120.2	541.08	909.0	290.5	618.5	
30.0	115.3	518.90	934.0	305.8	628.3	
32.0	110.7	498.51	957.1	321.0	636.1	
34.0	106.6	479.68	978.5	336.3	642.2	
36.0	102.7	462.24	998.4	351.6	646.8	
38.0	99.1	446.06	1017.0	366.9	650.1	
40.0	95.7	430.98	1034.4	382.2	652.2	
42.0	92.6	416.91	1050.6	397.5	653.1	<<<<
44.0	89.7	403.75	1065.9	412.8	653.1	
46.0	87.0	391.41	1080.3	428.1	652.2	
48.0	84.4	379.81	1093.9	443.4	650.5	
50.0	82.0	368.89	1106.7	458.6	648.0	
52.0	79.7	358.60	1118.8	473.9	644.9	
54.0	77.5	348.87	1130.3	489.2	641.1	
56.0	75.5	339.67	1141.3	504.5	636.8	

[1] **The Storm Runoff from Catchment 202 has been added to the storm runoff of Catchment 301**

scs consulting group ltd

MODIFIED RATIONAL METHOD

Stylux Caledon East
Project Number: 2185
Date: April 2020
Designer Initials: P.A.T.

Area ID: 303

Area = **0.150** ha
"C" = **0.94**
AC= **0.1406**
Tc = **10.0** min
Time Increment = **2.0** min
Release Rate = **78.50** l/s
Max.Storage = **0.0** m^3

Town of Caledon 100 Year
a= 4688
b= 17
c= 0.9624

Time (min)	Rainfall Intensity (mm/hr)	Storm Runoff (l/s)	Runoff Volume (m^3)	Released Volume (m^3)	Storage Volume (m^3)	
10.0	196.5	76.83	46.1	47.1	-1.0	
12.0	183.5	71.73	51.6	51.8	-0.2	
14.0	172.1	67.27	56.5	56.5	0.0	<<<<
16.0	162.0	63.34	60.8	61.2	-0.4	
18.0	153.1	59.85	64.6	65.9	-1.3	
20.0	145.1	56.74	68.1	70.7	-2.6	
22.0	138.0	53.93	71.2	75.4	-4.2	
24.0	131.5	51.40	74.0	80.1	-6.1	
26.0	125.6	49.10	76.6	84.8	-8.2	
28.0	120.2	46.99	79.0	89.5	-10.5	
30.0	115.3	45.07	81.1	94.2	-13.1	
32.0	110.7	43.30	83.1	98.9	-15.8	
34.0	106.6	41.66	85.0	103.6	-18.6	
36.0	102.7	40.15	86.7	108.3	-21.6	
38.0	99.1	38.74	88.3	113.0	-24.7	
40.0	95.7	37.43	89.8	117.8	-27.9	
42.0	92.6	36.21	91.2	122.5	-31.2	
44.0	89.7	35.07	92.6	127.2	-34.6	
46.0	87.0	33.99	93.8	131.9	-38.1	
48.0	84.4	32.99	95.0	136.6	-41.6	
50.0	82.0	32.04	96.1	141.3	-45.2	
52.0	79.7	31.14	97.2	146.0	-48.8	
54.0	77.5	30.30	98.2	150.7	-52.5	
56.0	75.5	29.50	99.1	155.4	-56.3	

MODIFIED RATIONAL METHOD

Stylux Caledon East
Project Number: 2185
Date: April 2020
Designer Initials: P.A.T.

Area ID: 202

Area = **0.780** ha
"C" = **0.44**
AC= **0.3431**
Tc = **10.0** min
Time Increment = **2.0** min
Release Rate = **191.49** l/s
Max.Storage = **0.0** m^3

Town of Caledon 100 Year
a= 4688
b= 17
c= 0.9624

NOTE: Catchment 202 is routed through Catchment 301

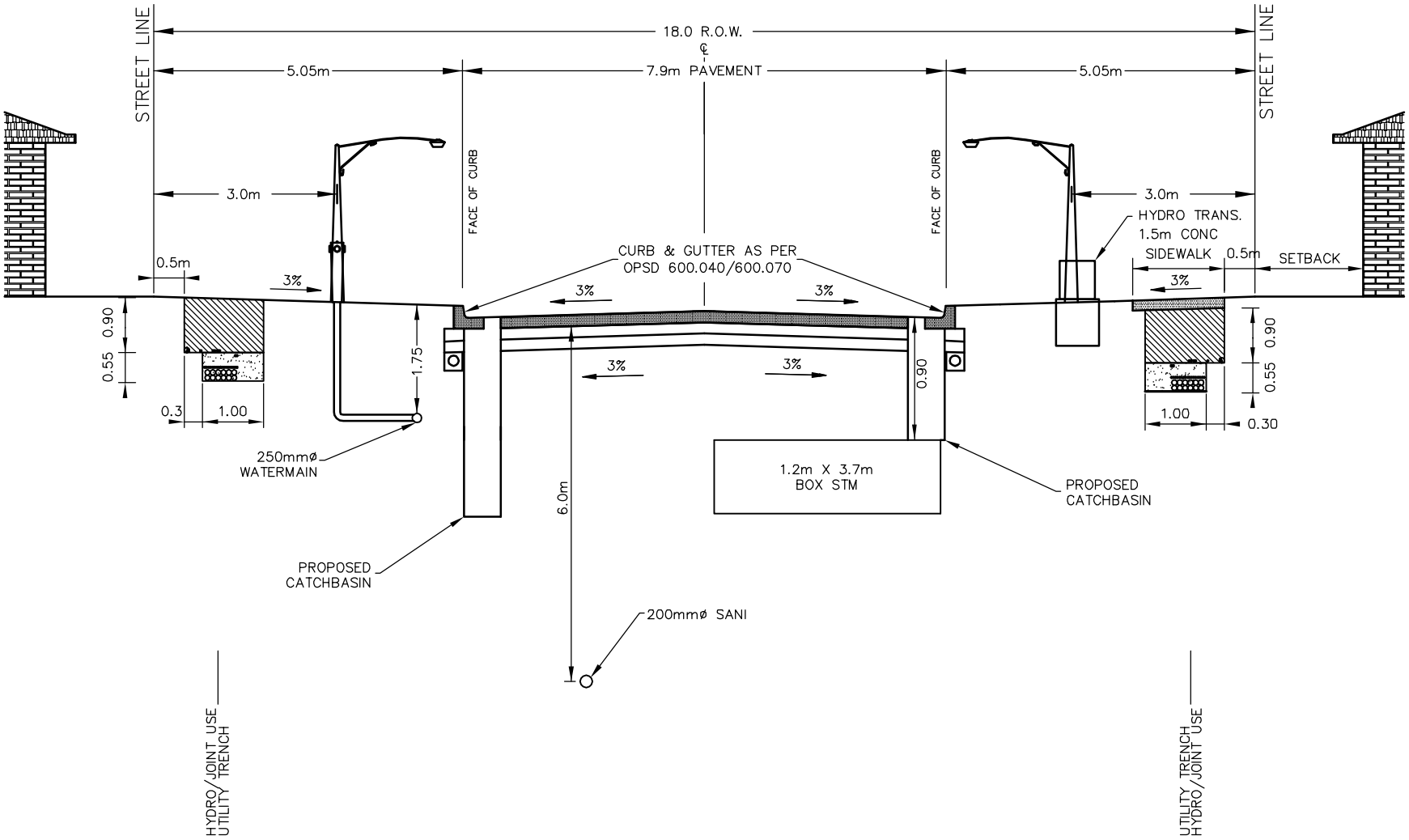
Time (min)	Rainfall Intensity (mm/hr)	Storm Runoff [1] (l/s)	Runoff Volume (m^3)	Released Volume (m^3)	Storage Volume (m^3)	
10.0	196.5	187.47	112.5	114.9	-2.4	
12.0	183.5	175.01	126.0	126.4	-0.4	
14.0	172.1	164.13	137.9	137.9	0.0	<<<<
16.0	162.0	154.55	148.4	149.4	-1.0	
18.0	153.1	146.04	157.7	160.8	-3.1	
20.0	145.1	138.43	166.1	172.3	-6.2	
22.0	138.0	131.59	173.7	183.8	-10.1	
24.0	131.5	125.41	180.6	195.3	-14.7	
26.0	125.6	119.79	186.9	206.8	-19.9	
28.0	120.2	114.66	192.6	218.3	-25.7	
30.0	115.3	109.96	197.9	229.8	-31.8	
32.0	110.7	105.64	202.8	241.3	-38.4	
34.0	106.6	101.65	207.4	252.8	-45.4	
36.0	102.7	97.96	211.6	264.3	-52.7	
38.0	99.1	94.53	215.5	275.7	-60.2	
40.0	95.7	91.33	219.2	287.2	-68.0	
42.0	92.6	88.35	222.6	298.7	-76.1	
44.0	89.7	85.56	225.9	310.2	-84.3	
46.0	87.0	82.95	228.9	321.7	-92.8	
48.0	84.4	80.49	231.8	333.2	-101.4	
50.0	82.0	78.17	234.5	344.7	-110.2	
52.0	79.7	75.99	237.1	356.2	-119.1	
54.0	77.5	73.93	239.5	367.7	-128.1	
56.0	75.5	71.98	241.9	379.1	-137.3	

[1] **The Storm Runoff from Catchment 202 has been added to the storm runoff of Catchment 301**

APPENDIX D

RIGHT-OF-WAY CONCEPTS

SCS consulting group ltd



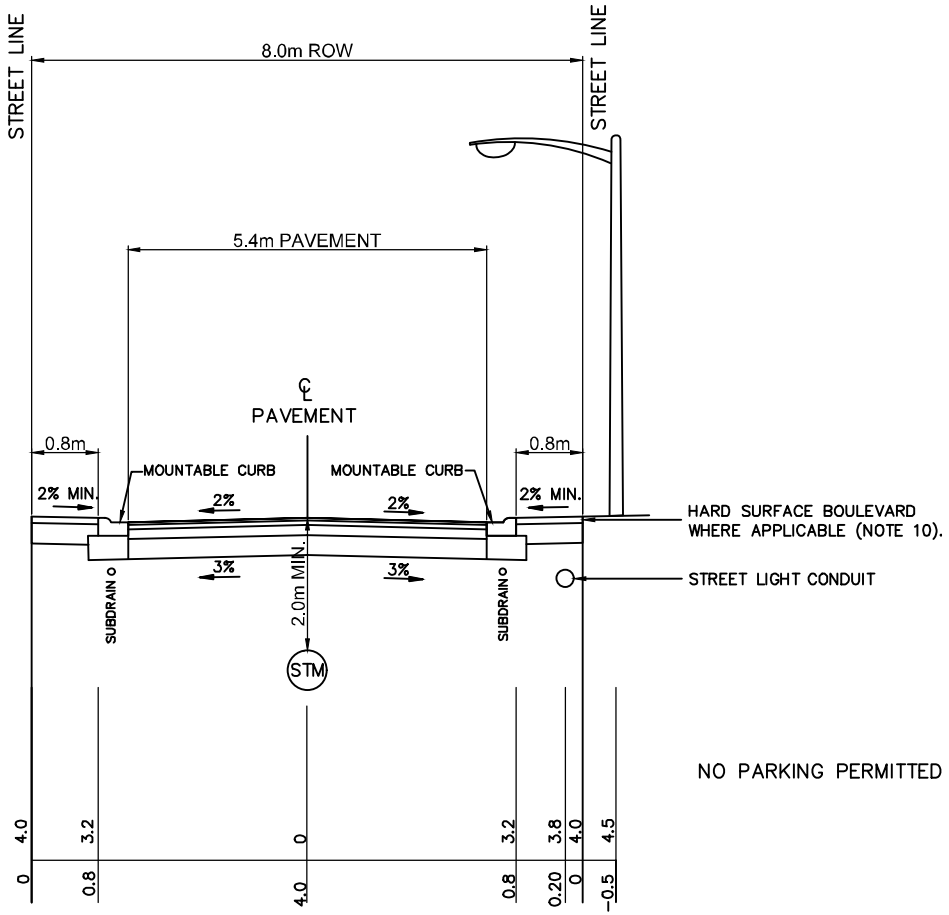
STYLUX CALEDON EAST

18.0m RESIDENTIAL LOCAL ROAD

SCS consulting group ltd
30 CENTURIAN DRIVE, SUITE 100
MARKHAM, ONTARIO L3R 8B8
TEL: (905) 475-1900
FAX: (905) 475-8335

DESIGNED BY: P.A.T.	CHECKED BY: J.M.P.	PROJECT No: 2185	FIGURE No:
SCALE: 1:100	DATE: APRIL 2020		

File: P:\2185 Stylux Caledon East\Drawings\FSP\Fig\Report Figures\2185P-18m LOCAL ROADWAY.dwg – Revised by <CMCCARTHY> : Mon, Apr 13 2020 – 9:59am



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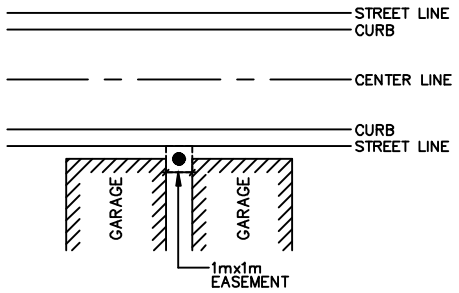


NOTES
1. THE FOLLOWING IS A MINIMUM ROAD BASE AND WILL REQUIRE A SOILS REPORT VERIFICATION
   - 40 mm HL3
   - 65 mm HL8
   - 150 mm GRANULAR "A"
   - 300 mm GRANULAR "B"
2. STREETLIGHT FIXTURE PER APPROVED TOWN STANDARD.
3. FULL LENGTH MINIMUM 100 MM DIA.SUB-DRAINS C/W FILTERCLOTH SHALL BE INSTALLED, AS PER APPROVED TOWN OF CALEDON STANDARD NO. 218.
4. SUB-GRADE SHALL BE COMPACTED TO A MINIMUM 95% OF S.P.D. AT OPTIMUM MOISTURE CONTENT.
5. WHERE POSSIBLE MANHOLE LIDS TO BE LOCATED OUT OF TIRE LANE OF TRAFFIC.
6. TRANSFORMERS TO BE LOCATED ON SIDE STREETS WHERE POSSIBLE OR ALTERNATIVELY ON EASEMENT ADJACENT TOLANEWAY.
7. STREET LIGHT POLE IN 1mx1m EASEMENT.
8. 50m MAXIMUM POLE SPACING AND THEREFORE MAXIMUM LANEWAY LENGTH IS 50m WITHOUT LANEWAY ILLUMINATION.
9. ONLY STORM SEWERS ARE PERMITTED WITHIN LANEWAYS.
10. WHERE LANEWAYS ARE PROPOSED ADJACENT RESIDENTIAL REAR YARDS, HARD SURFACING IS TO BE INSTALLED FROM THE BACK OF CURB TO THE STREET LINE. HARD SURFACE TYPE IS AT THE DISCRETION OF THE TOWN.

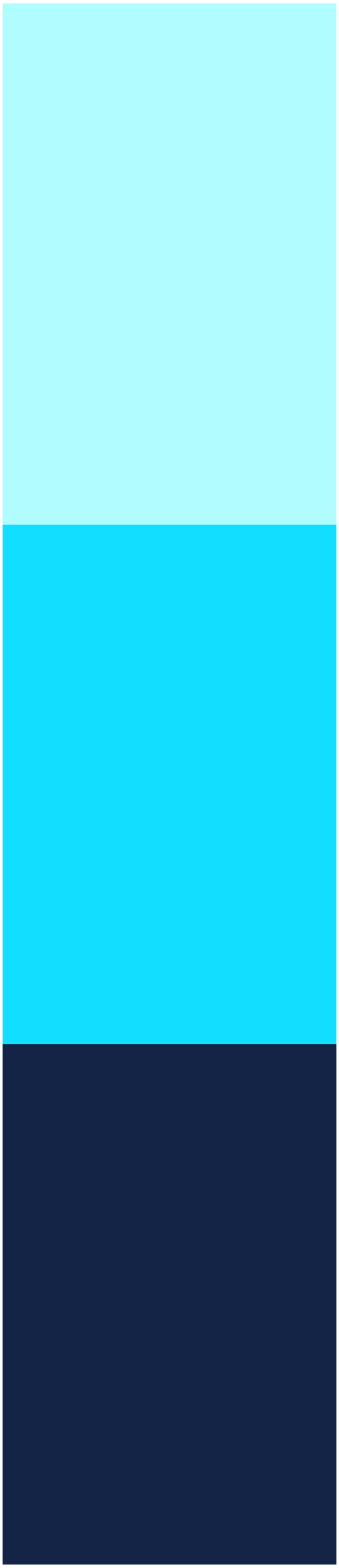
TOWN OF CALEDON

8.0m LANEWAY
6.0m ROADWAY (5.4m PAVEMENT)

NO.	REVISION	APR'D	DATE
4	TEXT AND SLOPE REVISIONS		JULY 19
3	DIMENSION AND TEXT REVISION		JAN. 09
2	DIMENSION AND LAYOUT REVISION		JULY 08
1	NOTES EDIT, STANDARD No. 225 NOW 200		JUNE 08

APR'D: C.C. DATE: JUNE 08
DRAWN: SCALE: N.T.S.

STANDARD No. 200



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