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Trinity Fields - Wildfield
Town of Caledon

Functional Servicing and Stormwater Management Report

October 2025

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Submission History

Submission	Date	In Support Of	Distributed To
1st	October 2025	Draft Plan of Subdivision	Town of Caledon, Peel Region, Toronto and Region Conservation Authority,

1.0 Introduction

SCS Consulting Group Ltd. has been retained by Trinity Field Inc. to prepare a Functional Servicing and Stormwater Management Report (FSSR) for a proposed development within the Wildfield Secondary Plan Area, located in the Town of Caledon.

1.1 Purpose

This FSSR has been prepared in support of the Draft Plan of Subdivision application for the proposed development. The Draft Plan of Subdivision is provided in **Appendix A**. The proposed development consists of the following land uses:

- low density residential,
- medium density residential,
- parks,
- environmental protection blocks and open space,
- SWM pond blocks, and
- proposed roads.

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

1.2 Study Area

The subject lands are located within the Wildfield Village Secondary Plan (WVSP) Area and are approximately 41.30 ha in size. The subject lands are bound by The Gore Road to the east, Mayfield Road to the south and future development lands to the north and west (see **Figure 1.1**).

The existing subject lands are comprised of agricultural land and open space areas. The proposed development is located within the West Humber River watershed in the Town of Caledon.

1.3 Background Information

In preparation of the servicing and stormwater management (SWM) strategies, the following design guidelines and standards were used:

- Town of Caledon Environmental Compliance Approval Conditions (ECA No. 324-S701), August 2024
- Development Standards Manual, Version 5.0, Town of Caledon, 2019
- Erosion and Sediment Control Guide for Urban Construction, TRCA, 2019;

- Conservation Authority SWM Guidelines (i.e. Stormwater Management Criteria, Toronto and Region Conservation Authority (TRCA), April 2012 Version 1.0;
- Ministry of Environment (MOE) Stormwater Management Planning and Design Manual, March 2003; and,
- Ministry of Transportation (MTO) Drainage Management Manual, 1997.

The servicing and SWM strategies in this report are based on the following approved reports:

- A Geotechnical Investigation for Proposed Residential Development, prepared by Soil Engineers Ltd., dated October 2025
- Draft Hydrogeological Assessments for Proposed Development, prepared by Soil Engineers Ltd., dated October 2025
- Draft Phase One Environmental Site Assessment, prepared by Soil Engineers Ltd., dated October 2025
- Wildfield Village Phase 2 Local Subwatershed Study (LSS), prepared by GEI Consultants Inc. and SCS Consulting Group Ltd., dated January 20, 2025
- Wildfield Village Phase 1 Local Subwatershed Study, prepared by GEI Consultants Inc. and SCS Consulting Group Ltd., dated November 2024
- Settlement Area Boundary Expansion, Scoped Subwatershed Study Part A: Existing Conditions and Characteristics (Final Report), prepared by Wood, dated November 2022
- Settlement Area Boundary Expansion, Scoped Subwatershed Study Part B: Detailed Studies and Impact Assessment (Final Report), prepared by Wood, dated November 2022
- Settlement Area Boundary Expansion, Scoped Subwatershed Study Part C: Implementation Plan (Final Report), prepared by Wood, dated November 2022
- Region of Peel Water and Wastewater Master Plan (2020)

The servicing and SWM strategies are also based on the following approved Engineering Drawings:

- Plan and Profile Drawings for the sanitary sewer and watermains along The Gore Road and Mayfield Road, prepared by Schaefers Consulting Engineers dated December 2024.

Excerpts from the above listed documents are included in **Appendix B**.

2.0 Geotechnical and Hydrogeological Conditions

2.1 Soils

The Geotechnical Investigation for Proposed Residential Development, prepared by Soil Engineers Ltd, dated October 2025, noted that beneath the topsoil veneer, the site is underlain by a stratum of silty clay till, with localized deposits of sandy silt till, silty sand till and silt. Shale bedrock was inferred to be present in localized areas at depths rangin from 3.4 m to 6.2 m below surface. Refer to **Appendix B1** for excerpts from the Geotechnical Investigation (Soil Engineers Ltd., October 2025).

Through the Phase 2 LSS (GEI & SCS, January 2025), the Curve Number (CN) and Initial Abstraction (Ia) values for pervious areas were established to represent the proposed land use conditions for both AMCII and AMCIII conditions and applied to the proposed conditions for the subject development. Refer to **Appendix B2** for excerpts from the Phase 2 LSS.

2.2 Groundwater

As part of the on going LSS, GEI Consultants Inc. has completed approximately two and a half years of groundwater monitoring, starting in May 2023, and concluding in August 2025.

Additional groundwater monitoring is being completed by Soil Engineers Ltd., to supplement the ground water monitoring completed through the LSS work. Based on the groundwater levels collected to date, the seasonally high groundwater elevations range from 0.11 m to 3.42 below existing ground. Refer to the **Appendix B1** for the borehole location plan and monitoring well results completed to date.

3.0 Topography and Grading

3.1 Existing Conditions

3.1.1 Topography

The existing topography slopes gently across the site, the ground surface elevations through the subject lands range from approximately 231.50 m in the northeast corner to approximately 220.00 m in the southeast corner of the site. The topographic survey completed by R-PE Surveyors dated February 1, 2024 is provided in **Appendix B3**.

3.1.2 Floodplain

A recent update to the TRCA Flood Plain Mapping Program has extended the floodplain mapping and produced Regional Storm floodlines for a drainage feature located within the subject site. Refer to the TRCA Flood Plain Map Sheet 252 provided in **Appendix C**. This drainage feature consists of both headwater drainage features (HDFs) and a watercourse, as identified through the aquatic habitat and HDF assessments provided in the Phase 1 LSS.

Where the features have been identified as a watercourse, there is an associated floodplain that is regulated by TRCA. This includes Reaches H5S1/S2/S3, and the southern portion of Reach H5S4 within the hedgerow on the subject site (refer to **Figure 3.1**). The existing conditions floodplain for these reaches have been delineated as part of the on-going Phase 1 LSS. The analysis and resulting floodline specific to the subject site are reproduced here as follows.

To analyze the effects of floodplain, the estimated HEC-RAS hydraulic modelling files for the West Humber River were obtained from the TRCA as part of the on-going Phase 1 LSS. The peak flows utilized in the hydraulic model were first confirmed to be correct for the purposes of establishing Regional storm flood elevations for the watercourses within the WVSP Area. River Stations 1386.26 to 393.62 on River WH5A TribD, Reach 1 within the estimated hydraulic model were then updated based on the topographic information prepared by R-PE Surveying Ltd., dated February 1, 2024. The update also included updating the information in the model for Culvert #11 at The Gore Road north of Mayfield Road. Refer to **Appendix C** for the updated existing conditions hydraulic modelling outputs along with a link to the digital modelling files that are also presented in the Phase 1 LSS.

The updated Regional storm (Hurricane Hazel) floodline elevations were then mapped against the topographic survey as reproduced here on **Figure 3.1**. Subsequently, a 10 m setback was applied to the Regional storm floodline in accordance with TRCA requirements.

3.2 Proposed Conditions

3.2.1 Site Grading

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: 0.7%
- Maximum Road Grade: 6.0%
- Minimum Lot Grade: 2%
- Maximum Lot Grade: 6%
- 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 catch basins; and
- Achieve the stormwater management objectives required for the proposed development.

In order to ensure the appropriate cover is provided over the storm sewer system to allow for gravity connections for foundation drains and to minimize the amount of fill required, a minimum grade of 0.50% is provided.

A preliminary grading plan is provided on **Figure 3.2**.

At the detailed design stage, the preliminary grading shown on **Figure 3.2** will be subject to a more in-depth analysis in an attempt to balance the cut and fill volumes and minimize slopes and walls.

Permission to grade within the Peel Region right of way adjacent to Mayfield Road is required to accommodate the SWMF 4 grading until such a time the Mayfield Road right of way is urbanized.

3.2.2 Floodplain Modifications

Through the Phase 1 and 2 LSS work, it was determined that the watercourse extending into the subject site is considered a headwater drainage feature, H5S4A and the upper reaches of H5S4 can therefore be removed to accommodate the proposed development, and compensated for within the proposed Environmental Protection Block. Refer to **Appendix A** for the proposed draft plan and **Appendix B2** for Figure 3.2 of the Phase 2 LSS illustrating the HDF locations.

The floodplain for retained Reaches H5S3, H5S2, H5S1 and a portion of H5S4 will be maintained within the Environmental Protection Block as shown on **Figure 3.1**. The

proposed HDF realignment and wetland compensation areas within this block are to be designed by others. As established through the LSS, HDFs within the WVSP area will not be subject to regulation by TRCA under current floodplain management policies and as such the floodplain has not been delineated for the proposed HDF realignment.

4.0 Rights-of-way and Sidewalks

The Town of Caledon standard cross sections have been used; however, have been updated to accommodate the proposed foundation drain collector and box culverts required for storm sewer servicing where conveyance of major flows from the external lands along Streets 'F' and 'B' to SWM Facility 4 and along Street 'A', 'D', 'M' and 'O' to SWMF 5, refer to the proposed Draft Plan included in **Appendix A**.

The proposed right-of-way cross-sections are provided in **Appendix D**.

For the areas where sidewalk will be provided along one side of the street, sidewalks will typically be located on the north or east side of the boulevard or the boulevard side where the larger number of frontages can be serviced.

5.0 Storm Drainage and Servicing

5.1 Existing Conditions

5.1.1 Storm Drainage

Based on the detailed topographic survey undertaken by R-PE Surveyors on February 1, 2024, included in **Appendix B3**, the drainage from the subject site is split between two (2) culverts on Mayfield Road (Culverts #9 and #10) and two (2) culverts located on The Gore Road (Culverts #11 and #12). Culvert #10 and Culvert #11 have been identified in the LSS as Outlet 4 and Outlet 5, respectively. Per the Phase 1 LSS, the site is located within Catchments 38.04.10, 38.04.11, 38.04.20 and 38.05.10 of the West Humber River subwatershed. Refer to Figure 4.1 from the Phase 2 LSS, provided here in **Appendix B2**, for the subcatchments areas and culvert locations.

The site drainage has been discretized to account for internal and external drainage areas, as illustrated on **Figure 5.1**. A description of the existing drainage is as follows:

- Drainage Area 1401 (Catchment 38.04.11), consisting of agricultural lands encompassed within the subject site, drain towards Culvert #9. The drainage from these lands is conveyed southerly under Mayfield Road, towards the West Humber River south of Mayfield Road and east of The Gore Road.

- Drainage Area 1402 (Catchment 38.04.10), consisting of agricultural lands encompassed within the subject site, drain towards Culverts #10 (Outlet 4). The drainage from these lands is conveyed southerly under Mayfield Road, towards the West Humber River south of Mayfield Road and east of The Gore Road.

- Drainage Areas EXT1 (Catchment 38.04.11 and 38.04.12) and EXT2 (Catchment 38.04.10), consist of agricultural lands which drain through the subject lands to Culvert #9 and #10 (Outlet 4), respectively. Similarly, the drainage from these lands is conveyed southerly under Mayfield Road, towards the West Humber River south of Mayfield Road and east of The Gore Road.

- Drainage Area 1501 (Catchment 38.04.20) consists of agricultural lands encompassed within the subject site, which drains towards Culvert #11 (Outlet 5). The drainage from these lands is conveyed easterly under The Gore Road, towards the West Humber River south of Mayfield Road.

- Drainage Area 1502 (Catchment 38.05.10) consists of agricultural lands encompassed within the subject site, which drains towards Culvert #12. The drainage from these lands is conveyed easterly under The Gore Road, towards the West Humber River.

- Drainage Areas EXT3 (Catchment 38.04.12) and EXT4 (Catchment 38.05.10), consist of agricultural lands which drain through the subject lands to Culvert #11 (Outlet 5) and #12, respectively. Similarly, the drainage from these lands is conveyed easterly under The Gore Road, towards the West Humber River.

Refer to **Figure 5.1** for the Culvert ID's and outlet locations, and **Table 5.1** for a summary of the drainage areas.

Table 5.1: Summary of Existing Conditions Drainage Areas[1]

Drainage Area ID	Description	Culvert ID[1]	Outlet ID[1]	Drainage Area (ha)
1401	Agriculture	9	4	7.32
EXT-1	Agriculture	9	4	20.67
Total to Culvert #9				*27.99*
1402	Agriculture	10	4	12.83
EXT-2	Agriculture	10	4	7.79
Total to Culvert #10				*20.62*
Total to Outlet 4				**48.61**
1501	Agriculture	11	5	19.45
EXT-3	Agriculture	11	5	34.67
Total to Culvert #11				*54.12*
1502	Agriculture	12	5	2.78
EXT-4	Agriculture	12	5	3.03
Total to Culvert #12	Agriculture			*5.81*
Total to Outlet 5				**59.93**

[1] Refer to **Figure 5.1**.

5.1.2 Storm Servicing

There are no existing storm sewers within the WVSP Area or on the arterial roads immediately surrounding the WVSP Area. Under existing conditions, the drainage along Mayfield Road and The Gore Road is conveyed via roadside ditches.

5.2 Proposed Conditions

5.2.1 Storm Drainage

Under proposed conditions, drainage from the site will generally follow the existing drainage conditions, draining towards Outlets 4 and 5, as illustrated on **Figure 5.2**. Per the Phase 2 LSS, there will be two drainage diversions directing drainage from Catchment 38.04.11 and 38.04.12 (1401 and EXT1 on **Figure 5.1**) to Outlet 4 and drainage from Catchment 38.05.10 (1502 & EXT4 **Figure 5.1**) to Outlet 5, as outlined further below. Refer to **Table 5.2** for a summary of the proposed drainage conditions.

- Drainage Area 2401 consists of proposed residential development within the subject site, which will drain through the proposed infrastructure to Culvert #10 at Outlet 4. This will result in a diversion of existing Drainage Area 1401 to Culvert #10 at Outlet 4.

- Drainage Area 2402 consists of the lands fronting onto Mayfield Road which are currently owned by Peel Region (excess lands obtained for the watermain construction on Mayfield Road), and will be used as a future road widening. Drainage from these lands will ultimately be conveyed to Culvert #10 at Outlet 4.

- Drainage Area EXT1, currently consists of agricultural lands; however, these lands will ultimately develop as part of the WVSP Area, and are to be conveyed through the proposed infrastructure to Culvert #10 at Outlet 4. Until further study on these lands has been completed as part of the Comprehensive Servicing anf Stormwater Management Study (CSSS), it is assumed that the existing drainage boundaries will be maintained.

- Drainage Area 2501 consists of proposed residential development within the subject site, which will drain through the proposed infrastructure discharging to Culvert #11 at Outlet 5. This will result in a diversion of existing Drainage Area 1502 to Culvert #11 at Outlet 5.

- Catchments EXT2 and EXT3, consist of agricultural lands; however, these lands will ultimately develop as part of the WVSP Area, and are to be conveyed through the proposed infrastructure to Culvert #11 at Outlet 5. Until further study on these lands has been completed as part of the CSSS, it is assumed that the existing drainage boundaries will be maintained.

- Catchment 2502 consists of rear yards draining to The Gore Road right-of-way and the future road widening; the drainage from this catchment will be directed to Outlet 5.

- Catchment 2503 consists of the Environmental Protection Block and some rear yards draining to this area. This block will provide the wetland compensation and relocated headwater drainage features draining to Culvert #11 at Outlet 5.

The proposed storm drainage plan is based on the proposed grading. The proposed drainage areas and percent impervious are shown on **Figure 5.2** and summarized in **Table 5.2**.

Table 5.2: Summary of Proposed Conditions Drainage Areas[1]

Drainage Area ID	Description	Culvert ID[1]	Outlet ID[1]	Drainage Area (ha)
2401	Residential (Single Family, Lane Townhomes, Medium Density)	10	4	18.26
2402	Road Widening and Right of Way	10	4	1.31
EXT-1	Future Residential[2]	10	4	28.46
Total Outlet 4				***48.03***
2501	Residential (Single Family, Lane Townhomes, Park)	11	5	18.71
2502	Road Widening and Right of Way	11	5	0.75
2503	Environmental Protection Area/ Open Space	11	5	3.35
EXT-2	Future Residential[2]	11	5	5.04
EXT-3	Future Residential[2]	11	5	32.66
Total to Outlet 5				***60.51***

[1] Refer to **Figure 5.2**.
[2] Refer to Figure 4.1 of the Phase 2 LSS included in **Appendix B1**

5.2.2 Storm Servicing

5.2.2.1 Minor System

The preliminary layout for the proposed storm sewer within the subject lands is provided on the Preliminary Servicing Plan, **Figure 5.3**.

The storm sewer system (minor system) will be designed for the 10 year design storm as per the Town of Caledon standards. The storm sewers are proposed to drain towards two (2) proposed Stormwater Management (SWM) facilities, as outlined further below in **Section 6.2**, discharging ultimately to the West Humber River (refer to Outlets 4 and 5 **Figure 5.2**).

The storm sewer system will typically be designed with grades between 0.5% and 2%. Throughout the proposed development, the storm sewer will be constructed at a minimum depth of 1.2 m to provide frost protection and 2.7 m for foundation drains.

Based on the calculated capacity of the right-of-way to convey major system flows, 100 year capture points have been proposed within the site where necessary, as illustrated on **Figure 5.2**, with 100 year flows from the medium density blocks being captured as well. Major system flows will be captured at these locations to ensure adequate capacity to convey flows through the rights-of-way. The minor storm sewer system has been sized to convey the future drainage from external lands within the WVSP Area, which will ultimately contribute to the to the proposed stormwater management facilities.

The storm drainage 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, and up to the 100 year event where major flows are captured,
- Minimum Pipe Size: 300 mm diameter,
- Maximum Flow Velocity: 4.0 m/s,
- Minimum Flow Velocity: 0.75 m/s,
- Minimum Pipe Depth: minimum 1.0 m below basement floor elevations.

As established through the Phase 1 and 2 LSS, a feature-based water balance is required to maintain flows to an existing wetland south of Mayfield Road at Culvert #9 (Wetland 43), an existing wetland on the watercourse that is to be retained (Wetland 10_11 on Reach H5S1/S2/S3), the proposed wetland compensation area (CA2) and the proposed realigned HDF as compensation for the removal of the HDFs (Reach H5S4a and a portion of Reach H5S4). A Foundation Drain Collector (FDC) is proposed to capture and convey roof and foundation drainage to feed these existing and proposed features, while providing gravity connections for foundations where adequate cover over the storm

sewer system is not provided. Refer to **Figure 5.4** for the FDC schematic and the location of the features.

5.2.2.2 Major System

Major system flows (greater than the 10 year up to the 100 year storm event) within the site will be conveyed within the rights-of-way to the SWM facilities, with a maximum flow depth of 0.25 m. The right-of-way capacity calculations have been provided in **Appendix E**, 100 year capture points are provided where the proposed rights-of-way do not have sufficient capacity to safely convey the major system flows to towards the proposed SWM Facilities, as illustrated on **Figure 5.2**.

It should be noted, that the Regional storm event flows will be conveyed via the major systems towards each SWM Facility. The 100 year peak flows are greater than the flows generated during the Regional storm event, therefore the major system will have adequate capacity should a Regional storm event occur.

6.0 Stormwater Management

6.1 Stormwater Management Criteria

The following stormwater management criteria have been established based on the greatest requirements of each of the design guidelines and standards listed in **Section 1.3,** discussions with agencies and the previous work established through the Phase 1 and 2 LSS for the WVSP Area. The stormwater management criteria are summarized below in **Table 6.1**:

Table 6.1: Stormwater Management Criteria

Criteria	Control Measure
Quality Control	An "Enhanced" level of quality control is to be provided based on MOE Guidelines (2003) to provide 80% Total Suspended Solids (TSS) removal.
Thermal Mitigation	The following design criteria is to be applied for an end of pipe SWM Facility discharging to Redside Dace Habitat (MNRF, 2016): - A 3.0 m average permanent pool depth - Bottom draw outlets located at a minimum 2.0 m below the permanent pool elevation - A minimum 3.0m wide flat shelf, as a wetland planting area around the perimeter of the pond at the normal water level - The volume of permanent pool, between 1.5 m and 3.0 m, is equivalent to the volume of the runoff generated by a 10 mm storm event within the catchment contributing to the SWM Facility Thermal mitigation at all SWM Facility discharge points such as flow spreaders, pocket wetlands, cooling trenches or strategic planting for shading

Criteria	Control Measure
Erosion Control	Using a calibrated continuous simulation hydrologic model complete an erosion exceedance analysis to compare pre- and post-development erosion impacts, and establish an appropriate erosion threshold and volume requirement for end-of-pipe SWM facilities. At a minimum, end-of-pipe SWM facilities must provide extended detention of the runoff generated by the 25 mm rainfall event. The extended detention volume and duration is to be established through the Comprehensive Servicing and Stormwater Management Study (CSSS) for the WVSP Area. Where conditions do not warrant an end-of-pipe SWM facility, a minimum of 5 mm of on-site retention is required.
Water Budget	In accordance with the Town of Caledon CLI-ECA, provide control as per the criteria/targets identified in the water balance assessment of the LSS. Specifically, this will be implemented through the stormwater management design which will incorporate LID measures as applicable to achieve the infiltration targets specified in the Phase 2 LSS.
Quantity Control	Post-development peak flows generated by the Regional Storm (Hurricane Hazel) to be controlled to the target unit release rate of 0.077 m^3/s established through the Phase 1 LSS for Catchment 38.04 of the West Humber River watershed. Post-development peaks flows for the 2 through 100 year storm events are to be controlled to the target flow rates established using the target unit release rates generated by Equation F for Sub-Basin 36 of the West Humber River as per TRCA Stormwater Management Criteria (2012).

6.2 Proposed Stormwater Management Plan

In accordance with the Stormwater Management Planning and Design Manual (MOE, 2003) and the Phase 2 LSS, 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 following study area characteristics and constraints were taken into consideration:

- The topography slopes gently, generally falling to the southeast towards the intersection of The Gore Road and Mayfield Road;
- Based on the Geotechnical investigation, study area soils consisted of Hydrologic Group C soils and the site is underlain by a stratum of silty clay till, with localized deposit is sandy silt till, silty sand till and silt;
- Within the installed site wells, groundwater was observed at depths ranging between 0.11 m and 3.42 m below existing grade;
- The proposed subdivision development is approximately 43.38 ha and consists of a residential subdivision; and,
- The study area drains towards the West Humber River.

The feasibility of at-source, conveyance and end-of-pipe SWM controls were evaluated for use in the proposed development to achieve the design criteria provided in **Section 6.1**. Refer to **Appendix F1** for a summary of the feasibility evaluation. Based on the feasibility evaluation, the proposed SWM Plan will include a treatment train of the following LID measures and SWM controls:

- Rear Yard Infiltration Trenches;
- Clean water collector pipes to existing and constructed wetland features;
- End-of-Pipe SWM Facilities;
- Additional LID's can be evaluated through the Site Plan Applications for medium density blocks.

Refer to **Sections 6.3** and **6.5**, below, for additional information on LID measures and end-of-pipe SWM facilities, respectively.

6.3 Low Impact Development Measures

Low Impact Development (LID) measures provide reduction of runoff and promote infiltration at the source. Each type of LID measure has the potential to provide water quality control including TSS removal, erosion control, and/or water budget benefits. These LID measures, as further described in the following sections and shown on **Figure 6.1**, combined in a treatment train with end-of pipe SWM measures, will work towards achieving the SWM criteria listed in **Section 6.1**.

As noted in **Section 2.2**, three (3) years of groundwater monitoring has been completed by GEI Consultants Inc. across the site as part of the ongoing LSS and CSSS work along with an ongoing groundwater monitoring program being carried out by Soil Engineers Ltd. to supplement the on-going study. As noted in **Section 2.2**, the seasonally high groundwater elevations range from 0.11 m to 3.42 m across the subject site. The high groundwater elevations will limit the amount of subsurface infiltration that can be provided but does not preclude the implementation of LID measures. Refer to **Figure 6.1** for the depth to groundwater from proposed grade and the LID measures that are available to be provided across the site.

The LID's are proposed based on the information collected to date, and as the monitoring program proceeds, the proposed LID measures will be adjusted accordingly to ensure that there is adequate separation from the LID to the groundwater.

6.3.1 Rear Yard Infiltration Trenches

Where groundwater elevations permit, rear yard infiltration trenches are proposed for split draining lots to receive runoff from the back half of the roofs. The trenches will be located beneath the rear yard swales and will receive runoff from the back half of the roofs by overland runoff from roof leaders directed to the rear yard swales.

They will be composed of washed clear stone with approximate dimensions of 0.6 m deep and 1.0 m wide, which will capture runoff from the back half of the roofs. The length of the trench will vary depending on the size of the lots. Based on the design infiltration rate of 12 mm/hr (assumed based on the hydraulic conductivity values) the runoff storage volume in the trench can be infiltrated with 48 hours. Calculations are provided in **Appendix F1**. Refer to **Appendix B1** for excerpts from the Draft Hydrogeological Assessment (Soil Engineers Ltd., October 2025).

6.3.2 Roof Leaders to Wetland via Foundation Drain Collector

As established through the Phase 2 LSS, a feature-based water balance is required to maintain flows to the existing wetland feature (Wetland 43) south of Mayfield Road, downstream of Culvert #9, with cool clean water to maintain the form and function of the feature. Additionally, a second clean water collector is proposed to feed the

proposed retained Wetland 10_11, and the proposed wetland compensation area (CA2) with cool clean water at the southeastern corner of the site before outletting to Culvert #11 at Outlet 5.

6.4 End-of-Pipe Stormwater Management Facilities

Two (2) stormwater management facilities are proposed to service the subject and external lands that will ultimately develop as part of the WVSP Area, discharging to Outlets 4 and 5.

SWM Facility 4 is proposed to provide quality, erosion and quantity control. The facility will be located at the southern end of the site adjacent to Mayfield Road, as shown on **Figure 6.2**, and will outlet to Culvert #11 at Outlet 4. The SWM facility will be sized for a total drainage area of 46.72 ha assuming a total future imperviousness of 60%.

SWM Facility 5 is proposed to provide quality, erosion and quantity control. The facility will be located at the eastern side of the site adjacent to The Gore Road, as shown on **Figure 6.3**, and will outlet to Culvert #11 at Outlet 5. The SWM facility will be sized for a total drainage area of 56.41 ha assuming an imperviousness of 67%.

The weighted runoff coefficients of the areas contributing to each SWM Facility within the subject lands have been calculated based on the Town of Caledon engineering criteria and converted to a percent impervious ((C – 0.20)/0.70) for the single family (29%) and townhouse unit (79%) to estimate the proposed conditions. The percent imperviousness will further be refined and confirmed as house sitings that are representative of the built form become available.

The percent imperviousness for the external drainage areas has been calculated based on converting a weighted runoff coefficient to a percent impervious, based on the Town of Caledon Engineering Design Standards. The land use for the external areas has been assumed based on the Land Use Plan prepared by SGL through the LSS, included in **Appendix B2**. The post-development external drainage areas will be refined through the ongoing CSSS; however, until these areas are confirmed, it is assumed that the total external drainage area will match existing. Refer to Figure 4.1 of the Phase 2 LSS included in **Appendix B2** and **Appendix F2** for supporting stormwater management calculations.

6.4.1 Quality Control

An "Enhanced" level of quality control is required for the proposed development. The quality control parameters as presented in Table 3.2 of the Stormwater Management Planning and Design Manual, (MOE, March 2003) were used in the design of SWMF 4 and 5. The required and provided permanent pool volumes are summarized below in **Table 6.2**.

Table 6.2: SWM Facility Permanent Pool Summary

SWMF ID	Drainage Area (ha)	Percent Impervious	Permanent Pool Storage (m^3/ha)[1]	Required Permanent Pool Volume (m^3)	Provided Permanent Pool Volume (m^3)
4	46.72	60%	161	7,501	35,425
5	56.41	67%	177	9,977	35,790

[1] Total Storage Based on Table 3.2 SWMP Manual (MOE, 2003)

An "Enhanced" protection level for quality control will therefore be achieved through the implementation of a permanent pool within the end-of-pipe SWM facilities. The excess storage provided is in order to accommodate the 3.0 m deep permanent pool required for discharging the SWM Facilities upstream of Reside Dace Habitat which is found within the West Humber River downstream of Mayfield Road. The grading of the SWM facilities can be optimized through detailed design to reduce the overall volume of the permanent pool while still achieving the design criteria for TSS removal and temperature.

6.4.2 Erosion Control

Through the Phase 2 LSS, an erosion threshold and exceedance analysis at locations downstream of each outlet was prepared. It was found that there will be an increase in both erosion occurrences and duration associated with the proposed development of the WVSP Area. To mitigate the potential for increases in erosion, the attenuation of the extended detention volume within each SWM facility will be required to provide erosion protection for the receiving downstream watercourses.

Further erosion analysis will be completed as part of the CSSS to determine extended detention volume and duration. As the size of the SWM facilities will be dictated by the quantity control requirements (refer to **Section 6.4.3** below), the erosion volume has been established for this FSSR in accordance with the SWMP Manual (MOE, 2003) which states that the extended detention storage is based on the greater of 40 m^3/ha or the

storage volume required to retain the runoff from a 25 mm storm for 48 hours is required for the site.

The Visual Otthymo 6.2 hydrologic model was used to establish the post-development runoff from the proposed development during a 25mm, 4 hour Chicago rainfall event which is to be retained. The modelled runoff yielded a larger storage volume than the extended detention volume based on 40 m^3/ha, therefore presented for this FSSR until such time as the CSSS is completed. The required extended detention storage based on the runoff generated by the lands contributing to SWMF 4 and 5 are summarized below in **Table 6.3**.

Table 6.3: SWM Facility Extended Detention Summary

SWMF ID	Drainage Area (ha)	Runoff Depth (mm)	Extended Detention Volume[1] (m^3)	Extended Detention Level
4	46.72	16.46	7,689	219,31
5	56.41	17.26	9,738	221.47

[1] Extended detention based on runoff from the 25 mm – 4 hour Chicago storm event.

A copy of the model schematic and the output file are included as **Appendix G** with digital modelling files included via a file sharing link on the **Appendix G** cover page. The calculations for the extended detention component of the proposed stormwater management facility are provided in **Appendix F2**.

Orifice and outlet structure sizing calculations and details will be provided through detailed design.

6.4.3 Quantity Control

As established in the Phase 2 LSS, the proposed conditions uncontrolled peak flows for each outlet exceed the existing conditions; therefore, SWM quantity controls for the 2 through 100 year and Regional storm events are required to mitigate downstream impacts.

For each SWM facility, the target flows for the 2 through 100 year storm events are determined using Equation F of the TRCA unit flow relationship for the Humber River based on the pre-development drainage area to each outlet. Through the Phase 1 LSS, a target unit release rate for each subcatchment of the Humber River watershed within the WVSP Area was established for the Regional storm event. The subject site is part of subcatchment 38.04, and the unit release rate was determined to be 0.077 $m^3/s/ha$. The target release rates for each SWM facility are summarized below in **Table 6.4**.

Table 6.4: Stormwater Management Facility Target Flow Rates[1] (m^3/s)

	SWMF 4	SWMF 5
Existing Area (ha)	**20.62**	**59.93**
Proposed Area (ha)	**46.72**	**56.41**
2 yr	0.151	0.393
5 yr	0.231	0.599
10 yr	0.285	0.739
25 yr	0.358	0.930
50 yr	0.418	1.081
100 yr	0.472	1.225
Regional	3.597	4.615

[1] Refer to **Appendix F2** for target flow calculations

As shown in **Table 6.4** and discussed in **Section 5.2.1**, there is a diversion of 26.1 ha of drainage from Culvert #9 to SWMF 4 (Culvert #10). To see if additional quantity controls are required to ensure the diversion would not impact downstream of Mayfield Road, the existing capacity of the culverts at Mayfield Road were investigated. It was found that under existing conditions Culvert #9 has insufficient capacity to convey the Regional flows. The flows contributing to Culvert #9 will begin to overtop a highpoint within the northern ditch of Mayfield Road, and be conveyed to Culvert #10. Using the hydrologic modelling software Visual OttHymo, the existing Regional peak flows to Culvert #9 (Catchments 1401 and EXT1 on **Figure 2**) and Culvert #10 (Catchments 1402 and EXT2 on **Figure 2**) were established. Furthermore, the hydraulics of Culvert #9 were evaluated using the Hydraflow Express Extension of Autodesk Civil 3D to confirm how much flow is conveyed through the culvert before overtopping the highpoint within the ditch along

Mayfield Road. As per the detailed topographic survey prepared by R-PE Surveying Ltd. included in **Appendix B3**, flows begin to spill at an elevation of 222.16 m. This results in 0.880 m^3/s being conveyed through Culvert #9, resulting in a spill to Culvert #10 of 2.540 m^3/s during the Regional storm event. It was therefore found that a total peak flow of 4.937 m^3/s will contribute to Culvert #10 in the Regional storm event under existing conditions, as summarized in **Table 6.5** below.

Table 6.5: Existing Regional Flow to Culvert #10 (Outlet 4) (m^3/s)[1]

Existing Regional Peak Flow to Culvert #9 (1401 & EXT1)	Flow Conveyed through Culvert #9	Total Spill From Culvert #9 to Culvert #10	Existing Regional Peak Flow to Culvert #10 (1402 & EXT2)	Total Peak flow to Culvert #10
3.420	0.880	2.540	2.397	4.937

[1]Refer to **Appendix G** for hydrologic modelling outputs and Culvert #9 analysis

The target release rate for SWMF #4 during the Regional storm event, based on the unit rate and proposed drainage area (3.597 m^3/s), is less than the total peak flow expected to contribute to Culvert #10 (4.937 m^3/s) under existing conditions. The watershed criteria for the Regional storm event is therefore more restrictive, and is therefore set as the target flowrate for SWMF #4 to ensure there are no local increases in peak flow downstream of Mayfield Road associated with the development of the subject lands and the diversion of drainage.

The target release rate for SWMF #5 during the Regional storm event, based on the unit rate and existing drainage area to Outlet 5 (4.615 m^3/s), is less than the total peak flow expected to contribute to Culvert #11 (5.389 m^3/s) under existing conditions. The watershed criteria for Regional storm event is therefore more restrictive, and is therefore set as the target flowrate for SWMF #5 to ensure there are no local increases in peak flow downstream of The Gore Road associated with the development of the subject lands and the diversion of drainage. Refer to **Appendix G** for hydrologic modelling outputs and **Appendix F2** for target release rate calculations.

The proposed SWM facilities will control future flows from the proposed development to the target flow rates discharging to Outlets 4 and 5. Proposed hydrologic modelling was completed using the Visual Otthymo model (Version 6.2) to determine the proposed release rates and required storage volumes within each SWM facility for the 2 through 100 year and Regional storm events, as summarized below in **Table 6.6**. Refer to the File Safe Cloud Link provided in **Attachment G** to download the VO hydrology model files.

Table 6.6: Stormwater Management Facility Storage Summary (m^3/s)

	SWMF 4		SWMF 5	
Area (ha)	**Controlled Flow Rate**	**Required Storage**	**Controlled Flow Rate**	**Required Storage**
2 yr	0.144	12,062	0.377	11,705
5 yr	0.221	15,867	0.574	16,380
10 yr	0.274	18,609	0.703	19,163
25 yr	0.345	22,063	0.890	22,599
50 yr	0.406	24,594	1.014	25,191
100 yr	0.455	27,193	1.167	27,752
Regional	3.460	56,656	4.228	59,405

As outlined in **Section 5.2.1** and shown on **Figure 5.2**, Drainage Area 2401 will drain uncontrolled to Culvert #10 at Outlet 4, and Drainage Areas 2502 and 2503 will drain uncontrolled to Culvert #11 at Outlet 5. **Tables 6.7** and **6.8** below provide a comparison of the existing and total proposed flows at Outlets 4 and 5, respectively, including the uncontrolled flows to ensure the target flow rates are not exceeded.

Table 6.7: Outlet 4 – Flow Comparison (m^3/s)

Area (ha)	Target Flow Rate	Uncontrolled Flow	Controlled Flows	Total Peak Flows
2 yr	0.151	0.033	0.144	0.148
5 yr	0.231	0.077	0.221	0.228
10 yr	0.285	0.091	0.274	0.282
25 yr	0.358	0.108	0.345	0.355
50 yr	0.418	0.121	0.406	0.417
100 yr	0.472	0.135	0.455	0.469
Regional	3.597	0.191	3.460	3.529

Table 6.8: Outlet 5 – Flow Comparison (m^3/s)

Area (ha)	Target Flow Rate	Uncontrolled Flow	Controlled Flows	Total Peak Flows
2 yr	0.393	0.053	0.377	0.392
5 yr	0.599	0.131	0.574	0.599
10 yr	0.739	0.165	0.703	0.734
25 yr	0.930	0.212	0.890	0.928
50 yr	1.081	0.248	1.014	1.064
100 yr	1.225	0.284	1.167	1.223
Regional	4.615	0.588	4.228	4.574

As shown in **Tables 6.7** and **6.8** the proposed flows to Outlets 4 and 5 will be less than or equal to the targets established through the Phase 1 LSS, and therefore the quantity control criteria will be achieved.

6.4.4 General SWM Facility Design Characteristics

Preliminary SWM facility grading is provided on **Figures 6.2** and **6.3**. The pond block size was established based on the following general criteria:

- A maximum pond side slope of 4:1 where the pond backs on to rear yard lot line, road system of valley
- 7:1 slope for 0.50 m below the permanent pool
- A 5.0 m maintenance access road to provide access to the inlet, outlet and forebay;
- A berm with a minimum top width of 2.0 m;

The design of the facility will include the following elements, which will be sized through detailed design:

- A bottom draw, reverse grade perforated outlet pipe to draw cool water from the bottom of the pond (the sizing of the outlet will be completed during the detailed design phase);
- An emergency spillway sized for the uncontrolled Regional storm event should the outlet become blocked;
- A forebay berm to enhance sediment removal.

6.4.5 SWM Facility Geotechnical Considerations

The borehole findings in the vicinity of the SWM Facilities indicated that soils generally consist of glacial till with bedrock found in Boreholes 36 and 39, refer to Figure 3.5A of the Phase 1 LSS included in **Appendix B1** for the borehole location plan. The ground water in this area ranges from 0.4 m to 2.4 m below existing grade. A geotechnical review is to be conducted to provide additional recommendations to determine the need for liner requirements at detailed design.

In general, the side slopes for the SWM Facility should not exceed 3:1 above the permanent pool, and 4:1 below. Refer to **Appendix B1** for excerpts from the Draft Geotechnical Investigation (Soil Engineers Ltd., October 2025).

7.0 Sanitary Servicing

7.1 Existing Sanitary Sewer System

As noted in the Phase 1 LSS (SCS and GEI), there are no existing sanitary sewers within the WVSP Area or on the arterial roads immediately surrounding the WVSP Area. An existing 1200 mm diameter sanitary sewer is located on The Gore Road approximately 615 m south of Mayfield Road. The existing sanitary sewer system is illustrated on **Figure 7.1.**

7.2 Proposed Sanitary Sewer System

The Wildfield Secondary Plan Area, which includes the Subject Lands, will be serviced via several connections to the future wastewater main on The Gore Road (project T-085) at each of the proposed collector road intersections and at Mayfield Road as illustrated on Figure 5.3 of the Phase 2 LSS included in **Attachment B2**.

The preliminary layout for the proposed sanitary sewer within the subject lands is provided on **Figure 7.1**. The sanitary sewer system will connect into the future sanitary sewer to be provided on The Gore Road at Prop. SAN MH.3AX, where a proposed plug is to be provided as illustrated on Drawing PP05-D, prepared by Schaeffers Consulting Engineers, included in **Appendix B4**. The sanitary sewers within the proposed development will have slopes ranging between 0.5% and 2% (typically) and will be provided at 3.3 m to 5 m deep.

The proposed sanitary sewer will servicing the subject property, along with external lands within the WVSP Area, and will be further discussed through the ongoing CSSS work. The total proposed populations for the subject development and future populations of within the WVSP Area have been illustrated on **Figure 7.1** , with the total future sanitary flows and sewer sizing being prepared through the Phase 2 LSS (GEI and SCS, January 2025). Refer to the sanitary sewer design calculations for the WVSP Area, included in **Appendix B2**.

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: 290 L/c/d,
- Commercial Sanitary Generation Rate: 270 L/emp/ha
- Population Density:
  - Single detached: 4.2 person/unit,
  - Semi-detached: 4.2 person/unit,
  - Townhouse: 3.4 person/unit,
  - Large Apartment (greater than 1 bedroom): 3.1 person/unit,

- Small Apartment (less than or equal to 1 bedroom): 1.7 person/unit,

- Peaking Factor: Harmon (Max. 4.0),
- Infiltration Rate: 0.26 L/s/ha,
- Minimum Pipe Size: 200 mm diameter,
- Minimum Pipe Cover: 2.5 m below centerline road elevation,
- Minimum Actual Velocity: 0.75 m/s, and
- Maximum Velocity: 3.0 m/s.

8.0 Water Supply and Distribution

8.1 Existing Water Distribution

As noted in the Phase 1 LSS, there are existing watermains on several arterial roads surrounding the WVSP Area including: a 200 mm diameter watermain on Centreville Creek Road, Healey Road, and The Gore Road; and a 300 mm diameter watermain, 600 mm diameter watermain (Pressure Zone 5) which will service elevations between 182.4 m – 236.2 m, and 750 mm diameter watermain (Pressure Zone 6) on Mayfield Road which will service elevations 214.5 m – 259.1 m. Refer to Figure 5.4 from the Phase 2 LSS (SCS and GEI) included in **Attachment B2.**

8.2 Water System

Water servicing for the Subject Lands will be provided by the distribution mains planned by the Region with connections to the existing 600 mm diameter watermain (Pressure Zone 5) on Mayfield Road and the future 600 mm diameter watermain (Pressure Zone 5) on The Gore Road, refer to Drawing PP05-D and PP06-D, prepared by Schaeffers Consulting Engineers, included in **Appendix B4** and will be further discussed through the ongoing CSSS work. The existing and proposed watermain system is illustrated on **Figure 8.1**.

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,
- Commercial water usage rate: 300 L/emp/ha,
- Population Density:
  - Single detached: 4.2 person/unit,
  - Semi-detached: 4.2 person/unit,
  - Townhouse: 3.4 person/unit,
  - Large Apartment (greater than 1 bedroom): 3.1 person/unit,
  - Small Apartment (less than or equal to 1 bedroom): 1.7 person/unit,
- Minimum Pipe Size: 150 mm diameter,
- Minimum Pipe Depth: 1.7 m, and
- Maximum Hydrant Spacing: 150 m.

MES Engineering is currently undergoing an analysis to model the domestic and water demands for the site, and provide watermain sizing recommendations through the subject development.

9.0 Erosion and Sediment Control During Construction

During the detailed design stage, erosion and sediment control measures will be designed with a focus on erosion control practices (such as stabilization, track walking, staged earthworks, etc.) as well as sediment controls (such as fencing, mud mats, catchbasin sediment control devices, rock check dams and temporary sediment control ponds). These measures will be designed and constructed as per the Erosion and Sediment Control Guide for Urban Construction (TRCA, 2019).

A detailed erosion and sediment control plan will be prepared for review and approval by the Town of Caledon and Toronto and Region Conservation Authority prior to any proposed 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 watercourses and properties are minimized both during and following construction.

10.0 Summary

This Functional Servicing and Stormwater Management Report has been prepared in support of the Draft Plan of Subdivision application for the proposed residential development within the Wildfield Village Secondary Plan Area, 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, Toronto and Region Conservation Authority, Peel Region and the Ministry of Environment, Conservation and Parks design criteria and policies.

General Information

- The existing subject lands are comprised of agricultural land and open space areas;
- The proposed development is located in the West Humber River watershed; and
- The proposed development consists of single family residential, lane townhouses, a park, medium density residential, two (2) stormwater management blocks and an environmental protection block.

Grading

- The proposed development grading has been developed to match to the existing surrounding grades, and provide conveyance of stormwater runoff, including external drainage; and
- The site grading will be subject to further grading design at the detailed design stage.

Rights-of-Way and Sidewalks

- 18.0 m and 26.0 m rights-of-way are proposed throughout the development; and
- Sidewalks are to be provided on the northern/eastern boulevard, or whichever boulevard services more lots.

Storm Drainage and Storm Servicing

- Storm Servicing:
  - Storm runoff from the development will be conveyed by storm sewers designed in accordance with Town and MECP criteria;
  - Storm sewers will generally be designed for the 10 year storm event, and will convey 100 year flows from external drainage areas to SWMF 4 and SWMF 5; and
  - Adequate 100 year overland flow routes will be provided.

- Existing external drainage will be accommodated through the proposed development via a municipal storm sewer.
- Foundation drain collector sewers are proposed across the site in order to convey foundation and roof drainage to both existing and proposed wetland features, and to provide gravity connections for foundation drains where adequate cover over the storm sewer is not provided.

Stormwater Management

- The SWM Plan includes two (2) end-of-pipe SWM facilities (wet ponds) and the following LID measures: increased topsoil, rear yard infiltration trenches, disconnected roof leaders to pervious surfaces and foundation drain collectors to wetland features.
- Quality Control: MOE (2003) Enhanced water quality protection will be provided through the use of wet pond SWM facilities;
- Erosion Control: The SWM facilities will mitigate the increase of erosion threshold exceedances and duration by providing extended detention. An erosion analysis is to be completed as part of the Comprehensive SWM and Servicing Study to establish extended detention volumes and detention times; and
- Quantity Control: Quantity control will be provided via two (2) SWM facilities to control proposed runoff rates for the 2 through 100 year and Regional storm events to the allowable target release rates.

Sanitary Servicing

- There is no existing sanitary infrastructure within or immediately surrounding the WVSP Area, there is an existing 1200 mm diameter sanitary sewer located on The Gore Road approximately 615 m south of Mayfield Road.
- The WVSP Area will be serviced through connections to the future wastewater main on The Gore Road (project T-085) which is currently being constructed.

Water Supply and Distribution

- There are several existing municipal watermains within The Gore Road and Mayfield Road adjacent to the subject development;
- The development is proposed to be serviced through connection to the existing 600 mm diameter watermain on Mayfield Road and the future 600 mm diameter watermain on The Gore Road;
- MES Engineering is undergoing a watermain hydraulic analysis to show that there is sufficient domestic and fire flows to service the development; and

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 2019).

Respectfully Submitted:

SCS Consulting Group Ltd.

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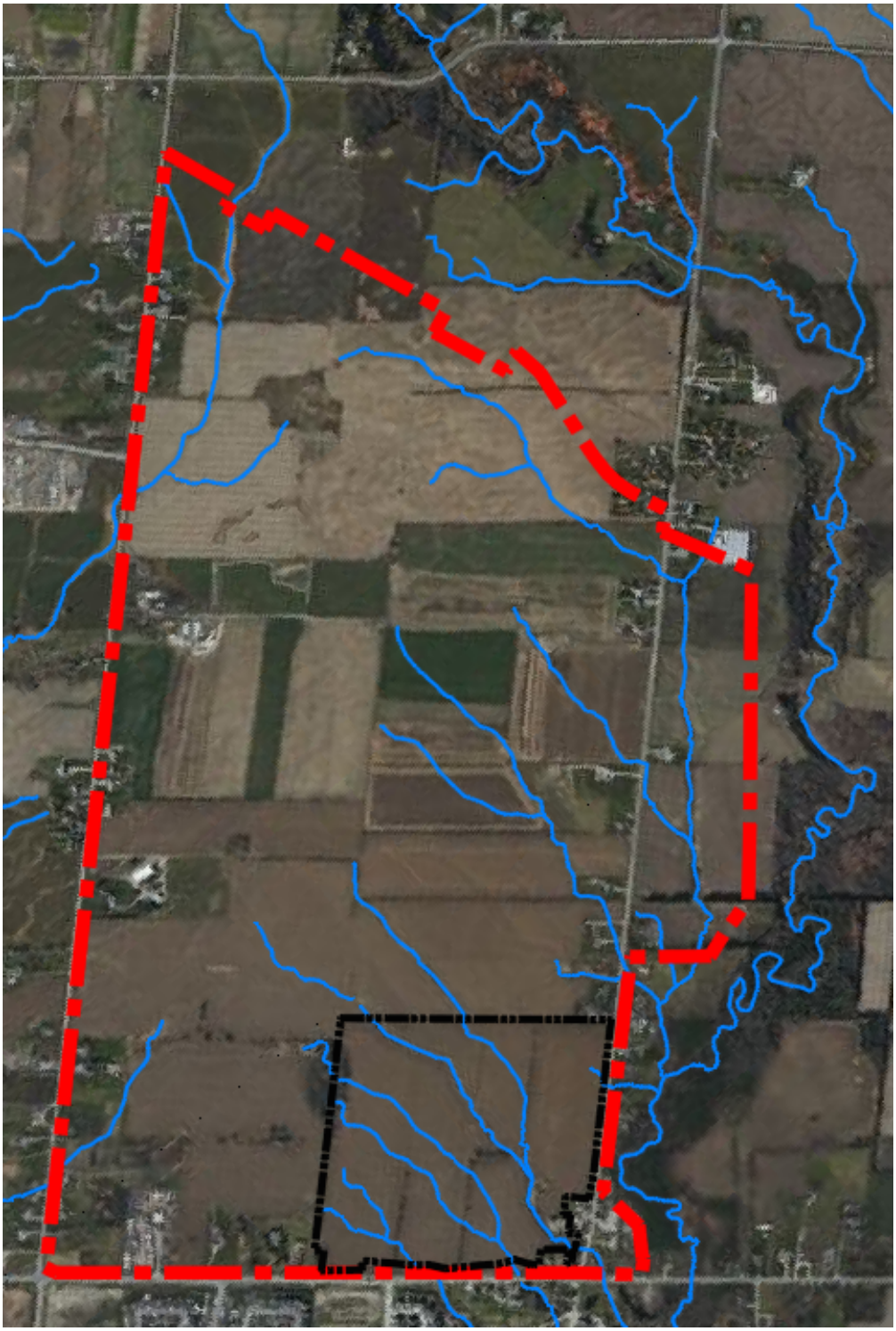
Figures

SCS consulting group ltd



30 CENTURIAN DRIVE, SUITE 100
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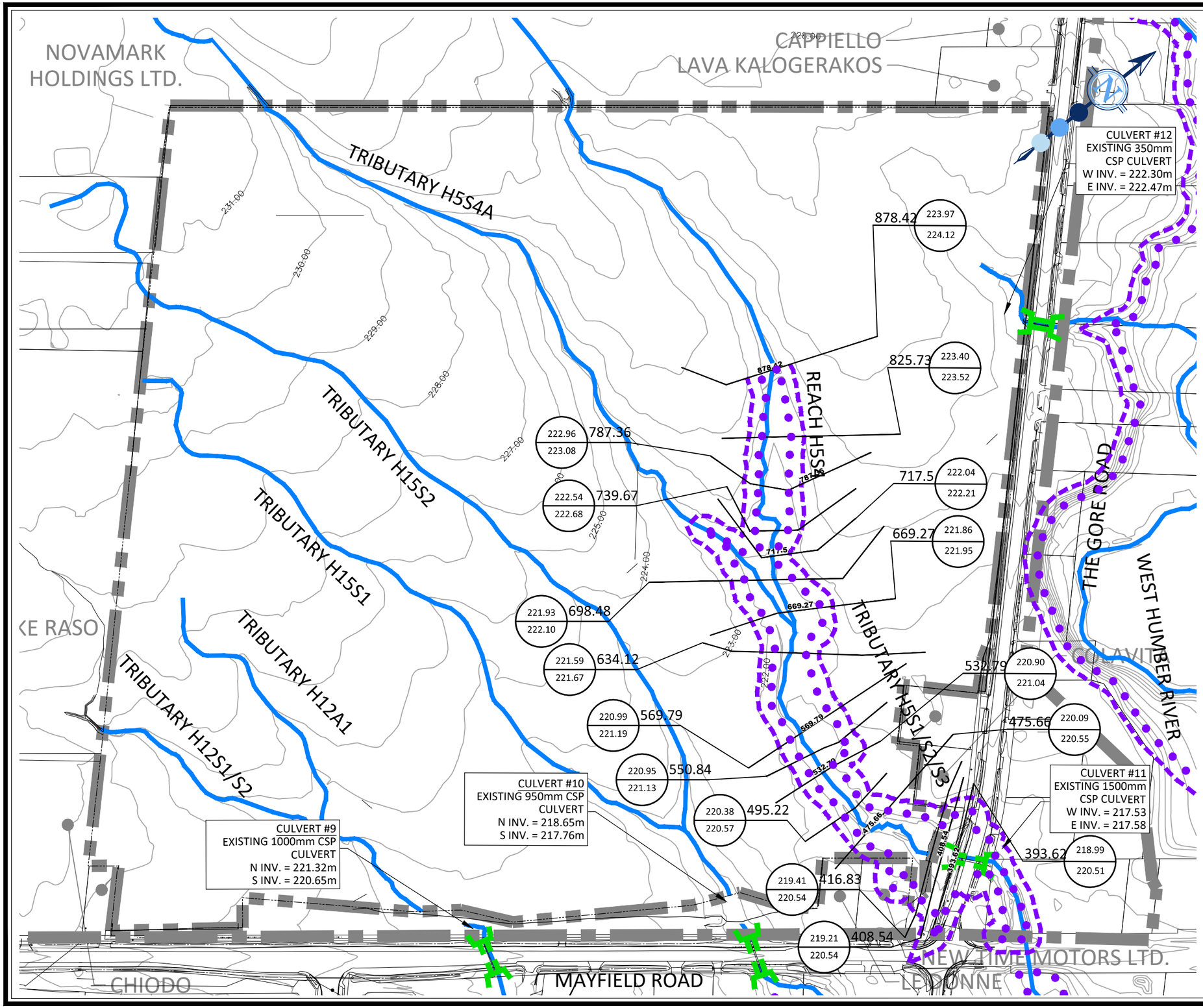
WILDFIELD - TRINITY FIELD

FSSR

KEY PLAN

DESIGNED BY: R.B.	CHECKED BY: A.K.	PROJECT No: 2709	FIGURE No: 1.1
SCALE: N.T.S.	DATE: OCTOBER 2025		



LEGEND:

- LIMIT OF SUBJECT LANDS
- LIMIT OF WILDFIELD VILLAGE SECONDARY PLAN
- 230.00 — EXISTING CONTOUR AND ELEVATION
- WATERCOURSE (TRCA, 2018)
- UPDATED REGULATORY FLOODLINE (SCS, 2025)
- UPDATED REGULATORY FLOODLINE (SCS, 2025) + 10m SETBACK
- 223.97 / 224.12 / 878.42 — EXISTING 100 YEAR FLOOD ELEVATION; HYDRAULIC SECTION ID; EXISTING REGULATORY FLOOD ELEVATION
- FLOODLINE ELEVATION LEADER
- HEC-RAS CROSS-SECTION

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

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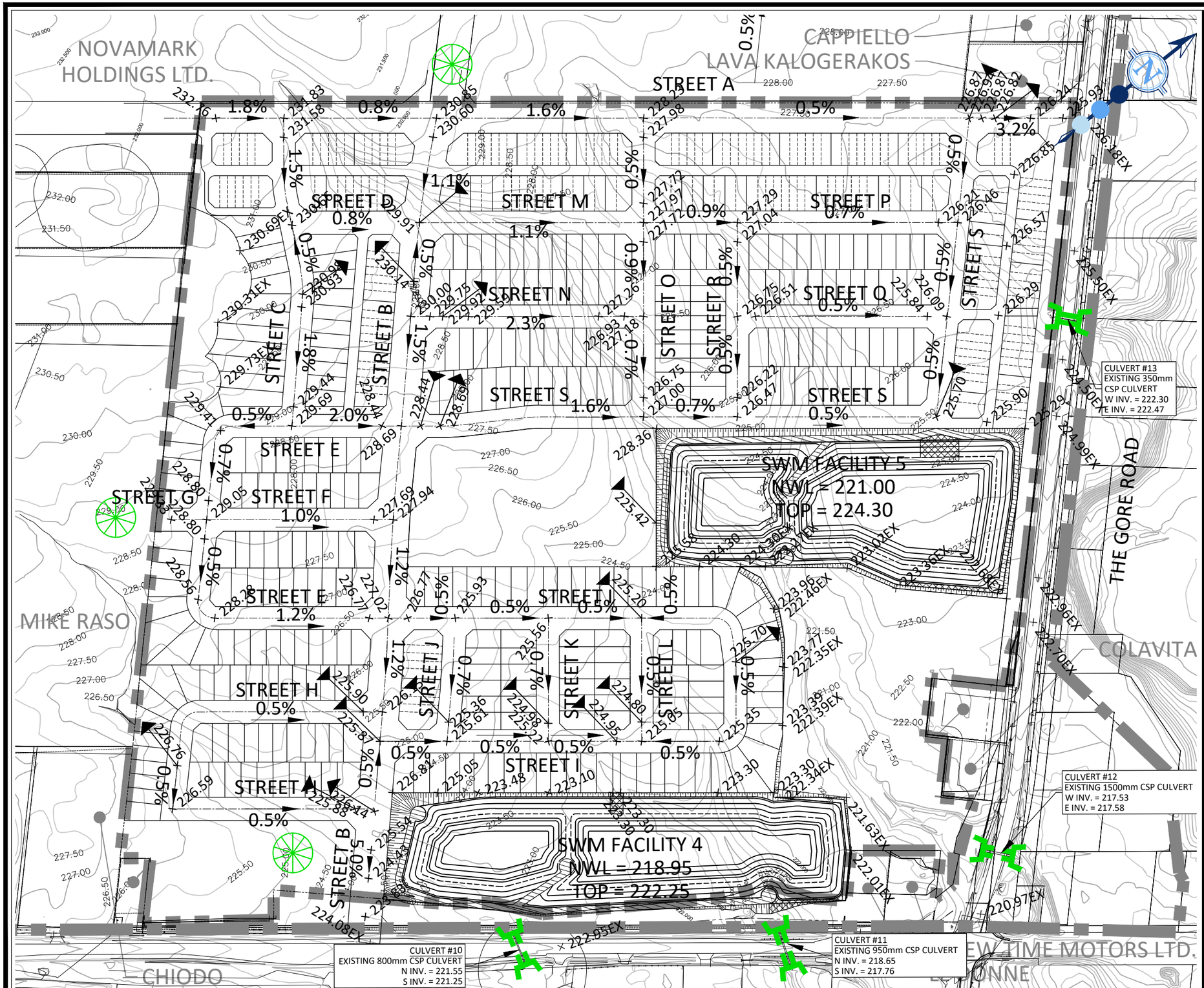
EXISTING FLOODPLAIN MAPPING

DESIGNED BY:	R.B.	CHECKED BY:	N.M.
SCALE:	1:3000	DATE:	OCTOBER 2025
PROJECT No:	2709	FIGURE No:	3.1



LEGEND:

- LIMIT OF DEVELOPMENT
- LIMIT OF WILDFIELD VILLAGE SECONDARY PLAN
- 230.00 — EXISTING CONTOUR AND ELEVATION
- MAX 3:1 SLOPE
- × 223.91 — PROPOSED ELEVATION
- × 224.35EX — EXISTING ELEVATION
- 1.1% — PROPOSED SLOPE
- 100 YEAR CAPTURE LOCATION
- EXISTING CULVERT

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

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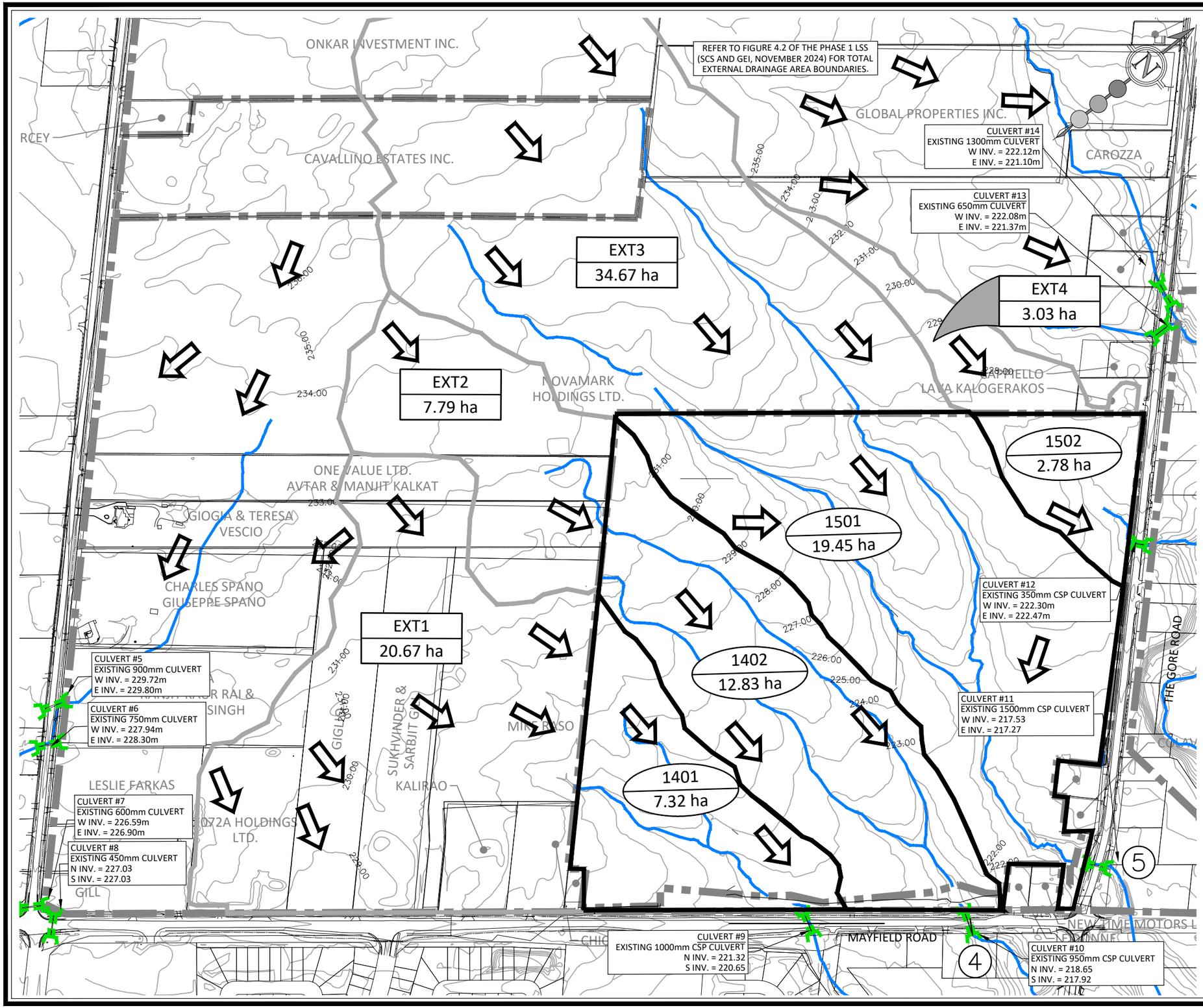
PRELIMINARY GRADING PLAN

DESIGNED BY:	R.B.	CHECKED BY:	N.M.
SCALE:	1:3000	DATE:	OCTOBER 2025
PROJECT No:	2709	FIGURE No:	3.2



LEGEND:

- LIMIT OF SUBJECT LANDS
- LIMIT OF WILDFIELD VILLAGE SECONDARY PLAN
- 230.00 — EXISTING CONTOUR AND ELEVATION
- STORM DRAINAGE BOUNDARY
- EXTERNAL STORM DRAINAGE BOUNDARY
- WATERCOURSE (TRCA, 2018)
- OVERLAND FLOW DIRECTION
- EXISTING CULVERT
- 101 / 7.32 ha — DRAINAGE AREA ID; DRAINAGE AREA (HECTARES)
- EXT1 / 20.67 ha — EXTERNAL DRAINAGE AREA ID; EXTERNAL STORM DRAINAGE AREA (HECTARES)
- 4 — OUTLET ID

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

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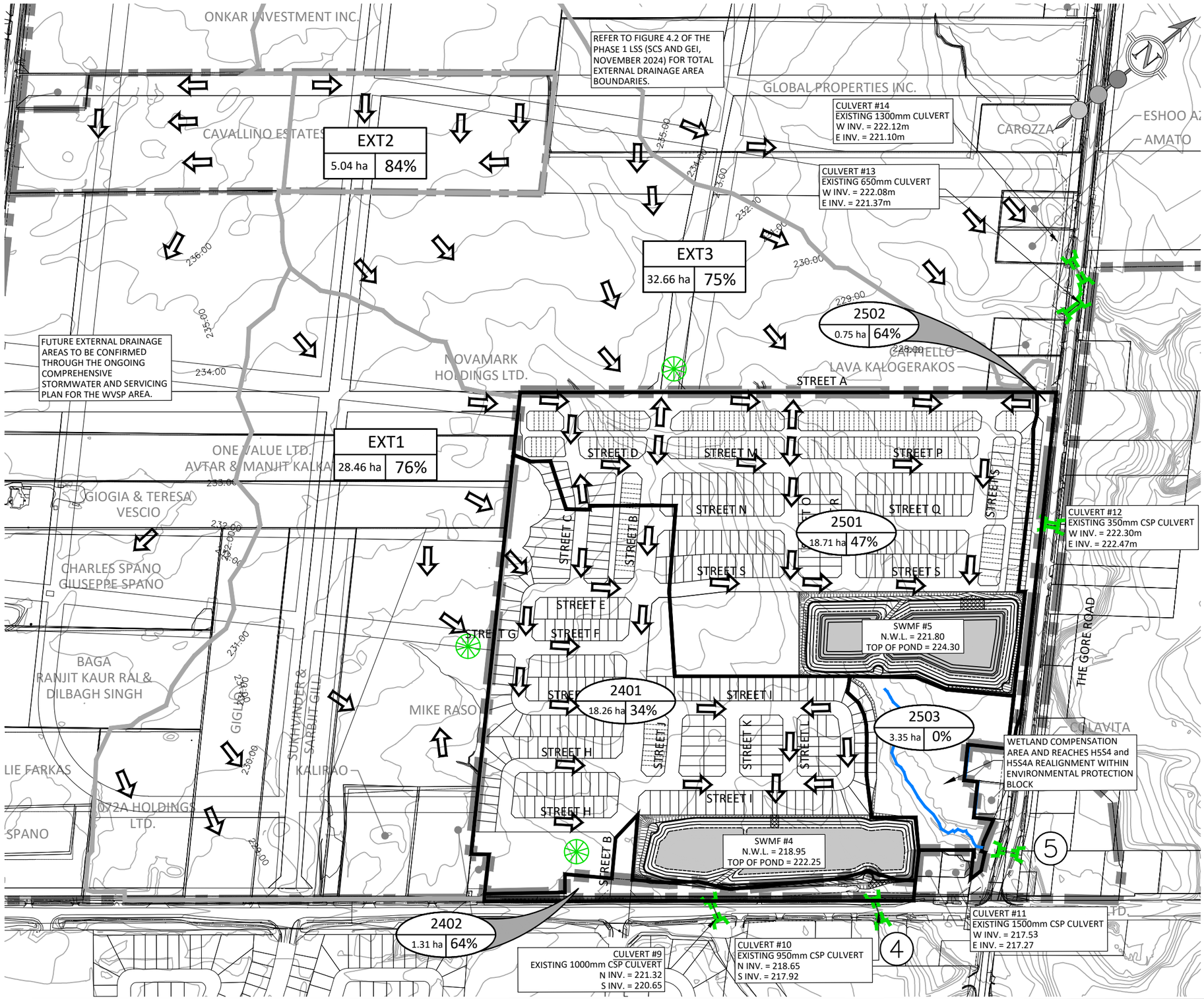
WILDFIELD - TRINITY FIELD

FSSR

EXISTING STORM DRAINAGE PLAN

DESIGNED BY:	R.B.	CHECKED BY:	A.K.
SCALE:	1:5000	DATE:	OCTOBER 2025
PROJECT No:	2709	FIGURE No:	5.1



LEGEND:

- LIMIT OF SUBJET LANDS
- LIMIT OF WILDFIELD VILLAGE SECONDARY PLAN
- 230.00 — EXISTING CONTOUR AND ELEVATION
- STORM DRAINAGE BOUNDARY
- EXTERNAL STORM DRAINAGE BOUNDARY
- OVERLAND FLOW DIRECTION
- EXISTING CULVERT
- 201 / 20.15 ha / 76% — DRAINAGE AREA ID; PERCENT (%) IMPERVIOUS; DRAINAGE AREA (HECTARES)
- EXT1 / 28.46 ha / 76% — DRAINAGE AREA ID; PERCENT (%) IMPERVIOUS; EXTERNAL STORM DRAINAGE AREA (HECTARES)
- EXISTING WATERCOURSE TO BE MAINTAINED (H5S1, H5S2, H5S3)
- 1 — OUTLET ID
- 100 YEAR CAPTURE LOCATION

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

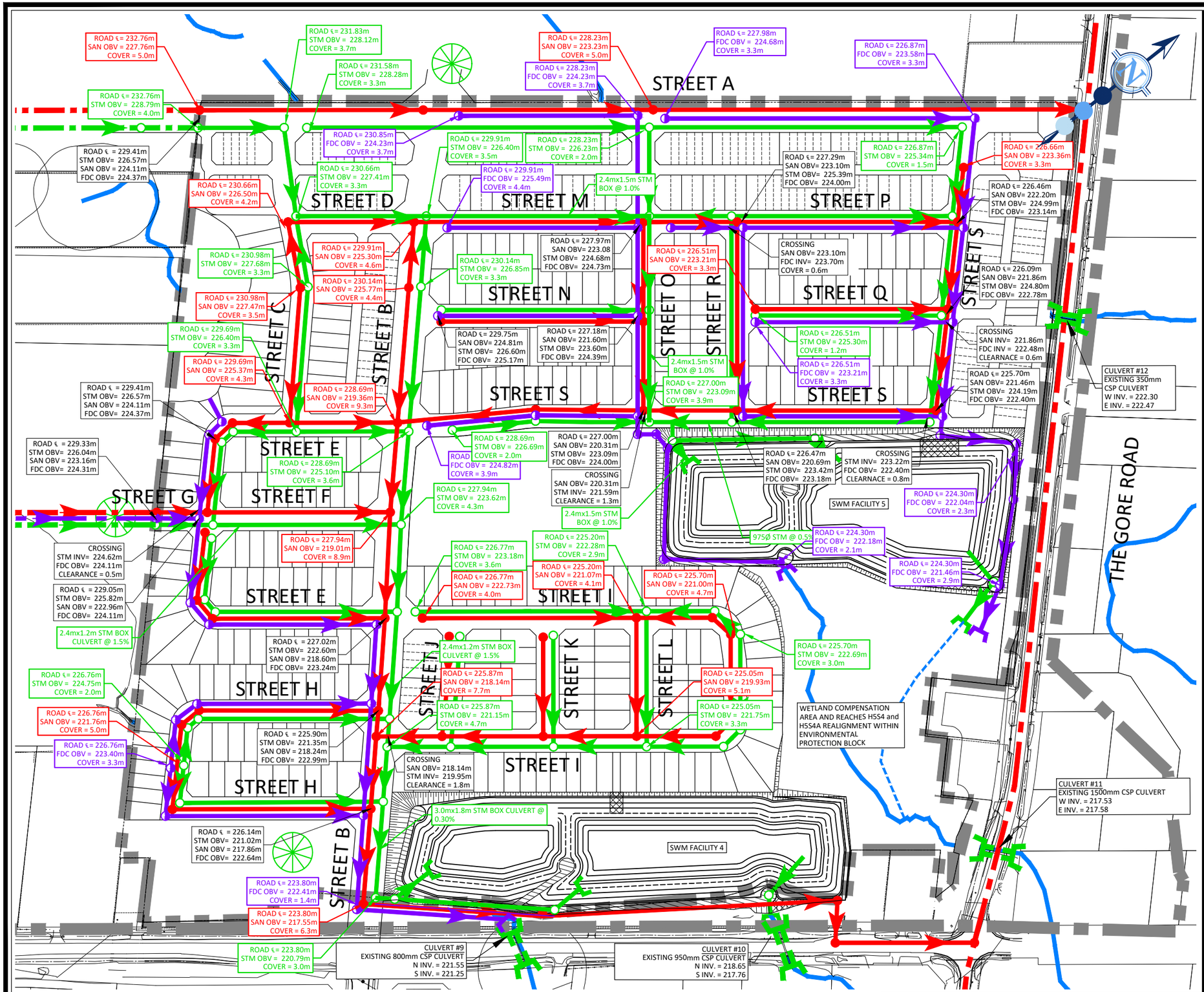
SCS consulting group ltd
30 CENTURIAN DRIVE, SUITE 100
MARKHAM, ONTARIO L3R 8B8
TEL: (905) 475-1900
FAX: (905) 475-8335

WILDFIELD - TRINITY FIELD

FSSR

PROPOSED STORM DRAINAGE PLAN

DESIGNED BY:	R.B.	CHECKED BY:	A.K.
SCALE:	1:5000	DATE:	OCTOBER 2025
PROJECT No:	2709	FIGURE No:	5.2



LEGEND:

- LIMIT OF SUBJECT LANDS
- LIMIT OF WILDFIELD VILLAGE SECONDARY PLAN
- 230.00 — EXISTING CONTOUR AND ELEVATION
- STORM SEWER AND MAINTENANCE HOLE
- FUTURE STORM SEWER AND MAINTENANCE HOLE
- SANITARY SEWER AND MAINTENANCE HOLE
- FUTURE SANITARY SEWER AND MAINTENANCE HOLE (UNDER CONSTRUCTION)
- FOUNDATION DRAIN COLLECTOR SEWER AND MAINTENANCE HOLE
- FUTURE UNDATION DRAIN COLLECTOR SEWER AND MAINTENANCE HOLE
- 100 YEAR CAPTURE LOCATION
- WATERCOURSE (TRCA, 2018)
- PROPOSED HEADWATER DRAINAGE FEATURE REMOVAL COMPENSATION (BY OTHERS)

SERVICING CONNECTIONS TO ADJACENT LANDS WITHIN THE WVSP AREA TO BE CONFIRMED THROUGH ON GOING COMPREHENSIVE SERVICING AND STORMWATER MANAGEMENT STUDY

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

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FAX: (905) 475-8335

WILDFIELD - TRINITY FIELD INC.

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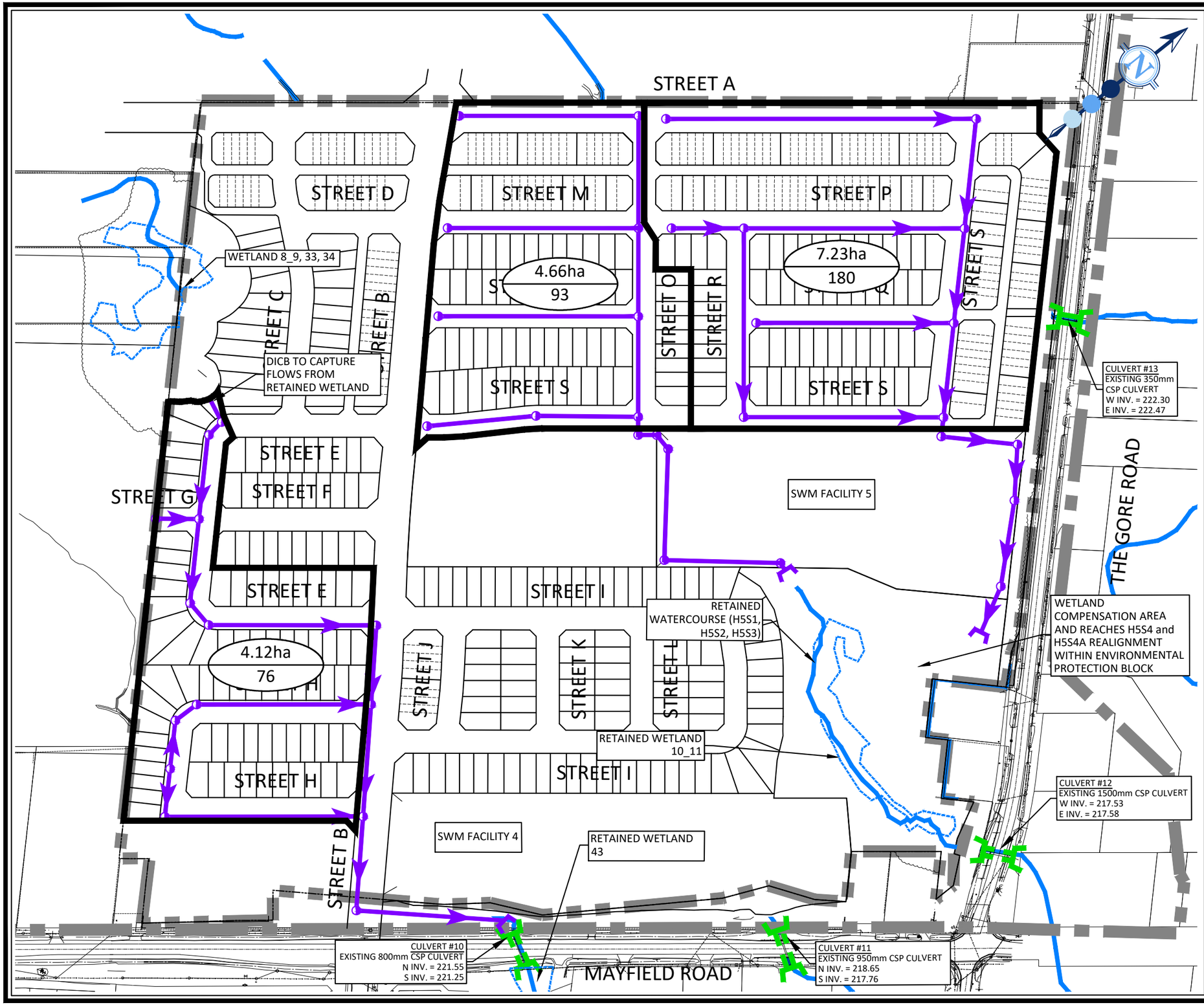
PRELIMINARY SERVICING PLAN

DESIGNED BY:	R.B.	CHECKED BY:	N.M.
SCALE:	1:3000	DATE:	OCTOBER 2025
PROJECT No:	2709	FIGURE No:	5.3

File: P:\2709 Wildfield – Trinison\Drawings\FSP\Fig\Report Figures\2709P–5.3–SERV.dwg – Revised by <SOZDEMIR> : Wed, Oct 22 2025 – 12:38pm



LEGEND:

- LIMIT OF SUBJECT LANDS
- LIMIT OF WILDFIELD VILLAGE SECONDARY PLAN
- FOUNDATION DRAIN COLLECTOR SEWER AND MAINTENANCE HOLE
- FDC DRAINAGE BOUNDARY
- OVERLAND FLOW
- 0.04ha / 104 — DRAINAGE AREA (HECTARES) / NUMBER OF UNITS
- EXISTING WATERCOURSE
- EXISTING WETLAND BOUNDARIES

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

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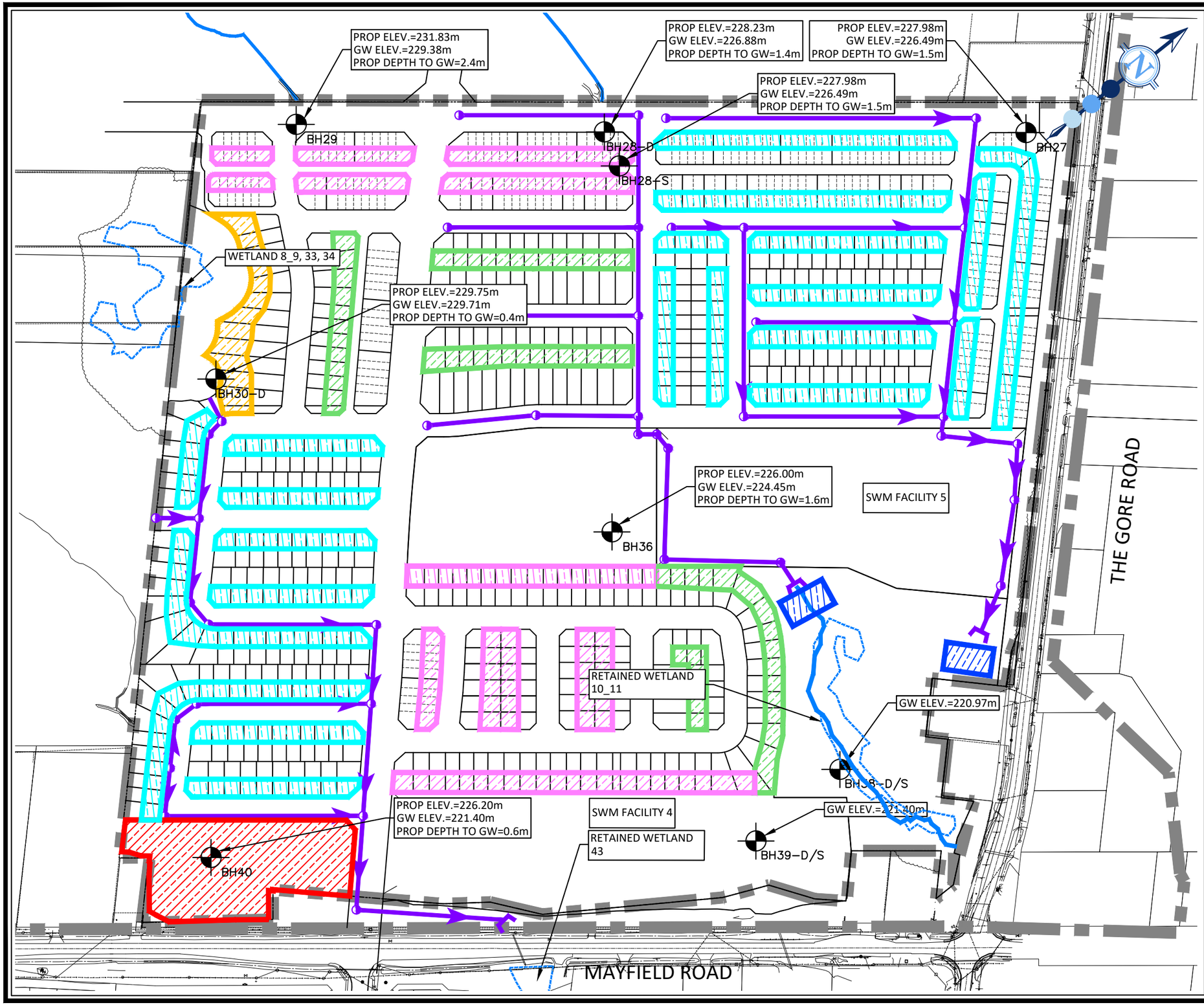
FOUNDATION DRAIN COLLECTOR DRAINAGE PLAN

DESIGNED BY:	R.B.	CHECKED BY:	N.M.
SCALE:	1:3000	DATE:	OCTOBER 2025
PROJECT No:	2709	FIGURE No:	5.4

File: P:\2709 Wildfield – Trinison\Drawings\FSP\Fig\Report Figures\2709P–5.4–FDC.dwg – Revised by <JNELLAS> : Wed, Oct 29 2025 – 1:58pm



LEGEND:

- LIMIT OF SUBJECT LANDS
- LIMIT OF WILDFIELD VILLAGE SECONDARY PLAN
- DISCONNECTED ROOFLEADER TO PERVIOUS SURFACES
- REAR ROOF LEADER TO INFILTRATION TRENCH
- DISCONNECTED REAR ROOF LEADER TO NHS/WETLAND
- LID'S TO BE EVALUATED THROUGH SITE PLAN APPLICATION
- ROOFLEADERS AND FOUDNATION DRAINS CONNECTED TO FDC DISCHARGING TO WETLANDS
- WETLAND COMPENSATION AREA AT FDC OUTFALL
- EXISTING WATERCOURSE
- EXISTING WETLAND BOUNDARIES

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

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MARKHAM, ONTARIO L3R 8B8
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FAX: (905) 475-8335

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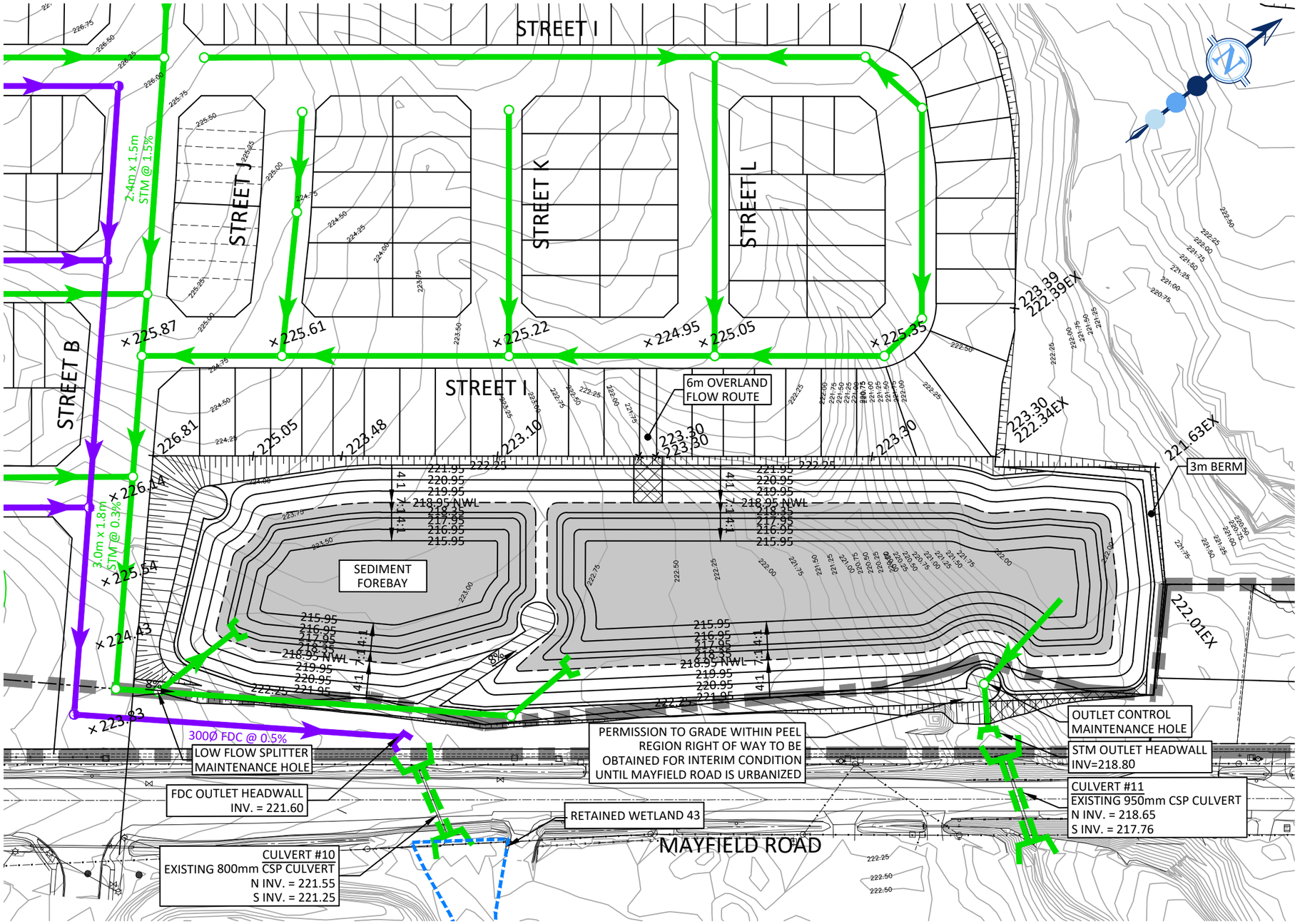
PRELIMINARY L.I.D. LOCATION PLAN

DESIGNED BY:	R.B.	CHECKED BY:	N.M.
SCALE:	1:3000	DATE:	OCTOBER 2025
PROJECT No:	2709	FIGURE No:	6.1



LEGEND:

- LIMIT OF SUBJECT LANDS
- LIMIT OF WILDFIELD VILLAGE SECONDARY PLAN
- STORM SEWER AND MAINTENANCE HOLE
- FOUNDATION DRAIN COLLECTOR SEWER AND MAINTENANCE HOLE
- EXISTING CULVERT
- 204.00 NWL — NORMAL WATER LEVEL CONTOUR AND ELEVATION
- 204.00 — PROPOSED CONTOUR AND ELEVATION
- 3:1 — PROPOSED POND SLOPE
- MAINTENANCE ACCESS ROAD
- PERMANENT POOL

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

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FAX: (905) 475-8335

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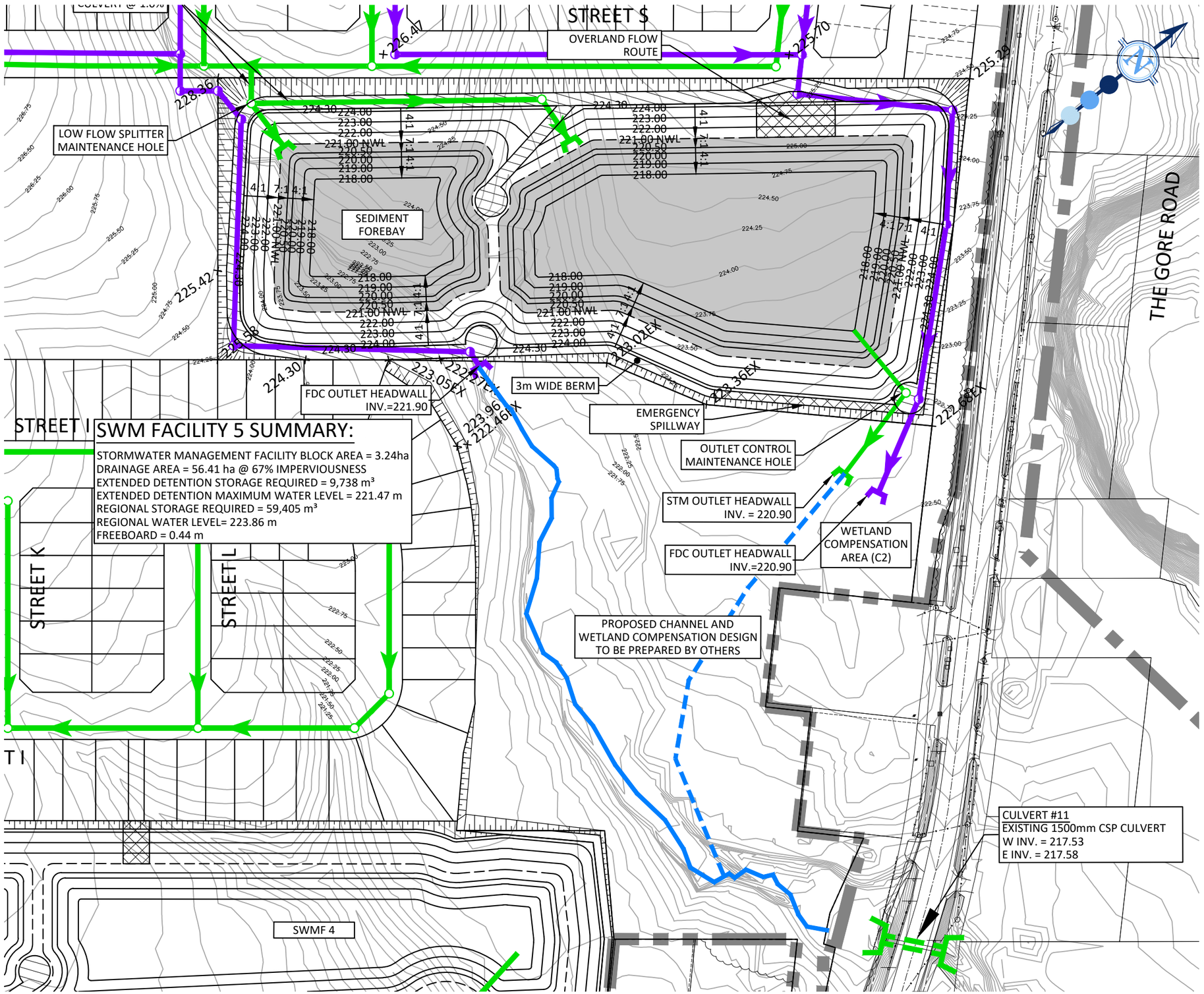
STORMWATER MANAGEMENT FACILITY 4

SWM FACILITY 4 SUMMARY:

STORMWATER MANAGEMENT FACILITY BLOCK AREA = 3.03ha
DRAINAGE AREA = 46.72 ha @ 60% IMPERVIOUSNESS
EXTENDED DETENTION STORAGE REQUIRED =7,638 m^3
EXTENDED DETENTION MAXIMUM WATER LEVEL = 219.31 m
REGIONAL STORAGE REQUIRED = 56,656 m^3
REGIONAL WATER LEVEL= 221.61 m
FREEBOARD = 0.64 m

DESIGNED BY:	R.B.	CHECKED BY:	E.K.
SCALE:	1:1500	DATE:	OCTOBER 2025
PROJECT No:	2709	FIGURE No:	6.2



SWM FACILITY 5 SUMMARY:

STORMWATER MANAGEMENT FACILITY BLOCK AREA = 3.24ha
DRAINAGE AREA = 56.41 ha @ 67% IMPERVIOUSNESS
EXTENDED DETENTION STORAGE REQUIRED = 9,738 m³
EXTENDED DETENTION MAXIMUM WATER LEVEL = 221.47 m
REGIONAL STORAGE REQUIRED = 59,405 m³
REGIONAL WATER LEVEL= 223.86 m
FREEBOARD = 0.44 m

LEGEND:

- LIMIT OF SUBJECT LANDS
- LIMIT OF WILDFIELD VILLAGE SECONDARY PLAN
- STORM SEWER AND MAINTENANCE HOLE
- FOUNDATION DRAIN COLLECTOR SEWER AND MAINTENANCE HOLE
- EXISTING CULVERT
- 204.00 NWL — NORMAL WATER LEVEL CONTOUR AND ELEVATION
- 204.00 — PROPOSED CONTOUR AND ELEVATION
- 3:1 — PROPOSED POND SLOPE
- MAINTENANCE ACCESS ROAD
- PERMANENT POOL
- EXISTING WATERCOURSE TO BE MAINTAINED (H5S1, H5S2, H5S3)
- PROPOSED HEADWATER DRAINAGE FEATURE REMOVAL COMPENSATION (BY OTHERS)

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

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

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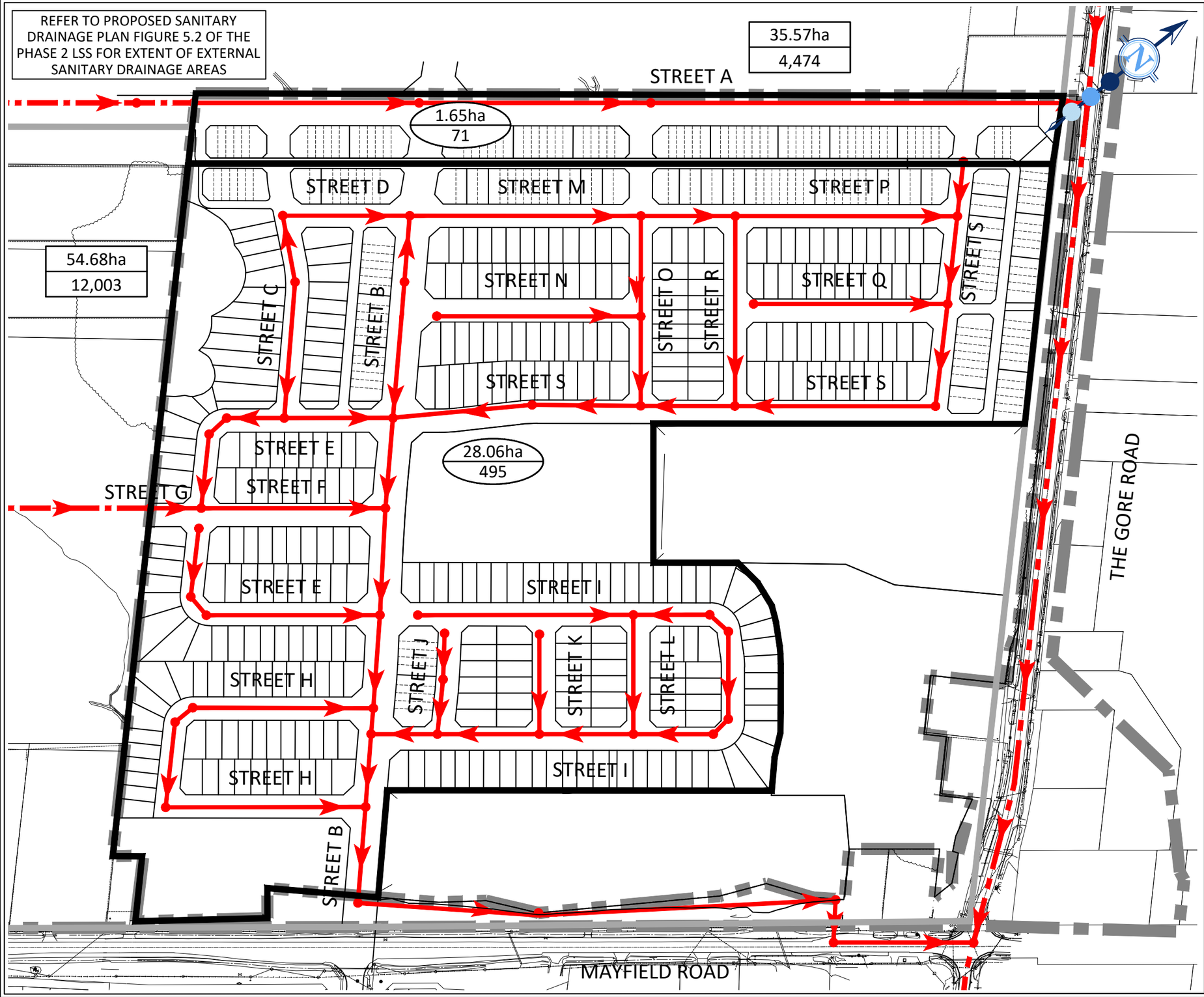
STORMWATER MANAGEMENT FACILITY 5

DESIGNED BY:	R.B.	CHECKED BY:	E.K.
SCALE:	1:1500	DATE:	OCTOBER 2025
PROJECT No:	2709	FIGURE No:	6.3

File: P:\2709 Wildfield – Trinison\Drawings\FSP\Fig\Report Figures\2709P–X.2–POND.dwg – Revised by <SOZDEMIR> : Thu, Oct 16 2025 – 4:22pm

REFER TO PROPOSED SANITARY DRAINAGE PLAN FIGURE 5.2 OF THE PHASE 2 LSS FOR EXTENT OF EXTERNAL SANITARY DRAINAGE AREAS



LEGEND:

- LIMIT OF SUBJECT LANDS
- LIMIT OF WILDFIELD VILLAGE SECONDARY PLAN
- SANITARY DRAINAGE BOUNDARY
- EXTERNAL SANITARY DRAINAGE BOUNDARY
- 0.20ha / 100 — DRAINAGE AREA (HECTARES); CATCHMENT ID OR POPULATION
- SANITARY SEWER AND MAINTENANCE HOLE
- FUTURE SANITARY SEWER AND MAINTENANCE HOLE (UNDER CONSTRUCTION)

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

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FAX: (905) 475-8335

WILDFIELD - TRINITY FIELD INC.

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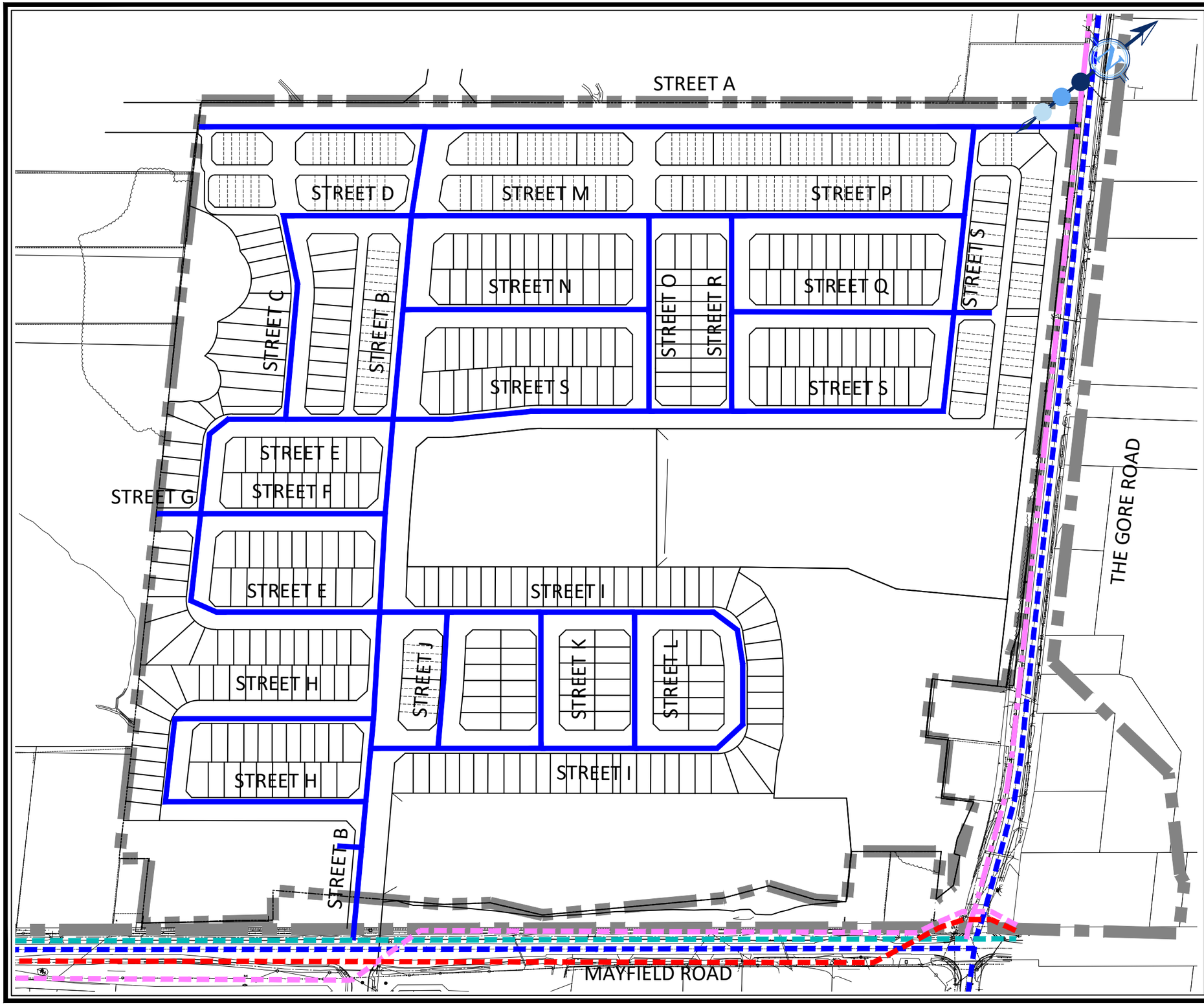
SANITARY DRAINAGE PLAN

DESIGNED BY:	R.B.	CHECKED BY:	N.M.
SCALE:	1:3000	DATE:	OCTOBER 2025
PROJECT No:	2709	FIGURE No:	7.1



LEGEND:

- LIMIT OF SUBJECT LANDS
- LIMIT OF WILDFIELD VILLAGE SECONDARY PLAN AREA
- PROPOSED WATERMAIN
- 200Ø EXISTING WATERMAIN
- 300Ø EXISTING WATERMAIN
- 750Ø EXISTING WATERMAIN (PD6)
- 600Ø EXISTING WATERMAIN (PD5)
- 600Ø FUTURE WATERMAIN (PD5) (UNDER CONSTRUCTION)

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

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TEL: (905) 475-1900
FAX: (905) 475-8335

WILDFIELD - TRINITY FIELD INC.

FSSR

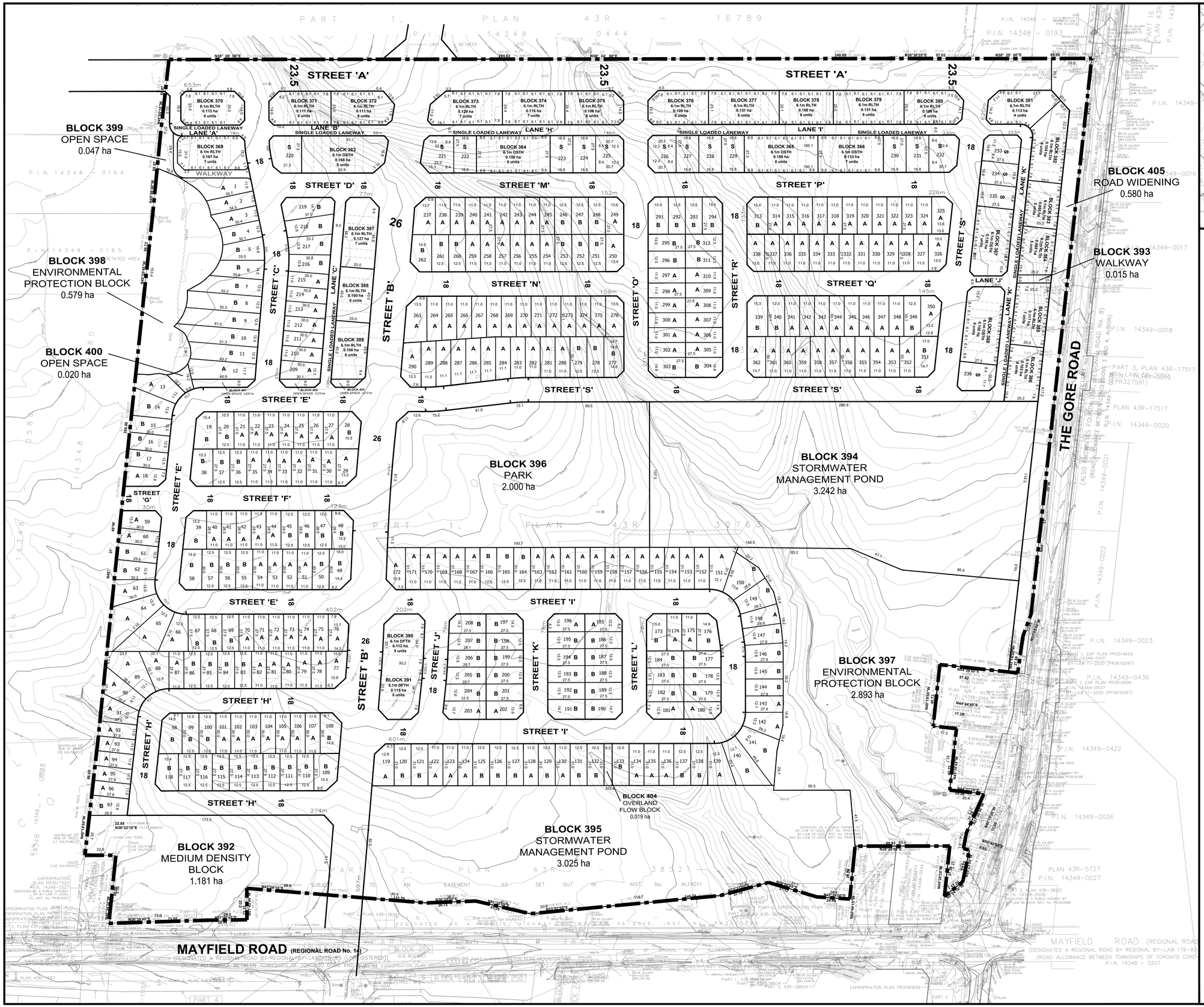
PROPOSED WATERMAIN DISTRIBUTION PLAN

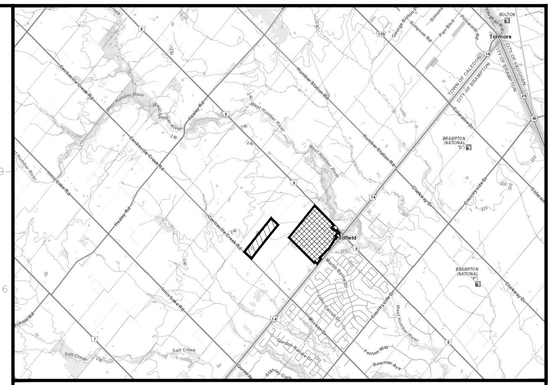
DESIGNED BY:	R.B.	CHECKED BY:	N.M.
SCALE:	1:3000	DATE:	OCTOBER 2025
PROJECT No:	2709	FIGURE No:	8.1

File: P:\2709 Wildfield – Trinison\Drawings\FSP\Fig\Report Figures\2709P–8.1–WTRM.dwg – Revised by <SOZDEMIR> : Thu, Oct 16 2025 – 6:04pm

Appendix A Draft Plan

SCS consulting group ltd





KEYPLAN — Subject Property — Other Lands Owned by Applicant

LAND USE - AREA TABLE	24107-3A	25dp	Sep 26, 2025
Single Family Residential	Lots	1-362	13.430 ha±
On-Street Townhouses	Blocks	363-368	0.893
Rear Lane Townhouses	Blocks	369-389	2.402
Double Frontage Townhouses	Blocks	390-391	0.227
Medium Density Block	Block	392	1.181
Walkway	Block	393	0.015
Stormwater Management Ponds	Blocks	394-395	6.267
Park	Block	396	2.000
Environmental Protection	Blocks	397-398	3.472
Open Space	Blocks	399-403	0.121
Overland Flow Block	Block	404	0.019
Road Widening	Block	405	0.580
Roads and Lanes			10.692
Total			**41.299 ha±**

ROADS			
26.0m Public R.O.W.		597	1.563
23.5m Public R.O.W.		653	1.537
18.0m Public R.O.W.		3,669	6.798
8.0m Public Lane		963	0.795
Total		**5,882**	**10.692 ha**

PRELIMINARY UNIT COUNT			
11.0m Single Detached	A	211	units
12.5m Single Detached	B	134	
8.4m Semi-Detached	S	34	
On-Street Townhouses		46	
Rear Lane Townhouses		131	
Double Frontage Townhouses		10	
Medium Density Apartment Units		TBD*	
Total		**566**	**units***

* Final Unit Count to be determined at the time of Site Plan application

LEGEND

Subject Property

NOTES

All dimensions are in metres.
All area measurements are computer generated.
All elevations refer to Geodetic Datum.

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT

A, B, E, F, G, J, L - As Shown on Plan
C. Additional lands owned by the applicant as shown on the key plan.
D. Residential Singles, Residential Semis, On-Street Townhouses, Rear-Lane Townhouses, Double Frontage Townhouses, Medium Density Blocks, Walkway, Stormwater Management Ponds, Park, Environmental Protection Blocks, Open Space, Roads and Lanes.
H. Piped water to be provided.
I. Clay loam soil.
K. Sanitary & storm sewers to be provided.

SURVEYOR'S CERTIFICATE

I certify that: the boundaries of the lands to be subdivided and their relationship to the adjacent lands are correctly shown.

Shan Goonewardena, O.L.S. — Day — Month — Year
R-PE Surveying Ltd.

OWNER'S AUTHORIZATION

I/we, Trinity Field Inc.
being the registered owner(s) of the subject lands hereby authorize BOUSFIELDs INC. to prepare and submit a draft plan of subdivision for approval.

Mauro Baldassarra — Day — Month — Year

DRAFT PLAN OF
PROPOSED SUBDIVISION
PART OF LOT 1
CONCESSION 3
(GEOGRAPHIC TOWNSHIP OF ALBION)
TOWN OF CALEDON

BOUSFIELDs INC.
3 Church Street, Suite 200
Toronto, Ontario M5E 1M2
P (416) 947-9744
F (416) 947-0781

1 : 1250	September 26, 2025	24107-3A 25dp
Scale	Date	Drawing Number

Appendix B Background Information

SCS consulting group ltd

Appendix B1 Geotechnical and Hydrogeological Assessment Excerpts

SCS consulting group ltd

Soil Engineers Ltd.
CONSULTING ENGINEERS
GEOTECHNICAL • ENVIRONMENTAL • HYDROGEOLOGICAL • BUILDING SCIENCE
90 WEST BEAVER CREEK ROAD, SUITE 100, RICHMOND HILL, ONTARIO L4B 1E7 · TEL: (416) 754-8515 · FAX: (905) 881-8335

BARRIE	MISSISSAUGA	OSHAWA	NEWMARKET	MUSKOKA	HAMILTON
TEL: (705) 721-7863	TEL: (905) 542-7605	TEL: (905) 440-2040	TEL: (905) 853-0647	TEL: (705) 721-7863	TEL: (905) 777-7956
FAX: (705) 721-7864	FAX: (905) 542-2769	FAX: (905) 725-1315	FAX: (905) 881-8335	FAX: (705) 721-7864	FAX: (905) 542-2769

A REPORT TO
TRINITY FIELD INC.

A GEOTECHNICAL INVESTIGATION FOR PROPOSED RESIDENTIAL DEVELOPMENT

NORTHWEST CORNER OF THE GORE ROAD AND MAYFIELD ROAD

TOWN OF CALEDON

REFERENCE NO. 2508-S034

OCTOBER 2025
(2ND REVISION OF REPORT DATED SEPTEMBER 2025)

DRAFT

DISTRIBUTION

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- Ten (10) boreholes by GEI, consisting of Boreholes 27, 28D, 28S, 29, 30D, 30S, 35, 36, 37, 38D, 38S, 39D and 39S and 40, extending to depths of 4.6 m to 6.6 m, completed between April 27 and May 1, 2023.
- Six (6) boreholes, identified with a prefix "25", extending to depths of 5.4 m to 6.6 m, completed on August 20 and 21, 2025.

Monitoring wells, 50 mm in diameter, were installed at Boreholes 25-02, 25-03 and 25-06 for groundwater level monitoring and hydrogeological assessment. Monitoring wells installed at Boreholes 28, 29, 30, 36, 38, 39 and 40 in 2023 by GEI have also been incorporated into this report. The GEI monitoring wells include additional shallow monitoring wells installed at Boreholes 28, 30, 38 and 39. In order to differentiate the shallow and deep monitoring well, a suffix 'S' and 'D' have been assigned to these monitoring wells. The depth and details of the monitoring wells are shown on the corresponding Borehole Logs.

The boreholes were advanced at intervals to the sampling depths by a track-mounted machine with solid-stem augers equipped with split spoon sampler for soil sampling. Standard Penetration Tests, using the procedures described on the enclosed "List of Abbreviations and Terms", were performed at the sampling depths. The test results are recorded as the Standard Penetration Resistance (or 'N' values) of the subsoil. The compactness of the cohesionless strata and the consistency of the cohesive strata are inferred from the 'N' values. Split-spoon samples were recovered for soil classification and laboratory testing.

The field work was supervised and the findings were recorded by a Geotechnical Technician. The ground elevation at each borehole location was obtained by existing Topographic Map provided by Trinity Field Inc.

4.0 SUBSURFACE CONDITIONS

The investigation revealed that beneath a topsoil veneer, the site is underlain by a stratum of silty clay till, with localized deposits of sandy silt till, silty sand till and silt. Shale bedrock was inferred to be present in localized area in 3 boreholes.

Detailed descriptions of the encountered subsurface conditions are presented on the Boreholes Logs presented in Figures 1 to 6, inclusive, and in the Appendix. The revealed stratigraphy in the present investigation is plotted on the Subsurface Profile, Drawing No. 2. The engineering properties of the disclosed soils are discussed herein.

4.1 Topsoil

All boreholes were drilled around the farm field. The revealed topsoil ranges from 10 to 30.5 cm in thickness.

4.2 Silty Clay Till

The silty clay till (classified as "Clay and Silt Glacial Till" in the GEI borehole logs) was encountered in all boreholes. It extends to the borehole depths of 2.3 to 6.6 m from the ground surface and is the predominant soils in the revealed stratigraphy. The clay till consists of a random mixture of particle sizes ranging from clay to gravel, with the silt and clay being the dominant fraction. Sample examination indicates that it contains traces of sand and gravel with occasional sand seams, cobbles and boulders. Grain size analysis was performed on a representative sample of silty clay till in and the result is plotted on Figure 7.

The obtained 'N' values range from 3 to over 100 blows, with a median of 22 blows per 30 cm of penetration, indicating the silty clay till is soft to hard, being generally very stiff in consistency. The surficial silty clay till is weathered, extending to depths ranging from 0.8 to 1.3 m within the native till from the ground surface.

The water content of silty clay till samples range between 6% and 37%, with a median of 18%, indicating damp to wet, generally very moist condition. Atterberg limits was completed in 1 sample of the clay till, having a Liquid Limit of 47% and a Plastic Limit of 23%, indicating the clay till is intermediate in plasticity.

The engineering properties of the silty clay till deposit are presented below:

- High frost susceptibility and high soil-adfreezing potential.
- Low water erodibility.
- It will generally be stable in a relatively steep cut; however, prolonged exposure will allow the fissures in the weathered zone and the wet sand seams and layers to become saturated, which may lead to localized sloughing.

4.3 Sandy Silt Till and Silty Sand Till

The sandy silt till and silty sand till (classified as "Sandy Silt Glacial Till" or "Sand and Silt Glacial Till" in the GEI borehole logs) were contacted beneath the topsoil and silty clay till in Boreholes 25-05, 27, 36, 37, 38 and 39. They extend to the borehole depths of 6.2 to 6.4 m from the ground surface. The tills consist of a random mixture of particle sizes ranging from

clay to gravel, with the sand and silt being the dominant fraction. Sample examination indicates that they contain a trace to some gravel and a trace of clay, with occasional cobbles and boulders. Grain size analysis was performed on a representative sample of the silty sand till and the result is plotted on Figure 8.

The compactness of the deposit is compact to very dense, being generally very dense, as inferred from the 'N' values ranging from 24 to over 100 blows, with a median 66 blows per 30 cm of penetration.

The natural water content of the soil samples ranges from 7% to 21%, with a median of 13%, showing generally moist to wet, generally moist conditions.

The engineering properties of the till deposit are listed below:

- Low frost susceptibility.
- Moderate water erodibility.
- The tills will be stable in relatively steep cuts; however, under prolonged exposure, localized sheet sliding may occur.

4.4 **Silt**

The silt deposit (classified as "Sandy Silt" in the GEI borehole logs) was encountered beneath the topsoil and silty clay till in Boreholes 25-02 and 39. It extends to the borehole depths of 6.1 to 6.4 m from the ground surface. Sample examinations show that the silt contains some clay and a variable amount of sand. Grain size analysis was performed on 1 representative sample of the silt and the result is plotted on Figure 9.

The recorded 'N' values of the silt are over 100 blows per 30 cm of penetration, indicating very dense in compactness. The natural water contents of the silt deposit are 14%, 16%, 17% indicating the silt is in very moist condition.

The engineering properties of the silt deposit are presented below:

- High in frost susceptibility and high soil ad-freezing potential.
- Moderate water erodibility.
- High capillarity and water retention capacity, the wet silt will dilate when disturbed.
- Due to its dilatancy, the shear strength of the wet silt is susceptible to dynamic disturbance.

- In excavation, the silt will slough, run with seepage and the bottom will boil under a piezometric head of 0.3 m.

4.5 Inferred Shale Bedrock

Inferred shale bedrock was encountered beneath the silty clay till below the depths of 3.4 to 6.2 m from the ground surface in Boreholes 28, 29 and 36 completed by GEI. The shale bedrock is grey in colour and weathered. No rock coring was carried out to assess rock quality.

The upper rock profiles can be fissured as a result of the weathering and/or being overstressed by glacial loading. The sound shale is susceptible to disintegration and swelling upon exposure to air and water, with subsequent reversion to a clay soil, but the limy shale and sandstone bands would remain as rock slabs.

4.6 Interpretation of Refusal to Augering

Refusal to augering were encountered in Borehole 25-01 at a depth of 5.4 m below the ground surface. The depth of refusal in the borehole may represent boulders in the till or shale bedrock.

4.7 Compaction Characteristics of the Revealed Soils

The obtainable degree of compaction is primarily dependent on the soil moisture and, to a lesser extent, on the type of compactor used and the effort applied. As a general guide, the typical water content values of the revealed soils for Standard Proctor compaction are presented in Table 1.

Table 1 - Estimated Water Content for Compaction of On-Site Material

Soil Type	Determined Natural Water Content (%)	Water Content (%) for Standard Proctor Compaction	
		100% (optimum)	Range for 95% or +
Silty Clay Till	6 to 37 (median 18)	16	12 to 21
Sandy Silt Till and Silty Sand Till	7 to 21 (median 13)	10 to 12	6 to 17
Silt	14, 16 and 17	13	8 to 17

* The above values are provided as a guideline. Standard Proctor Tests must be performed on bulk samples collected from site during construction prior to backfill and compaction.

inorganic material. The subgrade within 1.0 m below the underside of the granular sub-base must be compacted to at least 98% SPDD, with the water content at 2% to 3% drier than its optimum. All the granular bases should be compacted in 150 to 200 mm lifts to 100% SPDD.

The pavement subgrade will suffer a strength regression if water is allowed to saturate the mantle. The following measures should, therefore, be incorporated in the construction procedures and road design:

- The subgrade should be properly crowned and smooth-rolled to allow interim precipitation to be properly drained prior to pavement construction.
- if the road is to be constructed during the wet seasons or the subgrade is unstable, either the top 1.0 m of the subgrade should be replaced with drier, compacted, selected subgrade material or the top 0.8 m of the subgrade should be replaced with granular material. This can be determined at the time of road construction.
- Lot areas adjacent to the roads should be properly graded to prevent ponding of large amounts of water. Otherwise, the water will seep into the subgrade mantle and induce a regression of the subgrade strength, with costly consequences for the pavement construction.
- Fabric filter-encased curb subdrains connecting to a positive outlet of catch basin, will be required on both sides of the roadway.

6.8 Stormwater Management Facilities

SWM facilities are proposed in the vicinity of Boreholes 25-06, 36, 37 and 39. Based on the borehole findings, the subsoils generally consist of glacial till in the proposed SWM blocks; however, at Borehole 36, inferred bedrock is present at El. 218.9 m and a deposit of silt was encountered between El. 217.0 m and El. 215.4 m at Borehole 39.

Groundwater level in the monitoring wells at Boreholes 25-06, 36, and 39 were recorded at depths ranging from 0.4 to 2.4 m below the existing grade, or El. 223.6 to 219.1 m. Due to the presence of shallow groundwater, the base of the pond should be at least 1.0 m above the groundwater level. A geotechnical review must be carried out to provide additional recommendations for the SWM facilities once the design has been completed to determine liner requirement and/or the necessity of a drainage system for the pond to relieve groundwater uplift pressure.

In general, the side slopes of the stormwater management pond should be maintained at a slope not steeper than 3 Horizontal (H):1 Vertical (V) above the wet perimeter, and flatter

than 4H to 1V below the wet perimeter. The final slopes must be vegetated and/or sodded to prevent runoff erosion.

If an earth berm is to be constructed in the retention facility, topsoil and badly weathered soils must be removed and the subgrade must be proof-rolled. The berm should consist of inorganic material, compacted to 98% SPDD. The final surface of the berm should be graded and vegetated properly as recommended above.

The foundation of control structures should extend into the sound native soils below the frost depth or scouring depth, whichever is greater. A Maximum Allowable Soil Pressure (SLS) of 100 kPa and a Factored Ultimate Soil Bearing Pressure (ULS) of 160 kPa are recommended for the design of control structures.

6.9 Soil Parameters

The recommended soil parameters for the project design are given in Table 4.

Table 4 - Soil Parameters

Unit Weight and Bulk Factor	**Unit Weight γ (kN/m^3)**		**Estimated Bulk Factor**	
	Bulk	**Submerged**	**Loose**	**Compacted**
Silty Clay Till	21.5	11.5	1.30	1.05
Sandy Silt Till/Silty Sandy Till	22.0	12.0	1.25	1.03
Silt	20.5	10.5	1.20	1.00
Shale Bedrock	23.0	-	1.50	1.10

Lateral Earth Pressure Coefficients	**Active K_a**	**At Rest K_o**	**Passive K_p**
Silty Clay Till	0.35	0.45	2.86
Sandy Silt Till/Silty Sandy Till	0.30	0.40	3.33
Silt	0.33	0.43	3.00

Coefficient of Permeability (K) and Percolation Time (T)	**K (cm/sec)**	**T (min/cm)**
Silty Clay Till	10^{-7}	80+
Sandy Silt Till/Silty Sandy Till	10^{-4}	12
Silt	10^{-6}	50

Soil Engineers Ltd.
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GEOTECHNICAL • ENVIRONMENTAL • HYDROGEOLOGICAL • BUILDING SCIENCE
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FAX: (705) 721-7864	FAX: (905) 542-2769	FAX: (905) 725-1315	FAX: (905) 881-8335	FAX: (705) 684-8522	FAX: (905) 542-2769

A REPORT TO
TRINITY FIELD INC.

A HYDROGEOLOGICAL ASSESSMENT FOR PROPOSED RESIDENTIAL DEVELOPMENT

NORTHWEST CORNER OF THE GORE ROAD AND MAYFIELD ROAD
TOWN OF CALEDON

DRAFT

REFERENCE NO. 2508-W034

OCTOBER 28, 2025

DISTRIBUTION

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Digital Copy – Soil Engineers Ltd. (Richmond Hill)

MW ID	Unit	Groundwater Level	
		September 11, 2025	September 25, 2025
GEI-BH/MW 39D[1]	mbgs	2.4	2.7
	masl	219.1	218.8
GEI-BH/MW 39S[1]	mbgs	1.8	2.0
	masl	219.8	219.6
GEI-BH/MW 40[1]	mbgs	1.8	4.1
	masl	223.9	221.6

Notes:
mbgs metres below ground surface
masl metres above sea level
[1] Monitoring Wells Installed by GEI Consultants Ltd.

The finding of the groundwater monitoring indicates that shallow groundwater level elevation ranged from the EL. 215.8 masl to 228.0 masl at GEI-BH/MW 38D and GEI-BH/MW 30D and S, respectively.

7.2 Shallow Groundwater Flow Pattern

The shallow groundwater flow pattern at the Subject Site will be prepared once the 3rd and final monitoring event has been completed.

7.3 Single Well Response Test

Two (2) BH/MWs installed by SEL and four (4) monitoring wells previously installed by GEI Consultants underwent a single well response testing (SWRTs), to assess the hydraulic conductivity (K) for saturated shallow aquifer or water bearing unit at the depths of the well screens. BH/MWs 25-02 and 25-06 and GEI-BH/MWs 29, 36, 38D, and 40 underwent SWRTs on September 25, 2025. In-situ hydraulic conductivity testing was not conducted in certain monitoring wells due to either insufficient groundwater levels or the monitoring wells having a diameter of only 25 mm, which is too small to complete the test. Each monitoring well was equipped with a digital transducer to record the fluctuation made to complete the SWRT. The results of the SWRT tests are presented in **Appendix C**, with a summary of the findings provided in **Table 7-2**.

DRAFT

Table 7-2- A Summary of In-Situ Hydraulic Conductivity Testing

Well ID	Ground El. (masl)	Monitoring Well Depth (mbgs)	Screen Interval (m)	Screened Soil Strata	Hydraulic Conductivity (K)-(m/sec)	Test Method
BH/MW 25-02	225.3	6.7	5.2-6.7	Silt	2.7×10^{-8}	Falling Head Test
BH/MW 25-06	222.1	4.6	3.1-4.6	Silty Clay Till	2.1×10^{-8}	Falling Head Test
GEI-BH/MW 29[1]	230.6	6.1	4.6-6.1	Weathered Shale	8.0×10^{-6}	Falling Head Test
GEI-BH/MW 36[1]	225.1	6.1	4.6-6.1	Sandy Silt Till/Silty Clay Till	2.8×10^{-8}	Falling Head Test
GEI-BH/MW 38D[1]	221.3	6.4	4.9-6.4	Sandy Silt Till	2.5×10^{-7}	Falling Head Test
GEI-BH/MW 40[1]	225.7	6.1	3.1-6.1	Silty Clay Till	1.1×10^{-8}	Falling Head Test

Notes:
mbgs metres below ground surface
masl metres above sea level
[1] Monitoring Wells Installed by GEI Consultants Ltd.

The findings of SWRTs reveal that the hydraulic conductivity (K) for the water bearing units underneath the Subject Site ranges from 8.0×10^{-6} at GEI-BH/MW 29 to 1.1×10^{-8} m/sec at GEI-BH/MW 40.

7.4 Groundwater Quality

Groundwater quality assessment is on-going and will be completed during the third site visit. The results of the groundwater quality assessment will be presented in an updated hydrogeological assessment report.

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RECORD OF BOREHOLE No. 27

GEI Consultants

Project Number:	2100463				
Project Client:	Wildfield Village Landowners Group Inc.				
Project Name:	Wildfield Village	Drilling Method:	Solid Stem Augers	Drilling Machine:	Track Mount
Project Location:	Town of Caledon, ON	Logged By:	FH	Northing: 4853049	Date Started: May 1/23
Drilling Location:	See Borehole Location Plan	Reviewed By:	RW	Easting: 601870.8	Date Completed: May 1/23
Local Benchmark:	Geodetic				

LITHOLOGY PROFILE / SOIL SAMPLING

Geodetic	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value
0.0 / 226.3					
0.2 / 226.1	TOPSOIL: 205 mm				
	WEATHERED/DISTURBED Stiff, mottled brown, moist	SS	1	100	8
0.8 / 225.6	CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	2	100	30
		SS	3	100	30
		SS	4	100	23
		SS	5	100	28
4.6 / 221.7	SANDY SILT GLACIAL TILL: Some gravel, trace clay, inferred cobbles and boulders, very dense, grey, moist	SS	6	100	54
6.3 / 220.0		SS	7	100	100+

Borehole Terminated at 6.3 m

FIELD TESTING

Shear Strength Testing (kPa): × Other Test; + Pocket Penetrometer; ▲ Field Vane (Intact); △ Field Vane (Remolded) — 40, 80, 120, 160

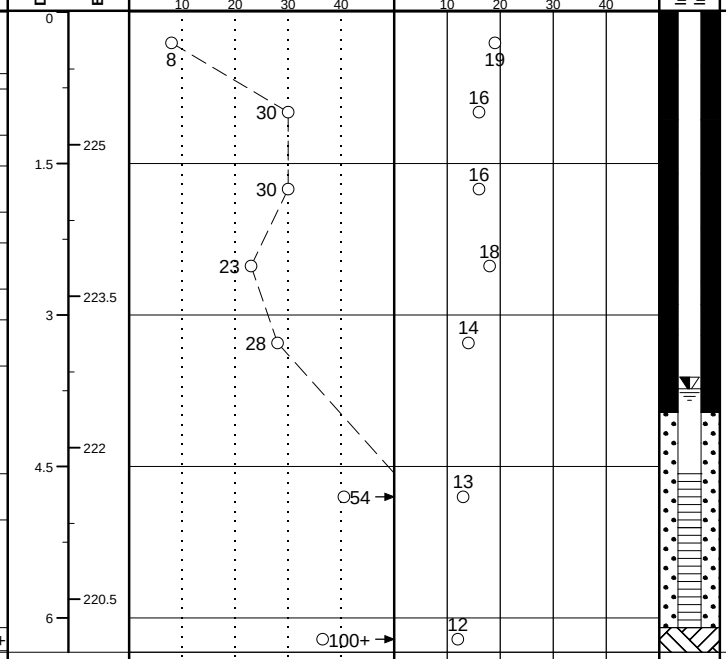
Penetration Testing: ○ SPT; ● DCPT — 10, 20, 30, 40

LAB TESTING

△ Combustible Organic Vapour (ppm); ▲ Combustible Organic Vapour (%LEL); ◇ Total Organic Vapour (ppm) — 100, 200, 300, 400

Atterberg Limits: PL — LL

○ Water Content (%) — 10, 20, 30, 40



Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%)

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GEI CONSULTANTS
647 Welham Road, Unit 14
Barrie, Ontario L4N 0B7
T : (705) 719-7994
www.geiconsultants.com

Groundwater depth encountered on completion of drilling: Dry

Groundwater depth observed on: Jul 11/23 at depth of: 3.73 m.

Cave depth after auger removal: Open

Groundwater Elevation: 222.6 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

Scale: **1 :75**

RECORD OF BOREHOLE No. 28-D

GEI Consultants

Project Number:	2100463				
Project Client:	Wildfield Village Landowners Group Inc.				
Project Name:	Wildfield Village	Drilling Method:	Solid Stem Augers	Drilling Machine:	Track Mount
Project Location:	Town of Caledon, ON	Logged By:	FH	Northing:	4852786
Drilling Location:	See Borehole Location Plan	Reviewed By:	RW	Easting:	601695
Local Benchmark:	Geodetic				

Date Started: Apr 28/23
Date Completed: Apr 28/23

LITHOLOGY PROFILE / SOIL SAMPLING

Geodetic	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value
0.0 – 0.3 (226.3)	TOPSOIL: 305 mm				
0.3 – 0.8 (226.0)	WEATHERED/DISTURBED Firm, mottled brown to dark brown, moist	SS	1	100	6
0.8 – 3.4 (225.6)	CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, brown to dark brown, moist	SS	2	100	16
		SS	3	100	26
	- - - Grey - - -	SS	4	100	28
3.4 – 4.6 (223.0)	INFERRED BREDROCK: Weathered shale, grey	SS	5	100	62
4.6 (221.7)	Borehole Terminated at 4.6 m	AS	6	0	100+

FIELD TESTING

Shear Strength Testing (kPa): × Other Test; + Pocket Penetrometer; ▲ Field Vane (Intact); △ Field Vane (Remolded) — 40, 80, 120, 160

Penetration Testing: ○ SPT; ● DCPT — 10, 20, 30, 40

LAB TESTING

△ Combustible Organic Vapour (ppm); ▲ Combustible Organic Vapour (%LEL); ◇ Total Organic Vapour (ppm) — 100, 200, 300, 400

Atterberg Limits: PL — LL

○ Water Content (%) — 10, 20, 30, 40

COMMENTS & GRAIN SIZE DISTRIBUTION (%)

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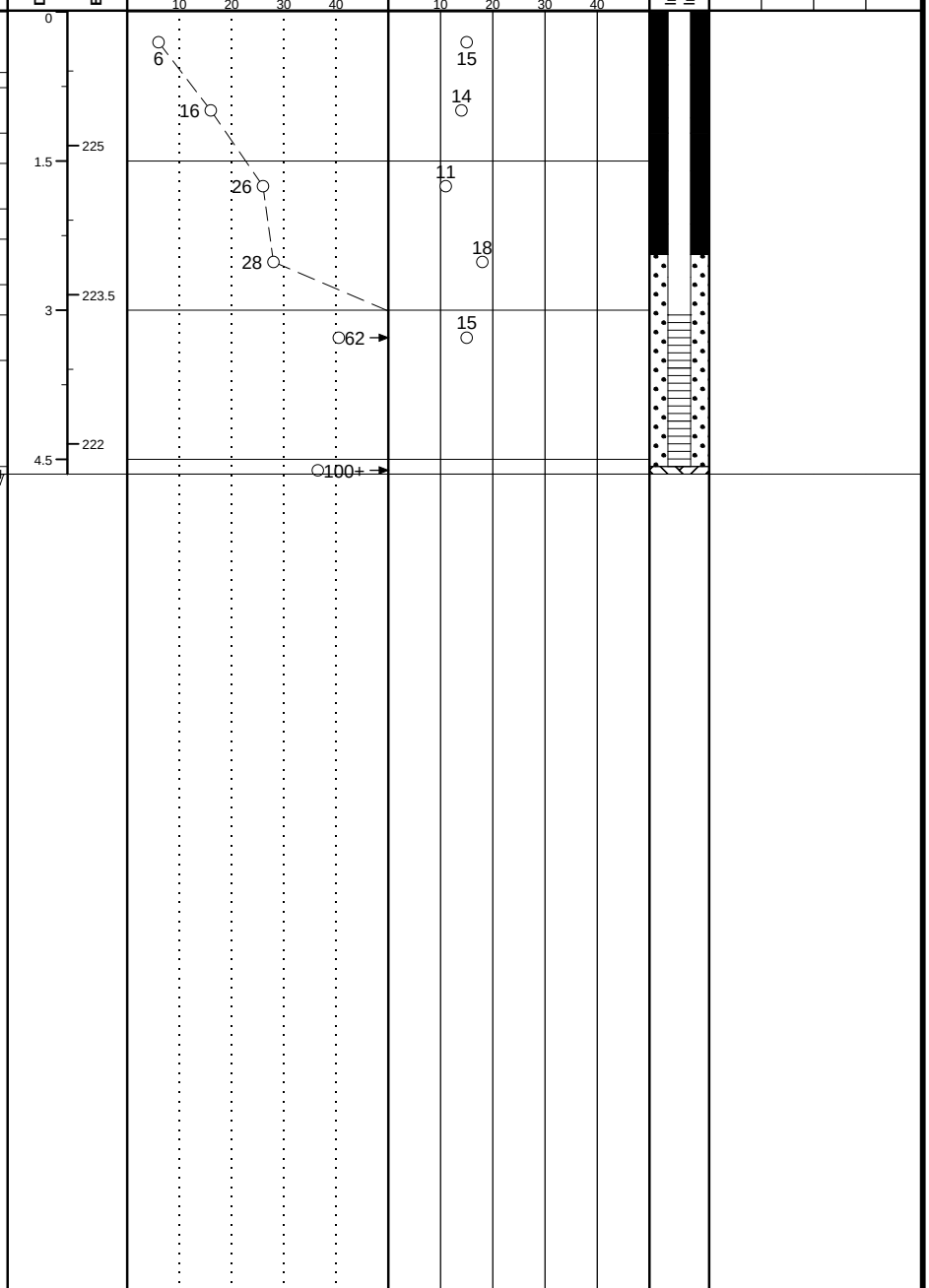

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T : (705) 719-7994
www.geiconsultants.com

Groundwater depth encountered on completion of drilling: Dry

Groundwater depth observed on: Jul 11/23 at depth of: -0.6 m.

Cave depth after auger removal: Open

Groundwater Elevation: 226.9 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

Scale: **1 :75**

RECORD OF BOREHOLE No. 28-S

GEI Consultants

Project Number:	2100463				
Project Client:	Wildfield Village Landowners Group Inc.				
Project Name:	Wildfield Village	Drilling Method:	Solid Stem Augers	Drilling Machine:	Track Mount
Project Location:	Town of Caledon, ON	Logged By:	FH	Northing:	4852785
Drilling Location:	See Borehole Location Plan	Reviewed By:	RW	Easting:	601694.2
Local Benchmark:	Geodetic				

Date Started: Apr 28/23
Date Completed: Apr 28/23

LITHOLOGY PROFILE / SOIL SAMPLING

Lithology Plot	DESCRIPTION (Geodetic)	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)
0.0 – 0.3	TOPSOIL: 305 mm (226.3 – 226.0)					0	
0.3 – 0.8	WEATHERED/DISTURBED Firm, mottled brown to dark brown, moist (226.0 – 225.5)	SS	1	100	6		
0.8 – 3.0	CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	2	100	16		225
		SS	3	100	26	1.5	
	- - - Grey - - -	SS	4	100	28		223.5
3.0	Borehole Terminated at 3.0 m (223.2)					3	

FIELD TESTING

Shear Strength Testing (kPa): × Other Test; + Pocket Penetrometer; ▲ Field Vane (Intact); △ Field Vane (Remolded) — 40, 80, 120, 160

Penetration Testing: ○ SPT; ● DCPT — 10, 20, 30, 40

LAB TESTING

△ Combustible Organic Vapour (ppm); ▲ Combustible Organic Vapour (%LEL); ◇ Total Organic Vapour (ppm) — 100, 200, 300, 400

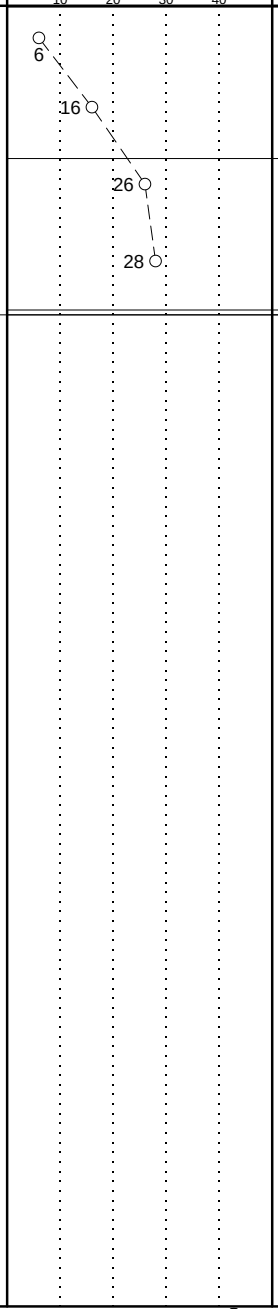
Atterberg Limits: PL — LL

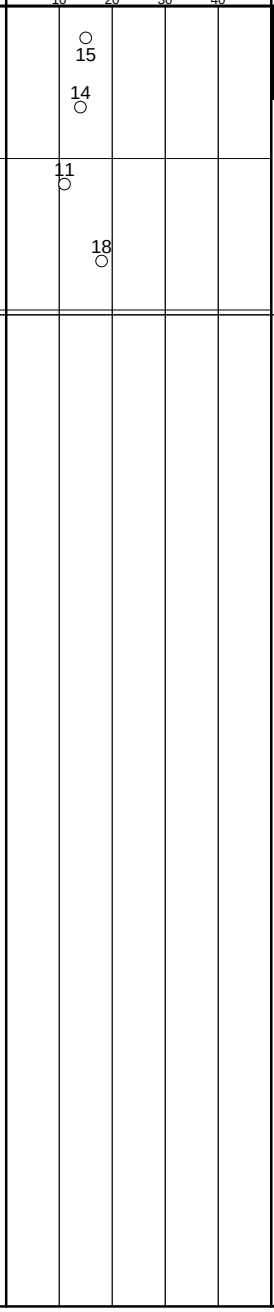
○ Water Content (%) — 10, 20, 30, 40

Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%)

GR | SA | SI | CL





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Groundwater depth encountered on completion of drilling: Dry

Cave depth after auger removal: Open

Groundwater depth observed on: Jul 11/23 at depth of: -0.17 m.

Groundwater Elevation: 226.5 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

Scale: **1 :75**

RECORD OF BOREHOLE No. 29

GEI Consultants

Project Number:	2100463				
Project Client:	Wildfield Village Landowners Group Inc.				
Project Name:	Wildfield Village	Drilling Method:	Solid Stem Augers	Drilling Machine:	Track Mount
Project Location:	Town of Caledon, ON	Logged By:	FH	Northing: 4852609	Date Started: Apr 28/23
Drilling Location:	See Borehole Location Plan	Reviewed By:	RW	Easting: 601513.8	Date Completed: Apr 28/23
Local Benchmark:	Geodetic				

LITHOLOGY PROFILE / SOIL SAMPLING

Geodetic	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value
0.0 – 0.2 (230.6 – 230.4)	TOPSOIL: 150 mm				
0.2 – 0.8 (230.4 – 229.8)	WEATHERED/DISTURBED Soft, mottled brown, moist	SS	1	100	4
0.8 – 3.4 (229.8 – 227.1)	CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, brown to mottled brown, moist	SS	2	100	20
		SS	3	100	26
		SS	4	100	16
		SS	5	100	31
3.4 – 6.2 (227.1 – 224.4)	INFFERED BEDROCK: Weathered shale, grey	AS	6	0	100+
6.2 (224.4)	Borehole Terminated at 6.2 m	AS	7	0	100+

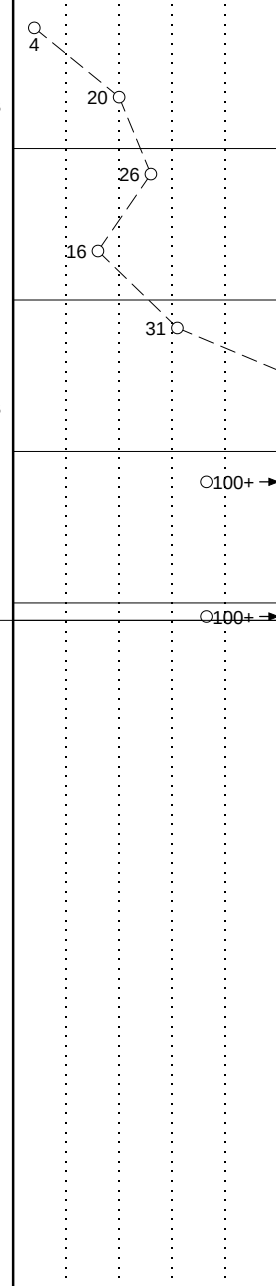
DEPTH (m): 0, 1.5, 3, 4.5, 6

ELEVATION (m): 229.5, 228, 226.5, 225

FIELD TESTING

Shear Strength Testing (kPa): × Other Test; + Pocket Penetrometer; ▲ Field Vane (Intact); △ Field Vane (Remolded) — 40, 80, 120, 160

Penetration Testing: ○ SPT; ● DCPT — 10, 20, 30, 40

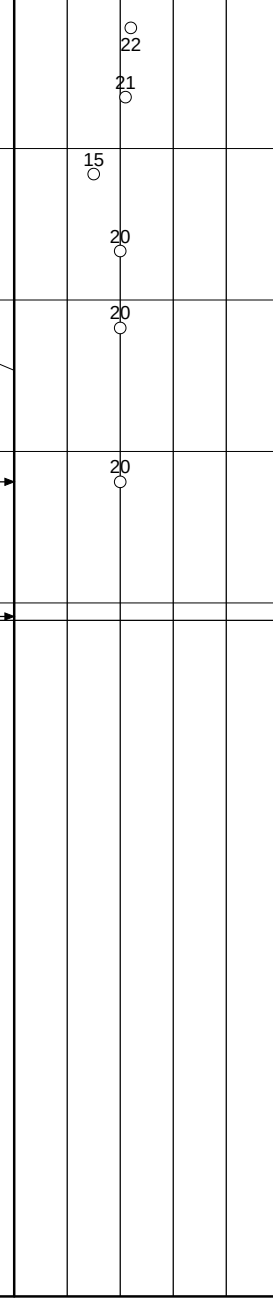


LAB TESTING

△ Combustible Organic Vapour (ppm); ▲ Combustible Organic Vapour (%LEL); ◇ Total Organic Vapour (ppm) — 100, 200, 300, 400

Atterberg Limits: PL — LL

○ Water Content (%) — 10, 20, 30, 40



Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%)

GR | SA | SI | CL

GEI CONSULTANTS
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Barrie, Ontario L4N 0B7
T : (705) 719-7994
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Groundwater depth encountered on completion of drilling: 5.4 m.

Groundwater depth observed on: Jul 11/23 at depth of: 1.71 m.

Cave depth after auger removal: Open

Groundwater Elevation: 228.9 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

Scale: **1 :75**

RECORD OF BOREHOLE No. 30-D

GEI Consultants

Project Number:	2100463				
Project Client:	Wildfield Village Landowners Group Inc.				
Project Name:	Wildfield Village	Drilling Method:	Solid Stem Augers	Drilling Machine:	Track Mount
Project Location:	Town of Caledon, ON	Logged By:	FH	Northing: 4852437	Date Started: Apr 28/23
Drilling Location:	See Borehole Location Plan	Reviewed By:	RW	Easting: 601630.1	Date Completed: Apr 28/23
Local Benchmark:	Geodetic				

LITHOLOGY PROFILE / SOIL SAMPLING

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)	GR	SA	SI	CL
Geodetic 0.0 / 229.7											
0.2 / 229.5	TOPSOIL: 180 mm					0	229.5				
	WEATHERED/DISTURBED Firm, brown, moist	SS	1	100	6						
0.8 / 228.9	CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, stiff, brown, moist	SS	2	100	12			0	11	42	47
	- - - Trace gravel, very stiff, grey/dark brown - - -	SS	3	100	22	1.5	228				
		SS	4	100	23						
		SS	5	100	20	3	226.5				
	- - - Stiff, greyish-brown - - -	SS	6	0	11	4.5	225				
5.0 / 224.7	Borehole Terminated at 5.0 m										

FIELD TESTING

Shear Strength Testing (kPa)

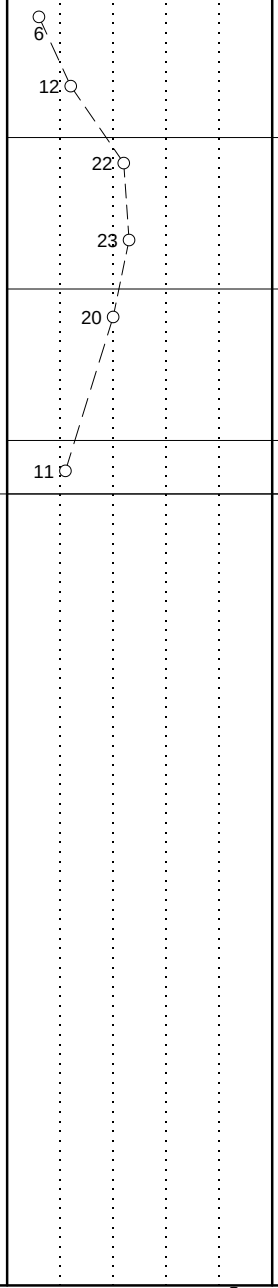
- Other Test
- Pocket Penetrometer
- Field Vane (Intact)
- Field Vane (Remolded)

40 80 120 160

Penetration Testing

○ SPT ● DCPT

10 20 30 40



LAB TESTING

△ Combustible Organic Vapour (ppm)
▲ Combustible Organic Vapour (%LEL)
◇ Total Organic Vapour (ppm)

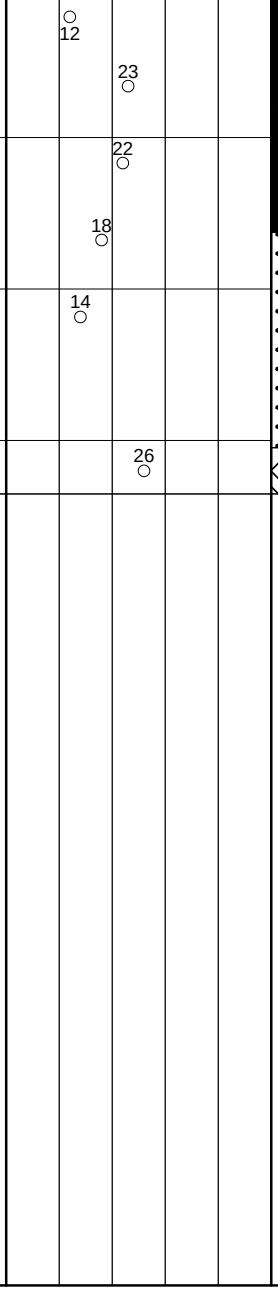
100 200 300 400

Atterberg Limits

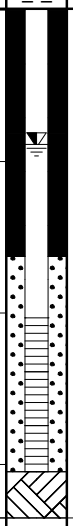
PL LL

○ Water Content (%)

10 20 30 40



Instrumentation Installation



COMMENTS & GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
0	11	42	47

GEI CONSULTANTS
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www.geiconsultants.com

Groundwater depth encountered on completion of drilling: Dry

Cave depth after auger removal: Open

Groundwater depth observed on: Jul 11/23 at depth of: 1.33 m.

Groundwater Elevation: 228.4 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

Scale: **1 :75**

RECORD OF BOREHOLE No. 30-S

Project Number:	2100463						
Project Client:	Wildfield Village Landowners Group Inc.						
Project Name:	Wildfield Village	Drilling Method:	Solid Stem Augers	Drilling Machine:	Track Mount		
Project Location:	Town of Caledon, ON	Logged By:	FH	Northing:	4852437	Date Started:	Apr 28/23
Drilling Location:	See Borehole Location Plan	Reviewed By:	RW	Easting:	601629.7	Date Completed:	Apr 28/23
Local Benchmark:	Geodetic						

GEI Consultants

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING	LAB TESTING			COMMENTS & GRAIN SIZE DISTRIBUTION (%)			
Lithology Plot	DESCRIPTION (Geodetic)	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)	Shear Strength Testing (kPa): Other Test; Pocket Penetrometer; Field Vane (Intact); Field Vane (Remolded) 40 80 120 160	Combustible Organic Vapour (ppm); Combustible Organic Vapour (%LEL); Total Organic Vapour (ppm) 100 200 300 400	Instrumentation Installation	GR	SA	SI	CL
	0.2 TOPSOIL: 180 mm 229.6					0	229.5							
	WEATHERED/DISTURBED Firm, brown, moist													
	0.8 229.0 CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, stiff, brown, moist					1.5	228	Penetration Testing: SPT, DCPT 10 20 30 40	Atterberg Limits PL LL; Water Content (%) 10 20 30 40					
	- - - Trace gravel, very stiff, grey/dark brown - - -													
	3.0 226.7					3								
	Borehole Terminated at 3.0 m													

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Groundwater depth encountered on completion of drilling: Dry

Cave depth after auger removal: Open

Groundwater depth observed on: Jul 11/23 at depth of: 0.64 m.

Groundwater Elevation: 229.1 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

Scale: **1 :75**

RECORD OF BOREHOLE No. 35

GEI Consultants

Project Number:	2100463				
Project Client:	Wildfield Village Landowners Group Inc.				
Project Name:	Wildfield Village	Drilling Method:	Solid Stem Augers	Drilling Machine:	Track Mount
Project Location:	Town of Caledon, ON	Logged By:	FH	Northing: 4852399	Date Started: Apr 27/23
Drilling Location:	See Borehole Location Plan	Reviewed By:	RW	Easting: 601759.2	Date Completed: Apr 27/23
Local Benchmark:	Geodetic				

LITHOLOGY PROFILE / SOIL SAMPLING

Lithology Plot	DESCRIPTION (Geodetic)	Sample Type	Sample Number	Recovery (%)	SPT "N" Value
	0.0 / 229.0				
	0.2 / 228.9 TOPSOIL: 230 mm				
	WEATHERED/DISTURBED Firm, brown, moist	SS	1	100	5
	0.8 / 228.3 CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	2	100	22
		SS	3	100	19
		SS	4	100	25
	- - - Grey - - -	SS	5	100	17
	- - - Stiff - - -	AS	6	0	10
	6.6 / 222.5	SS	7	100	10
	Borehole Terminated at 6.6 m				

FIELD TESTING

Shear Strength Testing (kPa): Other Test; Pocket Penetrometer; Field Vane (Intact); Field Vane (Remolded) — 40, 80, 120, 160

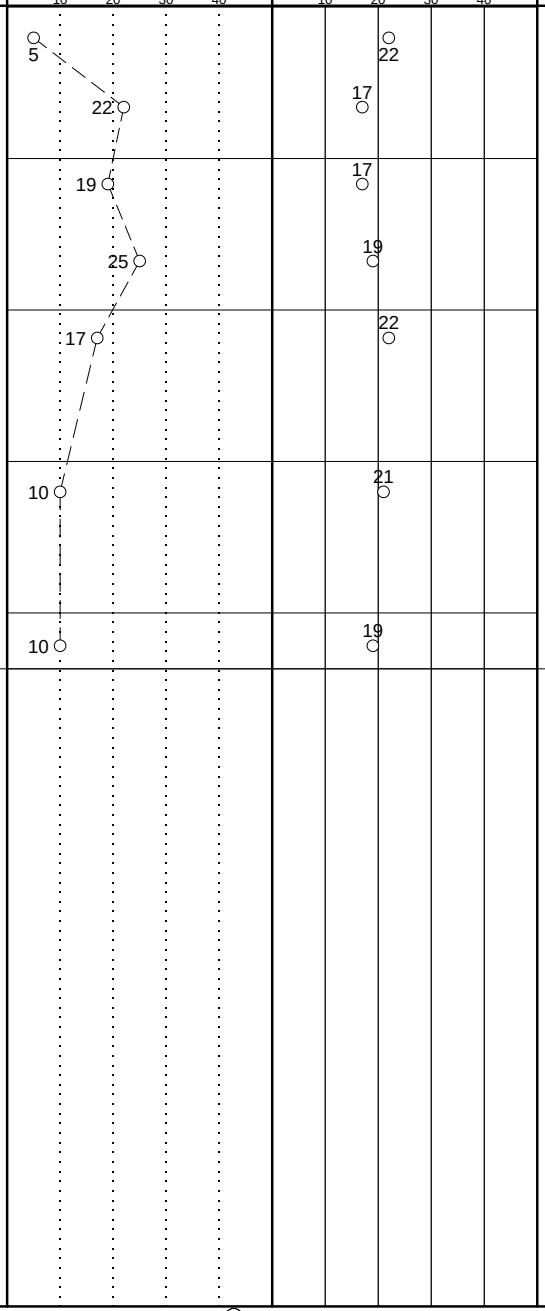
Penetration Testing: SPT ○ DCPT ● — 10, 20, 30, 40

LAB TESTING

Combustible Organic Vapour (ppm); Combustible Organic Vapour (%LEL); Total Organic Vapour (ppm) — 100, 200, 300, 400

Atterberg Limits: PL — LL

Water Content (%) — 10, 20, 30, 40



Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL

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Groundwater depth encountered on completion of drilling: Dry

Cave depth after auger removal: Open

Groundwater depth observed on:

Groundwater Elevation:

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

Scale: **1 :75**

RECORD OF BOREHOLE No. 36

GEI Consultants

Project Number:	2100463				
Project Client:	Wildfield Village Landowners Group Inc.				
Project Name:	Wildfield Village	Drilling Method:	Solid Stem Augers	Drilling Machine:	Track Mount
Project Location:	Town of Caledon, ON	Logged By:	FH	Northing:	4852605
Drilling Location:	See Borehole Location Plan	Reviewed By:	RW	Easting:	601914.3
Local Benchmark:	Geodetic				

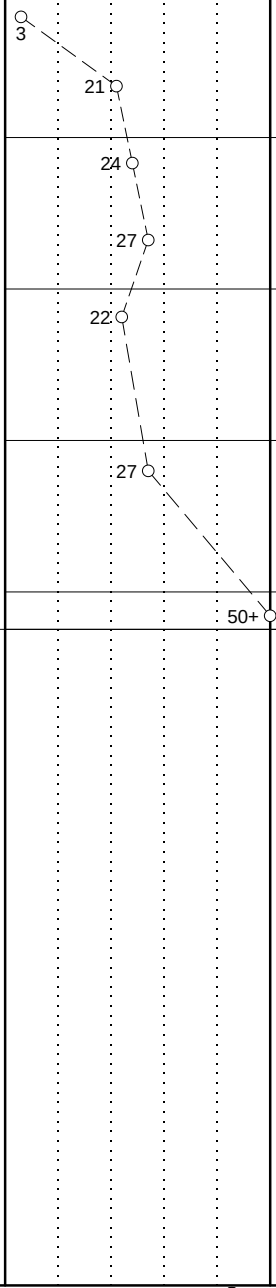
Date Started: Apr 28/23
Date Completed: Apr 28/23

LITHOLOGY PROFILE / SOIL SAMPLING

Geodetic	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value
0.0 / 225.1	TOPSOIL: 255 mm				
0.2 / 224.9	WEATHERED/DISTURBED Soft, mottled brown, moist	SS	1	100	3
0.8 / 224.4	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, very stiff, mottled brown, moist	SS	2	100	21
		SS	3	100	24
		SS	4	100	27
	- - - Some gravel, dark brown - - -	SS	5	100	22
4.9 / 220.2	SANDY SILT GLACIAL TILL: Some gravel, inferred cobbles and boulders, compact, grey, moist	SS	6	100	27
6.2 / 218.9	INFERRED BEDROCK: Highly weathered shale, grey	SS	7	100	50+
6.4 / 218.8	Borehole Terminated at 6.4 m				

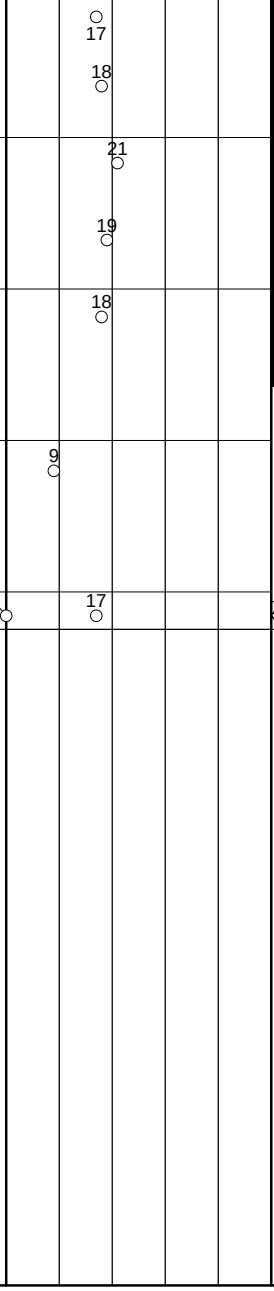
FIELD TESTING / LAB TESTING

Field Testing: Shear Strength Testing (kPa) — Other Test; Pocket Penetrometer; Field Vane (Intact); Field Vane (Remolded) — 40, 80, 120, 160. Penetration Testing: SPT; DCPT — 10, 20, 30, 40.

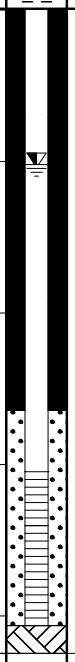


Lab Testing: Combustible Organic Vapour (ppm); Combustible Organic Vapour (%LEL); Total Organic Vapour (ppm) — 100, 200, 300, 400. Atterberg Limits: PL, LL. Water Content (%) — 10, 20, 30, 40.

DEPTH (m)	ELEVATION (m)	Field Testing	Lab Testing
0	225	3	17
		21	18
1.5	223.5	24	21
		27	19
3	222	22	18
4.5	220.5	27	9
6	219	50+	17



Instrumentation Installation



COMMENTS & GRAIN SIZE DISTRIBUTION (%)

GR | SA | SI | CL

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Groundwater depth encountered on completion of drilling: Dry
Groundwater depth observed on: Jul 11/23 at depth of: 1.53 m.
Cave depth after auger removal: Open
Groundwater Elevation: 223.6 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

Scale: **1 :75**

RECORD OF BOREHOLE No. 37

GEI Consultants

Project Number:	2100463						
Project Client:	Wildfield Village Landowners Group Inc.						
Project Name:	Wildfield Village	Drilling Method:	Solid Stem Augers	Drilling Machine:	Track Mount		
Project Location:	Town of Caledon, ON	Logged By:	FH	Northing:	4852828	Date Started:	May 1/23
Drilling Location:	See Borehole Location Plan	Reviewed By:	RW	Easting:	602076.5	Date Completed:	May 1/23
Local Benchmark:	Geodetic						

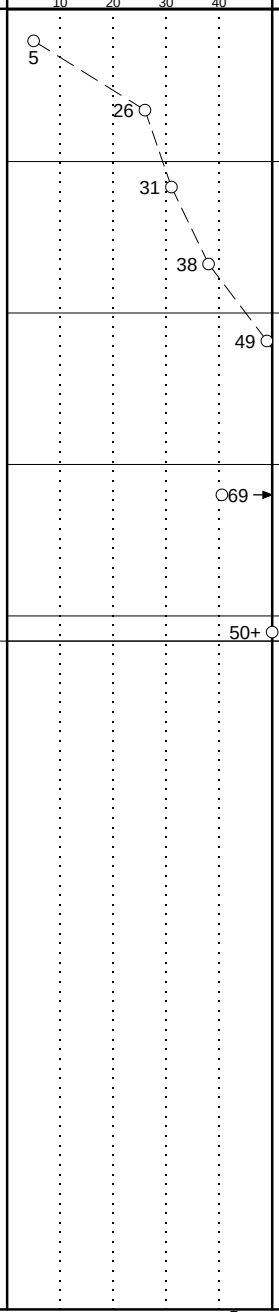
LITHOLOGY PROFILE / SOIL SAMPLING

Lithology Plot	DESCRIPTION (Geodetic)	Depth	Elevation	Sample Type	Sample Number	Recovery (%)	SPT "N" Value
	TOPSOIL: 305 mm	0.0–0.3	223.8–223.5	SS	1	100	5
	WEATHERED/DISTURBED Firm, mottled brown, moist	0.3–0.8	223.5–223.1	SS	2	100	26
	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, very stiff to hard, brown, moist	0.8–3.0	223.1–220.8	SS	3	100	31
				SS	4	100	38
	SANDY SILT GLACIAL TILL: Trace gravel, trace clay, inferred cobbles and boulders, dense, brown, moist	3.0–6.2	220.8–217.6	SS	5	100	49
	- - - Very dense, grey - - -			SS	6	100	69
				SS	7	100	50+
	Borehole Terminated at 6.2 m						

FIELD TESTING

Shear Strength Testing (kPa): Other Test; Pocket Penetrometer; Field Vane (Intact); Field Vane (Remolded) — 40, 80, 120, 160

Penetration Testing: SPT ○ DCPT ● — 10, 20, 30, 40

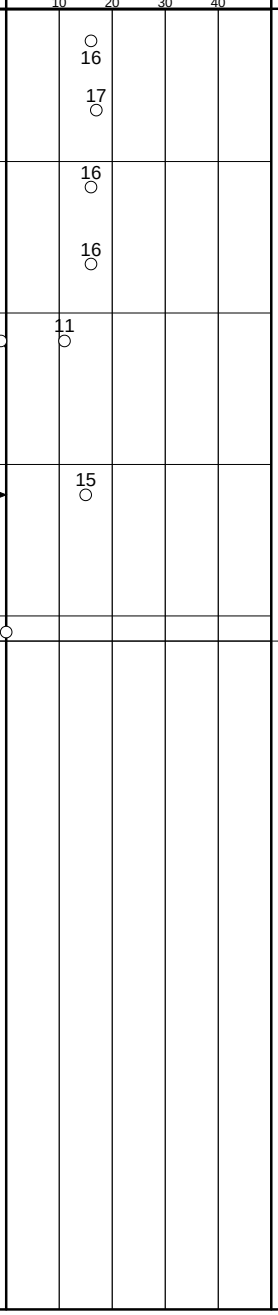


LAB TESTING

Combustible Organic Vapour (ppm); Combustible Organic Vapour (%LEL); Total Organic Vapour (ppm) — 100, 200, 300, 400

Atterberg Limits: PL — LL

Water Content (%) — 10, 20, 30, 40



Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL

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Groundwater depth encountered on completion of drilling: Dry

Cave depth after auger removal: Open

Groundwater depth observed on:

Groundwater Elevation:

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

Scale: **1 :75**

RECORD OF BOREHOLE No. 38-D

GEI Consultants

Project Number:	2100463				
Project Client:	Wildfield Village Landowners Group Inc.				
Project Name:	Wildfield Village	Drilling Method:	Solid Stem Augers	Drilling Machine:	Track Mount
Project Location:	Town of Caledon, ON	Logged By:	FH	Northing: 4852629	Date Started: Apr 28/23
Drilling Location:	See Borehole Location Plan	Reviewed By:	RW	Easting: 602168.9	Date Completed: Apr 28/23
Local Benchmark:	Geodetic				

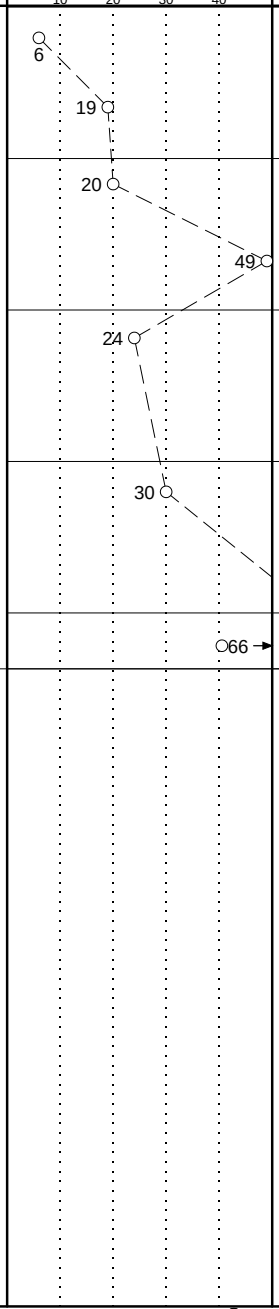
LITHOLOGY PROFILE / SOIL SAMPLING

Lithology Plot	DESCRIPTION (Geodetic)	Sample Type	Sample Number	Recovery (%)	SPT "N" Value
	0.0 / 221.3				
	0.2 / 221.1 TOPSOIL: 150 mm				
	WEATHERED/DISTURBED Firm, mottled brown, moist	SS	1	100	6
	0.8 / 220.5 CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, very stiff, brown/grey, moist	SS	2	100	19
		SS	3	100	20
	2.3 / 219.0 SANDY SILT GLACIAL TILL: Trace gravel, trace clay, cobbles and boulders, dense, brown, moist	SS	4	100	49
	- - - Compact, wet - - -	SS	5	100	24
		SS	6	100	30
	6.1 / 215.2 SAND AND SILT GLACIAL TILL: Some shale fragments, trace gravel, trace clay, very dense, grey, moist	SS	7	100	66
	6.6 / 214.7 Borehole Terminated at 6.6 m				

FIELD TESTING

Shear Strength Testing (kPa): Other Test; Pocket Penetrometer; Field Vane (Intact); Field Vane (Remolded) — 40 80 120 160

Penetration Testing: SPT ○ DCPT ● — 10 20 30 40

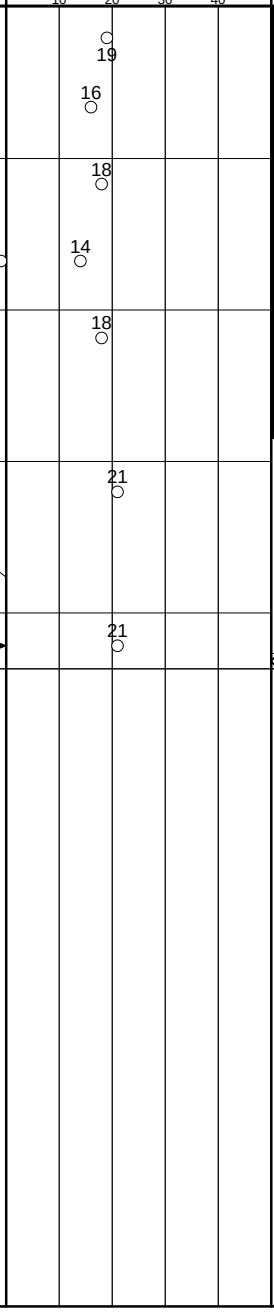


LAB TESTING

Combustible Organic Vapour (ppm); Combustible Organic Vapour (%LEL); Total Organic Vapour (ppm) — 100 200 300 400

Atterberg Limits: PL — LL

Water Content (%) — 10 20 30 40



Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL

First Water Strike SS5

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Groundwater depth encountered on completion of drilling: 3.5 m.

Cave depth after auger removal: Open

Groundwater depth observed on: Jul 11/23 at depth of: 0.64 m.

Groundwater Elevation: 220.6 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

Scale: **1 :75**

RECORD OF BOREHOLE No. 38-S

GEI Consultants

Project Number:	2100463				
Project Client:	Wildfield Village Landowners Group Inc.				
Project Name:	Wildfield Village	Drilling Method:	Solid Stem Augers	Drilling Machine:	Track Mount
Project Location:	Town of Caledon, ON	Logged By:	FH	Northing:	4852629
Drilling Location:	See Borehole Location Plan	Reviewed By:	RW	Easting:	602168.5
Local Benchmark:	Geodetic				

Date Started: Apr 28/23
Date Completed: Apr 28/23

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING	LAB TESTING		COMMENTS & GRAIN SIZE DISTRIBUTION (%)			
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)	Shear Strength Testing (kPa): × Other Test; + Pocket Penetrometer; ▲ Field Vane (Intact); △ Field Vane (Remolded) (40, 80, 120, 160); Penetration Testing: ○ SPT, ● DCPT (10, 20, 30, 40)	△ Combustible Organic Vapour (ppm); ▲ Combustible Organic Vapour (%LEL); ◇ Total Organic Vapour (ppm) (100, 200, 300, 400); Atterberg Limits: PL, LL; ○ Water Content (%) (10, 20, 30, 40)	Instrumentation Installation	GR	SA	SI	CL
	Geodetic 0.0 — 221.3													
	0.2 — 221.1 TOPSOIL: 150 mm					0								
	WEATHERED/DISTURBED Firm, mottled brown, moist													
	0.8 — 220.5 CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, very stiff, brown/grey, moist						220.5							
						1.5								
	2.3 — 219.0 SANDY SILT GLACIAL TILL: Trace gravel, trace clay, inferred cobbles and boulders, dense, brown, moist						219							
						3								
	3.7 — 217.6													
	Borehole Terminated at 3.7 m													

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Groundwater depth encountered on completion of drilling: 3.5 m.
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 0.64 m.
Groundwater Elevation: 220.6 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

Scale: **1 :75**

RECORD OF BOREHOLE No. 39-D

GEI Consultants

Project Number:	2100463				
Project Client:	Wildfield Village Landowners Group Inc.				
Project Name:	Wildfield Village	Drilling Method:	Solid Stem Augers	Drilling Machine:	Track Mount
Project Location:	Town of Caledon, ON	Logged By:	FH	Northing: 4852542	Date Started: Apr 28/23
Drilling Location:	See Borehole Location Plan	Reviewed By:	RW	Easting: 602171.6	Date Completed: Apr 28/23
Local Benchmark:	Geodetic				

LITHOLOGY PROFILE / SOIL SAMPLING

Geodetic	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)
0.0 – 0.2	TOPSOIL: 150 mm					0	
0.2 – 0.8	WEATHERED/DISTURBED Firm, mottled brown, moist	SS	1	100	6		
0.8 – 4.6	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	2	100	25		220.5
		SS	3	100	21	1.5	
	- - - Hard - - -	SS	4	100	34		219
	- - - Grey - - -	SS	5	100	37	3	
							217.5
4.6 – 6.1	SANDY SILT: Trace clay, very dense, grey, moist	SS	6	100	50+	4.5	
							216
6.1 – 6.4	SAND AND SILT GLACIAL TILL: Trace clay, trace gravel, inferred cobbles and boulders, very dense, grey, moist	SS	7	100	50+	6	

Borehole Terminated at 6.4 m

FIELD TESTING

Shear Strength Testing (kPa): × Other Test; + Pocket Penetrometer; ▲ Field Vane (Intact); △ Field Vane (Remolded) — 40, 80, 120, 160

Penetration Testing: ○ SPT; ● DCPT — 10, 20, 30, 40

LAB TESTING

△ Combustible Organic Vapour (ppm); ▲ Combustible Organic Vapour (%LEL); ◇ Total Organic Vapour (ppm) — 100, 200, 300, 400

Atterberg Limits: PL — LL

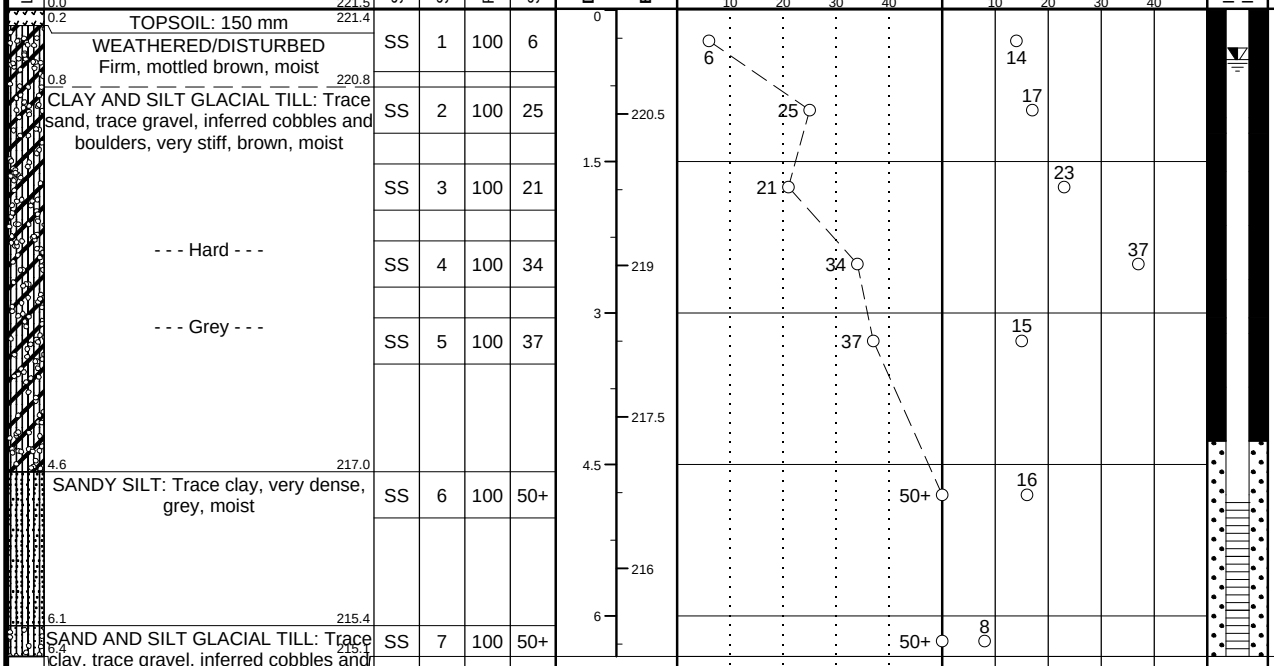
○ Water Content (%) — 10, 20, 30, 40

Field Testing	Lab Testing
6	14
25	17
21	23
34	37
37	15
50+	16
50+	8

COMMENTS & GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
2	53	36	9

Instrumentation Installation



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Groundwater depth encountered on completion of drilling: Dry

Groundwater depth observed on: Jul 11/23 at depth of: 0.49 m.

Cave depth after auger removal: Open

Groundwater Elevation: 221.0 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

Scale: **1 :75**

RECORD OF BOREHOLE No. 39-S

Project Number:	**2100463**						
Project Client:	**Wildfield Village Landowners Group Inc.**						
Project Name:	**Wildfield Village**	Drilling Method:	**Solid Stem Augers**	Drilling Machine:	**Track Mount**		
Project Location:	**Town of Caledon, ON**	Logged By:	**FH**	Northing:	**4852543**	Date Started:	**Apr 28/23**
Drilling Location:	**See Borehole Location Plan**	Reviewed By:	**RW**	Easting:	**602172.1**	Date Completed:	**Apr 28/23**
Local Benchmark:	**Geodetic**						

GEI Consultants

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING	LAB TESTING					COMMENTS & GRAIN SIZE DISTRIBUTION (%)			
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)	Shear Strength Testing (kPa): Other Test; Pocket Penetrometer; Field Vane (Intact); Field Vane (Remolded) (40 80 120 160)	Combustible Organic Vapour (ppm); Combustible Organic Vapour (%LEL); Total Organic Vapour (ppm) (100 200 300 400)	Atterberg Limits (PL – LL)	Water Content (%) (10 20 30 40)	Instrumentation Installation		GR	SA	SI	CL
	Geodetic 0.0 221.6							Penetration Testing: SPT, DCPT (10 20 30 40)									
	0.2 221.4 TOPSOIL: 150 mm					0											
	WEATHERED/DISTURBED Firm, mottled brown, moist																
	0.8 220.8 CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist						220.5										
						1.5											
	- - - Hard - - -						219										
	3.0 218.5					3											
	Borehole Terminated at 3.0 m																

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Groundwater depth encountered on completion of drilling: Dry

Cave depth after auger removal: Open

Groundwater depth observed on: Jul 11/23 at depth of: 0.4 m.

Groundwater Elevation: 221.2 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

Scale: **1 :75**

Page: **1 of 1**

RECORD OF BOREHOLE No. 40

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Project Number:	2100463				
Project Client:	Wildfield Village Landowners Group Inc.				
Project Name:	Wildfield Village	Drilling Method:	Solid Stem Augers	Drilling Machine:	Track Mount
Project Location:	Town of Caledon, ON	Logged By:	FH	Northing: 4852203	Date Started: Apr 28/23
Drilling Location:	See Borehole Location Plan	Reviewed By:	RW	Easting: 601919.2	Date Completed: Apr 28/23
Local Benchmark:	Geodetic				

LITHOLOGY PROFILE / SOIL SAMPLING

Lithology Plot	DESCRIPTION (Geodetic)	Sample Type	Sample Number	Recovery (%)	SPT "N" Value
	0.0 / 225.7				
	0.2 / 225.5 TOPSOIL: 150 mm				
	WEATHERED/DISTURBED Firm, mottled brown, moist	SS	1	100	6
	0.8 / 224.9 CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	2	100	19
		SS	3	100	22
		SS	4	100	22
	- - - Stiff - - -	SS	5	100	9
	- - - Firm - - -	SS	6	100	6
	6.6 / 219.1	SS	7	100	8

Borehole Terminated at 6.6 m

FIELD TESTING

Shear Strength Testing (kPa): Other Test; Pocket Penetrometer; Field Vane (Intact); Field Vane (Remolded) — 40, 80, 120, 160

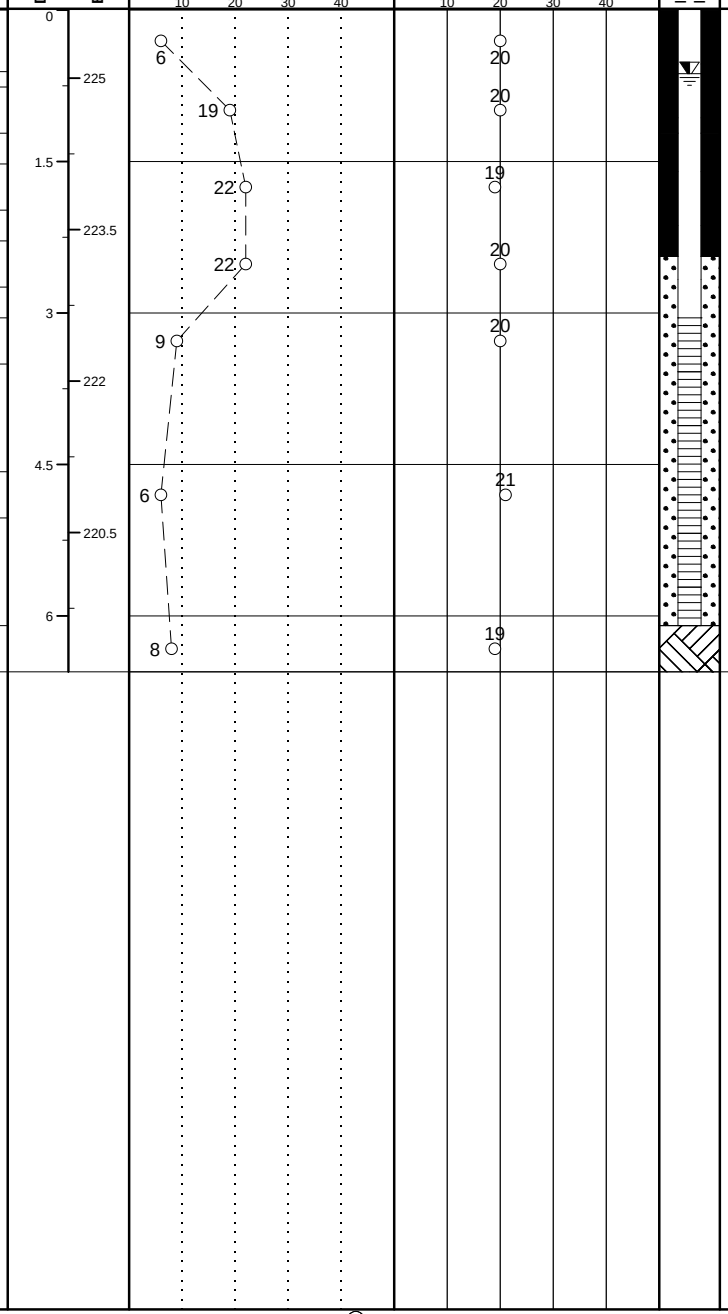
Penetration Testing: SPT ○ DCPT ● — 10, 20, 30, 40

LAB TESTING

Combustible Organic Vapour (ppm); Combustible Organic Vapour (%LEL); Total Organic Vapour (ppm) — 100, 200, 300, 400

Atterberg Limits: PL — LL

Water Content (%) — 10, 20, 30, 40



COMMENTS & GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL

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Groundwater depth encountered on completion of drilling: Dry

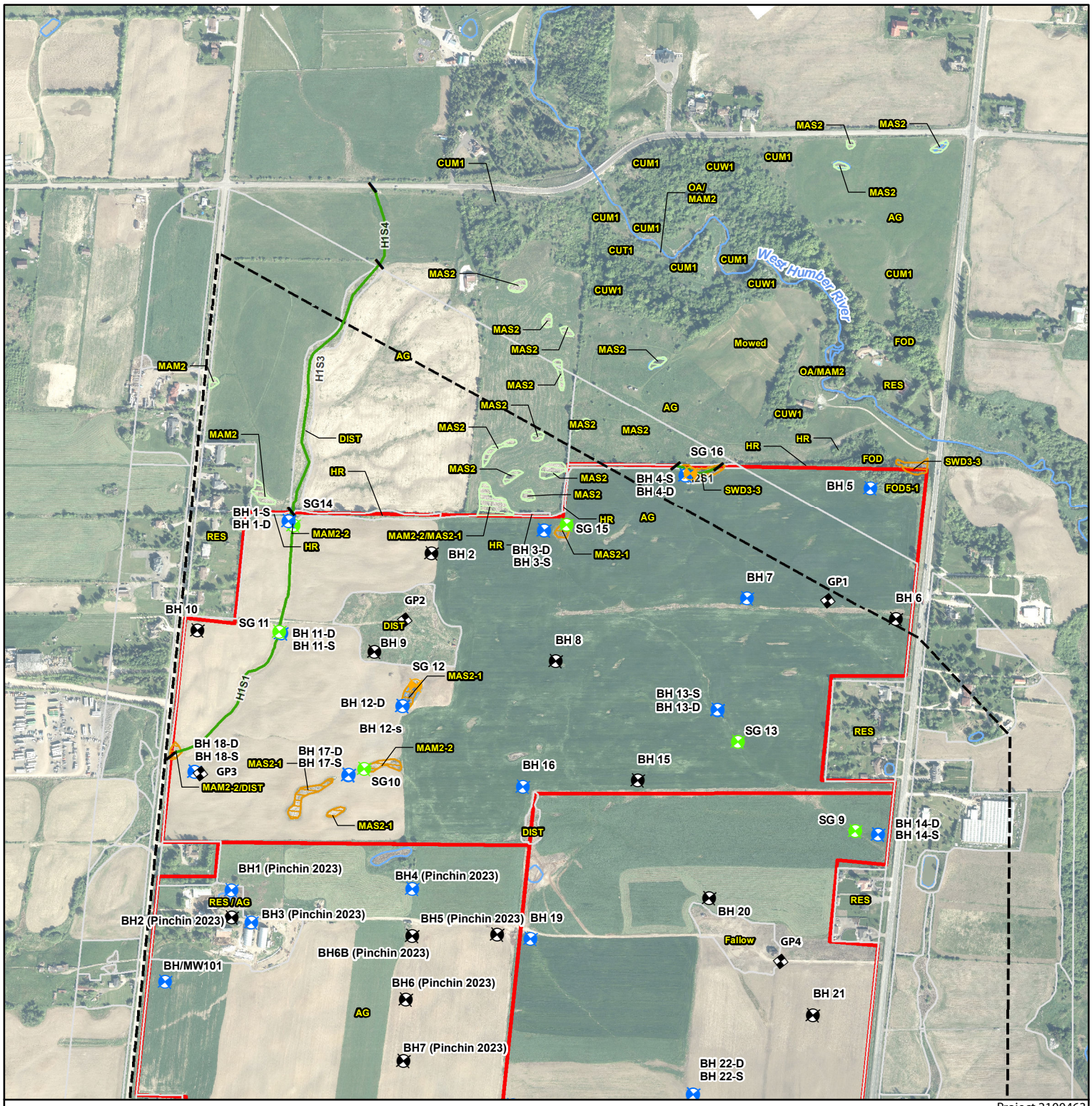
Cave depth after auger removal: Open

Groundwater depth observed on: Jul 11/23 at depth of: 0.63 m.

Groundwater Elevation: 225.0 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

Scale: **1 :75**



NOTES:

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* Non-participating lands were assessed through air photo interpretation to the ELC Ecosite level.

Legend

- Wildfield Village Study Area
- Participating Landowner
- Ecological Land Classification *
- Waterbody
- Watercourse (TRCA)
- Borehole Location
- Borehole/Monitoring Well Location
- Staff Gauge Location
- Staff Gauge/Seepage Meter Location
- Guelph Permeameter

Headwater Drainage Feature

Management Recommendations

- Mitigation
- Conservation
- Protection

Wetland Evaluation (GEI Consultants Ltd.)

- Other Wetland
- Unevaluated Wetland

ELC LEGEND

AG, Agricultural
COM, Commercial
CUM1, Mineral Cultural Meadow
CUM1-1, Mineral Cultural Meadow
CUT1, Mineral Cultural Thicket
CUW1, Mineral Cultural Woodland
DIST, Disturbed
FOD, Deciduous Forest
FOD5-1, Dry – Fresh Sugar Maple Deciduous Forest
FOD7, Fresh – Moist Lowland Deciduous Forest
Fallow, Fallow
HR, Hedgerow
MA, Marsh
MAM2, Mineral Meadow Marsh
MAM2-10, Forb Mineral Meadow Marsh
MAM2-2, Reed Canary Grass Mineral Meadow Marsh
MAS2, Mineral Shallow Marsh
MAS2-1, Cattail Mineral Shallow Marsh
Mowed, Mowed
OA, Open Aquatic
OA/MAM2, Open Aquatic/Mineral Meadow Marsh
RES, Residential
SA, Shallow Aquatic
SWD3-2, Silver Maple Mineral Deciduous Swamp
SWD3-3, Swamp Maple Mineral Deciduous Swamp
THDM2-6, Buckthorn Deciduous Shrub Thicket

Project 2100463

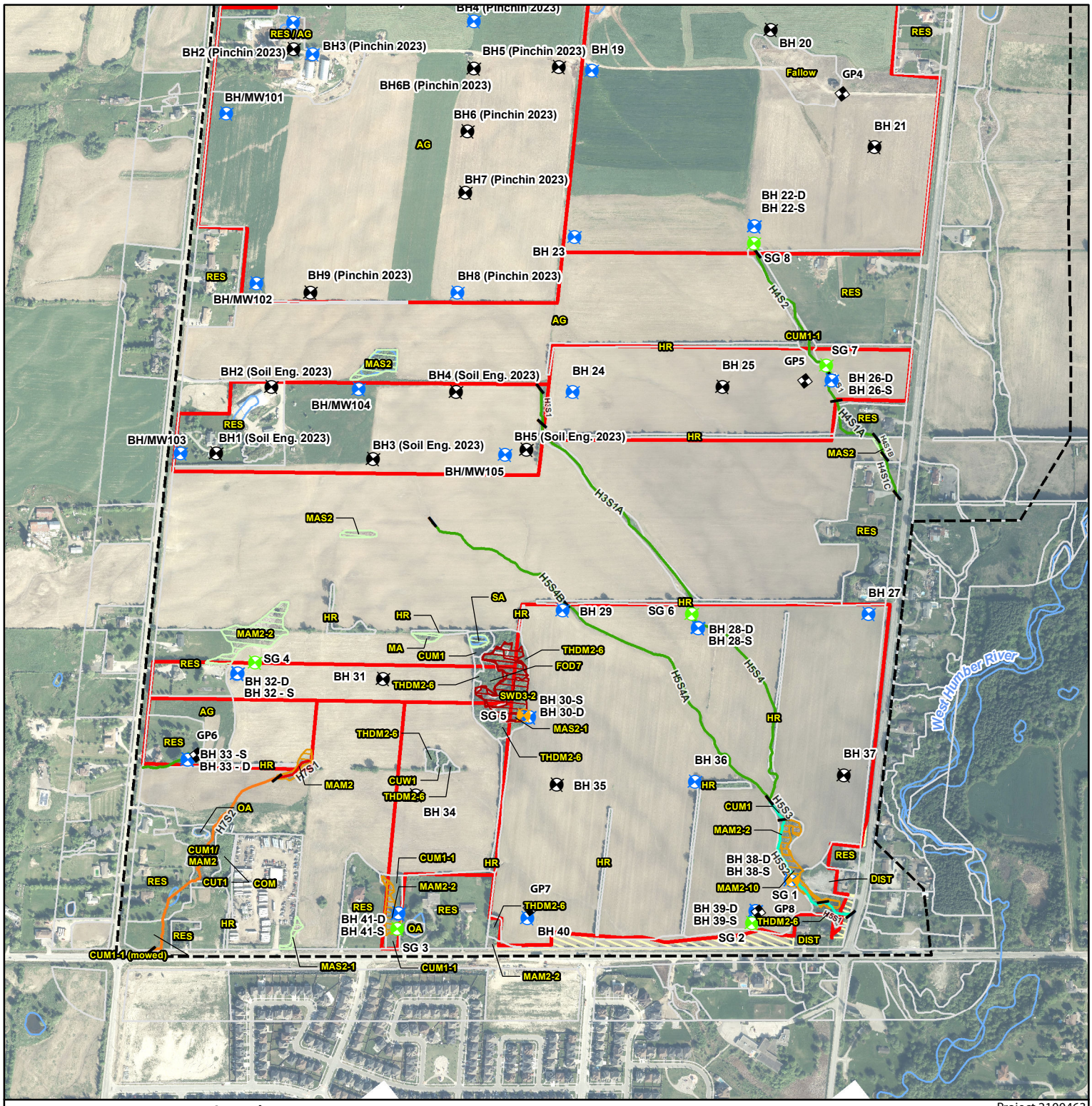
Wildfield Village Local Subwatershed Study - Phase 1
Wildfield Village Landowner Group

Figure 3.5A
Observed Natural Heritage Features with Borehole Locations

0 100 m
1:10,000

GEI Consultants

Path: \\bos-pzcc-1\Data_Storage\Working\WILDFIELD VILLAGE LANDOWNER GROUP\2100463 Town of Caledon\05_GIS\figures\report_figures\2024 08_HydroG_update\2100463_rpt_fig04B_observed_NHF_with_boreholes.mxd Date Saved: Friday, September 27, 2024



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3. Orthoimagery © First Base Solutions, 2021. Imagery taken in 2020.

* Non-participating lands were assessed through air photo interpretation to the ELC Ecosite level.

Legend

- Wildfield Village Study Area
- Road Easement
- Participating Landowner
- Ecological Land Classification *
- Watercourse (GEI Consultants Ltd.)
- Waterbody
- Watercourse (TRCA)
- Borehole Location
- Borehole/Monitoring Well Location
- Staff Gauge Location
- Staff Gauge/Seepage Meter Location
- Guelph Permeameter

Headwater Drainage Feature Management Recommendations

- Mitigation
- Conservation
- Protection

Wetland Evaluation (GEI Consultants Ltd.)

- Significant Wetland
- Other Wetland
- Unevaluated Wetland

ELC LEGEND

AG, Agricultural
COM, Commercial
CUM1, Mineral Cultural Meadow
CUM1-1, Mineral Cultural Meadow
CUT1, Mineral Cultural Thicket
CUW1, Mineral Cultural Woodland
DIST, Disturbed
FOD, Deciduous Forest
FOD5-1, Dry – Fresh Sugar Maple Deciduous Forest
FOD7, Fresh – Moist Lowland Deciduous Forest
Fallow, Fallow
HR, Hedgerow
MA, Marsh
MAM2, Mineral Meadow Marsh
MAM2-10, Forb Mineral Meadow Marsh
MAM2-2, Reed Canary Grass Mineral Meadow Marsh
MAS2, Mineral Shallow Marsh
MAS2-1, Cattail Mineral Shallow Marsh
Mowed, Mowed
OA, Open Aquatic
OA/MAM2, Open Aquatic/Mineral Meadow Marsh
RES, Residential
SA, Shallow Aquatic
SWD3-2, Silver Maple Mineral Deciduous Swamp
SWD3-3, Swamp Maple Mineral Deciduous Swamp
THDM2-6, Buckthorn Deciduous Shrub Thicket

Project 2100463

Wildfield Village Local Subwatershed Study - Phase 1
Wildfield Village Landowner Group

Figure 3.5B
Observed Natural Heritage Features with Borehole Locations

0 100 m
1:10,000

GEI Consultants

Appendix B2 Phase 1 & 2 LSS Excerpts

SCS consulting group ltd

Wildfield Village Secondary Plan
Caledon
Local Subwatershed Study
Phase 1 Report

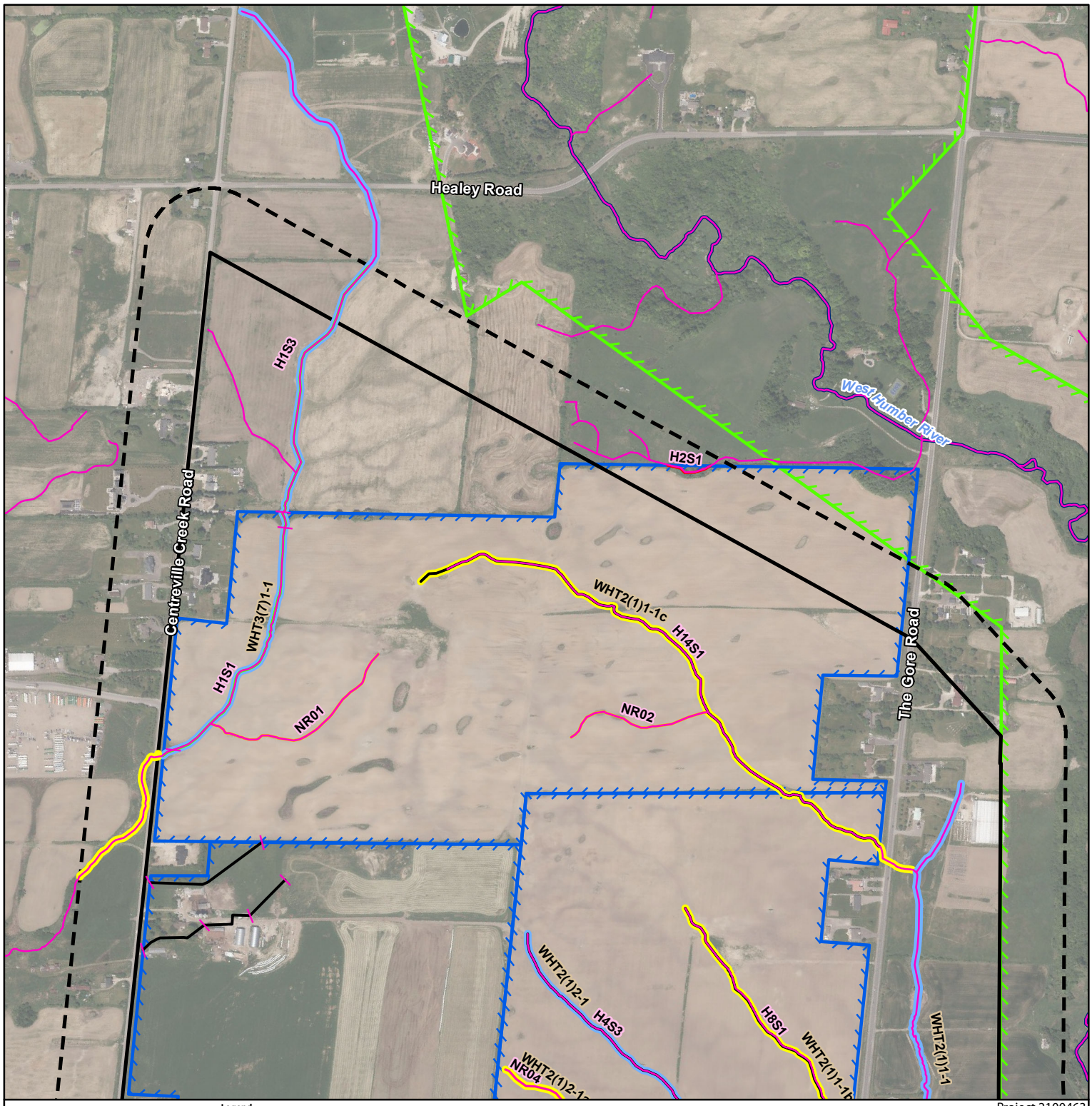
November 15, 2024

Submitted by:

SCS Consulting Group Ltd
30 Centurian Drive, Suite 100
Markham, ON L3R 8B8

GEI Consultants Inc.
330 Trillium Drive, Unit D
Kitchener, ON N2E 3J2

Project Number: 2630



NOTES:

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3. Orthoimagery © First Base Solutions, 2025. Imagery taken in 2024.

*Watercourse/HDF only showing on participating lands

Legend

- Wildfield Secondary Plan Area
- Adjacent 120m
- Participating Landowner
- Greenbelt Natural Heritage System
- West Humber River

Watercourse/HDF (source and class)*

- GEI, HDF
- GEI, HDF - Mitigation
- GEI, HDF - No Management Required
- GEI, HDF - Protection
- GEI, No Reach Observed
- GEI, Watercourse
- SABE, HDF
- SABE, Watercourse

Reach Breaks

- GEI
- SABE

Project 2100463

Wildfield Local Subwatershed Study Phase 1 Report
Wildfield Village Landowners Group Inc.

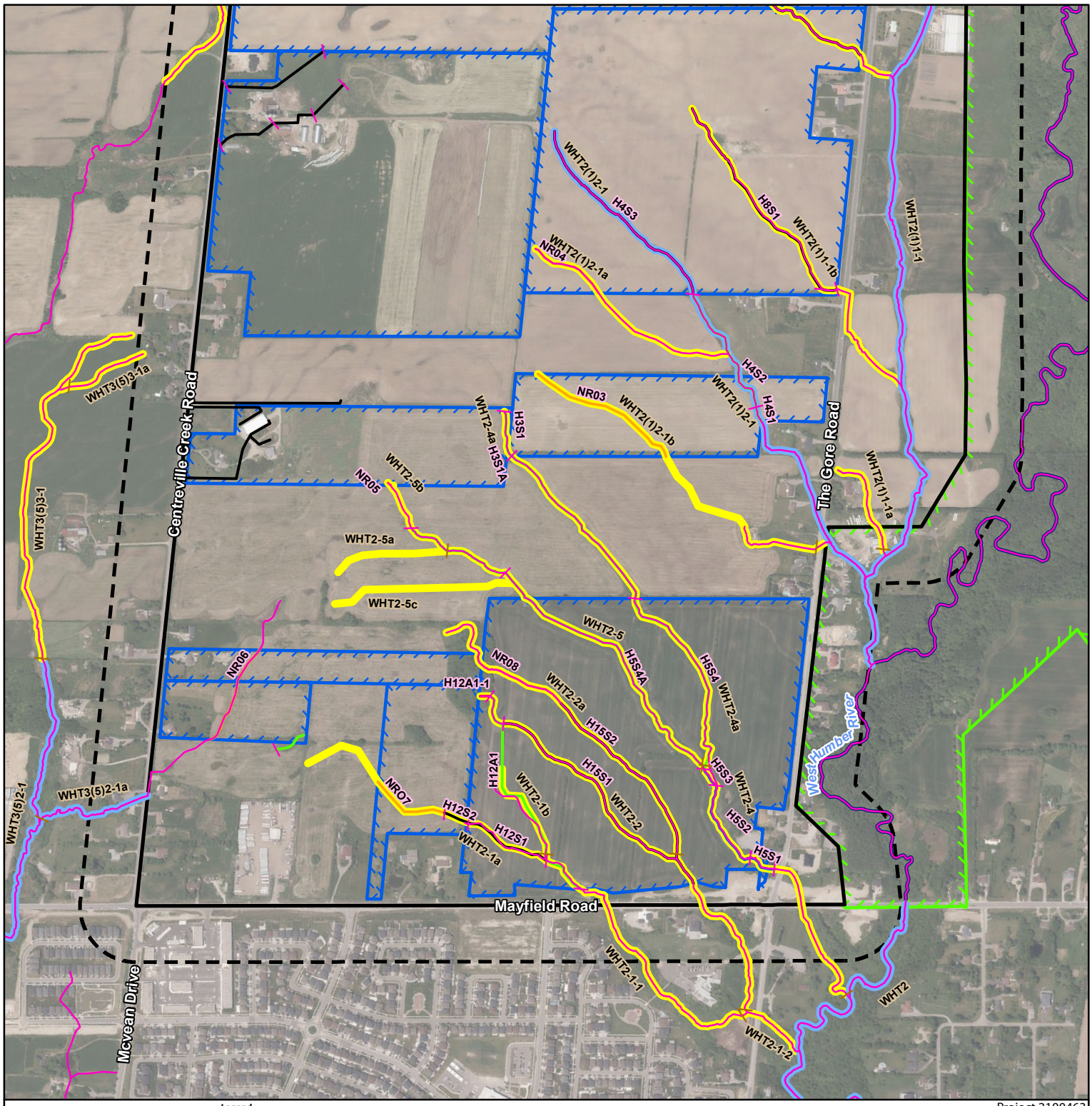
Figure 2.6
Watercourse and Drainage Feature Assessment (with Region of Peel Settlement Area Boundary Expansion (SABE) Scoped Watershed Study Mapping)

0 100 m
1:10,000

N

GEI Consultants

Path: \\bos-pzcc-1\Data_Storage\Working\WILDFIELD VILLAGE LANDOWNER GROUP\2100463 Town of Caledon\05_GIS\figures\report_figures\2025-05-15_phase1_resubmission_fluvial\2100463_rpt_fig02_6_watercourse_characterization_SABE.mxd Date Saved: Monday, June 9, 2025



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3. Orthoimagery © First Base Solutions, 2025. Imagery taken in 2024.

*Watercourse/HDF only showing on participating lands

Legend
- Wildfield Secondary Plan Area
- Adjacent 120m
- Participating Landowner
- Greenbelt Natural Heritage System
- West Humber River

Watercourse/HDF (source and class)*
- GEI, HDF
- GEI, HDF - Mitigation
- GEI, HDF - No Management Required
- GEI, HDF - Protection
- GEI, No Reach Observed
- GEI, Watercourse
- SABE, HDF
- SABE, Watercourse

Reach Breaks
- GEI
- SABE

Project 2100463

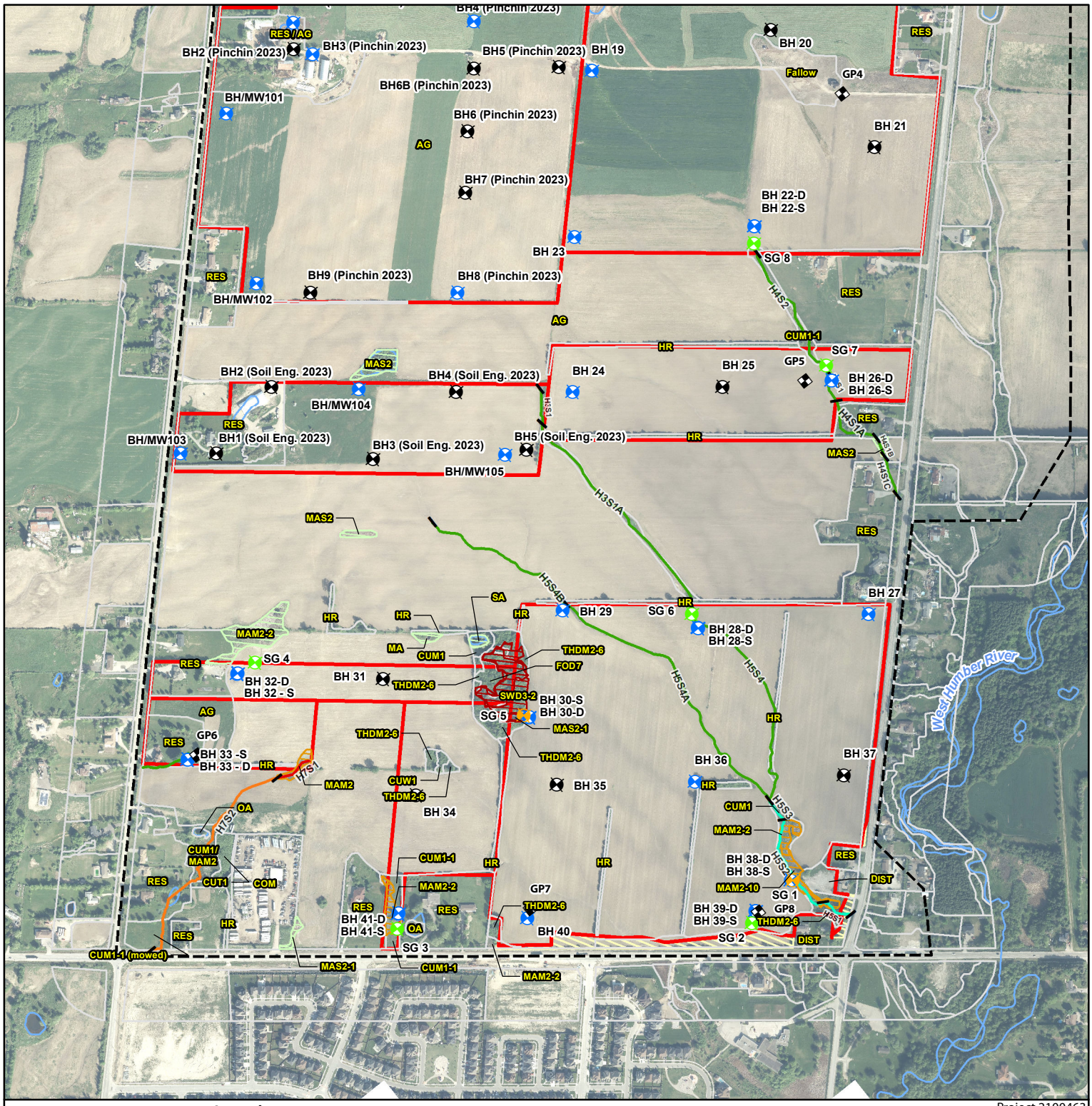
Wildfield Local Subwatershed Study Phase 1 Report
Wildfield Village Landowners Group Inc.

Figure 2.6
Watercourse and Drainage Feature Assessment (with Region of Peel Settlement Area Boundary Expansion (SABE) Scoped Watershed Study Mapping)

0 100 m
1:11,500

GEI Consultants

Path: \\bos-pzcc-1\Data_Storage\Working\WILDFIELD VILLAGE LANDOWNER GROUP\2100463 Town of Caledon\05_GIS\figures\report_figures\2025-05-15_phase1_resubmission_fluvial\2100463_rpt_fig02_6_watercourse_characterization_SABE.mxd Date Saved: Monday, June 9, 2025



Project 2100463

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* Non-participating lands were assessed through air photo interpretation to the ELC Ecosite level.

Legend

- Wildfield Village Study Area
- Road Easement
- Participating Landowner
- Ecological Land Classification *
- Watercourse (GEI Consultants Ltd.)
- Waterbody
- Watercourse (TRCA)
- Borehole Location
- Borehole/Monitoring Well Location
- Staff Gauge Location
- Staff Gauge/Seepage Meter Location
- Guelph Permeameter

Headwater Drainage Feature

Management Recommendations

- Mitigation
- Conservation
- Protection

Wetland Evaluation (GEI Consultants Ltd.)

- Significant Wetland
- Other Wetland
- Unevaluated Wetland

ELC LEGEND

AG, Agricultural
COM, Commercial
CUM1, Mineral Cultural Meadow
CUM1-1, Mineral Cultural Meadow
CUT1, Mineral Cultural Thicket
CUW1, Mineral Cultural Woodland
DIST, Disturbed
FOD, Deciduous Forest
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Fallow, Fallow
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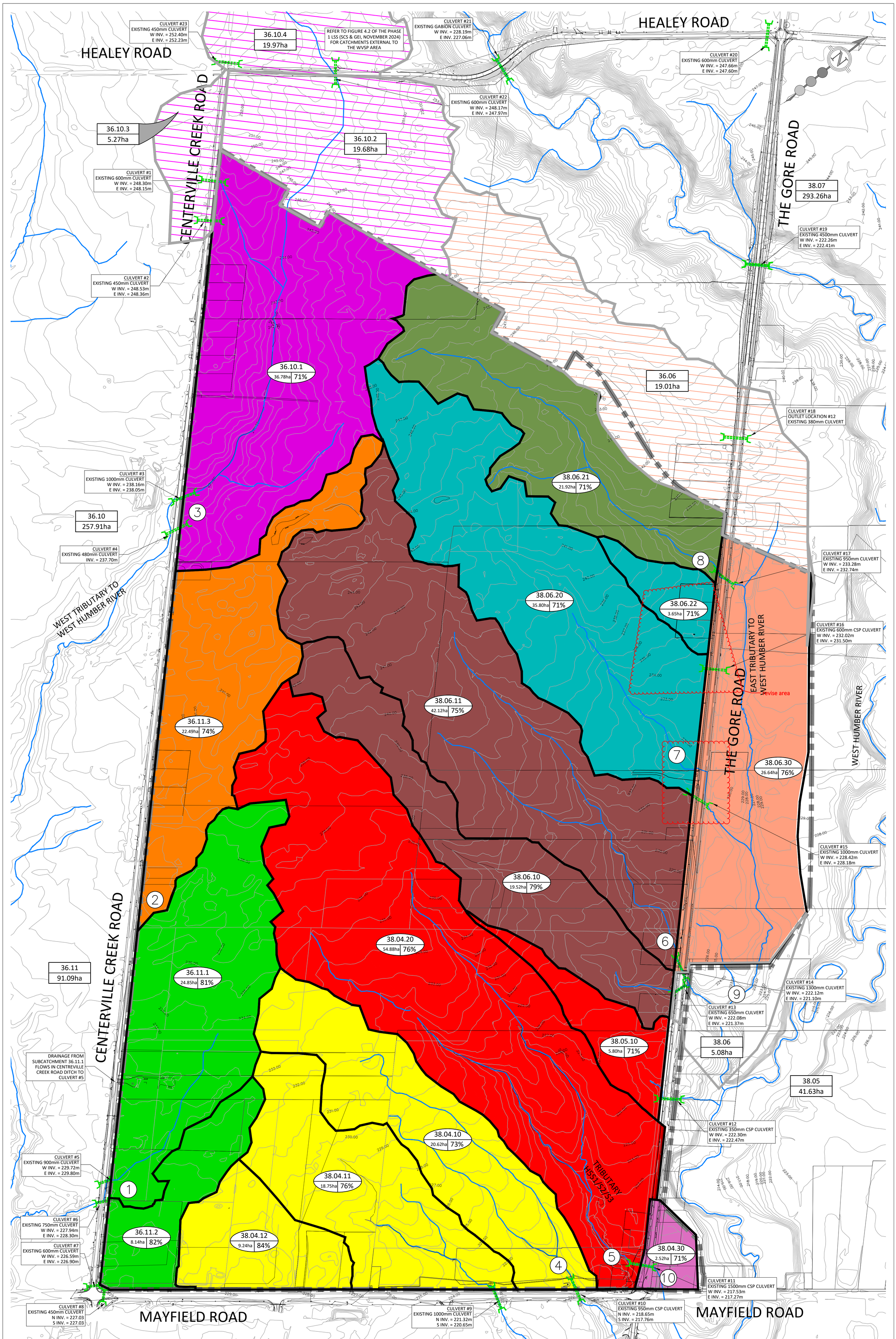
MAM2-2, Reed Canary Grass Mineral Meadow Marsh
MAS2, Mineral Shallow Marsh
MAS2-1, Cattail Mineral Shallow Marsh
Mowed, Mowed
OA, Open Aquatic
OA/MAM2, Open Aquatic/Mineral Meadow Marsh
RES, Residential
SA, Shallow Aquatic
SWD3-2, Silver Maple Mineral Deciduous Swamp
SWD3-3, Swamp Maple Mineral Deciduous Swamp
THDM2-6, Buckthorn Deciduous Shrub Thicket

Hydrogeological Investigation
Wildfield Village Landowner Group

Figure 3.2
Observed Natural Heritage Features with Borehole Locations

0 100 m
1:10,000

GEI Consultants



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

LEGEND:

- LIMIT OF DEVELOPMENT
- STORM DRAINAGE BOUNDARY
- EXISTING CULVERT
- EXTERNAL STORM DRAINAGE BOUNDARY

DRAINAGE AREAS

- OUTLET 1
- OUTLET 2
- OUTLET 3
- OUTLET 4
- OUTLET 5
- OUTLET 6
- OUTLET 7
- OUTLET 8
- OUTLET 9
- OUTLET 10
- OUTLET 3 EXTERNAL
- OUTLET 9 EXTERNAL
- (1) OUTLET ID

36.10.2 — CATCHMENT ID
19.68ha — EXTERNAL DRAINAGE AREA (HECTARES)

36.10.1 — CATCHMENT ID
36.78ha 71% — PERCENT (%) IMPERVIOUS; DRAINAGE AREA (HECTARES)

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

WILDFIELD VILLAGE

PROPOSED CONDITIONS STORM DRAINAGE PLAN

DESIGNED BY: A.T.	CHECKED BY: A.R.K.	PROJECT No: 2630	FIGURE No: 4.1
SCALE: 1:4000	DATE: JANUARY 2025		

File: P:\2630 Wildfield Village\Drawings\Phase 2 (Site Plan)\Swm\Report Figures\2630P-4.1-STRM.dwg - Revised by <DDILAY> : Tue, Dec 03 2024 - 9:07am

Wildfield Village
Project Number: 2630
Date: January 2025
Designer Initials: R.B.

Existing Conditions Erosion Threshold
VO Parameter Summary

Catchments 1402 & EXT2

Catchments 1401 & EXT1

Catchments 1501 & EXT3

NASHYD

Name	36.11.1	36.11.3	36.10.1	36.10.2	36.10.3	36.10.4	ETL-4b (38.04.10)	38.04.11	38.04.12	38.04.20	38.04.30	38.06.10	38.06.11	38.06.22	ETL-7 (38.06.20)	ETL-8 (38.06.21)	38.06.3
Number	7628	7630	7626	7647	7648	7649	7632	7640	7641	7633	7645	7631	7689	7636	7693	7690	7625
Area (ha)	24.85	22.49	36.78	19.68	5.27	19.97	20.62	18.75	9.24	54.12	2.52	19.52	42.12	4.75	34.73	21.92	26.64
CN*	*71*	*71*	*72*	*72*	*72*	*72*	*73*	*73*	*73*	*73*	*73*	*72*	*72*	*72*	*72*	*72*	*72*
IA(mm)	*10.0*	*10.0*	*10.0*	*10.0*	*10.0*	*10.0*	*10.0*	*10.0*	*10.0*	*10.0*	*10.0*	*10.0*	*10.0*	*10.0*	*10.0*	*10.0*	*10*
TP Method	Uplands	Uplands	Uplands	Uplands	Uplands	Uplands	Uplands	Uplands	Uplands	Uplands	Uplands	Uplands	Uplands	Uplands	Uplands	Uplands	Uplands
TP (hr)	0.77	1.00	0.44	0.20	0.15	0.31	0.61	0.51	0.46	1.07	0.11	0.73	0.92	0.21	0.76	0.61	0.60
Land Cover	Crops up to Shoulder Height	Crops up to Shoulder Height	Crops up to Shoulder Height	Crops up to Shoulder Height	Crops up to Shoulder Height	Crops up to Shoulder Height	Crops up to Shoulder Height	Crops up to Shoulder Height	Crops up to Shoulder Height	Crops up to Shoulder Height	Crops up to Shoulder Height	Crops up to Shoulder Height	Crops up to Shoulder Height	Crops up to Shoulder Height	Crops up to Shoulder Height	Crops up to Shoulder Height	Crops up to Shoulder Height
Soil Texture	Clay Loam	Clay Loam	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay Loam	Clay Loam	Clay Loam	Clay Loam	Clay Loam	Clay Loam

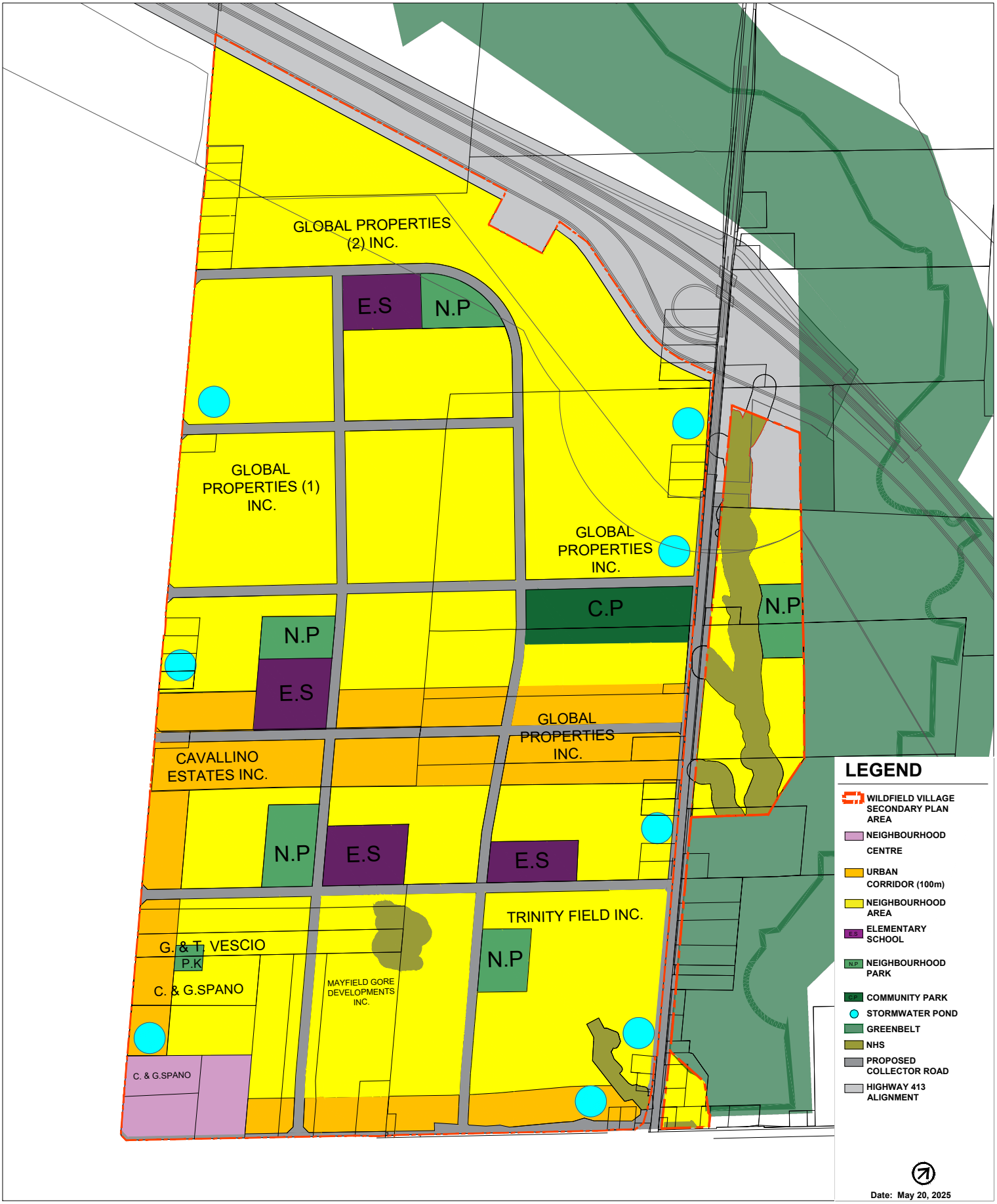
**** Italicized numbers are from TRCA Existing Conditions Modelling***

Name	38.06	38.04.00	38.05.10	38.05.00	38.07	37.01	37.02	37.03	37.04	37.05	37.06	37.07	37.08	37.09	37.10	37.11	37.12
Number	7671	7696	7643	578	39	580	563	564	565	566	567	568	569	570	571	572	573
DT(min)	5	5	5	5	5												
Area (ha)	24.09	39.22	5.80	41.63	293.26	306.23	26.85	145.14	141.48	365.26	105.51	235.25	284.55	299.42	125.88	188.91	192.77
CN*	*72*	*73*	*73*	*73*	*69*	*71*	*72*	*68*	*69*	*64*	*70*	*70*	*71*	*69*	*75*	*76*	*75*
IA(mm)	*10*	*10*	*10*	*10*	*10*	*10*	*10.0*	*10.0*	*10*	*10*	*10*	*10*	*10*	*10*	*10*	*10*	*10*
TP Method			Uplands														
TP (hr)	0.86	*1.99*	0.34	*0.82*	*4.55*	*2.26*	*0.77*	*2.18*	*2.00*	*2.99*	*1.46*	*3.74*	*4.37*	*3.11*	*1.63*	*1.91*	*3.67*
Land Cover	Crops up to Shoulder Height	Crops up to Shoulder Height	Crops up to Shoulder Height	Crops up to Shoulder Height	Light Forest	Light Forest	Crops up to Shoulder Height	Crops up to Shoulder Height	Crops up to Shoulder Height	Light Forest	Light Forest	Crops up to Shoulder Height	Crops up to Shoulder Height	Crops up to Shoulder Height	Crops up to Shoulder Height	Crops up to Shoulder Height	Crops up to Shoulder Height
Soil Texture	Clay Loam	Clay	Clay	Clay	Clay Loam	Clay Loam	Clay Loam	Clay Loam	Clay Loam	Sandy Clay Loam	Clay Loam	Clay Loam	Clay Loam	Clay Loam	Clay Loam	Clay Loam	Clay

**** Italicized numbers are from TRCA Existing Conditions Modelling***

[1]Note that where there is NO directly connected area (ie: roof runoff to grassed areas), the hydrology program does not accept XIMP=0%, therefore, XIMP = 1% has been used
[2]Note that where there is NO pervious area, the hydrology program does not accept TIMP and XIMP=100%, therefore, TIMP and XIMP = 99% has been used

Total Area = 3206.0 ha



WILDFIELD VILLAGE | LAND USE CONCEPT PLAN

Wildfield Village Secondary Plan
Caledon
Local Subwatershed Study
Phase 2 Report
Analysis and Impact Assessment

January 20, 2025

Submitted by:

SCS Consulting Group Ltd
30 Centurian Drive, Suite 100
Markham, ON L3R 8B8

GEI Consultants Inc.
330 Trillium Drive, Unit D
Kitchener, ON N2E 3J2

Project Number: 2630

Wildfield Village
Project Number: 2630
Date: December 2024
Designer Initials: R.B

Proposed Conditions
VO Parameter Summary

NASHYD

Name	36.10	36.10.2	36.10.3	36.10.4	38.06	36.11	38.04	38.05
Number	7634	7647	7648	7649	7671	7629	7696	579
Description								
DT(min)	5	5	5	5	5	5	5	5
Area (ha)	257.91	19.68	5.27	19.97	24.09	91.09	36.37	41.63
CN*	*72*	*72*	*72*	*72*	*72*	*71*	*73*	*73*
CN_{III}*	*95*	*95*	*95*	*95*	*95*	*95*	*96*	*96*
IA(mm)	*10.0*	*10.0*	*10.0*	*10.0*	*10.0*	*10.0*	*10.0*	*10.0*
TP (hr)	*2.38*	0.20	0.15	0.31	0.86	*2.09*	*1.99*	*0.82*

** Italicized numbers are from TRCA Existing Conditions Modelling*

CN and Ia Values from parent catchment (38.04) for Existing Conditions Modeling

Catchments Contributing to SWMF 4

STANDHYD

Name	36.10.1	38.06.10	38.06.11	38.06.20	38.06.21	38.06.22	38.06.30	36.11.1	36.11.2	36.11.3	38.04.10	38.04.11	38.04.12	38.04.20	38.04.30	38.05.10
Number	7626	7631	7689	7693	7690	7636	7625	7628	7638	7630	7632	7640	7641	7633	7645	7643
Description																
DT(min)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Area (ha)	36.78	19.52	42.12	35.80	21.92	3.65	26.64	24.85	8.14	22.49	20.62	18.75	9.24	54.88	2.52	5.80
TIMP[2]	0.71	0.79	0.75	0.71	0.71	0.71	0.76	0.81	0.82	0.73	0.73	0.76	0.84	0.76	0.71	0.71
XIMP[1,2]	0.57	0.64	0.60	0.57	0.57	0.57	0.61	0.64	0.66	0.59	0.59	0.61	0.67	0.61	0.57	0.57
CN*	80	88	82	80	80	80	84	88	90	82	82	84	92	84	80	80
CN_{III}*	91	95	92	91	91	91	93	95	96	92	92	93	97	93	91	91
IA(mm)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
SLPP(%)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
LGP(m)	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
MNP	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
DPSI (mm)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
SLPI(%)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
LGI(m)	495.18	360.74	529.91	488.54	382.27	155.99	421.43	407.02	232.95	387.21	370.76	353.55	248.19	604.87	129.61	196.64
MNI	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013

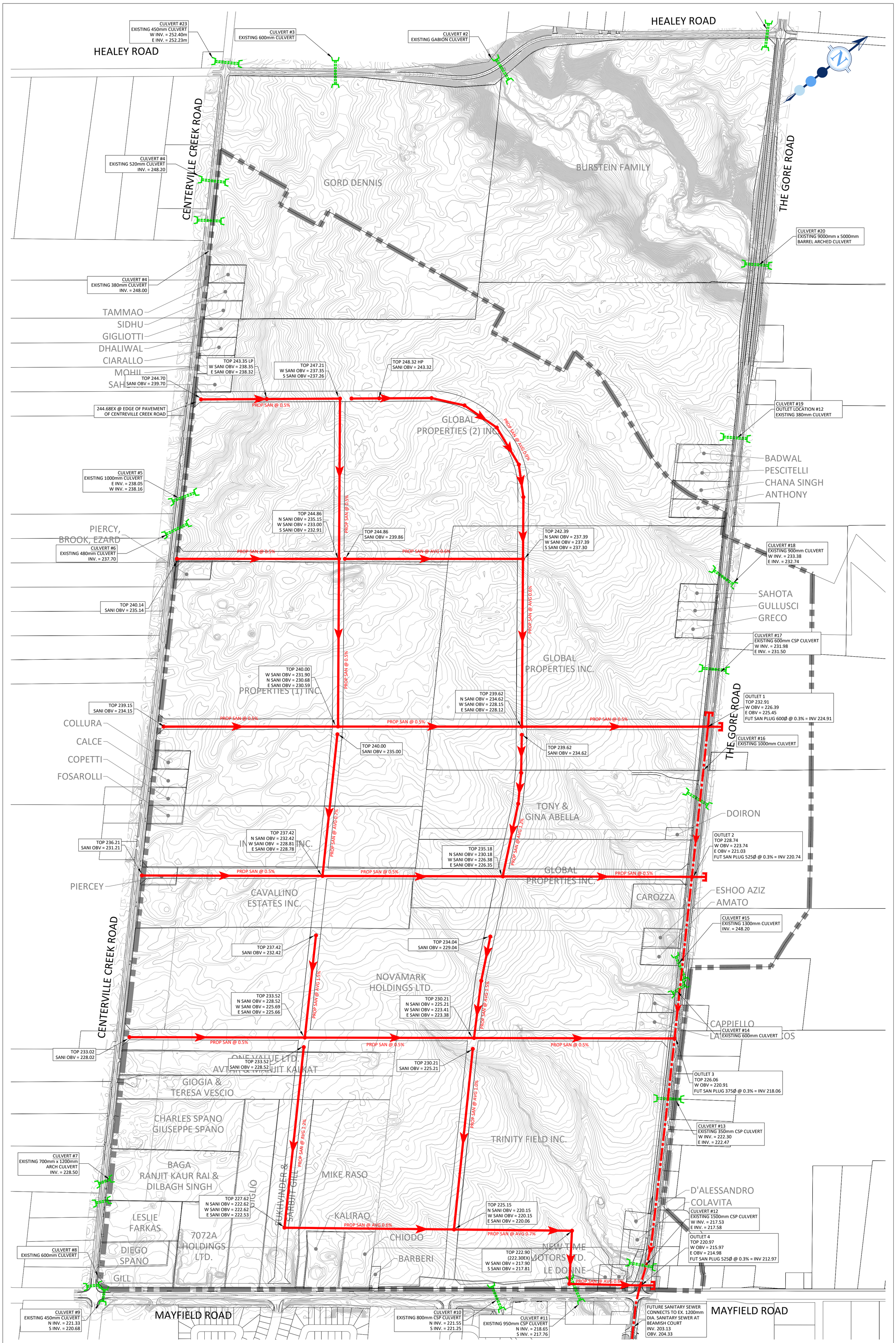
[1]Note that where there is NO directly connected area (ie: roof runoff to grassed areas), the hydrology program does not accept XIMP=0%, therefore, XIMP = 1% has been used
[2]Note that where there is NO pervious area, the hydrology program does not accept TIMP and XIMP=100%, therefore, TIMP and XIMP = 99% has been use

Total Area = 849.7 ha

Catchments Contributing to SWMF 5

Catchment to SWMF 4	Area (ha)	CNII	CNIII
38.04.10	20.62	82	92
38.04.11	18.75	84	93
38.04.12	9.24	92	97
Total		*85*	*93*

Catchment to SWMF 5	Area (ha)	CNII	CNIII
38.04.20	54.88	84	93
38.05.10	5.80	80	91
Total		*84*	*93*



LEGEND:

- WILDFIELD VILLAGE SECONDARY PLAN (WVSP) AREA LIMITS
- PROPOSED SANITARY SEWER AND MAINTENANCE HOLE
- FUTURE SANITARY SEWER AND MAINTENANCE HOLE
- EXISTING CULVERT

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

WILDFIELD VILLAGE		PROPOSED SANITARY SERVICING PLAN	
DESIGNED BY: R.R.B.	CHECKED BY: A.R.K.	PROJECT No: 2630	FIGURE No: 5.3
SCALE: 1:4000	DATE: JANUARY 2025		

File: P:\2630 Wildfield Village\Drawings\Phase 2 (Site Plan)\Swm\Report Figures\2630P-5.3-SERV.dwg – Revised by <SOZDEMIR> : Tue, Jan 14 2025 – 10:30am

Sanitary Population Calculations

Wildfield Village
Project Number: 2630
Date: December 2024
Designer Initials: D.V.

Catchments draining to Outlet 1:

Catchment 101

Land Use	*Area (ha)*
Neighbourhood Area	143.21

Unit Type Mix	*Unit Mix*	*Area (ha)*	*Units/ha*	*Population/Unit*	*Population*
Singles	85%	121.73	27	4.2	13804
Towns	15%	21.48	50	3.4	3652
				Total Equivalent Population	**17456**

Land Use	*Area (ha)*
Collector Road	11.67

Catchment 102

Land Use	*Area (ha)*
Neighbourhood Area	7.75

Unit Type Mix	*Unit Mix*	*Area (ha)*	*Units/ha*	*Population/Unit*	*Population*
Singles	85%	6.59	27	4.2	747
Towns	15%	1.16	50	3.4	198
				Total Equivalent Population	**945**
Total Population to Outlet 1 =					**18401**

Catchments draining to Outlet 2:

Catchment 103

Land Use	*Area (ha)*
Neighbourhood Area	12.08

Unit Type Mix	*Unit Mix*	*Area (ha)*	*Units/ha*	*Population/Unit*	*Population*
Singles	85%	10.27	27	4.2	1164
Towns	15%	1.81	50	3.4	308
				Total Equivalent Population	**1472**

Land Use	*Area (ha)*
Urban Corridor	30.41

Unit Type Mix	*Unit Mix*	*Area (ha)*	*Units/ha*	*Population/Unit*	*Population*
Townhouses	60%	18.25	50	3.4	3102
Stacked Towns	30%	9.12	90	3.4	2792
Apartments	10%	3.04	225	2.4	1642
				Total Equivalent Population	**7536**

Land Use	*Area (ha)*
Collector Road	8.38

Catchment 104

Land Use	*Area (ha)*
Neighbourhood Area	12.47

Unit Type Mix	*Unit Mix*	*Area (ha)*	*Units/ha*	*Population/Unit*	*Population*
Singles	85%	10.5995	27	4.2	1202
Towns	15%	1.87	50	3.4	318
				Total Equivalent Population	**1520**
Total Population to Outlet 2 =					**10528**

Sanitary Population Calculations

Wildfield Village
Project Number: 2630
Date: December 2024
Designer Initials: D.V.

Catchments draining to Outlet 3:

Catchment 105

Land Use	*Area (ha)*
Neighbourhood Area	32.39

Unit Type Mix	*Unit Mix*	*Area (ha)*	*Units/ha*	*Population/Unit*	*Population*
Singles	85%	27.53	27	4.2	3122
Towns	15%	4.86	50	3.4	826
				Total Equivalent Population	**3948**

Land Use	*Area (ha)*
Collector Road	2.42

Land Use	*Area (ha)*
Urban Corridor	2.41

Unit Type Mix	*Unit Mix*	*Area (ha)*	*Units/ha*	*Population/Unit*	*Population*
Townhouses	60%	1.45	50	3.4	246
Stacked Towns	30%	0.72	90	3.4	221
Apartments	10%	0.24	225	2.4	130
				Total Equivalent Population	**597**
Total Population to Outlet 3 =					**4545**

Catchments draining to Outlet 4:

Catchment 106

Land Use	*Area (ha)*
Neighbourhood Area	57.11

Unit Type Mix	*Unit Mix*	*Area (ha)*	*Units/ha*	*Population/Unit*	*Population*
Singles	85%	48.54	27	4.2	5505
Towns	15%	8.57	50	3.4	1456
				Total Equivalent Population	**6961**

Land Use	*Area (ha)*
Neighbourhood Centre	6.66

Unit Type Mix	*Unit Mix*	*Area (ha)*	*P/ha*	*Units/ha*	*Population/Unit*	*Population*
Apartments	50%	3.33	-	250	2.4	1998
Retail	50%	3.33	50	-	0	167
					Total Equivalent Population	**2165**

Land Use	*Area (ha)*
Urban Corridor	13.61

Unit Type Mix	*Unit Mix*	*Area (ha)*	*Units/ha*	*Population/Unit*	*Population*
Townhouses	60%	8.17	50	3.4	1388
Stacked Towns	30%	4.08	90	3.4	1249
Apartments	10%	1.36	225	2.4	735
				Total Equivalent Population	**3373**

Land Use	*Area (ha)*
Collector Road	3.22

Land Use	*Area (ha)*
Environmental Feature	2.16

Catchment 107

Land Use	*Area (ha)*
Neighbourhood Area	1.72

Unit Type Mix	*Unit Mix*	*Area (ha)*	*Units/ha*	*Population/Unit*	*Population*
Singles	85%	1.46	27	4.2	166
Towns	15%	0.26	50	3.4	44
				Total Equivalent Population	**210**
Total Population to Outlet 4 =					**12708**

Sanitary Population Calculations

Wildfield Village
Project Number: 2630
Date: December 2024
Designer Initials: D.V.

SUBJECT LANDS SUMMARY

Land Use	*Area (ha)*	*Population*
Neighbourhood Area	266.73	32512
Neighbourhood Centre	6.66	2165
Urban Corridor	46.43	11505
Total Area (ha)	**319.82**	**46182**

Land Use	*Area (ha)*	*Population*
Collector Road	25.69	0

Note: Land Use Population Densities per Population counts provided by Arutip in April 2024
Note: Sanitary Populations do not include park or school blocks to be conservative while not having up to date areas for the blocks.

Sanitary Design Sheet
Wildfield Village
Phase 1
Town of Caledon, Region of Peel

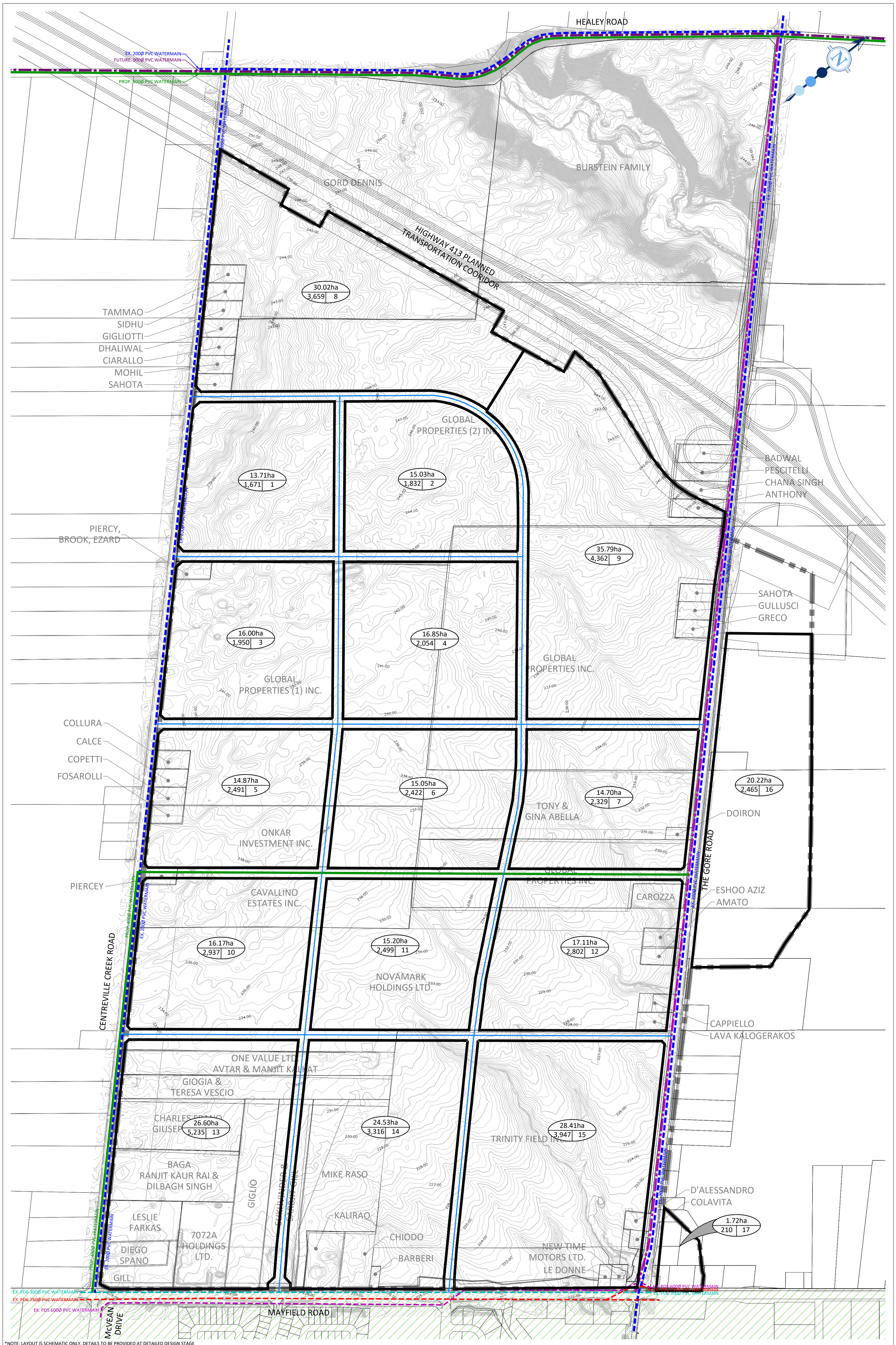
Minimum Sewer Diameter (mm) =	**200**	**Avg. Domestic Flow (l/cap/day) =**	**290**
Mannings n =	**0.013**	**Infiltration Rate (l/s/ha) =**	**0.26**
Minimum Velocity (m/s) =	**0.75**	**Max. Harmon Peaking Factor =**	**4.0**
Maximum Velocity (m/s) =	**3**	**Min. Harmon Peaking Factor =**	**2.0**
Minimum Pipe Slope (%) =	**0.50**	**NOMINAL PIPE SIZE USED**	

Note: Population density per sanitary population calculations in this appendix.

Project: Wildfield Village
Project No. 2630
Date: 14-Jan-25
Designed By: D.V.
Reviewed By: N.D.M.

P:\2630 Wildfield Village\Design\Pipe Design\Sanitary\[2630 - Sanitary Sheet Design - External Trunk Sanitary Sizing.xlsm]Design

LOCATION			RESIDENTIAL							INDUSTRIAL/COMMERCIAL/INSTITUTIONAL					FLOW CALCULATIONS								PIPE DATA				
STREET	MANHOLE		AREA	ACCUM. AREA	UNITS	DENSITY		RESIDENTIAL POPULATION	ACCUM. RESIDENTIAL POPULATION	AREA	ACCUM. AREA	POPULATION DENSITY	FLOW RATE	ACCUM. EQUIV. POPULATION	INFILTRATION	TOTAL ACCUM. POPULATION	AVG. DOMESTIC FLOW	ACCUM. AVG. DOMESTIC FLOW	PEAKING FACTOR	PEAKED RESIDENTIAL FLOW	ICI FLOW	TOTAL FLOW	LENGTH	PIPE DIAMETER	SLOPE	FULL FLOW CAPACITY	FULL FLOW VELOCITY
	FROM	TO	(ha)	(ha)	(#)	PER UNIT (p/unit)	PER HA (p/ha)			(ha)	(ha)	(p/ha)	(l/s/ha)		(L/s)		(L/s)	(L/s)		(L/s)	(L/s)	(L/s)	(m)	(mm)	(%)	(L/s)	(m/s)
Catchment 101	101	MH1	154.88	154.88	0		112.7	17456	17456	0	0	0	0	0	40.3	17456	58.6	58.6	2.71	158.9	0.0	199.2	100.0	525	0.50	303.9	1.40
Catchment 102	102	MH1	7.75	7.75	0		121.9	945	945	0	0	0	0	0	2.0	945	3.2	3.2	3.82	12.1	0.0	14.1	100.0	200	0.50	23.2	UNDER
The Gore Road	MH1	Plug 1	0	162.63	0			0	18401	0	0	0	0	0	42.3	18401	0.0	61.8	2.69	166.1	0.0	208.4	100.0	600	0.30	336.1	1.19
Catchment 103	103	MH2	50.87	50.87	0		177.1	9008	9008	0	0	0	0	0	13.2	9008	30.2	30.2	3.00	90.7	0.0	103.9	100.0	450	0.50	201.5	1.27
Catchment 104	104	MH2	12.47	12.47	0		121.9	1520	1520	0	0	0	0	0	3.2	1520	5.1	5.1	3.68	18.8	0.0	22.0	100.0	250	0.50	42.0	0.86
The Gore Road	MH2	Plug 2	0	63.34	0			0	10528	0	0	0	0	0	16.5	10528	0.0	35.3	2.93	103.6	0.0	120.1	100.0	525	0.30	235.4	1.09
Catchment 105	105	MH3	37.22	37.22	0		122.1	4545	4545	0	0	0	0	0	9.7	4545	15.3	15.3	3.28	50.1	0.0	59.8	100.0	375	0.50	123.9	1.12
The Gore Road	MH3	Plug 3	0	37.22	0			0	4545	0	0	0	0	0	9.7	4545	0.0	15.3	3.28	50.1	0.0	59.8	100.0	375	0.30	96.0	0.87
Catchment 106	106	MH4	82.74	82.74	0		151.1	12498	12498	0	0	0	0	0	21.5	12498	41.9	41.9	2.86	119.9	0.0	141.4	100.0	450	0.50	201.5	1.27
Catchment 107	107	MH4	1.72	1.72	0		122.1	210	210	0	0	0	0	0	0.4	210	0.7	0.7	4.00	2.8	0.0	3.3	100.0	200	0.50	23.2	UNDER
The Gore Road	MH4	Plug 4	0	84.46	0			0	12708	0	0	0	0	0	22.0	12708	0.0	42.7	2.85	121.6	0.0	143.6	100.0	525	0.30	235.4	1.09



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

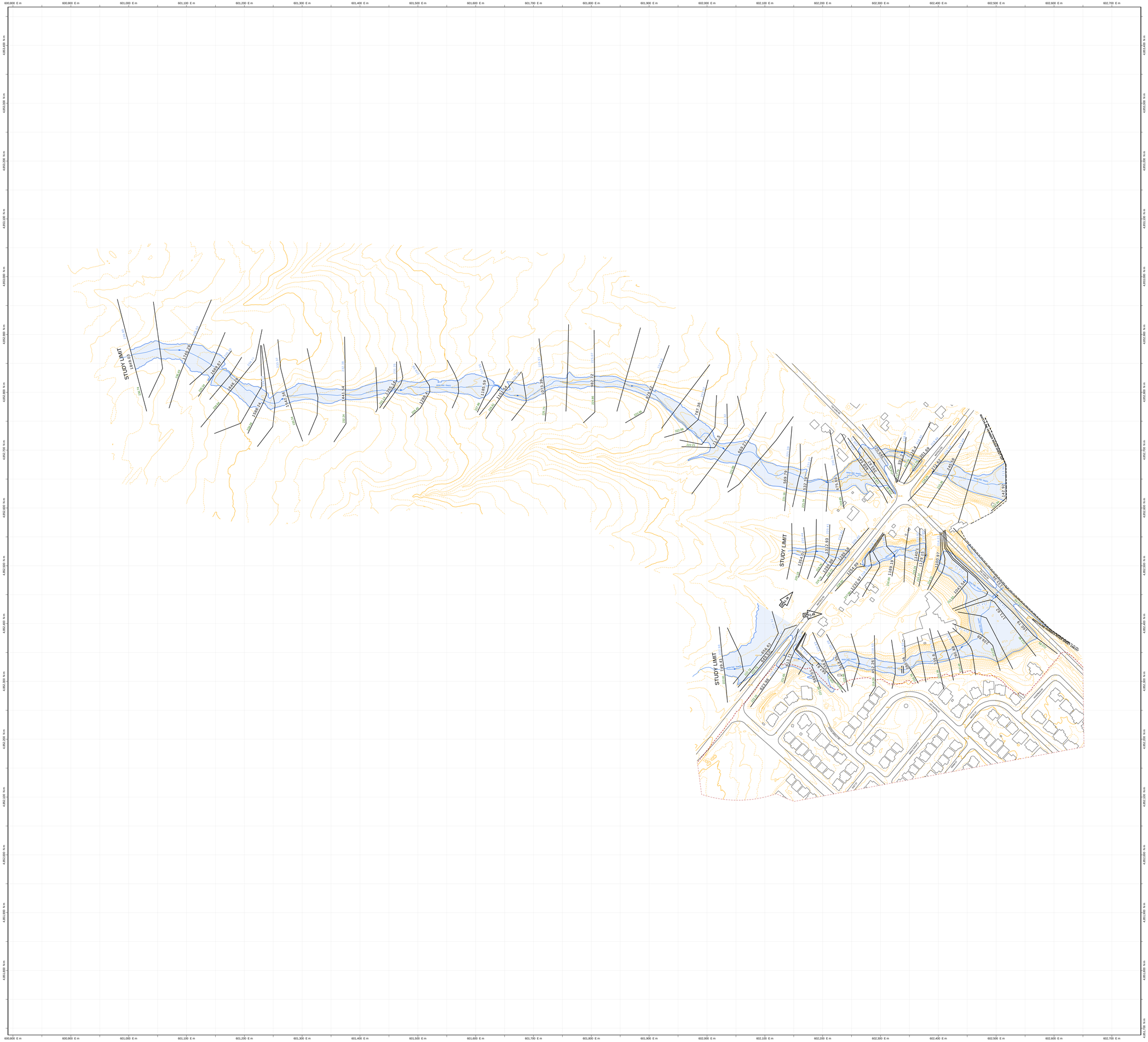
LEGEND:

- WILDFIELD VILLAGE SECONDARY PLAN (WVSP) AREA LIMITS
- PROPOSED LOCAL DISTRIBUTION WATERMAIN
- 400Ø PROPOSED DISTRIBUTION WATERMAIN
- 600Ø FUTURE DISTRIBUTION WATERMAIN
- 900Ø FUTURE TRANSMISSION WATERMAIN
- 200Ø EXISTING WATERMAIN
- 300Ø EXISTING WATERMAIN
- 600Ø EXISTING WATERMAIN
- 750Ø EXISTING WATERMAIN
- APPROXIMATE EXTENT OF PRESSURE ZONE 5 (182.4 - 236.2m)
- APPROXIMATE EXTENT OF PRESSURE ZONE 6E (214.5 - 259.1m)
- 28.99ha — DRAINAGE AREA (HECTARES)
- 3878 — POPULATION
- 15 — BLOCK NUMBER

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

WILDFIELD VILLAGE		MASTER WATER SERVICING PLAN	
DESIGNED BY: A.T.	CHECKED BY: A.R.K.	PROJECT No: 2630	FIGURE No: 5.4
SCALE: 1:4000	DATE: JANUARY 2025		

File: P:\2630 Wildfield Village\Drawings\Phase 2 (Site Plan)\Swm\Report Figures\2630P-5.4-WTRM.dwg - Revised by <SOZDEMIR> : Tue, Jan 14 2025 - 10:21am



TRCA Flood Plain Mapping Program

Hydraulic Engineering Service Provided By:

Toronto and Region Conservation Authority

This map is a copy of the original map sheet sealed by Y. Qiao on May 30, 2024.
If the sealed map is required please contact TRCA. The professional engineer's seal and signature verifies the location of the flood line and the associated water surface elevations only

Map Note:

AIRBORNE IMAGING

The flood line on this map was produced from hydraulic modelling software using a digital elevation model (DEM) with 1m grid resolution. The DEM was created using bare earth mass points with a vertical accuracy tolerance of +/- 0.10 m on hard flat surfaces. The mass points were collected using LiDAR flown in 2014/2015 by Airborne Imaging. In select areas elevation data from 2019 was used. This data was collected using LiDAR flown in 2019 by Airborne Imaging, and uses the same specification as the 2014/2015 dataset.

The spot elevations shown on this map were produced by TRCA using the DEM mentioned above. The contour lines were produced by TRCA by smoothing the full resolution DEM to create smooth lines for cartographic display and should therefore be used as reference only. The river banks were produced by TRCA and are approximate, contours within close proximity are a result of interpolation from the DEM surface and should not be considered a true representation of the water surface or bathymetry.

Contour labels and spot elevations are represented as metres above sea level (masl).

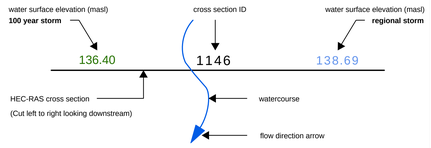
The planimetric data on this map were acquired from various sources with different collection dates and are provided for reference only. The building footprints were acquired from Region of Peel Open Data and City of Brampton in 2020.

The vertical datum is the Canadian Geodetic Vertical Datum of 1928:1978 Ontario Adjusted Version.
The horizontal datum is North American Datum of 1983, UTM 6° projection Zone 17,
Central Meridian 81° W.

Legend

Surface Contour	Road	Regulatory Flood Line
5m	Building	Elevation Data From 2019
1m	Bridge / Culvert	Regulatory Flood Plain
0.5m	Waterbody	
Spot Elevation Point	Railway	

Hydraulic Model Legend:



NOTE: The regulatory flood elevation is the greater of the regional storm or 100 year storm.

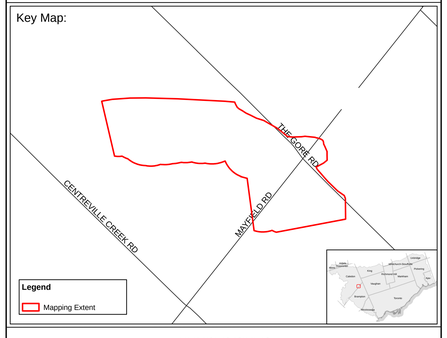
When the 100 year storm is greater, it is symbolized as follows: ***136.40***

SPILL 01 Indicates Spill, Spill ID and Approximate Flow Direction

Scale: 1:2,000

N

Key Map:



HUMBER RIVER

Sheet No.

252

Toronto and Region Conservation Authority
5 Shoreham Dr., Downsview, ON M3N 1S4 (416) 661 6600 info@trca.ca

Appendix B3 Topographic Information

SCS consulting group ltd

SKETCH SHOWING ELEVATIONS FOR ENGINEER'S USE

SCALE 1:2000

R-PE SURVEYING LTD., O.L.S.

METRIC

CAUTION

A) THIS IS NOT A PLAN OF SURVEY AND SHALL NOT BE USED EXCEPT FOR THE PURPOSE INDICATED IN THE TITLE BLOCK.
B) THIS SKETCH IS PROTECTED BY COPYRIGHT ©.

NOTES

THIS SKETCH IS AN ORIGINAL IF EMBOSSED BY THE SURVEYOR'S SEAL. BOUNDARIES ARE NOT CERTIFIED BY THIS PLAN, AND ARE SUBJECT TO CLARIFICATION UPON THE INCORPORATION OF ADDITIONAL DOCUMENTARY AND FIELD SURVEY EVIDENCE.

BENCHMARK NOTE

ELEVATIONS ARE GEODETIC AND ARE REFERRED TO PEEL REGION VERTICAL BENCHMARK NUMBER 44 HAVING AN ORTHOMETRIC ELEVATION OF 227.660 METRES. ELEVATIONS ARE REFERENCED TO THE CANADIAN GEODETIC VERTICAL DATUM OF 1928, 1978 ADJUSTMENT (CGVD-1928:1978).

MONUMENT IS LOCATED ON THE SOUTH FACE AT THE WEST CORNER OF GARAGE OF A RED BRICK BUNGALOW LOCATED ON THE NORTH SIDE OF SEVENTEENTH SIDEROAD (REGION ROAD No. 14) APPROXIMATELY 0.64KM EAST OF McVEAN DRIVE (EIGHTH LINE EAST) No. 7236 MAYFIELD ROAD.

FIELD OBSERVATIONS

THE FIELD OBSERVATIONS REPRESENTED ON THIS PLAN WERE COMPLETED ON

THE 24TH DAY OF OCTOBER, 2023

ADDITIONAL FIELD OBSERVATIONS WERE COMPLETED ON

THE 30TH DAY OF NOVEMBER, 2023

ADDITIONAL FIELD OBSERVATIONS WERE COMPLETED ON

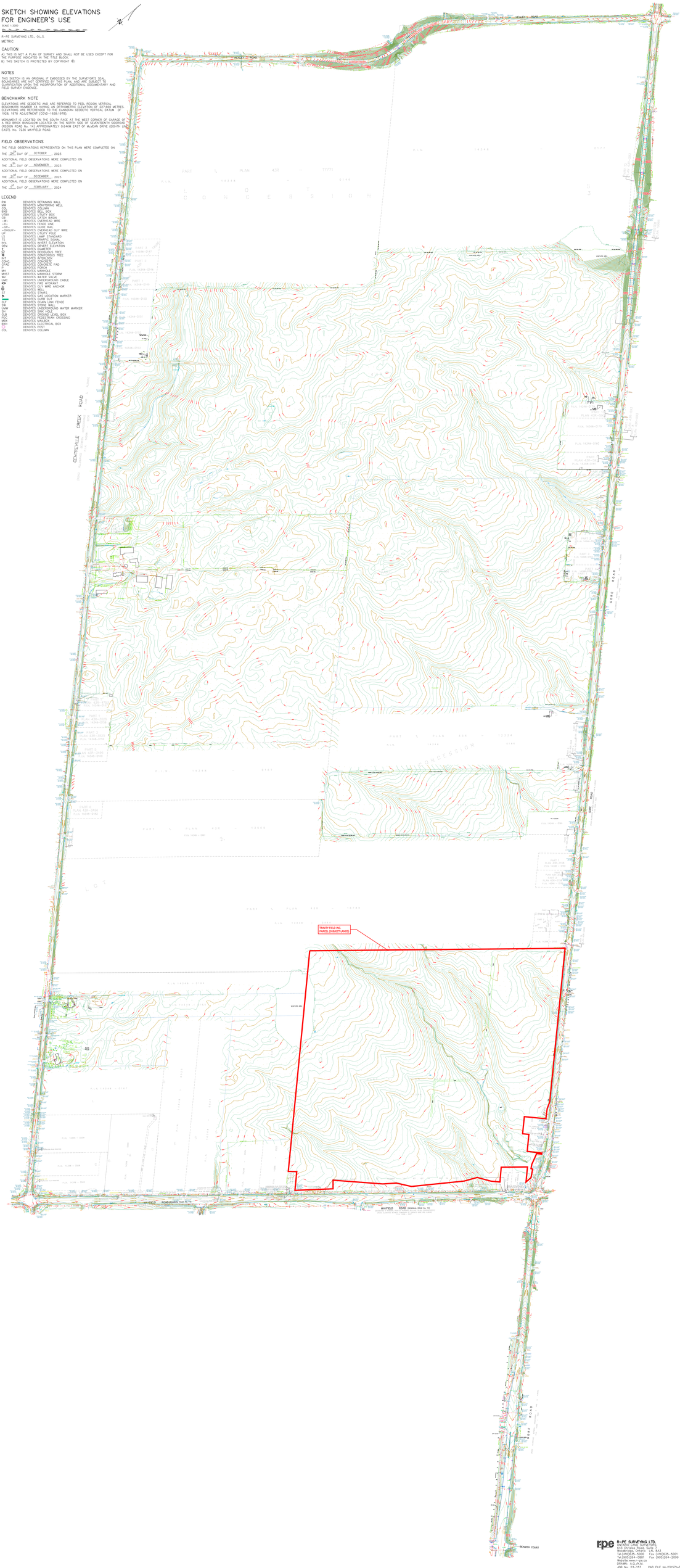
THE 22ND DAY OF DECEMBER, 2023

ADDITIONAL FIELD OBSERVATIONS WERE COMPLETED ON

THE 6TH DAY OF FEBRUARY, 2024

LEGEND

RW	DENOTES RETAINING WALL
MW	DENOTES MONITORING WELL
WV	DENOTES WATER VALVE
BXB	DENOTES BELL BOX
UTBX	DENOTES UTILITY BOX
CB	DENOTES CATCH BASIN
—W—	DENOTES UNDERGROUND WIRE
—T—	DENOTES TELEPHONE
—GR—	DENOTES GUIDE RAIL
—OHGUY—	DENOTES OVERHEAD GUY WIRE
TP	DENOTES TEST PIT
LS	DENOTES LAMP STANDARD
TS	DENOTES TRAFFIC SIGNAL
DTW	DENOTES DRILLED WELL
DEV	DENOTES DEVIATE ELEVATION
Ø	DENOTES DIAMETER
DT	DENOTES DECIDUOUS TREE
CT	DENOTES CONIFEROUS TREE
INT	DENOTES INTERLOCK
CONC	DENOTES CONCRETE
CPAD	DENOTES CONCRETE PAD
MB	DENOTES MAILBOX
MH	DENOTES MANHOLE
MHST	DENOTES MANHOLE STORM
MHSA	DENOTES MANHOLE SANITARY
UMC	DENOTES UNDERGROUND CABLE
	DENOTES FIRE HYDRANT
	DENOTES GUY WIRE ANCHOR
	DENOTES WELL
LS	DENOTES STAIRS
	DENOTES GAS LOCATION MARKER
	DENOTES CURB
	DENOTES CHAIN LINK FENCE
SW	DENOTES STONE WALL
UMW	DENOTES UNDERGROUND WATER MARKER
GP	DENOTES GUIDE POST
GLB	DENOTES GROUND LEVEL BOX
PCC	DENOTES PEDESTRIAN CROSSING
BOH	DENOTES BOREHOLE
BSH	DENOTES ELECTRICAL BOX
	DENOTES POST
COL	DENOTES COLUMN



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ONTARIO LAND SURVEYORS
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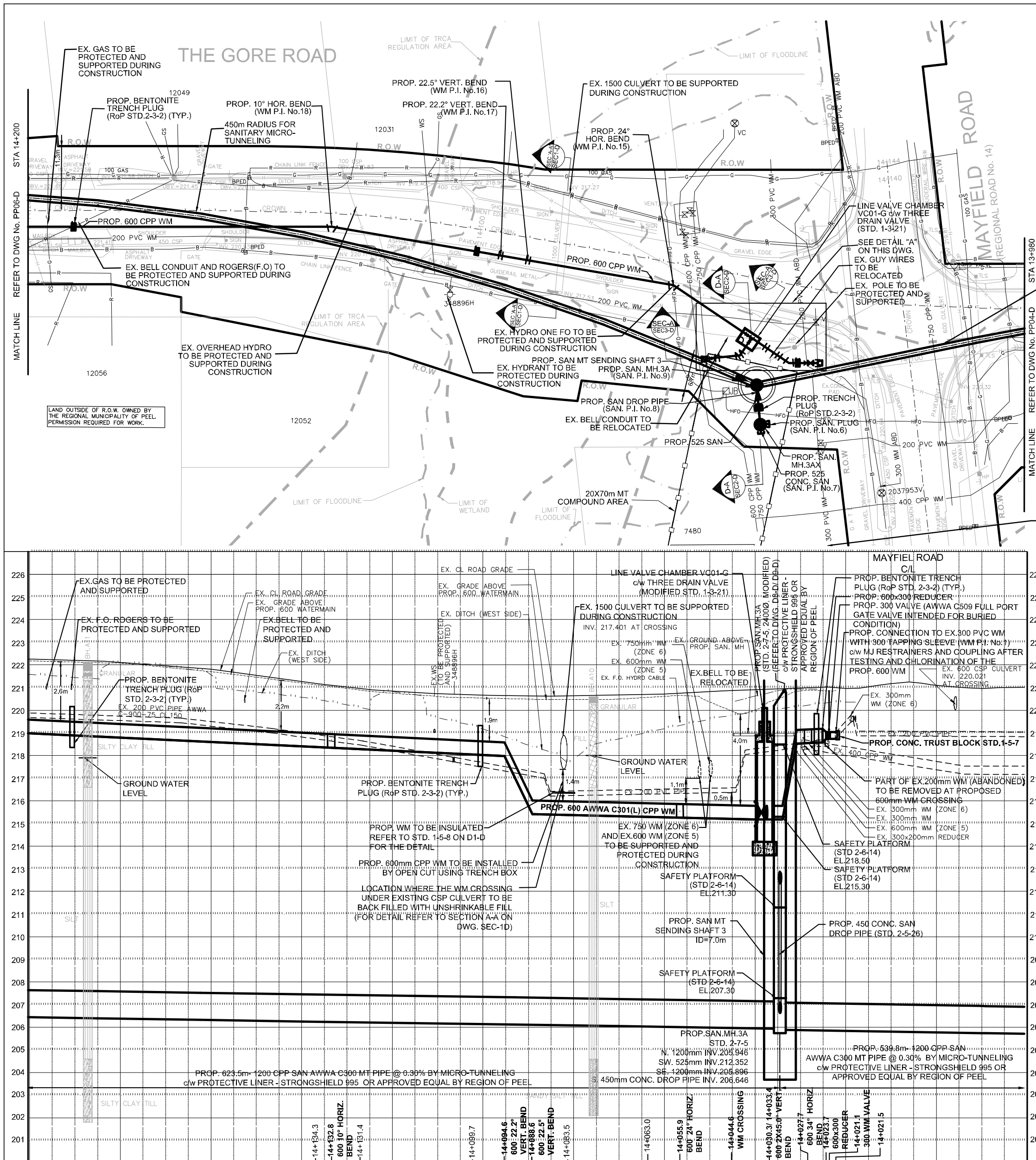
Website: www.r-pe.ca
email: info@r-pe.ca

JOB No. 23-757

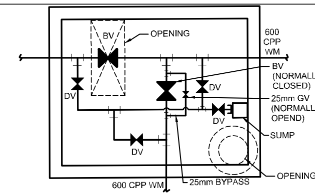
CAD FILE No.23157pd01

Appendix B4 Engineering Drawings

SCS consulting group ltd



RESTRAINED JOINTS												
BOT.EL. OF WM.	219.00	218.80	218.61	218.42	218.23	218.04	215.37	215.28	215.18			
EX. ROAD ELEV.	222.25	222.12	221.82	221.29	220.86	220.67	220.65	220.72	220.91	220.98	221.12	221.02
ROAD CHAINAGE	14+200	14+180	14+160	14+140	14+120	14+100	14+080	14+060	14+040	14+020	14+000	13+980



SCHEMATIC OF LINE VALVE CHAMBER VC01-G
(c/w DRAIN VALVE)
(MODIFIED RoP Std. 1-3-21, 3.0x3.8m)

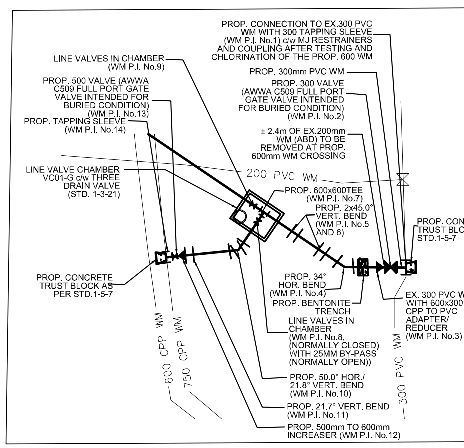
THE DETAIL SHOP DRAWINGS FOR MODIFIED RoP STD. 1-3-21 WILL BE PROVIDED BY OTHERS

PROP.600 WATERMAIN TO BE CONSTRUCTED WITH VERTICAL TRENCH BOX

THE EXACT LOCATION AND Ex.ELEVATION FOR ALL Ex. UTILITIES AND SERVICE CONNECTIONS TO BE VERIFIED IN THE FIELD BY CONTRACTOR AND TO BE SUPPORTED AND PROTECTED AS NEEDED.

THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING OVERHEAD UTILITIES PRIOR TO AND DURING CONSTRUCTION. WHEN OVERHEAD UTILITIES MAY INTERFERE WITH ACTIVITY SITE THE WORK TO BE COORDINATED WITH AND IN THE PRESENCE OF THE LOCAL HYDRO ONE AUTHORITY.

THE COMPOUND AREA DETAIL SEE DWG. CMPD3-D



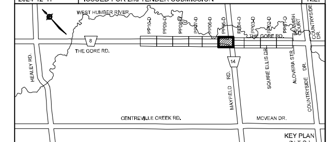
DETAIL "A"

SERVICE DATA

SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATERMAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS

DATE	DETAILS	INIT.
2024-10-23	ISSUED FOR TRCA SUBMISSION	N.L.
2024-11-01	ISSUED FOR TENDER	N.L.
2024-11-19	ISSUED FOR TRCA SUBMISSION	N.L.
2024-12-17	ISSUED FOR 2nd TENDER SUBMISSION	N.L.



KEY PLAN
(N.T.S.)

NOTES:

1. INVERTS, SIZE AND LOCATION FOR ALL SERVICES AND UTILITIES TO BE VERIFIED BY CONTRACTOR PRIOR TO EXCAVATION AND PROTECTED/SUPPORTED ACCORDINGLY DURING CONSTRUCTION.
2. LOCAL ACCESS TO RESIDENTS IS TO BE PROVIDED AT ALL TIMES DURING CONSTRUCTION.
3. THE VALVE CHAMBER SCHEMATICS SHOWN IN THE PLAN AND PROFILE DRAWINGS. REFER TO THE REGION OF PEEL STANDARD DRAWINGS TO DETERMINE THE NECESSARY VALVING TYPE/CONFIGURATION DETAILS.
4. ALL EX. DITCHES RELOCATED WITHIN COMPOUND AREA TO BE REINSTATED TO EXISTING CONDITION.
5. FOR TEMP. TRAFFIC MANAGEMENT PLANS REFER TO TC1-D TO TC6-D
6. FOR THE DETAIL OF TRENCH RESTORATION REFER TO STD 5-2-2B ON DWG.D3-D.
7. FOR THE DETAIL OF PAVEMENT RESTORATION REFER TO GEOTECHINICAL REPORT.
8. FOR TREE REMOVALS/PROTECTION REFER TO RM1-D TO RM4-D

LEGEND:

- —R— DENOTES EXISTING ROGERS
- —B— DENOTES EXISTING BELL
- —G— DENOTES EXISTING GAS MAIN
- —H— DENOTES EXISTING OVERHEAD CABLES
- —LS— DENOTES EXISTING STREET LIGHT CABLE
- —HFO— DENOTES EXISTING HYDRO FIBRE OPTIC
- —□—□— DENOTES COMPOUND AREA
- (+) DENOTES EXISTING TREE TO REMAIN

THIS DRAWING TO BE USED FOR SANITARY SEWER AND WATERMAIN CONSTRUCTION ONLY

General Notes

All Measurements Are In Meters(m) Unless Otherwise Noted
All Driveways Are ASPHALT Unless Otherwise Noted
All Water And Sanitary Service Locations Are Approximate And Must Be Located Accurately In The Field
All Horizontal And Vertical Bends Are In Degrees

Agency:
B.M. No. 44
Elev. 227.660 (Geodetic)
Coordinate System: UTM NAD83 (Original)
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.

REGISTERED PROFESSIONAL ENGINEER
H.SARKISSIAN
DEC.17, 2024
PROVINCE OF ONTARIO

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.
ENBRIDGE INCORPORATED-GAS DISTRIBUTION
ONTARIO MINISTRY OF TRANSPORTATION
ONTARIO CLEAN WATER AGENCY
HYDRO ONE NETWORKS
ALECTRA UTILITIES
TRANS NORTHERN PIPELINE
PEARSON INTERNATIONAL FUEL FACILITIES CORP.
UNION GAS

CABLE TELEVISION/FIBREOPTIC PROVIDERS:
BELL CANADA
ENERSOURCE TELECOM
HYDRO ONE TELECOM
ROGERS CABLE
ALLSTREAM (ZAYO)
PSN (PUBLIC SECTOR NETWORK)
FUTUREWAY (FCI BROADBAND)
GT FIBER/360 NETWORK INC.
TELUS COMMUNICATION

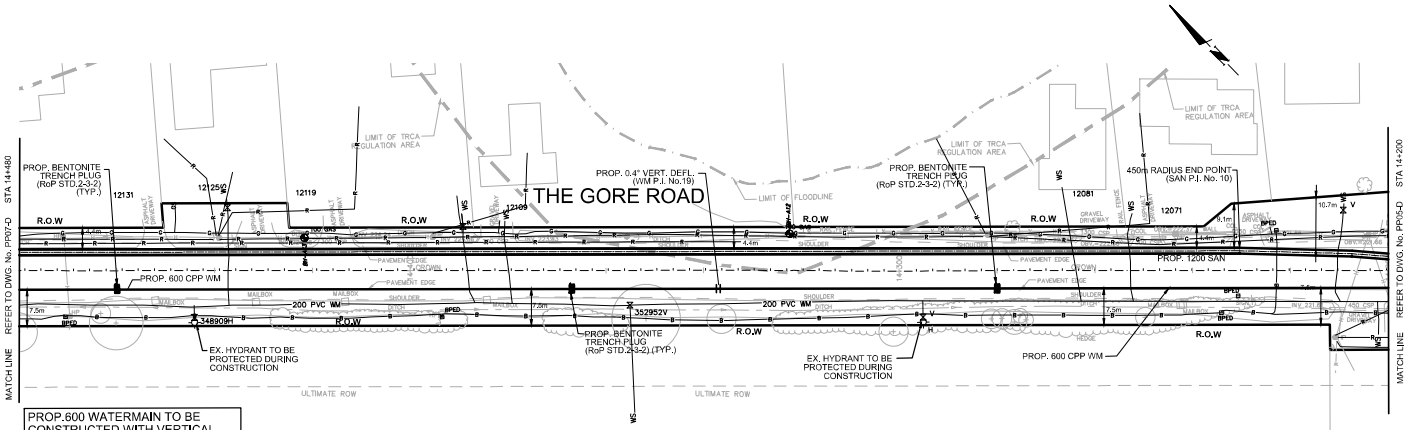
HORIZONTAL SCALE 1:500 (10m 0 10 20 30m)
VERTICAL SCALE 1:100 (2m 0 2 4 6m)

SCHAEFFERS
CONSULTING ENGINEERS
SCHAEFFER & ASSOCIATES LTD.
6 Ronrose Drive, Concord, Ontario L4K 4R3
Tel: (905) 738-6100
Fax: (905) 738-6875
E-mail: design@schaeffers.com

Region of Peel
working with you

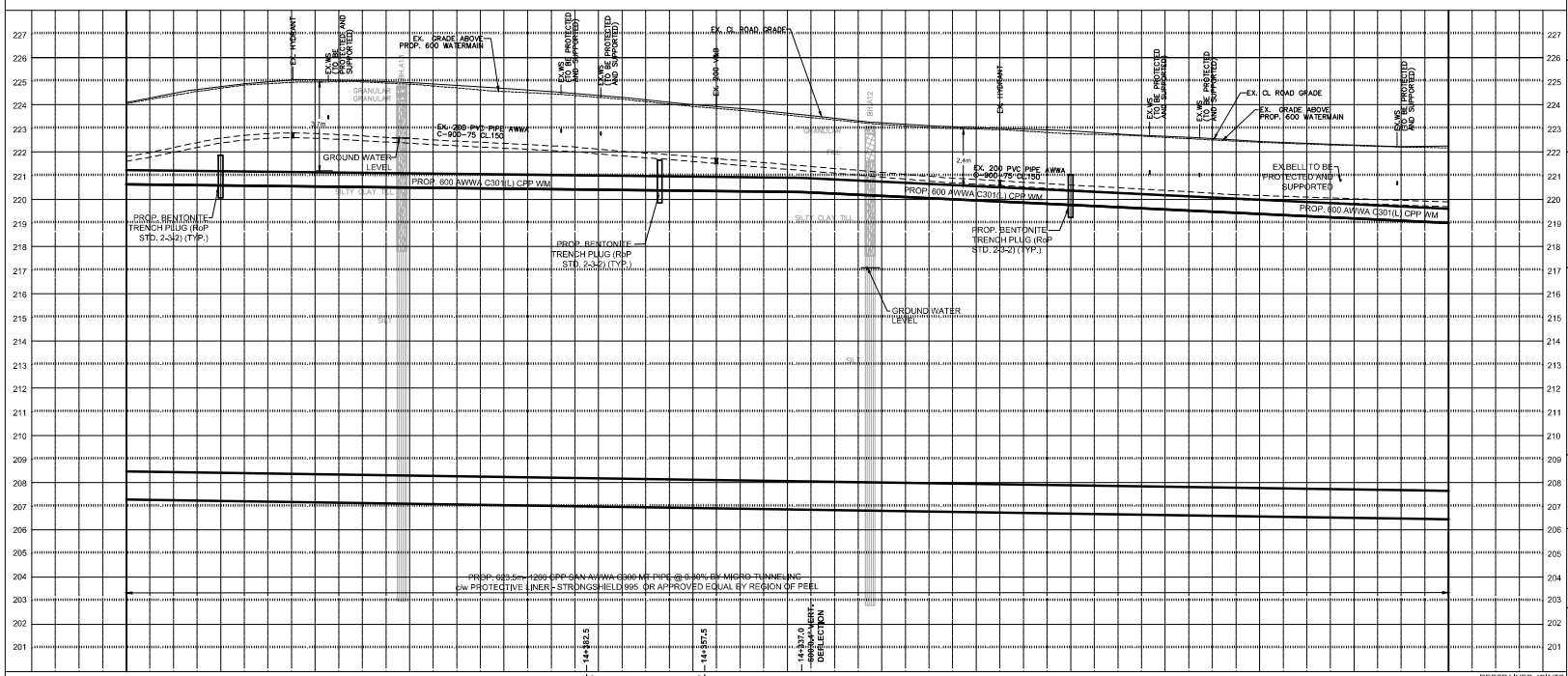
THE GORE ROAD
(FROM MAYFIELD ROAD TO HEALEY ROAD)
PROP. 1200mm SANITARY SEWER
PROP. 600mm WATERMAIN
STA. 13+980 TO STA. 14+220

CAD Area	X-XX	Area	X-XX	Project No.	24-2273/ 24-2274/ 24-1193
Checked by	N.L.	Drawn by	A.L.		
Date	DEC 2024	Sheet	17 of 73	Plan No.	PP05-D



PROP.600 WATERMAIN TO BE CONSTRUCTED WITH VERTICAL TRENCH BOX

THE EXACT LOCATION AND Ex.ELEVATION FOR ALL Ex. UTILITIES AND SERVICE CONNECTIONS TO BE VERIFIED IN THE FIELD BY CONTRACTOR AND TO BE SUPPORTED AND PROTECTED AS NEEDED.



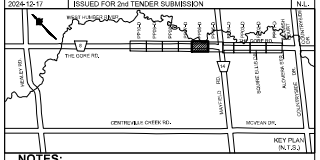
220.64	220.59	220.54	220.50	220.45	220.40	220.36	220.31	220.14	219.95	219.76	219.57	219.38	219.19	219.00	BOT.EL. OF WM.
224.11	224.77	225.06	224.94	224.70	224.40	224.01	223.64	223.23	223.03	222.90	222.67	222.45	222.29	222.25	EX. ROAD ELEV.
14+480	14+460	14+440	14+420	14+400	14+380	14+360	14+340	14+320	14+300	14+280	14+260	14+240	14+220	14+200	ROAD CHAINAGE

SERVICE DATA

SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATERMAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS

DATE	DETAILS	INIT.
2024-10-23	ISSUED FOR TRCA SUBMISSION	N.L.
2024-11-01	ISSUED FOR TENDER	N.L.
2024-11-19	ISSUED FOR TRCA SUBMISSION	N.L.
2024-12-17	ISSUED FOR 2nd TENDER SUBMISSION	N.L.



NOTES:

1. INVERTS, SIZE AND LOCATION FOR ALL SERVICES AND UTILITIES TO BE VERIFIED BY CONTRACTOR PRIOR TO EXCAVATION AND PROTECTED/SUPPORTED ACCORDINGLY DURING CONSTRUCTION.
2. LOCAL ACCESS TO RESIDENTS IS TO BE PROVIDED AT ALL TIMES DURING CONSTRUCTION.
3. THE VALVE CHAMBER SCHEMATICS SHOWN IN THE PLAN AND PROFILE DRAWINGS, REFER TO THE REGION OF PEEL STANDARD DRAWINGS TO DETERMINE THE NECESSARY VALVING TYPE/CONFIGURATION DETAILS.
4. ALL EX. DITCHES RELOCATED WITHIN COMPOUND AREA TO BE REINSTATED TO EXISTING CONDITION.
5. FOR TEMP. TRAFFIC MANAGEMENT PLANS REFER TO DRAWINGS TC1-D TO TC6-D.
6. FOR THE DETAIL OF TRENCH RESTORATION REFER TO STD 5-2-28 ON DWG.D3-D.
7. FOR THE DETAIL OF PAVEMENT RESTORATION REFER TO GEOTECHNICAL REPORT.

LEGEND:

- DENOTES EXISTING ROGERS
- DENOTES EXISTING BELL
- DENOTES EXISTING GAS MAIN
- DENOTES EXISTING OVERHEAD CABLES
- LS DENOTES EXISTING STREET LIGHT CABLE
- DENOTES COMPOUND AREA
- DENOTES EXISTING TREE TO REMAIN

THIS DRAWING TO BE USED FOR SANITARY SEWER AND WATERMAIN CONSTRUCTION ONLY

General Notes

All Measurements Are In Metres(m) Unless Otherwise Noted
All Driveways Are ASPHALT Unless Otherwise Noted
All Water And Sanitary Service Locations Are Approximate And Must Be Located Accurately In The Field
All Horizontal And Vertical Bends Are In Degrees

Agency:
RJK No: 44
Elev. 227.660 (Geodetic)
Coordinate System: UTM NAD83 (Original)
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.

REGISTERED PROFESSIONAL ENGINEER H.SARKISSIAN OCT 17, 2024 PROVINCE OF ONTARIO

Designed by — Checked — Approved by

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

THE REGIONAL MUNICIPALITY OF PEEL
CITY OF MISSISSAUGA WORKS DEPT.
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GT FIBER360 NETWORK INC.
TELUS COMMUNICATION

10m 0 10 20 30m — HORIZONTAL SCALE 1:500
2m 0 2 4 6m — VERTICAL SCALE 1:100

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Region of Peel
working with you

THE GORE ROAD

(FROM MAYFIELD ROAD TO HEALEY ROAD)

PROP. 1200mm SANITARY SEWER
PROP. 600mm WATERMAIN
STA. 14+200 TO STA. 14+480

CAD Area	X-XX	Area	X-XX	Project No.	24-2273/ 24-2274/ 24-1193
Checked by	N.L.	Drawn by	A.L.		
Date	DEC 2024	Sheet	18 of 73	Plan No.	PP06-D

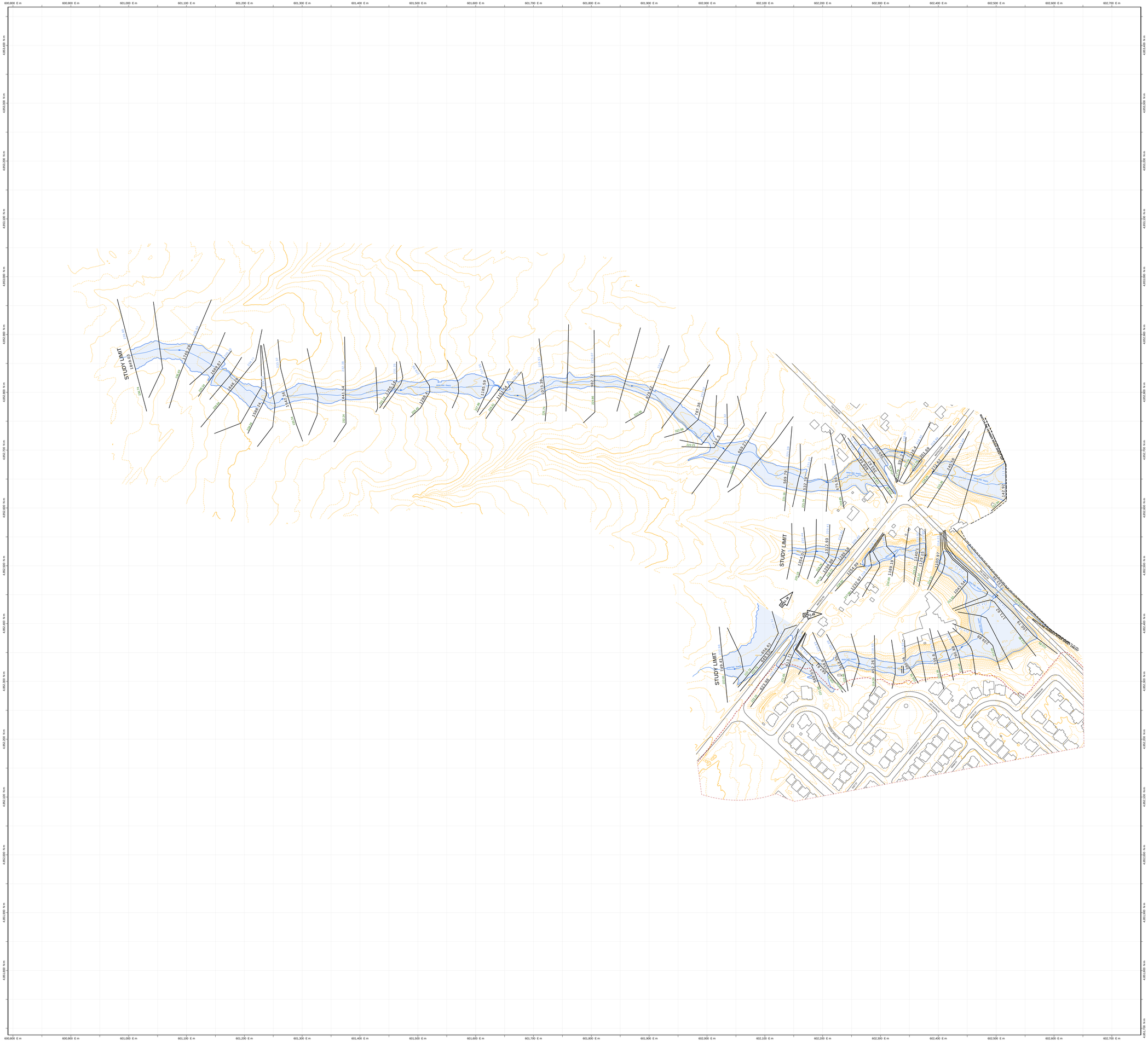
Appendix C Hydraulic Modelling

The following secure link is being provided by SCS Consulting Group Ltd. to share the hydraulic modelling files related to the Functional Servicing and Stormwater Management Report for Trinity Field Inc:

https://filesafecloud.scsconsultinggroup.com/url/rrxqhhdk3xbj2xwu

Please click on the link and download all files from this location.

Hydraulic Models – HEC RAS



TRCA Flood Plain Mapping Program

Hydraulic Engineering Service Provided By:

Toronto and Region Conservation Authority

This map is a copy of the original map sheet sealed by Y. Qiao on May 30, 2024.
If the sealed map is required please contact TRCA. The professional engineer's seal and signature verifies the location of the flood line and the associated water surface elevations only

Map Note:

AIRBORNE IMAGING

The flood line on this map was produced from hydraulic modelling software using a digital elevation model (DEM) with 1m grid resolution. The DEM was created using bare earth mass points with a vertical accuracy tolerance of +/- 0.10 m on hard flat surfaces. The mass points were collected using LiDAR flown in 2014/2015 by Airborne Imaging. In select areas elevation data from 2019 was used. This data was collected using LiDAR flown in 2019 by Airborne Imaging, and uses the same specification as the 2014/2015 dataset.

The spot elevations shown on this map were produced by TRCA using the DEM mentioned above. The contour lines were produced by TRCA by smoothing the full resolution DEM to create smooth lines for cartographic display and should therefore be used as reference only. The river banks were produced by TRCA and are approximate, contours within close proximity are a result of interpolation from the DEM surface and should not be considered a true representation of the water surface or bathymetry.

Contour labels and spot elevations are represented as metres above sea level (masl).

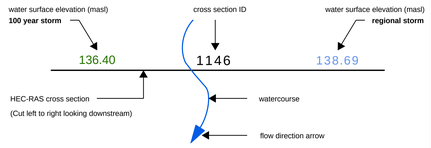
The planimetric data on this map were acquired from various sources with different collection dates and are provided for reference only. The building footprints were acquired from Region of Peel Open Data and City of Brampton in 2020.

The vertical datum is the Canadian Geodetic Vertical Datum of 1928:1978 Ontario Adjusted Version.
The horizontal datum is North American Datum of 1983, UTM 6° projection Zone 17,
Central Meridian 81° W.

Legend

Surface Contour	Road	Regulatory Flood Line
5m	Building	Elevation Data From 2019
1m	Bridge / Culvert	Regulatory Flood Plain
0.5m	Waterbody	
Spot Elevation Point	Railway	

Hydraulic Model Legend:



NOTE: The regulatory flood elevation is the greater of the regional storm or 100 year storm.

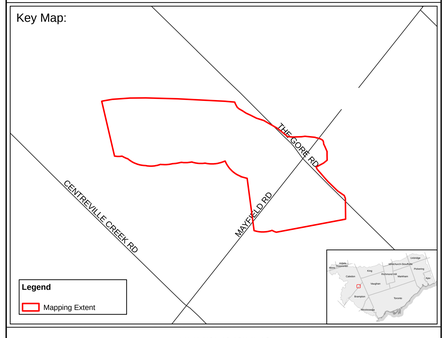
When the 100 year storm is greater, it is symbolized as follows: ***136.40***

SPILL 01 Indicates Spill, Spill ID and Approximate Flow Direction

Scale: 1:2,000

N

Key Map:



HUMBER RIVER

Sheet No.

252

Toronto and Region Conservation Authority
5 Shoreham Dr., Downsview, ON M3N 1S4 (416) 661 6600 info@trca.ca

HEC-RAS Plan: wildfields River: WH5A TribD Reach: Reach1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Reach1	1849.03	Regional	2.76	236.45	236.86		236.87	0.007348	0.52	7.05	34.74	0.29
Reach1	1849.03	100-year	1.07	236.45	236.74		236.74	0.008754	0.42	3.31	25.58	0.29
Reach1	1849.03	50-year	0.93	236.45	236.72		236.73	0.009458	0.42	2.94	24.92	0.30
Reach1	1849.03	25-year	0.79	236.45	236.71		236.71	0.009388	0.40	2.61	23.88	0.29
Reach1	1849.03	10-year	0.61	236.45	236.68		236.69	0.009896	0.37	2.06	22.48	0.29
Reach1	1849.03	5-year	0.06	236.45	236.53		236.54	0.092699	0.46	0.13	3.02	0.72
Reach1	1849.03	2-year	0.03	236.45	236.51		236.52	0.103831	0.40	0.08	2.48	0.72
Reach1	1798.92	Regional	2.76	236.02	236.46		236.48	0.008440	0.58	6.01	29.32	0.31
Reach1	1798.92	100-year	1.07	236.02	236.35		236.35	0.006890	0.41	3.05	20.53	0.26
Reach1	1798.92	50-year	0.93	236.02	236.33		236.34	0.006790	0.39	2.74	19.11	0.26
Reach1	1798.92	25-year	0.79	236.02	236.31		236.32	0.006626	0.36	2.43	17.84	0.25
Reach1	1798.92	10-year	0.61	236.02	236.29		236.29	0.006514	0.33	1.98	14.47	0.24
Reach1	1798.92	5-year	0.06	236.02	236.14		236.14	0.002745	0.12	0.49	6.42	0.14
Reach1	1798.92	2-year	0.03	236.02	236.11		236.11	0.002699	0.10	0.30	4.90	0.13
Reach1	1748.29	Regional	2.76	235.59	235.93		235.95	0.013038	0.56	5.71	34.59	0.36
Reach1	1748.29	100-year	1.07	235.59	235.83		235.84	0.016249	0.44	2.65	24.96	0.37
Reach1	1748.29	50-year	0.93	235.59	235.82		235.83	0.016287	0.42	2.39	24.55	0.36
Reach1	1748.29	25-year	0.79	235.59	235.81		235.81	0.016627	0.40	2.11	23.09	0.36
Reach1	1748.29	10-year	0.61	235.59	235.79		235.80	0.015818	0.36	1.77	22.15	0.35
Reach1	1748.29	5-year	0.06	235.59	235.67	235.67	235.68	0.234020	0.43	0.13	7.05	1.00
Reach1	1748.29	2-year	0.03	235.59	235.66	235.66	235.67	0.206459	0.39	0.08	4.55	0.92
Reach1	1703.65	Regional	2.76	235.30	235.62		235.63	0.004569	0.37	9.23	45.90	0.22
Reach1	1703.65	100-year	1.07	235.30	235.53		235.53	0.003818	0.26	5.17	39.46	0.19
Reach1	1703.65	50-year	0.93	235.30	235.52		235.52	0.003865	0.25	4.70	39.00	0.19
Reach1	1703.65	25-year	0.79	235.30	235.50		235.50	0.003852	0.24	4.11	36.93	0.18
Reach1	1703.65	10-year	0.61	235.30	235.48		235.48	0.003942	0.22	3.41	33.92	0.18
Reach1	1703.65	5-year	0.06	235.30	235.40		235.40	0.001868	0.09	0.82	24.06	0.11
Reach1	1703.65	2-year	0.03	235.30	235.38		235.38	0.001809	0.07	0.49	15.28	0.10
Reach1	1689.67	Regional	2.76	235.21	235.39	235.39	235.44	0.123330	1.01	3.06	34.18	0.97
Reach1	1689.67	100-year	1.07	235.21	235.34	235.34	235.37	0.115344	0.69	1.54	26.33	0.86
Reach1	1689.67	50-year	0.93	235.21	235.34	235.34	235.36	0.087111	0.60	1.54	26.33	0.75
Reach1	1689.67	25-year	0.79	235.21	235.34	235.34	235.36	0.062834	0.51	1.54	26.33	0.64
Reach1	1689.67	10-year	0.61	235.21	235.34	235.34	235.35	0.037067	0.39	1.54	26.33	0.49
Reach1	1689.67	5-year	0.06	235.21	235.29	235.29	235.30	0.196074	0.52	0.12	13.08	0.98
Reach1	1689.67	2-year	0.03	235.21	235.28	235.28	235.29	0.176022	0.45	0.07	10.87	0.90
Reach1	1664.44	Regional	2.76	234.52	234.92		234.93	0.006617	0.51	6.74	27.32	0.27
Reach1	1664.44	100-year	1.07	234.52	234.78		234.79	0.006484	0.37	3.43	20.53	0.25
Reach1	1664.44	50-year	0.93	234.52	234.77		234.78	0.006067	0.35	3.19	20.23	0.24
Reach1	1664.44	25-year	0.79	234.52	234.75		234.76	0.006122	0.33	2.82	19.07	0.24
Reach1	1664.44	10-year	0.61	234.52	234.73		234.73	0.005959	0.30	2.40	18.55	0.23
Reach1	1664.44	5-year	0.06	234.52	234.61		234.61	0.004017	0.11	0.56	11.67	0.16
Reach1	1664.44	2-year	0.03	234.52	234.59		234.59	0.004442	0.09	0.34	10.58	0.15
Reach1	1646.28	Regional	2.76	234.38	234.77		234.78	0.010465	0.60	5.26	22.64	0.34
Reach1	1646.28	100-year	1.07	234.38	234.64		234.65	0.010529	0.43	2.70	17.71	0.31
Reach1	1646.28	50-year	0.93	234.38	234.62		234.63	0.011242	0.42	2.38	15.97	0.32
Reach1	1646.28	25-year	0.79	234.38	234.61		234.61	0.011164	0.39	2.14	15.52	0.31
Reach1	1646.28	10-year	0.61	234.38	234.59		234.59	0.011087	0.36	1.80	15.15	0.30
Reach1	1646.28	5-year	0.06	234.38	234.46		234.47	0.019253	0.19	0.31	8.44	0.32
Reach1	1646.28	2-year	0.03	234.38	234.45		234.45	0.020026	0.17	0.19	6.53	0.31
Reach1	1604.25	Regional	2.76	234.05	234.42		234.43	0.007125	0.49	7.36	38.94	0.28
Reach1	1604.25	100-year	1.07	234.05	234.32		234.32	0.005833	0.34	3.87	31.19	0.24
Reach1	1604.25	50-year	0.93	234.05	234.31		234.31	0.005739	0.33	3.49	29.79	0.23
Reach1	1604.25	25-year	0.79	234.05	234.29		234.30	0.005661	0.31	3.10	28.39	0.23
Reach1	1604.25	10-year	0.61	234.05	234.27		234.28	0.005514	0.29	2.56	25.98	0.22
Reach1	1604.25	5-year	0.06	234.05	234.16	234.10	234.16	0.003854	0.11	0.53	10.88	0.15
Reach1	1604.25	2-year	0.03	234.05	234.14	234.10	234.14	0.003835	0.09	0.35	9.10	0.14
Reach1	1588.24	Regional	2.76	233.91	234.12	234.12	234.17	0.077150	1.08	2.87	20.73	0.83
Reach1	1588.24	100-year	1.07	233.91	234.04	234.04	234.07	0.117947	0.90	1.37	18.34	0.93
Reach1	1588.24	50-year	0.93	233.91	234.03	234.03	234.06	0.157821	0.94	1.13	17.15	1.04
Reach1	1588.24	25-year	0.79	233.91	234.02	234.02	234.05	0.159754	0.89	1.01	16.79	1.04
Reach1	1588.24	10-year	0.61	233.91	234.01	234.01	234.04	0.166817	0.82	0.83	15.91	1.03
Reach1	1588.24	5-year	0.06	233.91	233.95	233.95	233.96	0.271610	0.52	0.12	6.40	1.11
Reach1	1588.24	2-year	0.03	233.91	233.94	233.94	233.95	0.287345	0.43	0.07	4.51	1.08
Reach1	1569.34	Regional	2.76	233.14	233.62		233.64	0.009091	0.65	5.26	20.09	0.33
Reach1	1569.34	100-year	1.07	233.14	233.48		233.49	0.008958	0.48	2.66	15.84	0.30
Reach1	1569.34	50-year	0.93	233.14	233.46		233.47	0.008852	0.46	2.41	15.61	0.30
Reach1	1569.34	25-year	0.79	233.14	233.44		233.45	0.009232	0.44	2.11	15.32	0.30
Reach1	1569.34	10-year	0.61	233.14	233.42		233.43	0.008783	0.40	1.75	14.39	0.29
Reach1	1569.34	5-year	0.06	233.14	233.27		233.27	0.010442	0.18	0.33	6.47	0.25
Reach1	1569.34	2-year	0.03	233.14	233.25		233.25	0.010303	0.15	0.21	5.45	0.24
Reach1	1542.36	Regional	2.76	232.95	233.39		233.40	0.008907	0.62	5.63	22.75	0.32
Reach1	1542.36	100-year	1.07	232.95	233.26		233.27	0.007927	0.45	3.00	18.68	0.28

HEC-RAS Plan: wildfields River: WH5A TribD Reach: Reach1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Reach1	1542.36	50-year	0.93	232.95	233.25		233.25	0.007888	0.43	2.72	18.16	0.28
Reach1	1542.36	25-year	0.79	232.95	233.23		233.24	0.007257	0.39	2.45	17.58	0.26
Reach1	1542.36	10-year	0.61	232.95	233.21		233.21	0.007180	0.36	2.04	15.52	0.26
Reach1	1542.36	5-year	0.06	232.95	233.07		233.07	0.005786	0.15	0.40	8.52	0.19
Reach1	1542.36	2-year	0.03	232.95	233.04		233.05	0.006190	0.14	0.23	4.46	0.19
Reach1	1491	Regional	2.76	232.49	232.92		232.93	0.009829	0.61	5.65	24.35	0.33
Reach1	1491	100-year	1.07	232.49	232.79		232.80	0.011218	0.49	2.82	21.14	0.33
Reach1	1491	50-year	0.93	232.49	232.78		232.78	0.011291	0.46	2.47	19.75	0.33
Reach1	1491	25-year	0.79	232.49	232.76		232.77	0.011696	0.45	2.17	17.73	0.33
Reach1	1491	10-year	0.61	232.49	232.74		232.74	0.012574	0.42	1.75	16.92	0.33
Reach1	1491	5-year	0.06	232.49	232.61		232.61	0.015204	0.22	0.27	5.57	0.30
Reach1	1491	2-year	0.03	232.49	232.59		232.59	0.013850	0.17	0.18	4.34	0.28
Reach1	1441.54	Regional	2.76	231.97	232.46		232.47	0.008972	0.64	5.02	18.92	0.32
Reach1	1441.54	100-year	1.07	231.97	232.30		232.31	0.008757	0.45	2.54	13.71	0.29
Reach1	1441.54	50-year	0.93	231.97	232.28		232.29	0.008912	0.43	2.29	13.20	0.29
Reach1	1441.54	25-year	0.79	231.97	232.26		232.27	0.008820	0.41	2.05	12.60	0.29
Reach1	1441.54	10-year	0.61	231.97	232.24		232.25	0.008436	0.36	1.74	11.53	0.27
Reach1	1441.54	5-year	0.06	231.97	232.08		232.09	0.007673	0.16	0.36	6.25	0.22
Reach1	1441.54	2-year	0.03	231.97	232.06		232.06	0.008441	0.14	0.22	5.19	0.22
Reach1	1386.26	Regional	2.76	231.58	231.92		231.94	0.011034	0.58	5.13	20.55	0.34
Reach1	1386.26	100-year	1.07	231.58	231.80		231.81	0.009285	0.37	2.84	17.16	0.29
Reach1	1386.26	50-year	0.93	231.58	231.79		231.79	0.009034	0.35	2.61	16.78	0.28
Reach1	1386.26	25-year	0.79	231.58	231.77		231.78	0.009214	0.32	2.32	16.24	0.28
Reach1	1386.26	10-year	0.61	231.58	231.74		231.75	0.009569	0.29	1.91	15.40	0.27
Reach1	1386.26	5-year	0.06	231.58	231.61		231.61	0.009357	0.08	0.35	7.54	0.20
Reach1	1386.26	2-year	0.03	231.58	231.60	231.57	231.60	0.008795	0.05	0.23	6.20	0.17
Reach1	1355.14	Regional	2.76	231.20	231.50		231.51	0.015601	0.61	5.10	27.67	0.39
Reach1	1355.14	100-year	1.07	231.20	231.39		231.40	0.016319	0.42	2.51	20.27	0.37
Reach1	1355.14	50-year	0.93	231.20	231.37		231.38	0.016785	0.40	2.25	19.31	0.36
Reach1	1355.14	25-year	0.79	231.20	231.36		231.37	0.016275	0.37	2.02	18.45	0.35
Reach1	1355.14	10-year	0.61	231.20	231.34		231.35	0.015764	0.32	1.70	17.14	0.34
Reach1	1355.14	5-year	0.06	231.20	231.24		231.25	0.012557	0.11	0.35	9.25	0.24
Reach1	1355.14	2-year	0.03	231.20	231.23		231.23	0.012971	0.08	0.22	7.56	0.22
Reach1	1347.45	Regional	2.76	231.03	231.25		231.28	0.040601	0.79	3.70	24.21	0.60
Reach1	1347.45	100-year	1.07	231.03	231.19		231.20	0.028973	0.49	2.23	21.24	0.47
Reach1	1347.45	50-year	0.93	231.03	231.18		231.19	0.027371	0.46	2.07	20.93	0.45
Reach1	1347.45	25-year	0.79	231.03	231.17		231.18	0.028262	0.43	1.85	20.38	0.45
Reach1	1347.45	10-year	0.61	231.03	231.15		231.16	0.027677	0.39	1.56	19.18	0.44
Reach1	1347.45	5-year	0.06	231.03	231.08		231.08	0.021574	0.18	0.35	13.12	0.33
Reach1	1347.45	2-year	0.03	231.03	231.07	231.04	231.07	0.018757	0.14	0.25	12.45	0.29
Reach1	1288.4	Regional	2.76	229.50	229.79		229.81	0.022309	0.80	4.17	20.92	0.48
Reach1	1288.4	100-year	1.07	229.50	229.66		229.68	0.032260	0.65	1.88	15.67	0.53
Reach1	1288.4	50-year	0.93	229.50	229.65		229.67	0.034166	0.63	1.67	15.00	0.53
Reach1	1288.4	25-year	0.79	229.50	229.64		229.65	0.033066	0.59	1.51	14.46	0.52
Reach1	1288.4	10-year	0.61	229.50	229.62		229.63	0.033877	0.54	1.25	13.54	0.51
Reach1	1288.4	5-year	0.06	229.50	229.53		229.53	0.048509	0.24	0.24	9.05	0.48
Reach1	1288.4	2-year	0.03	229.50	229.52		229.52	0.061240	0.21	0.15	8.21	0.50
Reach1	1238.18	Regional	2.76	228.58	228.93		228.94	0.013222	0.66	5.11	23.32	0.38
Reach1	1238.18	100-year	1.07	228.58	228.82		228.83	0.010081	0.44	2.89	19.26	0.31
Reach1	1238.18	50-year	0.93	228.58	228.81	228.72	228.81	0.009817	0.42	2.65	18.78	0.30
Reach1	1238.18	25-year	0.79	228.58	228.79	228.70	228.80	0.009885	0.40	2.36	18.20	0.30
Reach1	1238.18	10-year	0.61	228.58	228.77	228.69	228.78	0.009752	0.36	1.98	17.40	0.29
Reach1	1238.18	5-year	0.06	228.58	228.66	228.62	228.66	0.008453	0.15	0.41	9.55	0.22
Reach1	1238.18	2-year	0.03	228.58	228.64	228.62	228.64	0.007883	0.13	0.26	7.63	0.21
Reach1	1185.59	Regional	2.76	227.84	228.05		228.07	0.022911	0.67	5.14	35.06	0.47
Reach1	1185.59	100-year	1.07	227.84	227.97		227.98	0.032997	0.56	2.35	27.21	0.51
Reach1	1185.59	50-year	0.93	227.84	227.96		227.97	0.033558	0.54	2.12	26.36	0.51
Reach1	1185.59	25-year	0.79	227.84	227.95		227.96	0.033693	0.51	1.89	25.49	0.50
Reach1	1185.59	10-year	0.61	227.84	227.94		227.94	0.032415	0.46	1.59	23.99	0.48
Reach1	1185.59	5-year	0.06	227.84	227.87	227.86	227.87	0.035211	0.21	0.31	14.69	0.41
Reach1	1185.59	2-year	0.03	227.84	227.86	227.86	227.86	0.040171	0.17	0.20	13.56	0.41
Reach1	1163.1	Regional	2.76	226.93	227.36		227.42	0.053300	1.10	2.58	11.68	0.72
Reach1	1163.1	100-year	1.07	226.93	227.26		227.28	0.039860	0.74	1.46	9.26	0.59
Reach1	1163.1	50-year	0.93	226.93	227.24		227.27	0.041200	0.72	1.31	8.88	0.59
Reach1	1163.1	25-year	0.79	226.93	227.22		227.25	0.041931	0.69	1.16	8.53	0.59
Reach1	1163.1	10-year	0.61	226.93	227.20		227.22	0.046850	0.66	0.93	7.97	0.60
Reach1	1163.1	5-year	0.06	226.93	227.05		227.06	0.054469	0.44	0.13	2.19	0.58
Reach1	1163.1	2-year	0.03	226.93	227.03	227.00	227.04	0.041959	0.36	0.09	1.61	0.50
Reach1	1151.54	Regional	2.76	226.19	226.66	226.66	226.72	0.063200	1.40	2.83	23.07	0.81
Reach1	1151.54	100-year	1.07	226.19	226.52	226.50	226.60	0.082924	1.30	0.87	4.39	0.89
Reach1	1151.54	50-year	0.93	226.19	226.50	226.48	226.57	0.081040	1.24	0.80	4.23	0.87
Reach1	1151.54	25-year	0.79	226.19	226.48	226.46	226.54	0.080265	1.18	0.71	4.05	0.85

HEC-RAS Plan: wildfields River: WH5A TribD Reach: Reach1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Reach1	1151.54	10-year	0.61	226.19	226.45		226.51	0.072241	1.06	0.61	3.83	0.80
Reach1	1151.54	5-year	0.06	226.19	226.29		226.30	0.071859	0.54	0.12	2.05	0.68
Reach1	1151.54	2-year	0.03	226.19	226.26	226.26	226.27	0.099466	0.52	0.06	1.68	0.75
Reach1	1111.4	Regional	2.76	225.64	226.20		226.21	0.006230	0.55	6.24	22.46	0.27
Reach1	1111.4	100-year	1.07	225.64	226.04		226.04	0.006324	0.39	3.07	15.42	0.25
Reach1	1111.4	50-year	0.93	225.64	226.02		226.02	0.006302	0.37	2.78	14.60	0.25
Reach1	1111.4	25-year	0.79	225.64	226.00		226.00	0.006250	0.34	2.48	13.72	0.24
Reach1	1111.4	10-year	0.61	225.64	225.96		225.96	0.006446	0.32	2.01	12.25	0.24
Reach1	1111.4	5-year	0.06	225.64	225.77		225.77	0.006076	0.17	0.36	5.42	0.20
Reach1	1111.4	2-year	0.03	225.64	225.75		225.75	0.005050	0.14	0.24	4.50	0.18
Reach1	1073.39	Regional	2.76	225.14	225.86		225.89	0.013367	0.80	4.22	22.44	0.40
Reach1	1073.39	100-year	1.07	225.14	225.69		225.71	0.014204	0.58	1.86	8.56	0.37
Reach1	1073.39	50-year	0.93	225.14	225.67		225.69	0.014473	0.55	1.69	8.10	0.37
Reach1	1073.39	25-year	0.79	225.14	225.64		225.66	0.015766	0.54	1.45	7.14	0.38
Reach1	1073.39	10-year	0.61	225.14	225.59		225.60	0.015725	0.54	1.12	5.44	0.38
Reach1	1073.39	5-year	0.06	225.14	225.30		225.31	0.037214	0.46	0.13	1.51	0.50
Reach1	1073.39	2-year	0.03	225.14	225.25		225.26	0.074153	0.50	0.06	1.06	0.67
Reach1	1030.79	Regional	2.76	224.75	225.33		225.35	0.011859	0.64	4.43	15.46	0.36
Reach1	1030.79	100-year	1.07	224.75	225.17		225.18	0.011069	0.47	2.28	10.72	0.32
Reach1	1030.79	50-year	0.93	224.75	225.15		225.16	0.010274	0.44	2.11	10.29	0.31
Reach1	1030.79	25-year	0.79	224.75	225.13		225.14	0.009676	0.41	1.91	9.76	0.30
Reach1	1030.79	10-year	0.61	224.75	225.10		225.11	0.008551	0.37	1.64	9.00	0.28
Reach1	1030.79	5-year	0.06	224.75	224.92	224.83	224.92	0.004010	0.15	0.38	4.52	0.17
Reach1	1030.79	2-year	0.03	224.75	224.89	224.82	224.89	0.003099	0.12	0.26	3.80	0.14
Reach1	982.72	Regional	2.76	224.34	224.91		224.92	0.007095	0.69	5.53	18.96	0.30
Reach1	982.72	100-year	1.07	224.34	224.71		224.72	0.008407	0.55	2.49	12.42	0.30
Reach1	982.72	50-year	0.93	224.34	224.69		224.70	0.008779	0.54	2.20	11.64	0.31
Reach1	982.72	25-year	0.79	224.34	224.66		224.67	0.009871	0.53	1.86	10.73	0.32
Reach1	982.72	10-year	0.61	224.34	224.62		224.63	0.011483	0.52	1.44	9.48	0.34
Reach1	982.72	5-year	0.06	224.34	224.42	224.42	224.43	0.056474	0.37	0.16	3.63	0.56
Reach1	982.72	2-year	0.03	224.34	224.39	224.39	224.40	0.214939	0.49	0.06	2.63	1.00
Reach1	928.88	Regional	2.76	223.85	224.56		224.58	0.005962	0.57	5.18	14.44	0.27
Reach1	928.88	100-year	1.07	223.85	224.38		224.38	0.004864	0.39	2.84	10.59	0.23
Reach1	928.88	50-year	0.93	223.85	224.35		224.36	0.004616	0.37	2.60	10.12	0.22
Reach1	928.88	25-year	0.79	223.85	224.33		224.33	0.004350	0.34	2.35	9.59	0.21
Reach1	928.88	10-year	0.61	223.85	224.29		224.29	0.003898	0.31	2.01	8.82	0.20
Reach1	928.88	5-year	0.06	223.85	224.06		224.06	0.001720	0.12	0.49	4.49	0.11
Reach1	928.88	2-year	0.03	223.85	224.02		224.02	0.001669	0.10	0.31	3.70	0.11
Reach1	878.42	Regional	2.76	223.74	224.12		224.14	0.013395	0.71	4.49	16.85	0.39
Reach1	878.42	100-year	1.07	223.74	223.97		223.98	0.016116	0.53	2.21	13.64	0.38
Reach1	878.42	50-year	0.93	223.74	223.95		223.96	0.017463	0.51	1.95	13.19	0.39
Reach1	878.42	25-year	0.79	223.74	223.94		223.95	0.017055	0.48	1.76	12.85	0.38
Reach1	878.42	10-year	0.61	223.74	223.91		223.92	0.018688	0.44	1.43	12.22	0.39
Reach1	878.42	5-year	0.06	223.74	223.78	223.77	223.79	0.092374	0.27	0.15	5.06	0.63
Reach1	878.42	2-year	0.03	223.74	223.77	223.76	223.77	0.079948	0.20	0.10	4.09	0.55
Reach1	825.73	Regional	2.76	223.46	223.52		223.53	0.010146	0.12	5.45	22.13	0.22
Reach1	825.73	100-year	1.07	223.46	223.40		223.40	0.007981		3.05	17.38	0.00
Reach1	825.73	50-year	0.93	223.46	223.38		223.39	0.007427		2.83	16.80	0.00
Reach1	825.73	25-year	0.79	223.46	223.36		223.37	0.007683		2.48	15.85	0.00
Reach1	825.73	10-year	0.61	223.46	223.34		223.34	0.007028		2.11	14.78	0.00
Reach1	825.73	5-year	0.06	223.46	223.19		223.19	0.004062		0.46	7.25	0.00
Reach1	825.73	2-year	0.03	223.46	223.16	223.11	223.16	0.004390		0.28	5.74	0.00
Reach1	787.36	Regional	2.76	223.10	223.08		223.10	0.012355		5.44	24.64	0.00
Reach1	787.36	100-year	1.07	223.10	222.96		222.96	0.016302		2.58	19.41	0.00
Reach1	787.36	50-year	0.93	223.10	222.94		222.95	0.017384		2.28	18.59	0.00
Reach1	787.36	25-year	0.79	223.10	222.93		222.93	0.017730		2.02	17.83	0.00
Reach1	787.36	10-year	0.61	223.10	222.90		222.91	0.019353		1.64	16.64	0.00
Reach1	787.36	5-year	0.06	223.10	222.80	222.78	222.80	0.047392		0.23	8.30	0.00
Reach1	787.36	2-year	0.03	223.10	222.79	222.77	222.79	0.035654		0.16	7.02	0.00
Reach1	739.67	Regional	2.76	222.13	222.68		222.69	0.008885	0.63	5.87	28.63	0.32
Reach1	739.67	100-year	1.07	222.13	222.54	222.39	222.55	0.007569	0.43	2.82	16.25	0.28
Reach1	739.67	50-year	0.93	222.13	222.52	222.39	222.53	0.007163	0.40	2.56	15.00	0.26
Reach1	739.67	25-year	0.79	222.13	222.50	222.38	222.51	0.007314	0.38	2.23	13.64	0.26
Reach1	739.67	10-year	0.61	222.13	222.47	222.35	222.47	0.007479	0.34	1.82	12.10	0.26
Reach1	739.67	5-year	0.06	222.13	222.30	222.21	222.30	0.006121	0.15	0.34	4.73	0.20
Reach1	739.67	2-year	0.03	222.13	222.25		222.25	0.007467	0.18	0.17	2.52	0.22
Reach1	717.5	Regional	2.76	221.80	222.21		222.24	0.020662	0.82	4.06	19.82	0.47
Reach1	717.5	100-year	1.07	221.80	222.04		222.08	0.068190	0.89	1.35	13.17	0.75
Reach1	717.5	50-year	0.93	221.80	222.02	222.02	222.07	0.093652	0.95	1.08	12.15	0.86
Reach1	717.5	25-year	0.79	221.80	222.01	222.01	222.05	0.098739	0.92	0.94	11.53	0.87
Reach1	717.5	10-year	0.61	221.80	221.99	221.99	222.03	0.105795	0.87	0.74	10.63	0.88
Reach1	717.5	5-year	0.06	221.80	221.87	221.87	221.89	0.262969	0.68	0.09	2.50	1.17

HEC-RAS Plan: wildfields River: WH5A TribD Reach: Reach1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Reach1	717.5	2-year	0.03	221.80	221.87	221.87	221.88	0.083204	0.38	0.08	2.45	0.65
Reach1	698.48	Regional	2.76	221.78	222.10		222.10	0.002749	0.23	8.77	35.64	0.16
Reach1	698.48	100-year	1.07	221.78	221.93		221.94	0.002214	0.12	4.58	21.19	0.13
Reach1	698.48	50-year	0.93	221.78	221.91		221.91	0.002220	0.11	4.10	20.11	0.12
Reach1	698.48	25-year	0.79	221.78	221.89		221.89	0.002207	0.09	3.62	18.94	0.12
Reach1	698.48	10-year	0.61	221.78	221.94		221.94	0.000656	0.07	4.73	21.51	0.07
Reach1	698.48	5-year	0.06	221.78	221.76		221.76	0.000076		1.70	9.64	0.00
Reach1	698.48	2-year	0.03	221.78	221.73		221.73	0.000031		1.47	8.91	0.00
Reach1	669.27	Regional	5.42	221.63	221.95	221.78	221.96	0.005673	0.40	12.03	41.36	0.24
Reach1	669.27	100-year	2.10	221.63	221.86	221.78	221.86	0.002322	0.19	8.25	37.41	0.14
Reach1	669.27	50-year	1.83	221.63	221.83	221.78	221.84	0.002367	0.18	7.32	36.05	0.14
Reach1	669.27	25-year	1.55	221.63	221.81	221.78	221.81	0.002360	0.15	6.41	34.67	0.14
Reach1	669.27	10-year	1.19	221.63	221.77	221.77	221.80	0.121434	0.90	1.54	32.81	0.94
Reach1	669.27	5-year	0.12	221.63	221.74	221.71	221.74	0.005789	0.15	0.91	31.15	0.19
Reach1	669.27	2-year	0.06	221.63	221.72	221.69	221.72	0.006634	0.13	0.56	30.20	0.19
Reach1	634.12	Regional	5.42	221.33	221.67	221.60	221.70	0.014281	0.70	8.18	38.57	0.39
Reach1	634.12	100-year	2.10	221.33	221.59	221.55	221.64	0.050587	1.07	2.08	29.68	0.70
Reach1	634.12	50-year	1.83	221.33	221.57	221.53	221.62	0.050094	1.01	1.89	27.95	0.69
Reach1	634.12	25-year	1.55	221.33	221.55	221.51	221.60	0.048939	0.94	1.71	26.04	0.67
Reach1	634.12	10-year	1.19	221.33	221.53	221.49	221.56	0.047360	0.84	1.45	24.27	0.65
Reach1	634.12	5-year	0.12	221.33	221.41	221.37	221.41	0.017716	0.26	0.44	19.97	0.33
Reach1	634.12	2-year	0.06	221.33	221.39	221.36	221.39	0.012743	0.19	0.32	19.36	0.27
Reach1	569.79	Regional	5.42	220.76	221.19		221.20	0.004290	0.34	11.92	31.77	0.2
Reach1	569.79	100-year	2.10	220.76	220.99		220.99	0.003778	0.18	6.35	24.43	0.17
Reach1	569.79	50-year	1.83	220.76	220.96		220.97	0.003813	0.16	5.74	23.45	0.17
Reach1	569.79	25-year	1.55	220.76	220.93		220.94	0.003881	0.15	5.09	22.37	0.17
Reach1	569.79	10-year	1.19	220.76	220.89		220.90	0.004028	0.13	4.22	21.15	0.16
Reach1	569.79	5-year	0.12	220.76	220.71		220.71	0.006731		0.81	15.48	0.00
Reach1	569.79	2-year	0.06	220.76	220.69		220.69	0.008396		0.50	14.69	0.00
Reach1	550.84	Regional	5.42	220.56	221.13		221.14	0.002237	0.40	15.31	34.44	0.17
Reach1	550.84	100-year	2.10	220.56	220.95		220.95	0.001614	0.26	9.20	31.27	0.14
Reach1	550.84	50-year	1.83	220.56	220.92		220.92	0.001623	0.25	8.38	30.83	0.14
Reach1	550.84	25-year	1.55	220.56	220.89		220.89	0.001666	0.24	7.48	30.33	0.13
Reach1	550.84	10-year	1.19	220.56	220.85		220.85	0.001770	0.22	6.19	29.60	0.14
Reach1	550.84	5-year	0.12	220.56	220.64		220.64	0.002668	0.11	1.07	16.93	0.13
Reach1	550.84	2-year	0.06	220.56	220.62		220.62	0.002367	0.08	0.72	14.87	0.12
Reach1	532.79	Regional	5.42	220.47	221.04		221.07	0.009262	0.81	8.01	19.66	0.35
Reach1	532.79	100-year	2.10	220.47	220.90		220.91	0.004389	0.45	5.38	17.08	0.23
Reach1	532.79	50-year	1.83	220.47	220.87		220.88	0.004253	0.43	4.95	16.78	0.22
Reach1	532.79	25-year	1.55	220.47	220.84		220.85	0.004202	0.40	4.47	16.43	0.22
Reach1	532.79	10-year	1.19	220.47	220.80		220.80	0.004186	0.37	3.77	15.91	0.21
Reach1	532.79	5-year	0.12	220.47	220.59		220.60	0.003543	0.16	0.80	10.72	0.16
Reach1	532.79	2-year	0.06	220.47	220.57		220.57	0.003237	0.12	0.53	8.96	0.15
Reach1	495.22	Regional	5.42	220.16	220.57	220.46	220.61	0.016913	0.87	6.13	15.34	0.44
Reach1	495.22	100-year	2.10	220.16	220.38	220.37	220.47	0.096042	1.30	1.61	14.16	0.94
Reach1	495.22	50-year	1.83	220.16	220.36	220.36	220.44	0.103095	1.26	1.45	14.03	0.96
Reach1	495.22	25-year	1.55	220.16	220.34	220.34	220.41	0.112540	1.21	1.27	13.90	0.98
Reach1	495.22	10-year	1.19	220.16	220.31	220.31	220.38	0.112706	1.08	1.08	13.76	0.95
Reach1	495.22	5-year	0.12	220.16	220.21	220.21	220.22	0.124103	0.38	0.25	13.12	0.76
Reach1	495.22	2-year	0.06	220.16	220.19	220.19	220.20	0.172665	0.35	0.13	11.11	0.84
Reach1	475.66	Regional	5.42	219.49	220.55	220.07	220.55	0.000938	0.41	17.14	25.42	0.14
Reach1	475.66	100-year	2.10	219.49	220.09	219.92	220.10	0.006803	0.65	4.02	20.84	0.34
Reach1	475.66	50-year	1.83	219.49	220.06	219.91	220.08	0.006706	0.62	3.68	20.70	0.33
Reach1	475.66	25-year	1.55	219.49	220.05	219.89	220.06	0.005809	0.56	3.46	20.62	0.31
Reach1	475.66	10-year	1.19	219.49	220.01	219.87	220.02	0.005632	0.51	2.93	20.40	0.30
Reach1	475.66	5-year	0.12	219.49	219.78	219.64	219.78	0.004142	0.25	0.49	11.11	0.23
Reach1	475.66	2-year	0.06	219.49	219.71	219.61	219.71	0.003497	0.24	0.25	7.22	0.23
Reach1	416.83	Regional	5.42	219.22	220.54		220.54	0.000084	0.14	41.21	43.35	0.04
Reach1	416.83	100-year	2.10	219.22	219.41		219.43	0.025670	0.61	3.54	23.51	0.47
Reach1	416.83	50-year	1.83	219.22	219.40		219.41	0.024308	0.57	3.29	23.19	0.46
Reach1	416.83	25-year	1.55	219.22	219.37		219.39	0.033279	0.59	2.69	22.40	0.52
Reach1	416.83	10-year	1.19	219.22	219.35		219.37	0.033752	0.53	2.27	21.82	0.51
Reach1	416.83	5-year	0.12	219.22	219.27	219.25	219.27	0.029503	0.21	0.56	18.73	0.38
Reach1	416.83	2-year	0.06	219.22	219.26	219.24	219.26	0.028737	0.16	0.37	17.91	0.36
Reach1	408.54	Regional	5.42	219.21	220.54		220.54	0.000022	0.08	50.55	58.36	0.02
Reach1	408.54	100-year	2.10	219.21	219.21		219.26	0.016129		2.26	18.04	0.00
Reach1	408.54	50-year	1.83	219.21	219.20	219.20	219.24	0.017535		1.97	16.98	0.00
Reach1	408.54	25-year	1.55	219.21	219.20		219.23	0.010969		2.08	17.39	0.00
Reach1	408.54	10-year	1.19	219.21	219.18	219.16	219.20	0.013038		1.61	15.52	0.00
Reach1	408.54	5-year	0.12	219.21	219.06	219.05	219.07	0.020740		0.26	7.26	0.00
Reach1	408.54	2-year	0.06	219.21	219.04	219.03	219.05	0.021436		0.16	6.22	0.00

HEC-RAS Plan: wildfields River: WH5A TribD Reach: Reach1 (Continued)

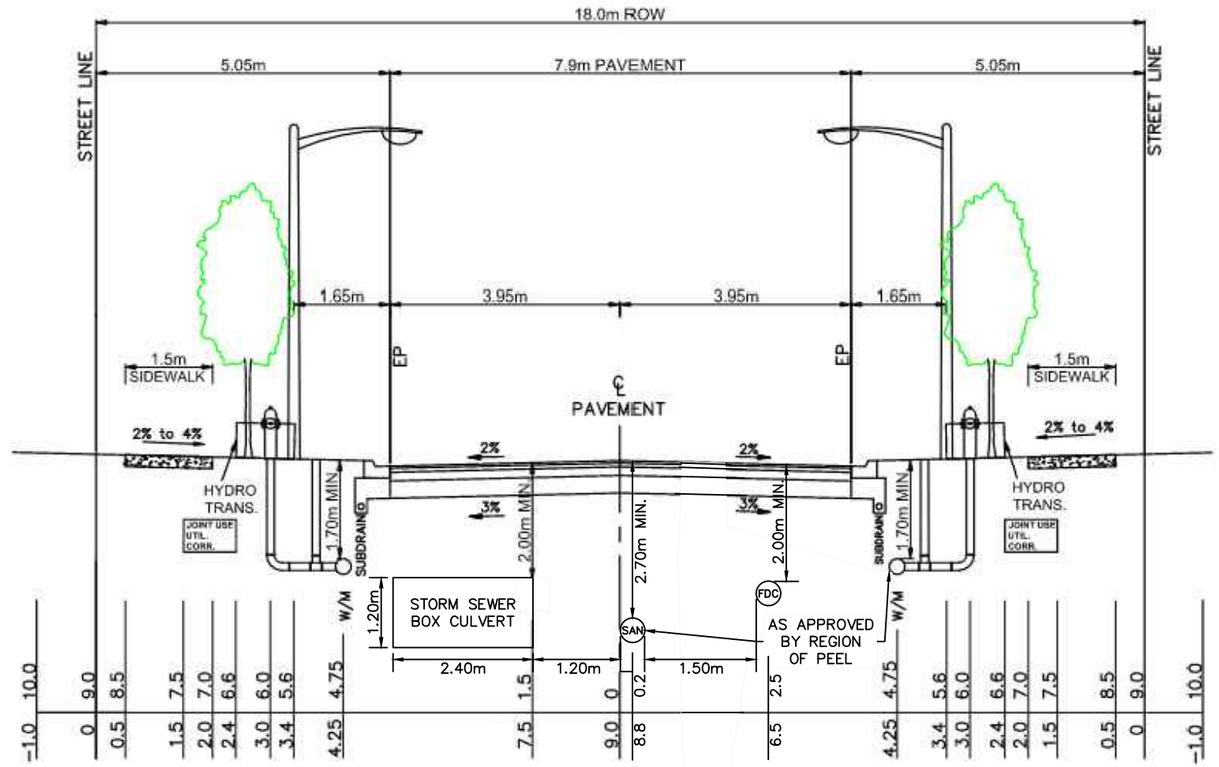
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Reach1	393.62	Regional	5.42	218.43	220.51	219.12	220.53	0.000470	0.51	8.61	73.75	0.11
Reach1	393.62	100-year	2.10	218.43	218.99	218.88	219.06	0.014993	1.15	1.79	17.25	0.51
Reach1	393.62	50-year	1.83	218.43	218.96	218.86	219.02	0.015315	1.11	1.64	16.60	0.51
Reach1	393.62	25-year	1.55	218.43	218.80	218.80	218.94	0.055927	1.65	0.95	13.30	0.91
Reach1	393.62	10-year	1.19	218.43	218.75	218.75	218.87	0.064007	1.57	0.77	12.05	0.95
Reach1	393.62	5-year	0.12	218.43	218.52	218.52	218.55	0.104542	0.74	0.16	5.75	0.91
Reach1	393.62	2-year	0.06	218.43	218.50	218.50	218.52	0.120228	0.60	0.10	4.94	0.90
Reach1	381.59 hum_195		Culvert									
Reach1	369.02	Regional	5.42	218.16	219.02	219.02	219.28	0.060871	2.24	2.42	13.49	0.99
Reach1	369.02	100-year	2.10	218.16	218.83	218.75	218.92	0.041801	1.37	1.53	11.62	0.76
Reach1	369.02	50-year	1.83	218.16	218.75	218.71	218.87	0.052923	1.52	1.20	7.68	0.87
Reach1	369.02	25-year	1.55	218.16	218.66	218.66	218.81	0.060014	1.71	0.90	4.07	0.98
Reach1	369.02	10-year	1.19	218.16	218.60	218.60	218.73	0.058017	1.64	0.73	2.87	0.98
Reach1	369.02	5-year	0.12	218.16	218.29	218.29	218.33	0.035530	0.94	0.12	1.31	0.99
Reach1	369.02	2-year	0.06	218.16	218.25	218.25	218.28	0.028412	0.74	0.08	1.16	0.89
Reach1	347.52	Regional	5.42	217.33	218.91		218.93	0.001725	0.70	9.70	10.79	0.20
Reach1	347.52	100-year	2.10	217.33	217.98		218.10	0.037444	1.56	1.35	3.56	0.81
Reach1	347.52	50-year	1.83	217.33	217.97		218.07	0.028471	1.36	1.34	3.53	0.71
Reach1	347.52	25-year	1.55	217.33	217.97		218.04	0.020953	1.18	1.31	3.45	0.61
Reach1	347.52	10-year	1.19	217.33	217.93		217.98	0.013571	1.00	1.19	3.08	0.51
Reach1	347.52	5-year	0.12	217.33	217.49		217.51	0.012385	0.70	0.16	1.52	0.68
Reach1	347.52	2-year	0.06	217.33	217.44		217.46	0.014464	0.60	0.10	1.34	0.70
Reach1	331.2	Regional	5.42	216.96	218.91		218.92	0.000456	0.41	16.98	14.33	0.10
Reach1	331.2	100-year	2.10	216.96	217.79		217.83	0.008291	0.84	3.10	10.29	0.36
Reach1	331.2	50-year	1.83	216.96	217.70		217.74	0.014062	0.96	2.14	8.41	0.45
Reach1	331.2	25-year	1.55	216.96	217.59		217.65	0.026008	1.10	1.50	5.57	0.59
Reach1	331.2	10-year	1.19	216.96	217.46	217.43	217.56	0.061093	1.37	0.87	3.48	0.88
Reach1	331.2	5-year	0.12	216.96	217.12	217.12	217.17	0.046516	0.92	0.12	1.44	1.00
Reach1	331.2	2-year	0.06	216.96	217.10	217.10	217.12	0.033311	0.70	0.09	1.29	0.87
Reach1	316.4	Regional	5.42	216.64	218.91		218.91	0.000236	0.38	19.26	13.46	0.09
Reach1	316.4	100-year	2.10	216.64	217.78		217.79	0.000886	0.42	6.13	9.69	0.14
Reach1	316.4	50-year	1.83	216.64	217.68		217.69	0.001073	0.43	5.18	9.31	0.16
Reach1	316.4	25-year	1.55	216.64	217.58		217.59	0.001365	0.44	4.23	8.95	0.17
Reach1	316.4	10-year	1.19	216.64	217.43		217.44	0.002065	0.46	2.99	8.17	0.20
Reach1	316.4	5-year	0.12	216.64	216.82		216.84	0.008132	0.57	0.20	1.79	0.54
Reach1	316.4	2-year	0.06	216.64	216.76		216.78	0.016018	0.61	0.10	1.38	0.73
Reach1	301.69	Regional	5.42	216.46	218.88	217.26	218.90	0.000618	0.61	8.91	24.63	0.13
Reach1	301.69	100-year	2.10	216.46	217.76	216.99	217.77	0.001029	0.49	4.33	13.90	0.15
Reach1	301.69	50-year	1.83	216.46	217.66	216.96	217.67	0.001079	0.47	3.92	12.60	0.15
Reach1	301.69	25-year	1.55	216.46	217.56	216.93	217.57	0.001141	0.44	3.50	11.21	0.15
Reach1	301.69	10-year	1.19	216.46	217.41	216.88	217.42	0.001258	0.41	2.90	7.97	0.16
Reach1	301.69	5-year	0.12	216.46	216.75	216.62	216.76	0.003743	0.29	0.40	2.68	0.24
Reach1	301.69	2-year	0.06	216.46	216.67	216.58	216.68	0.003288	0.27	0.22	1.91	0.26
Reach1	286.42 hum_194		Culvert									
Reach1	271.62	Regional	5.42	215.85	216.50	216.50	216.78	0.026244	2.33	2.33	23.61	1.00
Reach1	271.62	100-year	2.10	215.85	216.25	216.25	216.39	0.026673	1.67	1.26	20.01	0.98
Reach1	271.62	50-year	1.83	215.85	216.22	216.22	216.35	0.026496	1.59	1.15	19.31	0.97
Reach1	271.62	25-year	1.55	215.85	216.19	216.19	216.31	0.026553	1.51	1.03	18.31	0.98
Reach1	271.62	10-year	1.19	215.85	216.17	216.15	216.25	0.022600	1.31	0.91	16.78	0.91
Reach1	271.62	5-year	0.12	215.85	215.96	215.96	215.99	0.026892	0.77	0.15	2.37	0.98
Reach1	271.62	2-year	0.06	215.85	215.94	215.94	215.96	0.024001	0.59	0.10	2.17	0.87
Reach1	245.58	Regional	5.42	215.14	215.49	215.36	215.52	0.018230	0.63	7.18	24.52	0.42
Reach1	245.58	100-year	2.10	215.14	215.36		215.37	0.016109	0.37	3.91	20.60	0.35
Reach1	245.58	50-year	1.83	215.14	215.26	215.23	215.30	0.071980	0.58	2.08	16.08	0.69
Reach1	245.58	25-year	1.55	215.14	215.25		215.28	0.067940	0.55	1.90	15.55	0.66
Reach1	245.58	10-year	1.19	215.14	215.22	215.20	215.25	0.084357	0.54	1.48	14.51	0.72
Reach1	245.58	5-year	0.12	215.14	215.14		215.14	0.019237	0.02	0.50	10.51	0.17
Reach1	245.58	2-year	0.06	215.14	215.13		215.13	0.011080		0.39	9.86	0.00
Reach1	205.92	Regional	5.42	214.22	214.43	214.43	214.52	0.034782	0.60	4.70	26.57	0.53
Reach1	205.92	100-year	2.10	214.22	214.33	214.33	214.39	0.039976	0.31	2.21	21.56	0.47
Reach1	205.92	50-year	1.83	214.22	214.38		214.40	0.010558	0.24	3.28	24.42	0.27
Reach1	205.92	25-year	1.55	214.22	214.36		214.38	0.010899	0.21	2.86	23.34	0.26
Reach1	205.92	10-year	1.19	214.22	214.34		214.36	0.009981	0.18	2.43	22.05	0.24
Reach1	205.92	5-year	0.12	214.22	214.21	214.21	214.21	0.028053		0.31	8.43	0.00
Reach1	205.92	2-year	0.06	214.22	214.17	214.17	214.19	0.077615		0.12	4.36	0.00
Reach1	142.92	Regional	5.42	212.73	213.90		213.90	0.000027	0.07	67.60	67.22	0.02
Reach1	142.92	100-year	2.10	212.73	212.94		212.95	0.005404	0.17	7.40	55.86	0.19
Reach1	142.92	50-year	1.83	212.73	212.84	212.84	212.87	0.109081	0.53	2.38	39.25	0.76
Reach1	142.92	25-year	1.55	212.73	212.84	212.84	212.86	0.096529	0.49	2.21	36.36	0.71
Reach1	142.92	10-year	1.19	212.73	212.82	212.82	212.85	0.132471	0.50	1.59	31.01	0.81
Reach1	142.92	5-year	0.12	212.73	212.78		212.78	0.010003	0.09	0.63	15.32	0.20

HEC-RAS Plan: wildfields River: WH5A TribD Reach: Reach1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Reach1	142.92	2-year	0.06	212.73	212.75		212.75	0.011195	0.05	0.32	7.45	0.18
Reach1	10.94	Regional	5.42	211.71	213.90		213.90	0.000006	0.05	132.78	103.91	0.01
Reach1	10.94	100-year	2.10	211.71	212.94		212.94	0.000052	0.08	37.22	94.80	0.03
Reach1	10.94	50-year	1.83	211.71	212.85		212.85	0.000085	0.10	28.80	93.44	0.03
Reach1	10.94	25-year	1.55	211.71	212.75		212.75	0.000171	0.13	19.63	91.86	0.05
Reach1	10.94	10-year	1.19	211.71	212.60		212.60	0.000574	0.19	8.71	48.34	0.08
Reach1	10.94	5-year	0.12	211.71	211.86	211.86	211.90	0.171928	0.97	0.12	1.42	1.07
Reach1	10.94	2-year	0.06	211.71	211.83	211.83	211.86	0.124110	0.73	0.08	1.20	0.89
Reach1	-65.62	Regional	5.42	210.84	213.90	211.83	213.90	0.000002	0.03	235.44	172.34	0.01
Reach1	-65.62	100-year	2.10	210.84	212.94	211.50	212.94	0.000010	0.04	74.30	163.03	0.01
Reach1	-65.62	50-year	1.83	210.84	212.85	211.46	212.85	0.000014	0.05	59.70	161.49	0.01
Reach1	-65.62	25-year	1.55	210.84	212.75	211.41	212.75	0.000022	0.06	43.76	155.70	0.02
Reach1	-65.62	10-year	1.19	210.84	212.59	211.34	212.59	0.000052	0.08	24.04	91.72	0.03
Reach1	-65.62	5-year	0.12	210.84	211.38	211.02	211.38	0.000717	0.15	0.78	2.41	0.08
Reach1	-65.62	2-year	0.06	210.84	211.18	210.99	211.18	0.001902	0.17	0.35	1.82	0.13

Appendix D Right-of-Way Cross Sections

SCS consulting group ltd



NOTES

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2. UTILITY CORRIDOR TO HAVE A MINIMUM COVER OF 0.9m.
3. TREES TO BE PLACED IN LOCATIONS PER APPROVED LANDSCAPE PLAN.
4. STREETLIGHT FIXTURE PER APPROVED TOWN STANDARD.
5. 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"
6. THE BOULEVARDS REQUIRE A MINIMUM OF 300mm OF TOPSOIL AND NURSERY SOD.
7. ON A CRESCENT THE WATERMAIN SHALL BE PLACED ON THE OUTSIDE.
8. FULL LENGTH MINIMUM 100 MM DIA.SUB-DRAINS C/W FILTERCLOTH SHALL BE INSTALLED, AS PER APPROVED TOWN OF CALEDON STANDARD NO. 219.
9. SUB-GRADE SHALL BE COMPACTED TO A MINIMUM 95% OF S.P.D. AT OPTIMUM MOISTURE CONTENT.
10. WHERE POSSIBLE MANHOLE LIDS TO BE LOCATED OUT OF TIRE LANE OF TRAFFIC.
11. LONG DIMENSION OF TRANSFORMER TO BE PARALLEL TO STREETLINE.

TOWN OF CALEDON

18.0m LOCAL ROAD
8.5m ROADWAY (7.9m PAVEMENT)
MODIFIED

NO.	REVISION	APR'D	DATE
4	TEXT AND SLOPE REVISIONS		MAY 19
3	DIMENSION AND TEXT REVISION		JAN. 09
2	DIMENSION AND LAYOUT REVISION		JULY 08
1	DIMENSION EDIT		JUNE 08

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

STANDARD No. 202

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

FSSR

LEGEND:

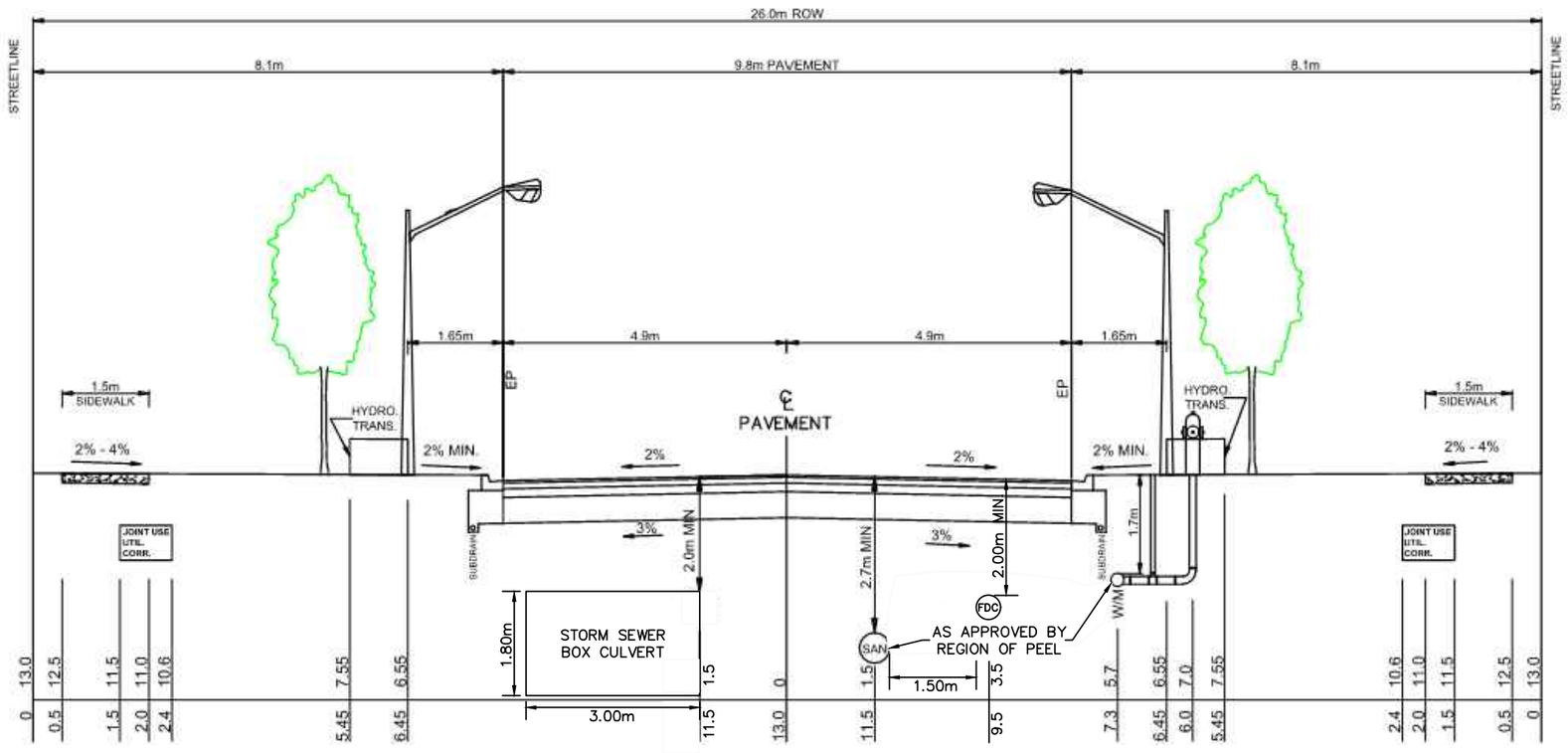
WILDFIELD - TRINITY FIELD

18.0m LOCAL ROAD 8.5m ROADWAY (7.9m PAVEMENT) MODIFIED

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

DESIGNED BY: A.T.	CHECKED BY: A.R.K.	PROJECT No: 2709	FIGURE No: D.1
SCALE: N.T.S.	DATE: OCTOBER 2025		

File: P:\2709 Wildfield – Trinison\Drawings\FSP\Fig\Report Figures\2709P–X.X–18ROW.dwg – Revised by <JNELLAS> : Thu, Oct 16 2025 – 2:28pm



NOTES:

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5. TREES TO BE PLACED IN LOCATIONS PER APPROVED LANDSCAPE PLAN.
6. STREETLIGHT FIXTURE PER APPROVED TOWN STANDARD.
7. ON A CRESCENT, THE WATERMAIN SHALL BE PLACED ON THE OUTSIDE.
8. FULL LENGTH MINIMUM 100mm DIA. SUB-DRAINS C/W FILTERCLOTH SHALL BE INSTALLED AS PER TOWN OF CALEDON APPROVED STANDARDS NO. 218.
9. SUB-GRADE SHALL BE COMPACTED TO A MINIMUM 95% S.P.D. AT OPTIMUM MOISTURE CONTENT.
10. WHERE POSSIBLE, MANHOLE LIDS TO BE LOCATED OUT OF THE TIRE LANE OF TRAFFIC.

TOWN OF CALEDON

26.0m URBAN - COLLECTOR FULL/PART SERVICES
10.4m ROADWAY (9.8m PAVEMENT)
MODIFIED

NO.	REVISION	APR'D	DATE
5			
4	TEXT AND SLOPE REVISION		APR 19
3	DIMENSION AND TEXT REVISION		JAN. 09
2	DIMENSION AND LAYOUT REVISION		JULY 08
1	DIMENSION EDIT		JUNE 08

APR'D: C.C. DATE: 19/01/00
DRAWN: BJM SCALE: N.T.S.

STANDARD No. 210

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

FSSR

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

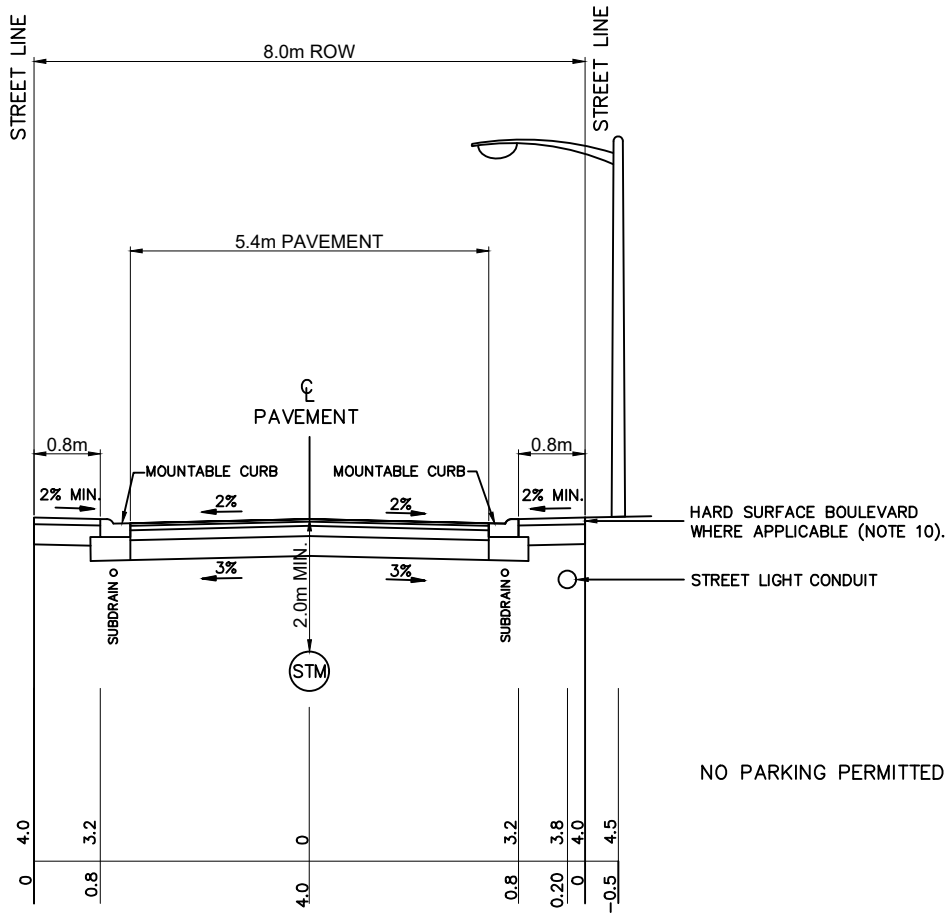
LEGEND:

WILDFIELD - TRINITY FIELD

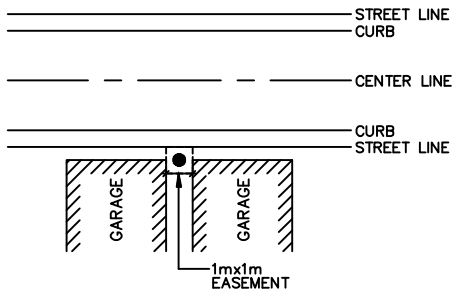
26.0m URBAN - COLLECTOR FULL/PART SERVICES 10.4m ROADWAY (9.8m PAVEMENT) MODIFIED

DESIGNED BY:	A.T.	CHECKED BY:	A.R.K.
SCALE:	N.T.S.	DATE:	OCTOBER 2025

PROJECT No: 2709
FIGURE No: D.2



PLAN:



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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.

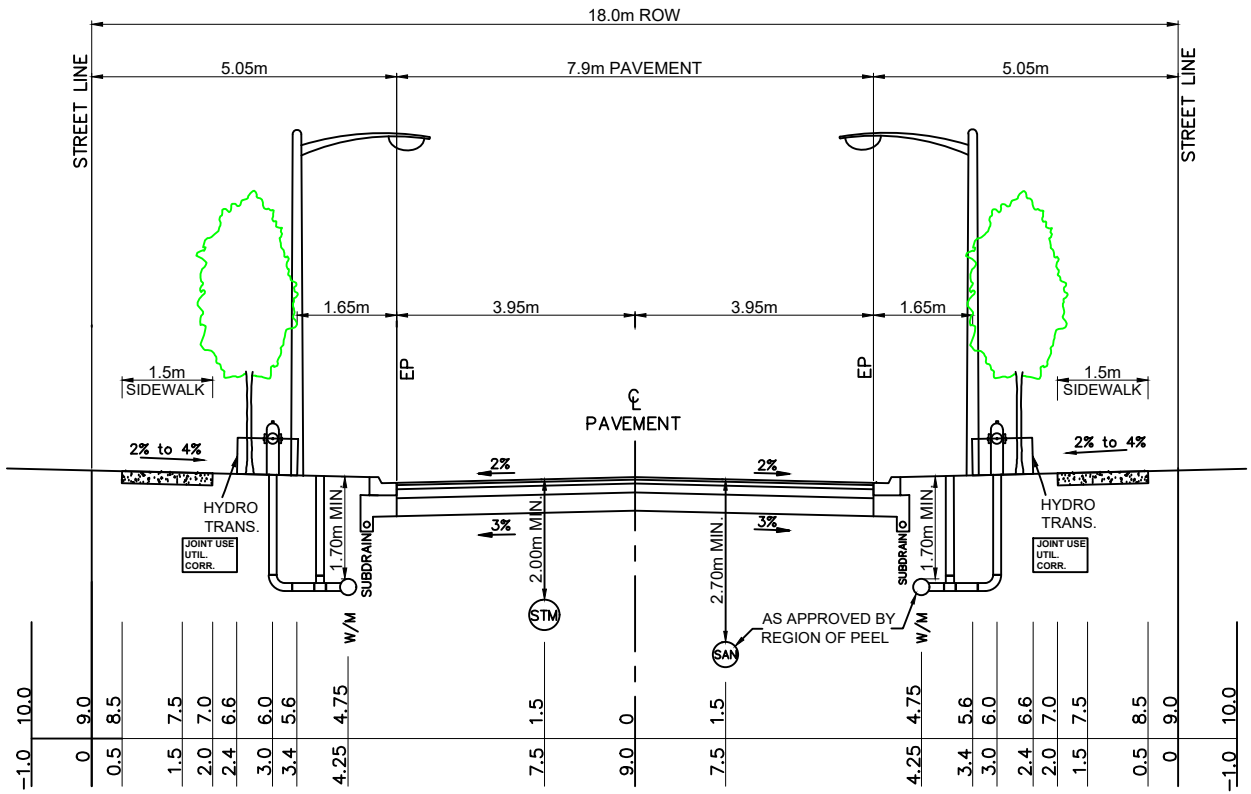
TOWN OF CALEDON

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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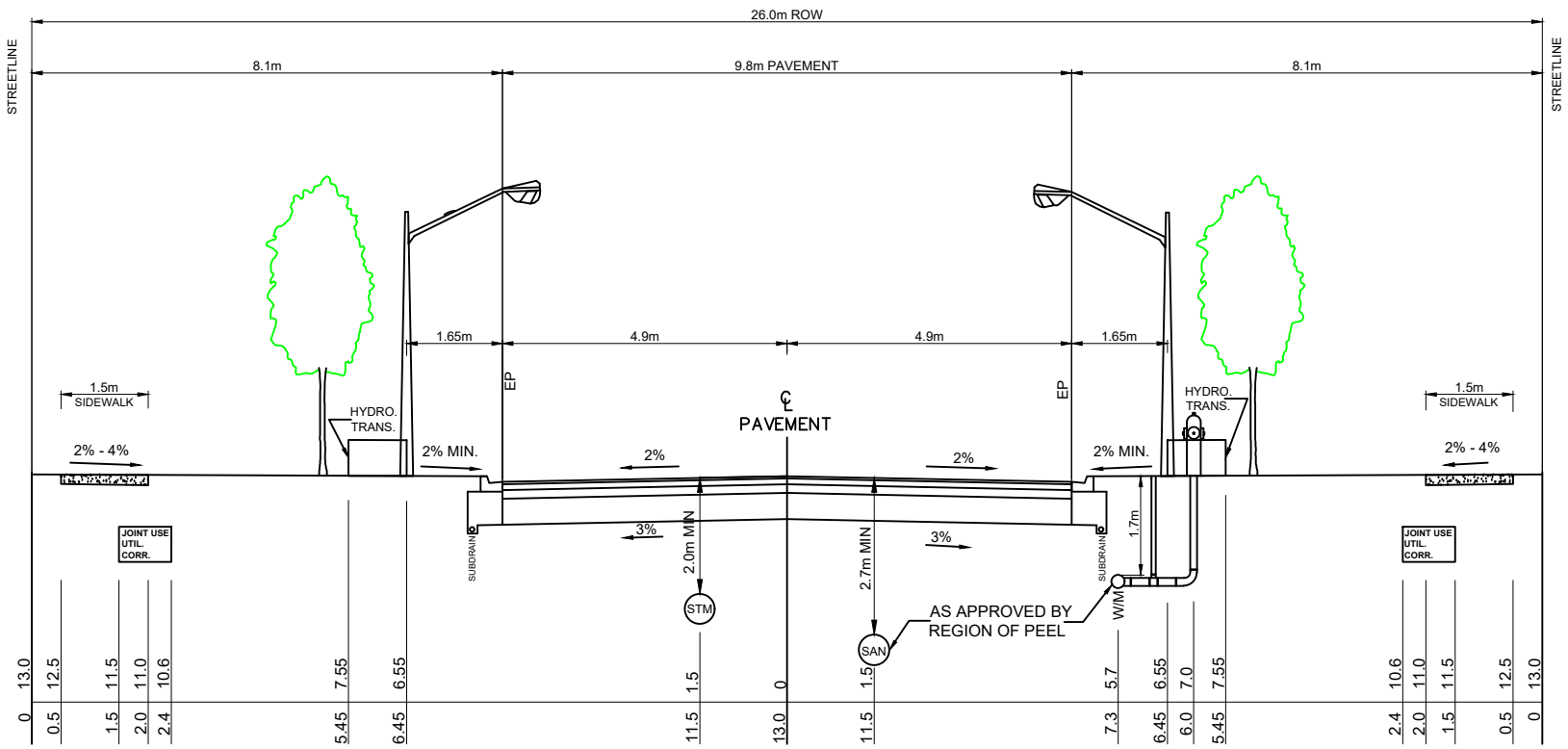
TOWN OF CALEDON	NO.	REVISION	APR'D	DATE	APR'D: C.C.	DATE: JUNE 08
18.0m LOCAL ROAD 8.5m ROADWAY (7.9m PAVEMENT)	4	TEXT AND SLOPE REVISIONS		MAY 19	DRAWN:	SCALE: N.T.S.
	3	DIMENSION AND TEXT REVISION		JAN. 09	STANDARD No. 202	
	2	DIMENSION AND LAYOUT REVISION		JULY 08		
	1	DIMENSION EDIT		JUNE 08		



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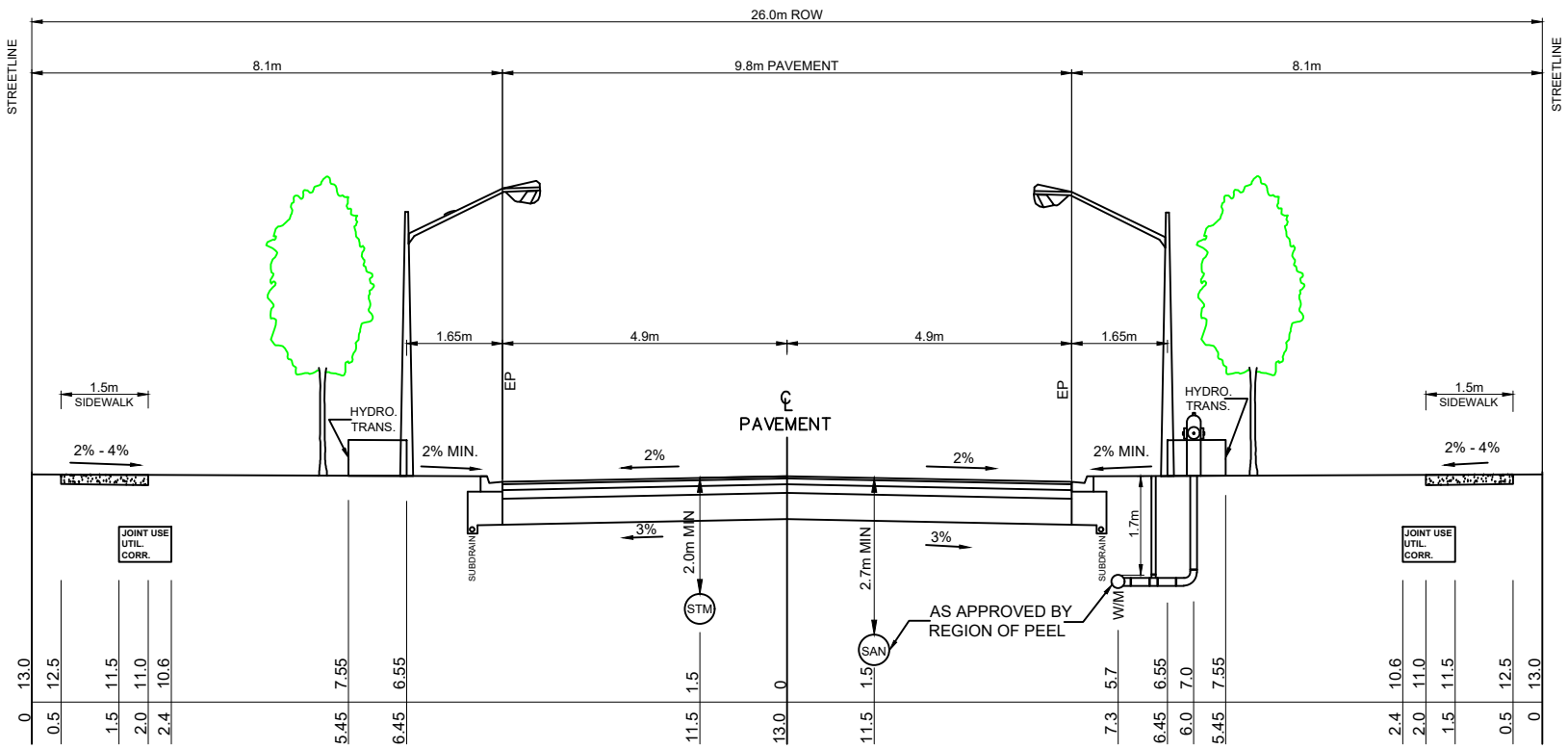
TOWN OF CALEDON	NO.	REVISION	APR'D	DATE
	5			
	4	TEXT AND SLOPE REVISION		APR 19
26.0m URBAN - COLLECTOR FULL/PART SERVICES 10.4m ROADWAY (9.8m PAVEMENT)	3	DIMENSION AND TEXT REVISION		JAN. 09
	2	DIMENSION AND LAYOUT REVISION		JULY 08
	1	DIMENSION EDIT		JUNE 08

APR'D: C.C.	DATE: 19/01/00
DRAWN: BJM	SCALE: N.T.S.

STANDARD No. 210



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TOWN OF CALEDON	NO.	REVISION	APR'D	DATE
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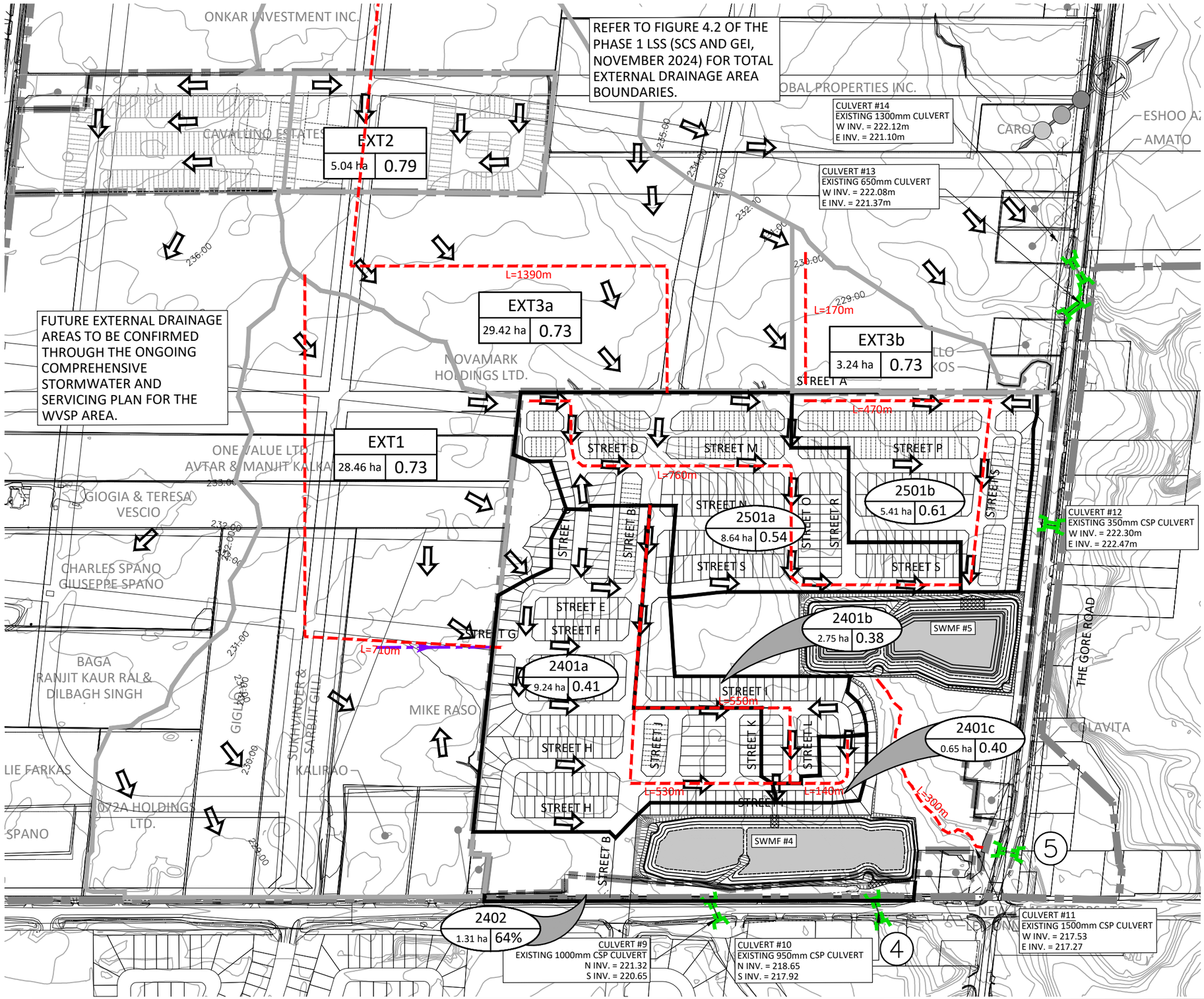
	2	DIMENSION AND LAYOUT REVISION		JULY 08
	1	DIMENSION EDIT		JUNE 08

APR'D: C.C.	DATE: 19/01/00
DRAWN: BJM	SCALE: N.T.S.

STANDARD No. 210

Appendix E Minor and Major System Calculations

SCS consulting group ltd



LEGEND:

- LIMIT OF DEVELOPMENT
- LIMIT OF WILDFIELD VILLAGE SECONDARY PLAN
- 230.00 — EXISTING CONTOUR AND ELEVATION
- STORM DRAINAGE BOUNDARY
- EXTERNAL STORM DRAINAGE BOUNDARY
- L=140m — TIME OF PEAK FLOW PATH AND LENGTH
- OVERLAND FLOW DIRECTION
- EXISTING CULVERT
- 201 / 20.15 ha / 76% — CATCHMENT ID; RUNOFF COEFFICIENT; DRAINAGE AREA (HECTARES)
- EXT1 / 28.46 ha / 76% — CATCHMENT ID; RUNOFF COEFICIENT; EXTERNAL STORM DRAINAGE AREA (HECTARES)
- 1 — OUTLET ID

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

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

WILDFIELD - TRINITY FIELD

FSSR

OVERLAND FLOW DRAINAGE SCHEMATIC

DESIGNED BY:	R.B.	CHECKED BY:	A.K.
SCALE:	1:5000	DATE:	OCTOBER 2025
PROJECT No:	2709	FIGURE No:	E.1

Drainage Area Characteristics
Major Flows

Project Number: 2709
Date: October 2025
Designer Initials: R.R.B.

Catchment ID	Landues	Total Area	Runoff Coefficient
		(ha)	
2401a	Single Family	8.92	0.40
	Lane Townhouses	0.32	0.75
		9.24	*0.41*
2401b	Single Family	2.47	0.40
	Park	0.28	0.25
		2.75	*0.38*
2401c	Single Family	0.65	0.40
2401		12.64	0.41
EXT1	Future Residential[2]	28.46	0.73
2501a	Single Family	5.13	0.40
	Lane Townhouses	3.51	0.75
		8.64	*0.54*
2501b	Single Family	2.22	0.40
	Lane Townhouses	3.19	0.75
		5.41	*0.61*
EXT2	Future Cavallino Estates Proposed Drainage	5.04	0.79
EXT3a[2]	Future External Drainage Area	29.42	0.73
EXT2 & EXT3a		34.46	0.73
EXT3b		3.24	0.73

[1] Percent Imperviousness based on future draft plan for the future Cavalino Estates parcel within the WVSP Area
[2] External Drainage Area and runoff coefiicient is based on Figure 4.1 of Phase 2 LSS

RATIONAL METHOD CALCULATIONS
OLF Route

Wildfield - Trinity Field
Project Number: 2709
Date: October 2025
Designer Initials: R.B.

Subcatchment ID	Subcatchment Area (ha)	5 Year Runoff Coefficient
2401	12.64	0.41

Town of Caledon 10 Year (Rational Method)	
Area (ha) =	12.64
Runoff Coeff. =	0.41
T_c (min) =	14.58
a=	**2221**
b=	**12.000**
c=	**0.908**
Intensity (mm/hr) =	112.98
Runoff (m^3/s)=	**1.635**

(Assumes initial Tc of 10 minutes and 550m flowing at 2 m/s)

Town of Caledon 100 Year (Rational Method)	
Area (ha) =	12.64
Runoff Coeff. =	0.52
T_c (min) =	14.58
a=	**4688**
b=	**17.000**
c=	**0.962**
Intensity (mm/hr) =	169.01
Runoff (m^3/s)=	**3.057**

Required Flow Capacity:

$Q_{100yr} - Q_{10yr} =$ **1.422** m^3/s

RATIONAL METHOD CALCULATIONS
2401a

Wildfield - Trinity Field
Project Number: 2709
Date: October 2025
Designer Initials: R.B.

Subcatchment ID	Subcatchment Area (ha)	5 Year Runoff Coefficient
2401a	9.24	0.41

Town of Caledon 10 Year (Rational Method)	
Area (ha) =	9.24
Runoff Coeff. =	0.41
T_c (min) =	14.42
a=	**2221**
b=	**12.000**
c=	**0.908**
Intensity (mm/hr) =	113.63
Runoff (m^3/s)=	**1.202**

(Assumes initial Tc of 10 minutes and 530m flowing at 2 m/s)

Town of Caledon 100 Year (Rational Method)	
Area (ha) =	9.24
Runoff Coeff. =	0.52
T_c (min) =	14.42
a=	**4688**
b=	**17.000**
c=	**0.962**
Intensity (mm/hr) =	169.87
Runoff (m^3/s)=	**2.246**

Required Flow Capacity:

$Q_{100yr} - Q_{10yr} =$ **1.044** m^3/s

RATIONAL METHOD CALCULATIONS
2401b

Wildfield - Trinity Field
Project Number: 2709
Date: October 2025
Designer Initials: R.B.

Subcatchment ID	Subcatchment Area (ha)	5 Year Runoff Coefficient
2401b	2.75	0.38

Town of Caledon 10 Year (Rational Method)	
Area (ha) =	2.75
Runoff Coeff. =	0.38
T_c (min) =	14.58
a=	**2221**
b=	**12.000**
c=	**0.908**
Intensity (mm/hr) =	112.98
Runoff (m^3/s)=	**0.332**

(Assumes initial Tc of 10 minutes and 550m flowing at 2 m/s)

Town of Caledon 100 Year (Rational Method)	
Area (ha) =	2.75
Runoff Coeff. =	0.48
T_c (min) =	14.58
a=	**4688**
b=	**17.000**
c=	**0.962**
Intensity (mm/hr) =	169.01
Runoff (m^3/s)=	**0.621**

Required Flow Capacity:

$Q_{100yr} - Q_{10yr} =$ **0.289** m^3/s

RATIONAL METHOD CALCULATIONS
2401c

Wildfield - Trinity Field
Project Number: 2709
Date: October 2025
Designer Initials: R.B.

Subcatchment ID	Subcatchment Area (ha)	5 Year Runoff Coefficient
2401c	0.65	0.40

Town of Caledon 10 Year (Rational Method)	
Area (ha) =	0.65
Runoff Coeff. =	0.40
T_c (min) =	11.17
a=	**2221**
b=	**12.000**
c=	**0.908**
Intensity (mm/hr) =	128.01
Runoff (m^3/s)=	**0.092**

(Assumes initial Tc of 10 minutes and 140m flowing at 2 m/s)

Town of Caledon 100 Year (Rational Method)	
Area (ha) =	0.65
Runoff Coeff. =	0.50
T_c (min) =	11.17
a=	**4688**
b=	**17.000**
c=	**0.962**
Intensity (mm/hr) =	188.70
Runoff (m^3/s)=	**0.170**

Required Flow Capacity:

$Q_{100yr} - Q_{10yr} =$ **0.078** m^3/s

RATIONAL METHOD CALCULATIONS
EXT1

Wildfield - Trinity Field
Project Number: 2709
Date: October 2025
Designer Initials: R.B.

Subcatchment ID	Subcatchment Area (ha)	5 Year Runoff Coefficient
EXT1	28.46	0.73

Town of Caledon 10 Year (Rational Method)	
Area (ha) =	28.46
Runoff Coeff. =	0.73
T_c (min) =	15.92
a=	**2221**
b=	**12.000**
c=	**0.908**
Intensity (mm/hr) =	108.07
Runoff (m^3/s)=	**6.254**

(Assumes initial Tc of 10 minutes and 710m flowing at 2 m/s)

Town of Caledon 100 Year (Rational Method)	
Area (ha) =	28.46
Runoff Coeff. =	0.92
T_c (min) =	15.92
a=	**4688**
b=	**17.000**
c=	**0.962**
Intensity (mm/hr) =	162.42
Runoff (m^3/s)=	**11.748**

Required Flow Capacity:

$Q_{100yr} - Q_{10yr} =$ **5.495** m^3/s

Major Flows from external area EXT1 exceed the capacity of the 18.0 m right of way with a maximum flow depth of 0.25 m (1.64 m^3/s), and will have to be captured and conveyed through the storm sewer system.

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Oct 15 2025

2401 - 18 m R.O.W @ 0.50%

User-defined

Invert Elev (m)	= 99.7500
Slope (%)	= 0.5000
N-Value	= 0.023

Calculations

Compute by:	Known Depth
Known Depth (m)	= 0.2500

Highlighted

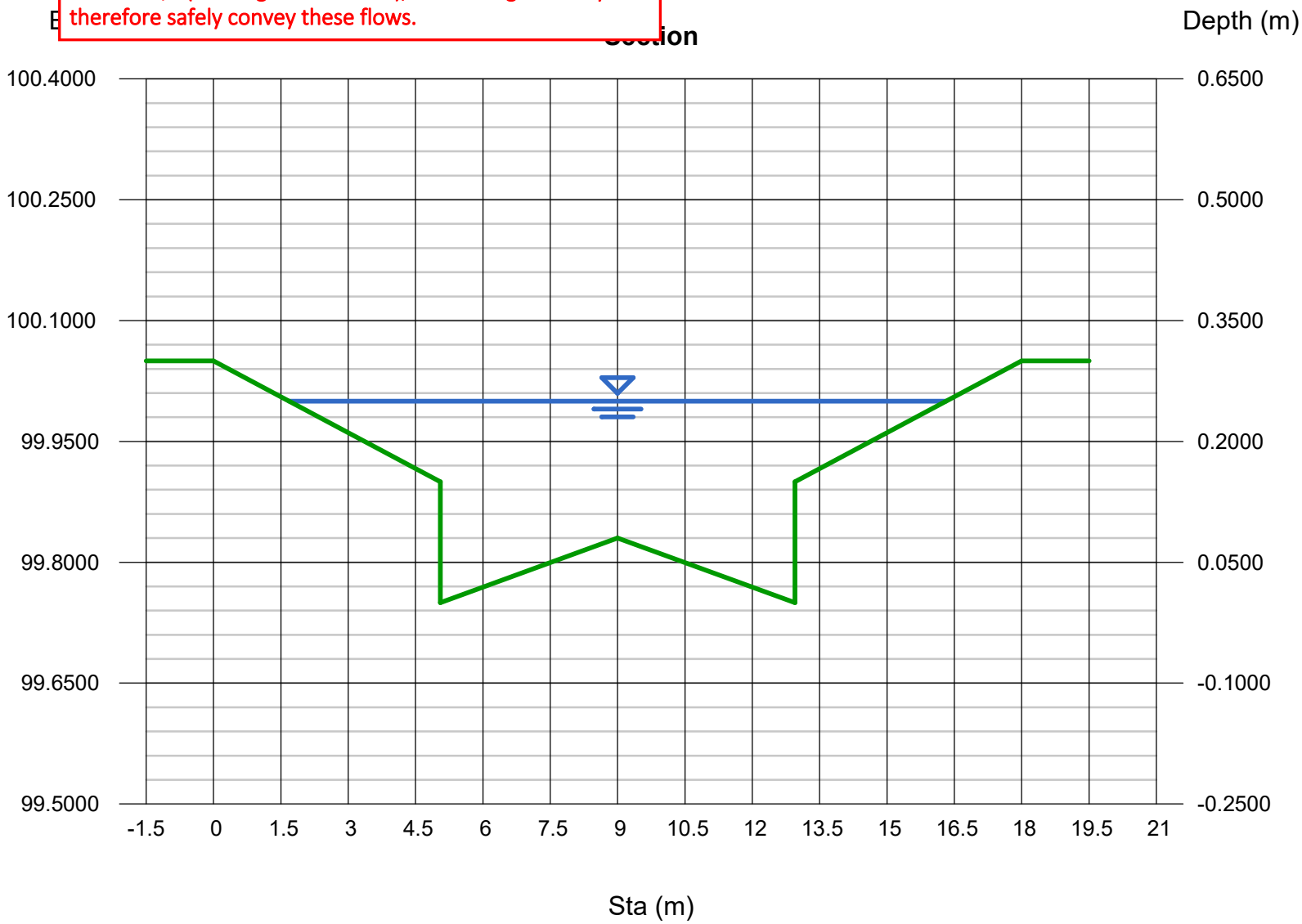
Depth (m)	= 0.2500
Q (cms)	= 1.6353
Area (sqm)	= 1.9956
Velocity (m/s)	= 0.8194
Wetted Perim (m)	= 14.9375
Crit Depth, Yc (m)	= 0.2134
Top Width (m)	= 14.6329
EGL (m)	= 0.2842

(Sta, El, n)-(Sta, El, n)...

(0.0000, 100.0500)-(5.0500, 99.9000, 0.032)-(5.0500, 99.7500, 0.013)-(9.0000, 99.8300, 0.013)-(12.9500, 99.7500, 0.013)-(12.9500, 99.9000, 0.013)-(18.0000, 100

The 18.0 m right of way with a 0.50% grade has capacity to convey a maximum peak flow of 1.64 m³/s with a flow depth of 0.25 m.

The maximum peak flow from within the site to be conveyed through the 18.0 m right of way towards SWMF 4 is 1.04 m³/s (Drainage Area 2401a), and the right of way can therefore safely convey these flows.



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Oct 15 2025

6.0 m OLF Route to SWMF 4

User-defined

Invert Elev (m)	= 100.0000
Slope (%)	= 5.0000
N-Value	= 0.020

Calculations

Compute by:	Known Depth
Known Depth (m)	= 0.2500

Highlighted

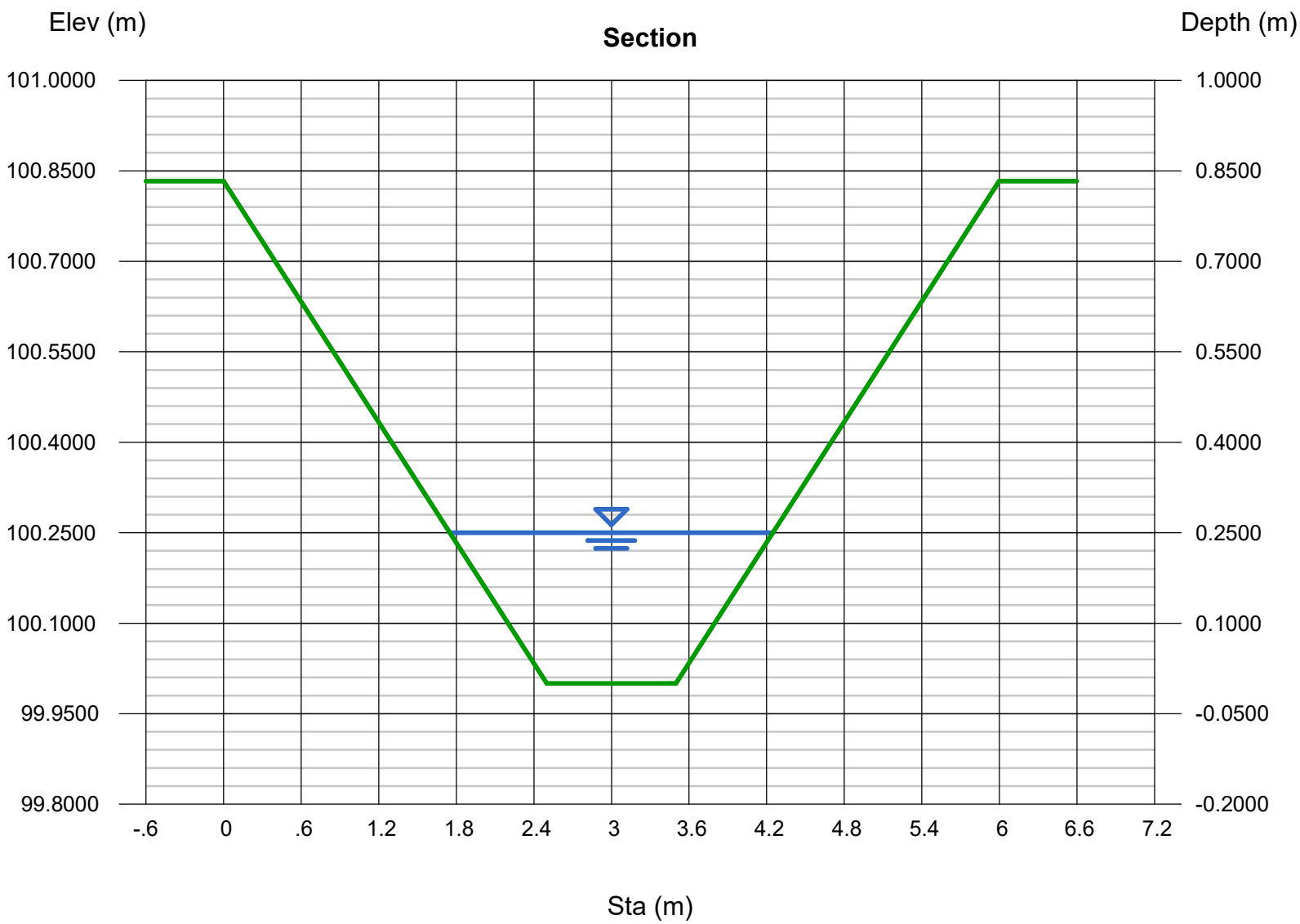
Depth (m)	= 0.2500
Q (cms)	= 1.5177
Area (sqm)	= 0.4375
Velocity (m/s)	= 3.4690
Wetted Perim (m)	= 2.5812
Crit Depth, Yc (m)	= 0.4176
Top Width (m)	= 2.5000
EGL (m)	= 0.8638

(Sta, El, n)-(Sta, El, n)...

(0.0000, 100.8330)-(2.4990, 100.0000, 0.032)-(3.4990, 100.0000, 0.013)-(5.9980, 100.8330, 0.013)

The 6.0 m overland flow block has capacity to convey a maximum peak flow of 1.52 m^3/s with a maximum depth of 0.25 m.

The maximum peak flow to be conveyed through the OLF block is towards SWMF 4 is 1.42 m^3/s (Drainage Areas 2401a, 2401b and 2401c), and the overland flow block can therefore safely convey these flows.



Hydraulic Calculation of a Box Culvert 2401

Project Name: Wildfield Village - Trinity Field
Project Number: 2709
Date: 01-Oct-25

Please choose a Box Culvert Size :	3000mm x 1800mm		13
Please enter a slope (S) :	0.3	%	
n =	0.013		
Waterway Area =	5.271	m^2	
Wetted Perimeter =	9.005	m	
Hydraulic Radius =	0.585	m	
Mannings Formula =	AR^(2/3)S^(1/2)/n		
=	283.72	$xS^{1/2}$	
Discharge (Q) =	**15.540**	m^3	
Velocity (V) =	**2.948**	m/s	

The 3000 mm x 1800 mm box culvert at 0.30% is required in order to convey the 10 year flows from Catchment 2401 (1.64 m^3/s) along with the 100 year flows from Drainage Area EXT1 (11.75 m^3/s) to convey a total flow of 13.39 m^3/s to SWMF 4.

RATIONAL METHOD CALCULATIONS
2501a

Wildfield - Trinity Field
Project Number: 2709
Date: October 2025
Designer Initials: R.B.

Subcatchment ID	Subcatchment Area (ha)	5 Year Runoff Coefficient
2501a	8.64	0.54

Town of Caledon 10 Year (Rational Method)	
Area (ha) =	8.64
Runoff Coeff. =	0.54
T_c (min) =	16.33
a=	**2221**
b=	**12.000**
c=	**0.908**
Intensity (mm/hr) =	106.63
Runoff (m^3/s)=	**1.387**

(Assumes initial Tc of 10 minutes and 760m flowing at 2 m/s)

Town of Caledon 100 Year (Rational Method)	
Area (ha) =	8.64
Runoff Coeff. =	0.68
T_c (min) =	16.33
a=	**4688**
b=	**17.000**
c=	**0.962**
Intensity (mm/hr) =	160.46
Runoff (m^3/s)=	**2.610**

Required Flow Capacity:

$Q_{100yr} - Q_{10yr} =$ **1.223** m^3/s

RATIONAL METHOD CALCULATIONS
EXT2 EXT3a

Wildfield - Trinity Field
Project Number: 2709
Date: October 2025
Designer Initials: R.B.

Subcatchment ID	Subcatchment Area (ha)	5 Year Runoff Coefficient
EXT2 & EXT3a	34.46	0.73

Town of Caledon 10 Year (Rational Method)	
Area (ha) =	34.46
Runoff Coeff. =	0.73
T_c (min) =	21.58
a=	**2221**
b=	**12.000**
c=	**0.908**
Intensity (mm/hr) =	91.38
Runoff (m^3/s)=	**6.422**

(Assumes initial Tc of 10 minutes and 1390m flowing at 2 m/s)

13.38

Town of Caledon 100 Year (Rational Method)	
Area (ha) =	34.46
Runoff Coeff. =	0.92
T_c (min) =	21.58
a=	**4688**
b=	**17.000**
c=	**0.962**
Intensity (mm/hr) =	139.39
Runoff (m^3/s)=	**12.246**

Required Flow Capacity:

$Q_{100yr} - Q_{10yr} =$ **5.824** m^3/s

Major Flows from external areas EXT2 and EXT3a exceed the capacity of the 18.0 m right of way with a maximum flow depth of 0.25 m (1.64 m^3/s), and will have to be captured and conveyed through the storm sewer system.

RATIONAL METHOD CALCULATIONS
2501b

Wildfield - Trinity Field
Project Number: 2709
Date: October 2025
Designer Initials: R.B.

Subcatchment ID	Subcatchment Area (ha)	5 Year Runoff Coefficient
2501b	5.41	0.61

Town of Caledon 10 Year (Rational Method)	
Area (ha) =	5.41
Runoff Coeff. =	0.61
T_c (min) =	13.92
a=	**2221**
b=	**12.000**
c=	**0.908**
Intensity (mm/hr) =	115.62
Runoff (m^3/s)=	**1.054**

(Assumes initial Tc of 10 minutes and 470m flowing at 2 m/s)

Town of Caledon 100 Year (Rational Method)	
Area (ha) =	5.41
Runoff Coeff. =	0.76
T_c (min) =	13.92
a=	**4688**
b=	**17.000**
c=	**0.962**
Intensity (mm/hr) =	172.51
Runoff (m^3/s)=	**1.965**

Required Flow Capacity:

$Q_{100yr} - Q_{10yr} =$ **0.911** m^3/s

RATIONAL METHOD CALCULATIONS
EXT3b

Wildfield - Trinity Field
Project Number: 2709
Date: October 2025
Designer Initials: R.B.

Subcatchment ID	Subcatchment Area (ha)	5 Year Runoff Coefficient
EXT3b	3.24	0.73

Town of Caledon 10 Year (Rational Method)	
Area (ha) =	3.24
Runoff Coeff. =	0.73
T_c (min) =	11.42
a=	**2221**
b=	**12.000**
c=	**0.908**
Intensity (mm/hr) =	126.77
Runoff (m^3/s)=	**0.838**

(Assumes initial Tc of 10 minutes and 170m flowing at 2 m/s)

13.38

Town of Caledon 100 Year (Rational Method)	
Area (ha) =	3.24
Runoff Coeff. =	0.92
T_c (min) =	11.42
a=	**4688**
b=	**17.000**
c=	**0.962**
Intensity (mm/hr) =	187.10
Runoff (m^3/s)=	**1.545**

Required Flow Capacity:

$Q_{100yr} - Q_{10yr} =$ **0.708** m^3/s

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Oct 15 2025

2501 - 18 m R.O.W @ 0.50%

User-defined

Invert Elev (m)	= 99.7500
Slope (%)	= 0.5000
N-Value	= 0.023

Calculations

Compute by:	Known Depth
Known Depth (m)	= 0.2500

Highlighted

Depth (m)	= 0.2500
Q (cms)	= 1.6353
Area (sqm)	= 1.9956
Velocity (m/s)	= 0.8194
Wetted Perim (m)	= 14.9375
Crit Depth, Yc (m)	= 0.2134
Top Width (m)	= 14.6329
EGL (m)	= 0.2842

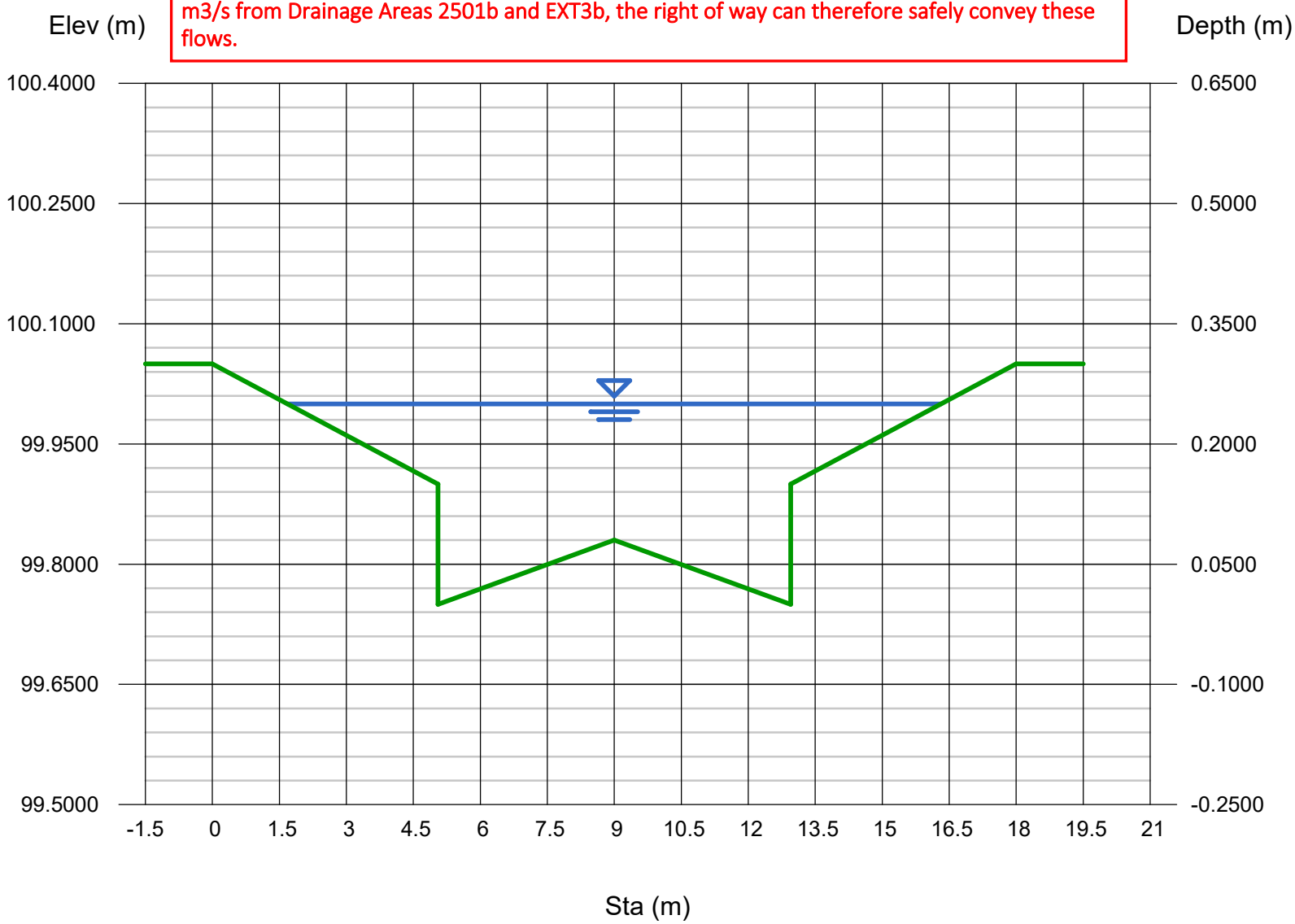
(Sta, El, n)-(Sta, El, n)...

(0.0000, 100.0500)-(5.0500, 99.9000, 0.032)-(5.0500, 99.7500, 0.013)-(9.0000, 99.8300, 0.013)-(12.9500, 99.7500, 0.013)-(12.9500, 99.9000, 0.013)-(18.0000, 100

The 18.0 m right of way with a 0.50% grade has capacity to convey a maximum peak flow of 1.64 m^3/s with a maximum flow depth of 0.25 m.

The maximum peak flow to be conveyed through the 18.0 m right of way towards SWMF 5 is 1.22 m^3/s from Drainage Area 2501a, and the right of way can therefore safely convey these flows.

The maximum peak flow to be conveyed through the 18.0 m right of way towards SWMF 5 is 1.62 m3/s from Drainage Areas 2501b and EXT3b, the right of way can therefore safely convey these flows.



Hydraulic Calculation of a Box Culvert 2501

Project Name: Wildfield Village - Trinity Field
Project Number: 2709
Date: 01-Oct-25

Please choose a Box Culvert Size :	2400mm x 1500mm		7
Please enter a slope (S) :	1	%	
n =	0.013		
Waterway Area =	3.518	m^2	
Wetted Perimeter =	7.324	m	
Hydraulic Radius =	0.480	m	
Mannings Formula =	AR^(2/3)S^(1/2)/n		
=	165.94	$xS^{1/2}$	
Discharge (Q) =	**16.594**	m^3	
Velocity (V) =	**4.717**	m/s	

The 2400 mm x 1500 mm box culvert at 1.0% is required in order to convey the 10 year flows from Catchment 2501a (1.39 m^3/s) and 2501b (1.05 m^3/s) along with the 100 year flows from Drainage Area EXT2 & EXT3 (13.38 m^3/s) to convey a total flow of 15.82 m^3/s to SWMF 5.

Appendix F Stormwater Management

SCS consulting group ltd

Appendix F1 LID and Water Balance

SCS consulting group ltd

Infiltration Trench Sizing

Project Number: 2709
Date: October 2025
Designer Initials: R.B.

Infiltration Trench Sizing

		Land Use				
	Units	Roof	Asphalt	Grass	Total	Notes
Area to Infiltration Trench	m^2	90			90	

	Units	Total to Infiltration Trench	Notes
P - Percolation Rate	mm/h	12	per Hydrogeological Assessment
SF - Safety Factor		2.50	
n - Media Porosity		0.40	
t - Detention Time	h	48	
D - Maximum Depth of Infiltration Trench	m	0.576	$D = \frac{P * t}{SF * n * 1000}$

Infiltration Trench Design - Provided

	Units	Total to Infitration Trench	Notes
D - Depth	m	0.50	
W - Width	m	1.3	
L - Length	m	9.00	
A - Bottom Area	m^2	11.3	
Total Volume of the Infiltration Trench (i.e. stone volume)	m^3	5.6	
n - Media Porosity		0.40	
Total Runoff Storage Volume of the Infiltration Trench	m^3	2.25	
Total Runoff Depth Infiltrated	mm	25	

LOW IMPACT DEVELOPMENT MEASURE MATRIX

Project Number: 2709
Date: October 2025
Designer Initials: R.B.

Stormwater Management Practice		Description	Quality Control	Quantity Control	Erosion Control	Water Balance	Volume Control	Contraints/ Controls /Requirements	Feasible (Yes/No)	Recommended (Yes/No)
Lot Level Controls	Increased Topsoil Depth	An increase in the restored topsoil depth on lots can be used to promote lot level infiltration and evapotranspiration.	X			X	X	An increased top soil depth of 0.30 m	Yes	Yes
	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 bioretention, water quality and volume control is provided for the volume of water retained.	X				X	Bioretention to be provided within the constructed wetpond facility and wetland compensations areas within the Environmental Protection Block.	Yes	Yes
	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 runoff volume control is provided for the volume of water retained, in addition to providing water balance benefits.	X			X	x	1.0m from the seasonally high groundwater table and 5.0m from adjacent foundations is required.	Yes	No
	Roof Runoff to Retention Cisterns	Directing roof runoff to rainwater retention cisterns (i.e. rain barrels or rainwater 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 rainwater re-use.	X			X	X		Yes	Yes
	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.		X			X	Flat roof areas allowing for rain to accumulate over vegetated areas for evapotranspiration are not suitable for single family units. The future medium density block may have suitable areas for a green roof and will be investigated through the site plan applications of this block.	No	No
	Parking Lot Detention Storage	Often employed with large parking lot footprints, flow attenuation for quantity or extended detention control can be provided via a flow restriction with stormwater storage provided via ponding within parking areas.		X	X			Large parking areas are not provided as part of this applications, as the landuses are propsoed as single family and townhouse residential. The future medium density block may have suitable areas for parking lot detention and will be investigated through the site plan applications of this block.	No	No
	Roof Top Detention Storage	Often employed with large roof top footprints for commercial, industrial or employment land uses. Flow attenuation for quantity control can be provided via a flow restriction with stormwater storage provided via ponding on the rooftop. Note: Rooftop storage is not permitted upstream or within MTO's jurisdiction (i.e. highways).		X				Flat roof areas allowing for rain to accumulate over vegetated areas for evapotranspiration are not suitable for single family units. However, there may be opportunity to provide flat roofs within the future medium density block. This will be investigated through the site plan application of this block.	No	No
	Roof Overflow to Grassed Areas	Directing roof leaders to grassed areas will contribute to water quality and water balance control by encouraging stormwater retention.	X			X			Yes	Yes
	Roof Overflow to Wetlands	Directing roof leaders to wetland areas will contribute to water quality and water balance control by encouraging stormwater retention.	X			X			Yes	Yes
	Pervious Pavement	By encouraging infiltration and filtration, pervious pavement can contribute to water quality, balance and erosion control based on the volume retained in the underbedding.	X		X	X	X	Pervious pavement is feasible within the laneways of the lane access town houses; however, due to maintenance conerns with snow plows it is not recommended.	Yes	No
	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.	X			X		Due to limited area within the right of ways, opportunity to provide a vegetated filter strip is not available.	No	No
	Rear Lot Infiltration Trenches	At source infiltration may be encouraged by use of infiltration trenches collecting flow from the rear roofs via the roof leaders discharging to rear yards and conveyed overland to the infiltration trenches.	X			X	X	1.0m from the seasonally high groundwater table and 5.0m from adjacent foundations is required, and will be provided where these constraints are met.	Yes	Yes

LOW IMPACT DEVELOPMENT MEASURE MATRIX

Project Number: 2709
Date: October 2025
Designer Initials: R.B.

Stormwater Management Practice		Description	Quality Control	Quantity Control	Erosion Control	Water Balance	Volume Control	Contraints/ Controls /Requirements	Feasible (Yes/No)	Recommended (Yes/No)
Conveyance Controls	Grassed Swales	A grassed swale will promote infiltration, filtration, and evapotranspiration, contributing to water quality and runoff volume 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.	X			X	X	Side and rear yard swales will be provided to conveys runoff towards the storm sewer system.	Yes	Yes
	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, runoff volume control and water balance benefits are provided for the volume of water retained.	X			X	X	Rear lot catchbasins are not proposed wihtin the development.	Yes	No
	Street Infiltration Trenches	Infiltration trenches can be used as part of the conveyance system with flow from the the right-of-way captured by catchbasins and conveyed to the infiltration trenches. Flows in excess of the infiltration capacity will overflow to the storm sewer system.	X			X	X	LID's are not permitted within the public right-of-way.	Yes	No
	Street Filtration Trenches	Filtration trenches can be used as part of the conveyance system with flow from the the right-of-way captured by catchbasins and conveyed to the filtration trenches. This provides quality control for road drainage in areas where infiltration is not feasible due high groundwater and/or poor draining soils.	X					LID's are not permitted within the public right-of-way.	Yes	No
	Pervious Street Catchbasin System	Providing perforated pipe from the catchbasins to infiltrate stormwater with an overflow to the storm sewer system provides water balance and runoff volume control. Conflicts with municipal utilities and the possibility for groundwater contamination from street runoff (salts, hydrocarbons, etc.) to be considered in the design.				X	X	LID's are not permitted within the public right-of-way.	Yes	No
End-of-Pipe Controls	Stormwater Detention Facility (Underground)	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.		X	X			Not required as a wet pond is a feasible solution.	Yes	No
	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.	X	X	X			A wet pond based on Town of Caledon and MECP Criteria is proposed.	Yes	Yes
	Filtration Trench	To provide additional water quality control, volume control and extended detention through filtration, end-of-pipe stormwater filtration systems can be provided in areas where high groundwater does not allow infiltration	X				X	Enhanced level quality controls are met through the proposed Wet Pond SWM Facility.	Yes	No
	Manufactured Treatment Device (MTD): Oil-Grit Separator or Stormwater Filter	A properly sized manufactured treatment device (MTD) can assist in providing Enhanced (MOE, 2003) treatment and can contribute to the treatment train approach for water quality control.	X					Enhanced level quality controls are met through the proposed Wet Pond SWM Facility.	Yes	No

Appendix F2 Stormwater Management Calculations

SCS consulting group ltd

Drainage Area Characteristics and Release Rates
SWMF 4

Project Number: 2709
Date: October 2025
Designer Initials: R.R.B.

Weighted Impervious Calculation

Catchment ID	Landues	Total Area	Runoff Coefficient	Imperviousness	Impervious Area
		(ha)		(%)	(ha)
2401	Single Family	12.88	0.40	29%	3.68
	Lane Townhouses	0.32	0.75	79%	0.25
	Medium Density Block	1.18	0.75	79%	0.93
	SWM Facilty	3.03	0.50	43%	1.30
	Park	0.28	0.25	7%	0.02
	NHS/Woodland	0.58	0.20	0%	0.00
	Subtotal	*18.26*	*0.40*	*34%*	*6.18*
EXT1[1]	Future External Drainage Area	28.46	-	76%	21.63
Total		**46.72**	**0.62**	**60%**	**25.31**

[1] External Drainage Area and % Imperviousness is based on Figure 4.1 of Phase 2 LSS

(1402 & EXT2 Figure 5.1)

Pre-development Drainage Area 20.62 ha

Allowable Release Rate

Storm	Target Release Rate (m^3/s)	
2 Year	0.151	Based on the Humber River Watershed Unit Flow Relationship Equation F (Pre-Development Drainage Area to Culvert #10)
5 Year	0.231	
10 Year	0.285	
25 Year	0.358	
50 Year	0.418	
100 Year	0.472	
Regional	3.597	Based on Phase 1 LSS Regional Flow Unit Release Rate for 38.04 (0.077 m3/s per hectare of Proposed Drainage Area to Culvert #10)

Permanent Pool Sizing - SWMF 4

Project Number: 2709
Date: October 2025
Designer Initials: R.B.

PERMANENT POOL

Level of Protection = Enhanced (Level 1)

Weighted Impervious = 60 %

Drainage Area = 46.72 ha

SWMP Type = 4. Wet Pond

Required Permanent Pool (including 40m^3/ha for extended detention)= 201 m^3/ha
Required Permanent Pool (minus 40m^3/ha for extended detention)= 161 m^3/ha

Required Permanent Pool = 7501 m^3

TABLE 3.2 - WATER QUALITY STORAGE REQUIREMENTS
(FROM MOE SWM PLANNING AND DESIGN MANUAL - 2003)

Protection Level	SWMP Type	Storage Volume (m^3/ha) for Impervious Level			
		35%	55%	70%	85%
Enhanced (Level 1)	1. Infiltration	25	30	35	40
	2. Wetlands	80	105	120	140
	3. Hybrid Wet Pond/Wetland	110	150	175	195
	4. Wet Pond	140	190	225	250
Normal (Level 2)	1. Infiltration	20	20	25	30
	2. Wetlands	60	70	80	90
	3. Hybrid Wet Pond/Wetland	75	90	105	120
	4. Wet Pond	90	110	130	150
Basic (Level 3)	1. Infiltration	20	20	20	20
	2. Wetlands	60	60	60	60
	3. Hybrid Wet Pond/Wetland	60	70	75	80
	4. Wet Pond	60	75	85	95
	5. Dry Pond (Continuous Flow)	90	150	200	240

EXTENDED DETENTION

Using the 25mm - 4 hour Chicago Storm

Erosion Control Volume (V) = Runoff Depth (mm) x Drainage Area (ha) x 10 (m^3) / (mm)(ha)

Erosion Control Volume (V) = 16.46 mm x 46.72 ha x 10 m^3 / mm·ha

Erosion Control Volume (V) = 7689 m^3

Using 40m^3/ha

Extended Detention Volume (V) = 40m^3/ha x Drainage Area (ha)

Extended Detention Volume (V) = 40 m^3/ha 46.72 ha

Extended Detention Volume (V) = 1869 m^3

Governing Volume (V) = 7689 m^3

STAGE STORAGE
SWMF 4

Project Number: 2709
Date: October 2025
Designer Initials: R.R.B.

Elevation (m)	Area (m^2)	Area (m^2)	H (m)	Vol (m^3)	Volume (m^3)	Storage (m^3)	Depth (m)	
215.95	7560				0		0	
		10345	2	20690				
217.95	13130				20690		2	
		14735	1	14735				
218.95	**16340**				**35425**	**0**	**3**	**N.W.L.**
		21270	3	63810				
221.95	26200				99235	63810	6	
		26720	0.3	8016				
222.25	27240				107251	71826	6.3	

Permanent Pool Volume Required =	7501	m^3
Permanent Pool Volume Provided =	35425	m^3
Extended Detention volume required =	7689	m^3
Extended Detention waterlevel =	219.31	m
2 year control volume required =	12062	m^3
2 year control waterlevel =	219.52	m
2 year active freeboard =	2.73	m
5 year control volume required =	15867	m^3
5 year control waterlevel =	219.70	m
5 year active freeboard =	2.55	m
10 year control volume required =	18609	m^3
10 year control waterlevel =	219.82	m
10 year active freeboard=	2.43	m
25 year control volume required =	22063	m^3
25 year control waterlevel =	219.99	m
25 year active freeboard =	2.26	m
50 year control volume required =	24594	m^3
50 year control waterlevel =	220.11	m
50 year active freeboard =	2.14	m
100 year control volume required =	27193	m^3
100 year waterlevel =	220.23	m
Freeboard =	2.02	m
Regional control volume required =	56656	m^3
Regional waterlevel =	221.61	m
Freeboard =	0.64	m

Drainage Area Characteristics and Release Rates
SWMF 5

Project Number: 2709
Date: October 2025
Designer Initials: R.R.B.

Weighted Impervious Calculation

Catchment ID	Landues	Total Area	Runoff Coefficient	Imperviousness	Impervious Area
		(ha)		(%)	(ha)
2501	Single Family	7.05	0.40	29%	2.01
	Lane Townhouses	6.70	0.75	79%	5.26
	SWM Facilty	3.24	0.50	43%	1.39
	Park	1.72	0.25	7%	0.12
	Subtotal	*18.71*	-	*47%*	*8.79*
EXT2[1]	Future Cavallino Estates Proposed Drainage	5.04	0.79	84%	4.21
EXT3[2]	Future External Drainage Area	32.66	0.73	75%	24.50
Total		**56.41**		**67%**	**30.72**

[1] Percent Imperviousness based on future draft plan for the future Cavalino Estates parcel within the WVSP Area
[2] External Drainage Area and % Imperviousness is based on Figure 4.1 of Phase 2 LSS

Pre-development
Drainage Area 59.93 ha

Allowable Release Rate

Storm	Target Release Rate (m^3/s)	
2 Year	0.393	Based on the Humber River Watershed Unit Flow Relationship Equation F (Pre-Development Drainage Area to Culvert #11)
5 Year	0.599	
10 Year	0.739	
25 Year	0.930	
50 Year	1.081	
100 Year	1.225	
Regional	4.615	Based on Phase 1 LSS Regional Flow Unit Release Rate for 38.04 (0.077 m3/s per hectare of Pre-Development Drainage Area to Culvert #11)

Permanent Pool Sizing - SWMF 5

Project Number: 2709
Date: October 2025
Designer Initials: R.B.

PERMANENT POOL

Level of Protection = Enhanced (Level 1)

Weighted Impervious = 67 %

Drainage Area = 56.41 ha

SWMP Type = 4. Wet Pond

Required Permanent Pool (including 40m^3/ha for extended detention)= 216.9 m^3/ha
Required Permanent Pool (minus 40m^3/ha for extended detention)= 177 m^3/ha

Required Permanent Pool = 9977 m^3

TABLE 3.2 - WATER QUALITY STORAGE REQUIREMENTS
(FROM MOE SWM PLANNING AND DESIGN MANUAL - 2003)

Protection Level	SWMP Type	Storage Volume (m^3/ha) for Impervious Level			
		35%	55%	70%	85%
Enhanced (Level 1)	1. Infiltration	25	30	35	40
	2. Wetlands	80	105	120	140
	3. Hybrid Wet Pond/Wetland	110	150	175	195
	4. Wet Pond	140	190	225	250
Normal (Level 2)	1. Infiltration	20	20	25	30
	2. Wetlands	60	70	80	90
	3. Hybrid Wet Pond/Wetland	75	90	105	120
	4. Wet Pond	90	110	130	150
Basic (Level 3)	1. Infiltration	20	20	20	20
	2. Wetlands	60	60	60	60
	3. Hybrid Wet Pond/Wetland	60	70	75	80
	4. Wet Pond	60	75	85	95
	5. Dry Pond (Continuous Flow)	90	150	200	240

EXTENDED DETENTION

Using the 25mm - 4 hour Chicago Storm

Erosion Control Volume (V) = Runoff Depth (mm) x Drainage Area (ha) x 10 (m^3) / (mm)(ha)

Erosion Control Volume (V) = 17.26 mm x 56.41 ha x 10 m^3 / mm·ha

Erosion Control Volume (V) = 9738 m^3

Using 40m^3/ha

Extended Detention Volume (V) = 40m^3/ha x Drainage Area (ha)

Extended Detention Volume (V) = 40 m^3/ha 56.41 ha

Extended Detention Volume (V) = 2256 m^3

Governing Volume (V) = 9738 m^3

Stage Storage
SWMF 5

Project Number: 2709
Date: October 2025
Designer Initials: R.R.B.

Elevation (m)	Area (m^2)	Area (m^2)	H (m)	Vol (m^3)	Volume (m^3)	Storage (m^3)	Depth (m)	
218.00	7920				0		0	
		10520	2	21040				
220.00	13120				21040		2	
		14750	1	14750				
221.00	**16380**				**35790**	**0**	**3**	**N.W.L.**
		20770	3	62310				
224.00	25160				98100	62310	6	
		25625	0.3	7688				
224.30	26090				105788	69998	6.3	

Permanent Pool Volume Required =	9977	m^3
Permanent Pool Volume Provided =	35790	m^3
Extended Detention volume required =	9738	m^3
Extended Detention waterlevel =	221.47	m
2 year control volume required =	11705	m^3
2 year control waterlevel =	221.56	m
2 year active fluctuation =	2.74	m
5 year control volume required =	16380	m^3
5 year control waterlevel =	221.79	m
5 year active fluctuation =	2.51	m
10 year control volume required =	19163	m^3
10 year control waterlevel =	221.92	m
10 year active fluctuation =	2.38	m
25 year control volume required =	22599	m^3
25 year control waterlevel =	222.09	m
25 year active fluctuation =	2.21	m
50 year control volume required =	25191	m^3
50 year control waterlevel =	222.21	m
50 year active fluctuation =	2.09	m
100 year control volume required =	27752	m^3
100 year waterlevel =	222.34	m
Freeboard =	1.96	m
Regional control volume required =	59405	m^3
Regional waterlevel =	223.86	m
Freeboard =	0.44	m

Appendix G Hydrologic Modelling

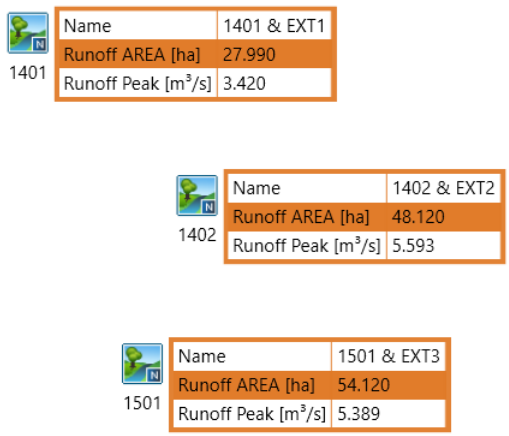
The following secure link is being provided by SCS Consulting Group Ltd. to share the hydrologic modelling files related to the Functional Servicing and Stormwater Management Report for Trinity Field Inc:

https://filesafecloud.scsconsultinggroup.com/url/rrxqhhdk3xbj2xwu

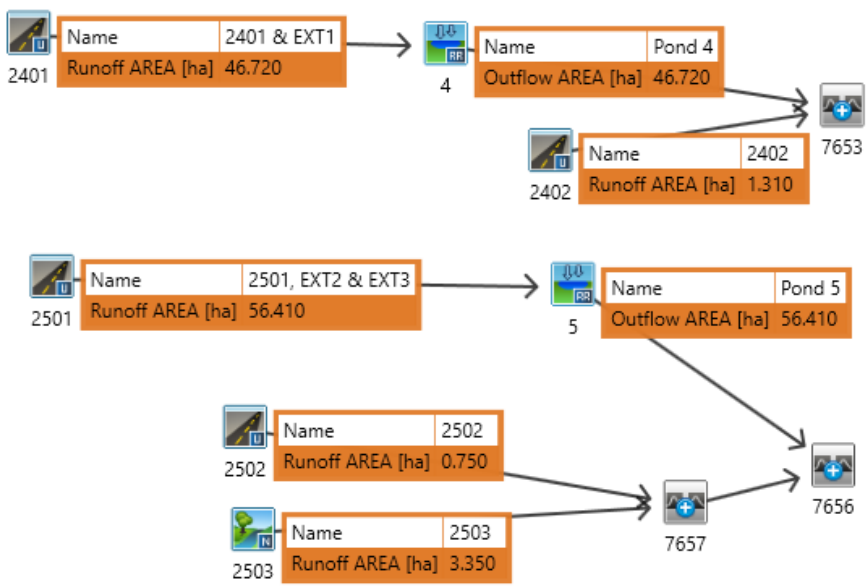
Please click on the link and download all files from this location.

Hydrology Models – Visual Otthymo

Existing Conditions Modelling Schematic



Proposed Conditions Modelling Schematic



Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Aug 5 2025

Culvert 9 - Conveyance @ Ditch Spill Point

Invert Elev Dn (m)	=	220.6500
Pipe Length (m)	=	24.5000
Slope (%)	=	2.7347
Invert Elev Up (m)	=	221.3200
Rise (mm)	=	1000.0
Shape	=	Circular
Span (mm)	=	1000.0
No. Barrels	=	1
n-Value	=	0.012
Culvert Type	=	Circular Corrugate Metal Pipe
Culvert Entrance	=	Projecting
Coeff. K,M,c,Y,k	=	0.034, 1.5, 0.0553, 0.54, 0.9

Embankment

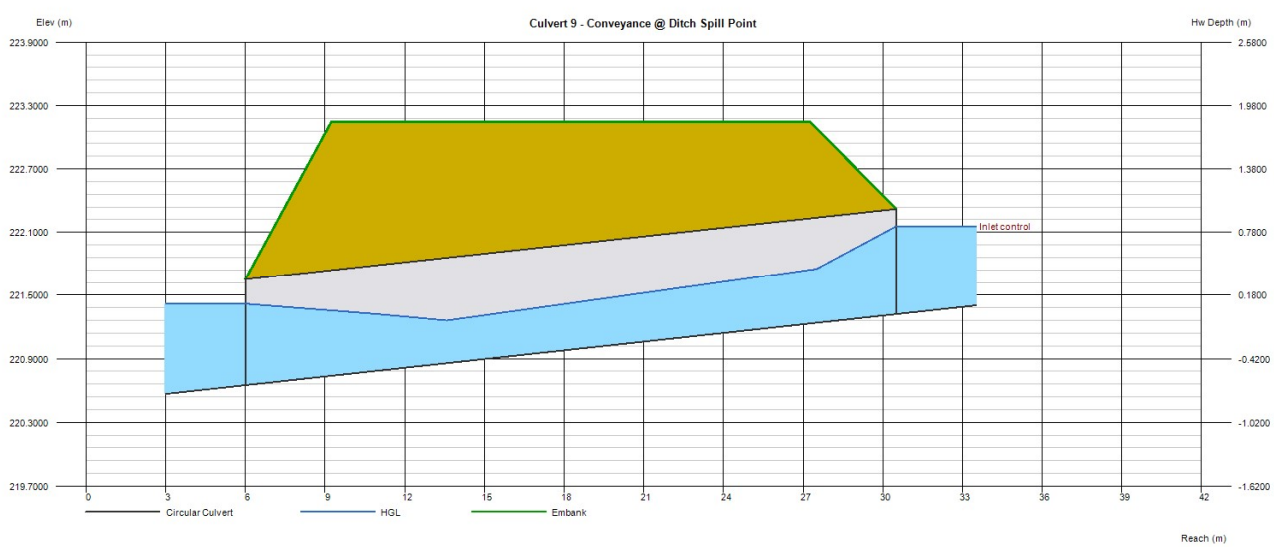
Top Elevation (m)	=	223.1500
Top Width (m)	=	18.0000
Crest Width (m)	=	200.0000

Calculations

Qmin (cms)	=	0.8000
Qmax (cms)	=	0.9000
Tailwater Elev (m)	=	(dc+D)/2

Highlighted

Qtotal (cms)	=	0.8800
Qpipe (cms)	=	0.8800
Qovertop (cms)	=	0.0000
Veloc Dn (m/s)	=	1.3600
Veloc Up (m/s)	=	2.0550
HGL Dn (m)	=	221.4178
HGL Up (m)	=	221.8556
Hw Elev (m)	=	222.1556
Hw/D (m)	=	0.8356
Flow Regime	=	Inlet Control



```
*******************************
** SIMULATION:Hazel1000       **
*******************************
```

Catchment 1401 & EXT1

```
--------------------
|    READ STORM    |    Filename: C:\Users\rbrockie\AppD
|                  |              ata\Local\Temp\
|                  |              229c5918-13b4-4b20-b022-10be7b25f087\7713d240
| Ptotal=212.00 mm |    Comments:
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	6.00	3.00	13.00	6.00	23.00	9.00	53.00
1.00	4.00	4.00	17.00	7.00	13.00	10.00	38.00
2.00	6.00	5.00	13.00	8.00	13.00	11.00	13.00

```
--------------------------------------------------------------------------------

--------------------
| CALIB            |
| NASHYD   (  1401)|   Area    (ha)=  27.99   Curve Number   (CN)= 96.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 2.50
--------------------   U.H. Tp(hrs)=   0.51

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

```
     Unit Hyd Qpeak   (cms)=   1.791

     PEAK FLOW        (cms)=   3.420 (i)
     TIME TO PEAK     (hrs)=  10.333
     RUNOFF VOLUME     (mm)= 191.826
     TOTAL RAINFALL    (mm)= 212.000
     RUNOFF COEFFICIENT   =   0.905

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  1402)|   Area    (ha)=  20.62   Curve Number   (CN)= 96.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 2.50
--------------------   U.H. Tp(hrs)=   0.61
```

Catchment 1402 & EXT2

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 1.103

PEAK FLOW (cms)= 2.397 (i)
TIME TO PEAK (hrs)= 10.583
RUNOFF VOLUME (mm)= 191.869
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.905

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (1501) ID= 1 DT= 5.0 min	Area (ha)= 54.12	Curve Number (CN)= 96.0
	Ia (mm)= 10.00	# of Linear Res.(N)= 2.50
	U.H. Tp(hrs)= 1.07	

Catchment 1501 & EXT3

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00

1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

```
Unit Hyd Qpeak  (cms)=   1.651

PEAK FLOW       (cms)=   5.389 (i)
TIME TO PEAK    (hrs)=  11.167
RUNOFF VOLUME    (mm)= 191.926
TOTAL RAINFALL   (mm)= 212.000
RUNOFF COEFFICIENT   =   0.905

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

Proposed Conditions
Percent Impervious Calculations

Project Number: 2709
Date: OCtober 2025
Designer Initials: R.R.B.

NASHYD

Number	2503
Description	Environmental Protection Area
DT(min)	1
Area (ha)	3.35
CN* (AMC II)	***73.0***
CN* (AMC III)	***96.0***
IA(mm)	***10.0***
TP Method	Uplands
TP (hr)	0.10

Bold and italicized numbers established through Phase 1 & 2 LSS (GEI & SCS) Refer to Appendix B1

STANDHYD

Number	2401	2402	2501	2502
Name	2401, EXT-1	2402	2501, EXT-2, EXT-3	2502
Description	Area to Pond 4	R.O.W. to Outlet 4	Area to Pond 5	R.O.W. to Outlet 5
DT(min)	10	10	10	10
Area (ha)	46.72	1.31	56.41	0.75
TIMP[2]	0.60	0.64	0.67	0.64
XIMP[1,2]	0.48	0.64	0.53	0.64
CN* (AMC II)	***85.0***	***85.0***	***84.0***	***84.0***
CN* (AMC III)	***93.0***	***93.0***	***93.0***	***93.0***
IA(mm)	***2.0***	***2.0***	***2.0***	***2.0***
SLPP(%)	2	2	2	2
LGP(m)	40	40	40	40
MNP	0.25	0.25	0.25	0.25
DPSI (mm)	1.0	1.0	1.0	1.0
SLPI(%)	1	1	2	3
LGI(m)	558.09	93.45	613.24	70.71
MNI	0.013	0.013	1.013	2.013

Bold and italicized numbers established through Phase 1 & 2 LSS (GEI & SCS) Refer to Appendix B1

Proposed Conditions
Time to Peak Calculations

Project Number: 2709
Date: October 2025
Designer Initials: R.R.B.

Uplands Method:

Catchment ID	High Elevation	Low Elevation	Length (m)	Slope (%)	Land Cover Type	Velocity (m/s)	Time of Concentration (s)	Time of Concentration (hr)	Time to Peak (hr)
2503a	221.60	217.53	300	1.36	Waterway	0.55	549.2	0.15	0.10

Refer to Figure E.1

Proposed Conditions
Percent Impervious Calculations

Project Number: 2709
Date: OCtober 2025
Designer Initials: R.R.B.

				StandHyd IDs			
				2401	2402	2501	2502
Catchment Area (ha)				46.72	1.31	53.5	0.75
Land Use Areas	RC	Timp	Ximp	Land Use Areas			
Low Density Residential (Single Family)	0.40	29%	23%	12.87		7.39	
Medium Density	0.75	79%	63%	1.18			
Townhouses	0.75	79%	63%	0.32		6.7	
Road Widening	0.65	64%	64%		1.31		0.75
Park/NHS	0.25	7%	6%	0.86		1.72	
SWM Facility	0.50	43%	34%	3.03		3.24	
Future Upstream Development (EXT1)		76%	61%	28.46			
Future Upstream Development (EXT2)		84%	67%			5.04	
Future Upstream Development (EXT3)		75%	60%			29.45	
			Total Land Use =	46.72	1.31	53.54	0.75
			Timp =	60%	64%	66%	64%
			Ximp =	48%	64%	53%	64%

```
*******************************
** SIMULATION:2.1 2yr-12hr    **
*******************************
```

2 - 100 Year Outputs
SWMF 4

```
--------------------
|    READ STORM    |    Filename: C:\Users\rbrockie\AppD
|                  |              ata\Local\Temp\
|                  |              f5b64095-ca20-4c73-be55-503eb4777178\6fb9f58c
| Ptotal= 47.08 mm |    Comments: 2 Year 24 Hour AES (Bloor, TRCA)
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.25	4.00	12.50	1.65	18.75	0.24
0.25	0.24	6.50	4.00	12.75	1.65	19.00	0.24
0.50	0.24	6.75	4.00	13.00	1.65	19.25	0.24
0.75	0.24	7.00	4.00	13.25	1.65	19.50	0.24
1.00	0.24	7.25	4.00	13.50	1.65	19.75	0.24
1.25	0.24	7.50	4.00	13.75	1.65	20.00	0.24
1.50	0.24	7.75	4.00	14.00	1.65	20.25	0.24
1.75	0.24	8.00	4.00	14.25	0.94	20.50	0.24
2.00	0.24	8.25	10.81	14.50	0.94	20.75	0.24
2.25	0.24	8.50	10.81	14.75	0.94	21.00	0.24
2.50	0.24	8.75	10.81	15.00	0.94	21.25	0.24
2.75	0.24	9.00	10.81	15.25	0.94	21.50	0.24
3.00	0.24	9.25	10.81	15.50	0.94	21.75	0.24
3.25	0.24	9.50	10.81	15.75	0.94	22.00	0.24
3.50	0.24	9.75	10.81	16.00	0.94	22.25	0.24
3.75	0.24	10.00	10.81	16.25	0.47	22.50	0.24
4.00	0.24	10.25	3.06	16.50	0.47	22.75	0.24
4.25	1.41	10.50	3.06	16.75	0.47	23.00	0.24
4.50	1.41	10.75	3.06	17.00	0.47	23.25	0.24
4.75	1.41	11.00	3.06	17.25	0.47	23.50	0.24
5.00	1.41	11.25	3.06	17.50	0.47	23.75	0.24
5.25	1.41	11.50	3.06	17.75	0.47	24.00	0.24
5.50	1.41	11.75	3.06	18.00	0.47		
5.75	1.41	12.00	3.06	18.25	0.24		
6.00	1.41	12.25	1.65	18.50	0.24		

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--------------------
| CALIB            |
| STANDHYD (  2401)|   Area    (ha)=  46.72
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  48.00
--------------------
```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	28.03	18.69
Dep. Storage	(mm)=	1.00	2.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	558.09	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	3.06	18.33	0.24
0.167	0.00	6.250	1.41	12.333	1.65	18.42	0.24
0.250	0.00	6.333	4.00	12.417	1.65	18.50	0.24
0.333	0.24	6.417	4.00	12.500	1.65	18.58	0.24
0.417	0.24	6.500	4.00	12.583	1.65	18.67	0.24
0.500	0.24	6.583	4.00	12.667	1.65	18.75	0.24
0.583	0.24	6.667	4.00	12.750	1.65	18.83	0.24
0.667	0.24	6.750	4.00	12.833	1.65	18.92	0.24
0.750	0.24	6.833	4.00	12.917	1.65	19.00	0.24
0.833	0.24	6.917	4.00	13.000	1.65	19.08	0.24
0.917	0.24	7.000	4.00	13.083	1.65	19.17	0.24
1.000	0.24	7.083	4.00	13.167	1.65	19.25	0.24
1.083	0.24	7.167	4.00	13.250	1.65	19.33	0.24
1.167	0.24	7.250	4.00	13.333	1.65	19.42	0.24
1.250	0.24	7.333	4.00	13.417	1.65	19.50	0.24
1.333	0.24	7.417	4.00	13.500	1.65	19.58	0.24
1.417	0.24	7.500	4.00	13.583	1.65	19.67	0.24
1.500	0.24	7.583	4.00	13.667	1.65	19.75	0.24
1.583	0.24	7.667	4.00	13.750	1.65	19.83	0.24
1.667	0.24	7.750	4.00	13.833	1.65	19.92	0.24
1.750	0.24	7.833	4.00	13.917	1.65	20.00	0.24
1.833	0.24	7.917	4.00	14.000	1.65	20.08	0.24
1.917	0.24	8.000	4.00	14.083	1.65	20.17	0.24
2.000	0.24	8.083	4.00	14.167	1.65	20.25	0.24
2.083	0.24	8.167	4.00	14.250	1.65	20.33	0.24
2.167	0.24	8.250	4.00	14.333	0.94	20.42	0.24

2.250	0.24	8.333	10.81	14.417	0.94	20.50	0.24
2.333	0.24	8.417	10.81	14.500	0.94	20.58	0.24
2.417	0.24	8.500	10.81	14.583	0.94	20.67	0.24
2.500	0.24	8.583	10.81	14.667	0.94	20.75	0.24
2.583	0.24	8.667	10.81	14.750	0.94	20.83	0.24
2.667	0.24	8.750	10.81	14.833	0.94	20.92	0.24
2.750	0.24	8.833	10.81	14.917	0.94	21.00	0.24
2.833	0.24	8.917	10.81	15.000	0.94	21.08	0.24
2.917	0.24	9.000	10.81	15.083	0.94	21.17	0.24
3.000	0.24	9.083	10.81	15.167	0.94	21.25	0.24
3.083	0.24	9.167	10.81	15.250	0.94	21.33	0.24
3.167	0.24	9.250	10.81	15.333	0.94	21.42	0.24
3.250	0.24	9.333	10.81	15.417	0.94	21.50	0.24
3.333	0.24	9.417	10.81	15.500	0.94	21.58	0.24
3.417	0.24	9.500	10.81	15.583	0.94	21.67	0.24
3.500	0.24	9.583	10.81	15.667	0.94	21.75	0.24
3.583	0.24	9.667	10.81	15.750	0.94	21.83	0.24
3.667	0.24	9.750	10.81	15.833	0.94	21.92	0.24
3.750	0.24	9.833	10.81	15.917	0.94	22.00	0.24
3.833	0.24	9.917	10.81	16.000	0.94	22.08	0.24
3.917	0.24	10.000	10.81	16.083	0.94	22.17	0.24
4.000	0.24	10.083	10.81	16.167	0.94	22.25	0.24
4.083	0.24	10.167	10.81	16.250	0.94	22.33	0.24
4.167	0.24	10.250	10.81	16.333	0.47	22.42	0.24
4.250	0.24	10.333	3.06	16.417	0.47	22.50	0.24
4.333	1.41	10.417	3.06	16.500	0.47	22.58	0.24
4.417	1.41	10.500	3.06	16.583	0.47	22.67	0.24
4.500	1.41	10.583	3.06	16.667	0.47	22.75	0.24
4.583	1.41	10.667	3.06	16.750	0.47	22.83	0.24
4.667	1.41	10.750	3.06	16.833	0.47	22.92	0.24
4.750	1.41	10.833	3.06	16.917	0.47	23.00	0.24
4.833	1.41	10.917	3.06	17.000	0.47	23.08	0.24
4.917	1.41	11.000	3.06	17.083	0.47	23.17	0.24
5.000	1.41	11.083	3.06	17.167	0.47	23.25	0.24
5.083	1.41	11.167	3.06	17.250	0.47	23.33	0.24
5.167	1.41	11.250	3.06	17.333	0.47	23.42	0.24
5.250	1.41	11.333	3.06	17.417	0.47	23.50	0.24
5.333	1.41	11.417	3.06	17.500	0.47	23.58	0.24
5.417	1.41	11.500	3.06	17.583	0.47	23.67	0.24
5.500	1.41	11.583	3.06	17.667	0.47	23.75	0.24
5.583	1.41	11.667	3.06	17.750	0.47	23.83	0.24
5.667	1.41	11.750	3.06	17.833	0.47	23.92	0.24
5.750	1.41	11.833	3.06	17.917	0.47	24.00	0.24
5.833	1.41	11.917	3.06	18.000	0.47	24.08	0.24
5.917	1.41	12.000	3.06	18.083	0.47	24.17	0.24
6.000	1.41	12.083	3.06	18.167	0.47	24.25	0.24
6.083	1.41	12.167	3.06	18.250	0.47		

```
Max.Eff.Inten.(mm/hr)=      10.81        10.04
            over (min)      15.00        40.00
Storage Coeff.  (min)=      17.45 (ii)   35.15 (ii)
Unit Hyd. Tpeak (min)=      15.00        40.00
Unit Hyd. peak  (cms)=       0.07         0.03
                                                      *TOTALS*
PEAK FLOW       (cms)=       0.67         0.45          1.112 (iii)
TIME TO PEAK    (hrs)=      10.25        10.42          10.25
RUNOFF VOLUME    (mm)=      46.08        25.92          35.60
TOTAL RAINFALL   (mm)=      47.08        47.08          47.08
RUNOFF COEFFICIENT   =       0.98         0.55           0.76


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  85.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0004)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000      0.0000   |    0.3440      2.2000
                           0.1440      1.2100   |    0.4060      2.4600
                           0.2220      1.5900   |    0.4550      2.7200
                           0.2740      1.8600   |    3.5970      6.0900

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2401)     46.720      1.112     10.25      35.60
   OUTFLOW: ID= 1 (  0004)     46.720      0.144     14.83      35.55

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 12.90
```

TIME SHIFT OF PEAK FLOW (min)=275.00
MAXIMUM STORAGE USED (ha.m.)= 1.2062

| CALIB |
| STANDHYD (2402) | Area (ha)= 1.31
| ID= 1 DT= 5.0 min | Total Imp(%)= 64.00 Dir. Conn.(%)= 64.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.84	0.47
Dep. Storage	(mm)=	1.00	2.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	93.45	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	3.06	18.33	0.24
0.167	0.00	6.250	1.41	12.333	1.65	18.42	0.24
0.250	0.00	6.333	4.00	12.417	1.65	18.50	0.24
0.333	0.24	6.417	4.00	12.500	1.65	18.58	0.24
0.417	0.24	6.500	4.00	12.583	1.65	18.67	0.24
0.500	0.24	6.583	4.00	12.667	1.65	18.75	0.24
0.583	0.24	6.667	4.00	12.750	1.65	18.83	0.24
0.667	0.24	6.750	4.00	12.833	1.65	18.92	0.24
0.750	0.24	6.833	4.00	12.917	1.65	19.00	0.24
0.833	0.24	6.917	4.00	13.000	1.65	19.08	0.24
0.917	0.24	7.000	4.00	13.083	1.65	19.17	0.24
1.000	0.24	7.083	4.00	13.167	1.65	19.25	0.24
1.083	0.24	7.167	4.00	13.250	1.65	19.33	0.24
1.167	0.24	7.250	4.00	13.333	1.65	19.42	0.24
1.250	0.24	7.333	4.00	13.417	1.65	19.50	0.24
1.333	0.24	7.417	4.00	13.500	1.65	19.58	0.24
1.417	0.24	7.500	4.00	13.583	1.65	19.67	0.24
1.500	0.24	7.583	4.00	13.667	1.65	19.75	0.24
1.583	0.24	7.667	4.00	13.750	1.65	19.83	0.24
1.667	0.24	7.750	4.00	13.833	1.65	19.92	0.24
1.750	0.24	7.833	4.00	13.917	1.65	20.00	0.24
1.833	0.24	7.917	4.00	14.000	1.65	20.08	0.24
1.917	0.24	8.000	4.00	14.083	1.65	20.17	0.24
2.000	0.24	8.083	4.00	14.167	1.65	20.25	0.24
2.083	0.24	8.167	4.00	14.250	1.65	20.33	0.24
2.167	0.24	8.250	4.00	14.333	0.94	20.42	0.24
2.250	0.24	8.333	10.81	14.417	0.94	20.50	0.24
2.333	0.24	8.417	10.81	14.500	0.94	20.58	0.24
2.417	0.24	8.500	10.81	14.583	0.94	20.67	0.24
2.500	0.24	8.583	10.81	14.667	0.94	20.75	0.24
2.583	0.24	8.667	10.81	14.750	0.94	20.83	0.24
2.667	0.24	8.750	10.81	14.833	0.94	20.92	0.24
2.750	0.24	8.833	10.81	14.917	0.94	21.00	0.24
2.833	0.24	8.917	10.81	15.000	0.94	21.08	0.24
2.917	0.24	9.000	10.81	15.083	0.94	21.17	0.24
3.000	0.24	9.083	10.81	15.167	0.94	21.25	0.24
3.083	0.24	9.167	10.81	15.250	0.94	21.33	0.24
3.167	0.24	9.250	10.81	15.333	0.94	21.42	0.24
3.250	0.24	9.333	10.81	15.417	0.94	21.50	0.24
3.333	0.24	9.417	10.81	15.500	0.94	21.58	0.24
3.417	0.24	9.500	10.81	15.583	0.94	21.67	0.24
3.500	0.24	9.583	10.81	15.667	0.94	21.75	0.24
3.583	0.24	9.667	10.81	15.750	0.94	21.83	0.24
3.667	0.24	9.750	10.81	15.833	0.94	21.92	0.24
3.750	0.24	9.833	10.81	15.917	0.94	22.00	0.24
3.833	0.24	9.917	10.81	16.000	0.94	22.08	0.24
3.917	0.24	10.000	10.81	16.083	0.94	22.17	0.24
4.000	0.24	10.083	10.81	16.167	0.94	22.25	0.24
4.083	0.24	10.167	10.81	16.250	0.94	22.33	0.24
4.167	0.24	10.250	10.81	16.333	0.47	22.42	0.24
4.250	0.24	10.333	3.06	16.417	0.47	22.50	0.24
4.333	1.41	10.417	3.06	16.500	0.47	22.58	0.24
4.417	1.41	10.500	3.06	16.583	0.47	22.67	0.24
4.500	1.41	10.583	3.06	16.667	0.47	22.75	0.24
4.583	1.41	10.667	3.06	16.750	0.47	22.83	0.24
4.667	1.41	10.750	3.06	16.833	0.47	22.92	0.24
4.750	1.41	10.833	3.06	16.917	0.47	23.00	0.24
4.833	1.41	10.917	3.06	17.000	0.47	23.08	0.24
4.917	1.41	11.000	3.06	17.083	0.47	23.17	0.24
5.000	1.41	11.083	3.06	17.167	0.47	23.25	0.24
5.083	1.41	11.167	3.06	17.250	0.47	23.33	0.24
5.167	1.41	11.250	3.06	17.333	0.47	23.42	0.24

5.250	1.41	11.333	3.06	17.417	0.47	23.50	0.24
5.333	1.41	11.417	3.06	17.500	0.47	23.58	0.24
5.417	1.41	11.500	3.06	17.583	0.47	23.67	0.24
5.500	1.41	11.583	3.06	17.667	0.47	23.75	0.24
5.583	1.41	11.667	3.06	17.750	0.47	23.83	0.24
5.667	1.41	11.750	3.06	17.833	0.47	23.92	0.24
5.750	1.41	11.833	3.06	17.917	0.47	24.00	0.24
5.833	1.41	11.917	3.06	18.000	0.47	24.08	0.24
5.917	1.41	12.000	3.06	18.083	0.47	24.17	0.24
6.000	1.41	12.083	3.06	18.167	0.47	24.25	0.24
6.083	1.41	12.167	3.06	18.250	0.47		

```
     Max.Eff.Inten.(mm/hr)=      10.81         6.84
                over (min)        5.00        30.00
     Storage Coeff.  (min)=       5.97 (ii)   26.61 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
     Unit Hyd. peak  (cms)=       0.19         0.04
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.03         0.01         0.033 (iii)
     TIME TO PEAK    (hrs)=       9.50        10.33         10.25
     RUNOFF VOLUME    (mm)=      46.08        22.60         37.62
     TOTAL RAINFALL   (mm)=      47.08        47.08         47.08
     RUNOFF COEFFICIENT   =       0.98         0.48          0.80


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  7653)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2402):     1.31   0.033    10.25    37.62
      + ID2= 2 (  0004):    46.72   0.144    14.83    35.55
        ====================================================
        ID = 3 (  7653):    48.03   0.148    14.25    35.61

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
********************************
** SIMULATION:2.2 5yr-12hr    **
********************************

--------------------
|    READ STORM    |    Filename: C:\Users\rbrockie\AppD
|                  |              ata\Local\Temp\
|                  |              f5b64095-ca20-4c73-be55-503eb4777178\369eff41
| Ptotal= 54.38 mm |    Comments: 5 Year 12 Hour AES (Bloor, TRCA)
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```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	3.25	9.25	6.50	3.81	9.75	0.54
0.25	0.54	3.50	9.25	6.75	3.81	10.00	0.54
0.50	0.54	3.75	9.25	7.00	3.81	10.25	0.54
0.75	0.54	4.00	9.25	7.25	2.18	10.50	0.54
1.00	0.54	4.25	25.02	7.50	2.18	10.75	0.54
1.25	0.54	4.50	25.02	7.75	2.18	11.00	0.54
1.50	0.54	4.75	25.02	8.00	2.18	11.25	0.54
1.75	0.54	5.00	25.02	8.25	1.09	11.50	0.54
2.00	0.54	5.25	7.07	8.50	1.09	11.75	0.54
2.25	3.26	5.50	7.07	8.75	1.09	12.00	0.54
2.50	3.26	5.75	7.07	9.00	1.09		
2.75	3.26	6.00	7.07	9.25	0.54		
3.00	3.26	6.25	3.81	9.50	0.54		

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| CALIB            |
| STANDHYD (  2401)|   Area    (ha)=  46.72
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  48.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      28.03        18.69
     Dep. Storage     (mm)=       1.00         2.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     558.09        40.00
     Mannings n           =      0.013        0.250
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.26	6.250	7.07	9.33	0.54
0.167	0.00	3.250	3.26	6.333	3.81	9.42	0.54
0.250	0.00	3.333	9.25	6.417	3.81	9.50	0.54
0.333	0.54	3.417	9.25	6.500	3.81	9.58	0.54
0.417	0.54	3.500	9.25	6.583	3.81	9.67	0.54
0.500	0.54	3.583	9.25	6.667	3.81	9.75	0.54
0.583	0.54	3.667	9.25	6.750	3.81	9.83	0.54
0.667	0.54	3.750	9.25	6.833	3.81	9.92	0.54
0.750	0.54	3.833	9.25	6.917	3.81	10.00	0.54
0.833	0.54	3.917	9.25	7.000	3.81	10.08	0.54
0.917	0.54	4.000	9.25	7.083	3.81	10.17	0.54
1.000	0.54	4.083	9.25	7.167	3.81	10.25	0.54
1.083	0.54	4.167	9.25	7.250	3.81	10.33	0.54
1.167	0.54	4.250	9.25	7.333	2.18	10.42	0.54
1.250	0.54	4.333	25.02	7.417	2.18	10.50	0.54
1.333	0.54	4.417	25.02	7.500	2.18	10.58	0.54
1.417	0.54	4.500	25.02	7.583	2.18	10.67	0.54
1.500	0.54	4.583	25.02	7.667	2.18	10.75	0.54
1.583	0.54	4.667	25.02	7.750	2.18	10.83	0.54
1.667	0.54	4.750	25.02	7.833	2.18	10.92	0.54
1.750	0.54	4.833	25.02	7.917	2.18	11.00	0.54
1.833	0.54	4.917	25.02	8.000	2.18	11.08	0.54
1.917	0.54	5.000	25.02	8.083	2.18	11.17	0.54
2.000	0.54	5.083	25.02	8.167	2.18	11.25	0.54
2.083	0.54	5.167	25.02	8.250	2.18	11.33	0.54
2.167	0.54	5.250	25.02	8.333	1.09	11.42	0.54
2.250	0.54	5.333	7.07	8.417	1.09	11.50	0.54
2.333	3.26	5.417	7.07	8.500	1.09	11.58	0.54
2.417	3.26	5.500	7.07	8.583	1.09	11.67	0.54
2.500	3.26	5.583	7.07	8.667	1.09	11.75	0.54
2.583	3.26	5.667	7.07	8.750	1.09	11.83	0.54
2.667	3.26	5.750	7.07	8.833	1.09	11.92	0.54
2.750	3.26	5.833	7.07	8.917	1.09	12.00	0.54
2.833	3.26	5.917	7.07	9.000	1.09	12.08	0.54
2.917	3.26	6.000	7.07	9.083	1.09	12.17	0.54
3.000	3.26	6.083	7.07	9.167	1.09	12.25	0.54
3.083	3.26	6.167	7.07	9.250	1.09		

			TOTALS
Max.Eff.Inten.(mm/hr)=	25.02	24.25	
over (min)	10.00	25.00	
Storage Coeff. (min)=	12.48 (ii)	24.91 (ii)	
Unit Hyd. Tpeak (min)=	10.00	25.00	
Unit Hyd. peak (cms)=	0.10	0.05	
PEAK FLOW (cms)=	1.55	1.00	2.527 (iii)
TIME TO PEAK (hrs)=	5.25	5.33	5.25
RUNOFF VOLUME (mm)=	53.38	31.98	42.25
TOTAL RAINFALL (mm)=	54.38	54.38	54.38
RUNOFF COEFFICIENT =	0.98	0.59	0.78

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0004)	OVERFLOW IS OFF
IN= 2---> OUT= 1	
DT= 5.0 min	

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.3440	2.2000
0.1440	1.2100	0.4060	2.4600
0.2220	1.5900	0.4550	2.7200
0.2740	1.8600	3.5970	6.0900

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (2401)	46.720	2.527	5.25	42.25
OUTFLOW: ID= 1 (0004)	46.720	0.221	8.50	42.20

PEAK FLOW REDUCTION [Qout/Qin](%)= 8.76
TIME SHIFT OF PEAK FLOW (min)=195.00
MAXIMUM STORAGE USED (ha.m.)= 1.5867

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--------------------
| CALIB            |
| STANDHYD (  2402)|   Area    (ha)=   1.31
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  64.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.84         0.47
     Dep. Storage     (mm)=       1.00         2.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      93.45        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    0.00 | 3.167    3.26 | 6.250    7.07 |  9.33    0.54
                0.167    0.00 | 3.250    3.26 | 6.333    3.81 |  9.42    0.54
                0.250    0.00 | 3.333    9.25 | 6.417    3.81 |  9.50    0.54
                0.333    0.54 | 3.417    9.25 | 6.500    3.81 |  9.58    0.54
                0.417    0.54 | 3.500    9.25 | 6.583    3.81 |  9.67    0.54
                0.500    0.54 | 3.583    9.25 | 6.667    3.81 |  9.75    0.54
                0.583    0.54 | 3.667    9.25 | 6.750    3.81 |  9.83    0.54
                0.667    0.54 | 3.750    9.25 | 6.833    3.81 |  9.92    0.54
                0.750    0.54 | 3.833    9.25 | 6.917    3.81 | 10.00    0.54
                0.833    0.54 | 3.917    9.25 | 7.000    3.81 | 10.08    0.54
                0.917    0.54 | 4.000    9.25 | 7.083    3.81 | 10.17    0.54
                1.000    0.54 | 4.083    9.25 | 7.167    3.81 | 10.25    0.54
                1.083    0.54 | 4.167    9.25 | 7.250    3.81 | 10.33    0.54
                1.167    0.54 | 4.250    9.25 | 7.333    2.18 | 10.42    0.54
                1.250    0.54 | 4.333   25.02 | 7.417    2.18 | 10.50    0.54
                1.333    0.54 | 4.417   25.02 | 7.500    2.18 | 10.58    0.54
                1.417    0.54 | 4.500   25.02 | 7.583    2.18 | 10.67    0.54
                1.500    0.54 | 4.583   25.02 | 7.667    2.18 | 10.75    0.54
                1.583    0.54 | 4.667   25.02 | 7.750    2.18 | 10.83    0.54
                1.667    0.54 | 4.750   25.02 | 7.833    2.18 | 10.92    0.54
                1.750    0.54 | 4.833   25.02 | 7.917    2.18 | 11.00    0.54
                1.833    0.54 | 4.917   25.02 | 8.000    2.18 | 11.08    0.54
                1.917    0.54 | 5.000   25.02 | 8.083    2.18 | 11.17    0.54
                2.000    0.54 | 5.083   25.02 | 8.167    2.18 | 11.25    0.54
                2.083    0.54 | 5.167   25.02 | 8.250    2.18 | 11.33    0.54
                2.167    0.54 | 5.250   25.02 | 8.333    1.09 | 11.42    0.54
                2.250    0.54 | 5.333    7.07 | 8.417    1.09 | 11.50    0.54
                2.333    3.26 | 5.417    7.07 | 8.500    1.09 | 11.58    0.54
                2.417    3.26 | 5.500    7.07 | 8.583    1.09 | 11.67    0.54
                2.500    3.26 | 5.583    7.07 | 8.667    1.09 | 11.75    0.54
                2.583    3.26 | 5.667    7.07 | 8.750    1.09 | 11.83    0.54
                2.667    3.26 | 5.750    7.07 | 8.833    1.09 | 11.92    0.54
                2.750    3.26 | 5.833    7.07 | 8.917    1.09 | 12.00    0.54
                2.833    3.26 | 5.917    7.07 | 9.000    1.09 | 12.08    0.54
                2.917    3.26 | 6.000    7.07 | 9.083    1.09 | 12.17    0.54
                3.000    3.26 | 6.083    7.07 | 9.167    1.09 | 12.25    0.54
                3.083    3.26 | 6.167    7.07 | 9.250    1.09 |

     Max.Eff.Inten.(mm/hr)=      25.02        16.81
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       4.27 (ii)   18.67 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.23         0.06
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.06         0.02         0.077 (iii)
     TIME TO PEAK    (hrs)=       5.17         5.33          5.25
     RUNOFF VOLUME    (mm)=      53.38        28.23         44.32
     TOTAL RAINFALL   (mm)=      54.38        54.38         54.38
     RUNOFF COEFFICIENT   =       0.98         0.52          0.81

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  7653)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2402):     1.31   0.077     5.25    44.32
      + ID2= 2 (  0004):    46.72   0.221     8.50    42.20
```

```
        ==================================================
        ID = 3 (  7653):    48.03   0.228     8.25    42.26

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
********************************
** SIMULATION:2.3 10yr-12hr   **
********************************

--------------------
|    READ STORM    |    Filename: C:\Users\rbrockie\AppD
|                  |              ata\Local\Temp\
|                  |              f5b64095-ca20-4c73-be55-503eb4777178\23cb3106
| Ptotal= 62.71 mm |    Comments: 10 Year 12 Hour AES (Bloor, TRCA)
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	3.25	10.66	6.50	4.39	9.75	0.63
0.25	0.63	3.50	10.66	6.75	4.39	10.00	0.63
0.50	0.63	3.75	10.66	7.00	4.39	10.25	0.63
0.75	0.63	4.00	10.66	7.25	2.51	10.50	0.63
1.00	0.63	4.25	28.84	7.50	2.51	10.75	0.63
1.25	0.63	4.50	28.84	7.75	2.51	11.00	0.63
1.50	0.63	4.75	28.84	8.00	2.51	11.25	0.63
1.75	0.63	5.00	28.84	8.25	1.25	11.50	0.63
2.00	0.63	5.25	8.15	8.50	1.25	11.75	0.63
2.25	3.76	5.50	8.15	8.75	1.25	12.00	0.63
2.50	3.76	5.75	8.15	9.00	1.25		
2.75	3.76	6.00	8.15	9.25	0.63		
3.00	3.76	6.25	4.39	9.50	0.63		

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--------------------
| CALIB            |
| STANDHYD (  2401)|   Area    (ha)=  46.72
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  48.00
--------------------
```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	28.03	18.69
Dep. Storage	(mm)=	1.00	2.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	558.09	40.00
Mannings n	=	0.013	0.250

```
     NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.76	6.250	8.15	9.33	0.63
0.167	0.00	3.250	3.76	6.333	4.39	9.42	0.63
0.250	0.00	3.333	10.66	6.417	4.39	9.50	0.63
0.333	0.63	3.417	10.66	6.500	4.39	9.58	0.63
0.417	0.63	3.500	10.66	6.583	4.39	9.67	0.63
0.500	0.63	3.583	10.66	6.667	4.39	9.75	0.63
0.583	0.63	3.667	10.66	6.750	4.39	9.83	0.63
0.667	0.63	3.750	10.66	6.833	4.39	9.92	0.63
0.750	0.63	3.833	10.66	6.917	4.39	10.00	0.63
0.833	0.63	3.917	10.66	7.000	4.39	10.08	0.63
0.917	0.63	4.000	10.66	7.083	4.39	10.17	0.63
1.000	0.63	4.083	10.66	7.167	4.39	10.25	0.63
1.083	0.63	4.167	10.66	7.250	4.39	10.33	0.63
1.167	0.63	4.250	10.66	7.333	2.51	10.42	0.63
1.250	0.63	4.333	28.84	7.417	2.51	10.50	0.63
1.333	0.63	4.417	28.84	7.500	2.51	10.58	0.63
1.417	0.63	4.500	28.84	7.583	2.51	10.67	0.63
1.500	0.63	4.583	28.84	7.667	2.51	10.75	0.63
1.583	0.63	4.667	28.84	7.750	2.51	10.83	0.63
1.667	0.63	4.750	28.84	7.833	2.51	10.92	0.63
1.750	0.63	4.833	28.84	7.917	2.51	11.00	0.63
1.833	0.63	4.917	28.84	8.000	2.51	11.08	0.63
1.917	0.63	5.000	28.84	8.083	2.51	11.17	0.63
2.000	0.63	5.083	28.84	8.167	2.51	11.25	0.63
2.083	0.63	5.167	28.84	8.250	2.51	11.33	0.63
2.167	0.63	5.250	28.84	8.333	1.25	11.42	0.63
2.250	0.63	5.333	8.15	8.417	1.25	11.50	0.63
2.333	3.76	5.417	8.15	8.500	1.25	11.58	0.63
2.417	3.76	5.500	8.15	8.583	1.25	11.67	0.63
2.500	3.76	5.583	8.15	8.667	1.25	11.75	0.63
2.583	3.76	5.667	8.15	8.750	1.25	11.83	0.63
2.667	3.76	5.750	8.15	8.833	1.25	11.92	0.63
2.750	3.76	5.833	8.15	8.917	1.25	12.00	0.63

2.833	3.76	5.917	8.15	9.000	1.25	12.08	0.63
2.917	3.76	6.000	8.15	9.083	1.25	12.17	0.63
3.000	3.76	6.083	8.15	9.167	1.25	12.25	0.63
3.083	3.76	6.167	8.15	9.250	1.25		

```
     Max.Eff.Inten.(mm/hr)=      28.84        29.30
                over (min)       10.00        25.00
     Storage Coeff.  (min)=      11.79 (ii)   23.32 (ii)
     Unit Hyd. Tpeak (min)=      10.00        25.00
     Unit Hyd. peak  (cms)=       0.10         0.05
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.79         1.25          3.012 (iii)
     TIME TO PEAK    (hrs)=       5.25         5.33           5.25
     RUNOFF VOLUME    (mm)=      61.71        39.12          49.96
     TOTAL RAINFALL   (mm)=      62.71        62.71          62.71
     RUNOFF COEFFICIENT   =       0.98         0.62           0.80


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0004)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000      0.0000   |    0.3440      2.2000
                           0.1440      1.2100   |    0.4060      2.4600
                           0.2220      1.5900   |    0.4550      2.7200
                           0.2740      1.8600   |    3.5970      6.0900

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2401)     46.720      3.012      5.25      49.96
   OUTFLOW: ID= 1 (  0004)     46.720      0.274      8.42      49.92

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  9.10
                  TIME SHIFT OF PEAK FLOW         (min)=190.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  1.8609

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--------------------
| CALIB            |
| STANDHYD (  2402)|   Area    (ha)=   1.31
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  64.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.84         0.47
     Dep. Storage     (mm)=       1.00         2.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      93.45        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.083    0.00 | 3.167    3.76 | 6.250    8.15 |  9.33    0.63
                 0.167    0.00 | 3.250    3.76 | 6.333    4.39 |  9.42    0.63
                 0.250    0.00 | 3.333   10.66 | 6.417    4.39 |  9.50    0.63
                 0.333    0.63 | 3.417   10.66 | 6.500    4.39 |  9.58    0.63
                 0.417    0.63 | 3.500   10.66 | 6.583    4.39 |  9.67    0.63
                 0.500    0.63 | 3.583   10.66 | 6.667    4.39 |  9.75    0.63
                 0.583    0.63 | 3.667   10.66 | 6.750    4.39 |  9.83    0.63
                 0.667    0.63 | 3.750   10.66 | 6.833    4.39 |  9.92    0.63
                 0.750    0.63 | 3.833   10.66 | 6.917    4.39 | 10.00    0.63
                 0.833    0.63 | 3.917   10.66 | 7.000    4.39 | 10.08    0.63
                 0.917    0.63 | 4.000   10.66 | 7.083    4.39 | 10.17    0.63
                 1.000    0.63 | 4.083   10.66 | 7.167    4.39 | 10.25    0.63
                 1.083    0.63 | 4.167   10.66 | 7.250    4.39 | 10.33    0.63
                 1.167    0.63 | 4.250   10.66 | 7.333    2.51 | 10.42    0.63
                 1.250    0.63 | 4.333   28.84 | 7.417    2.51 | 10.50    0.63
                 1.333    0.63 | 4.417   28.84 | 7.500    2.51 | 10.58    0.63
                 1.417    0.63 | 4.500   28.84 | 7.583    2.51 | 10.67    0.63
                 1.500    0.63 | 4.583   28.84 | 7.667    2.51 | 10.75    0.63
                 1.583    0.63 | 4.667   28.84 | 7.750    2.51 | 10.83    0.63
                 1.667    0.63 | 4.750   28.84 | 7.833    2.51 | 10.92    0.63
                 1.750    0.63 | 4.833   28.84 | 7.917    2.51 | 11.00    0.63
```

1.833	0.63	4.917	28.84	8.000	2.51	11.08	0.63
1.917	0.63	5.000	28.84	8.083	2.51	11.17	0.63
2.000	0.63	5.083	28.84	8.167	2.51	11.25	0.63
2.083	0.63	5.167	28.84	8.250	2.51	11.33	0.63
2.167	0.63	5.250	28.84	8.333	1.25	11.42	0.63
2.250	0.63	5.333	8.15	8.417	1.25	11.50	0.63
2.333	3.76	5.417	8.15	8.500	1.25	11.58	0.63
2.417	3.76	5.500	8.15	8.583	1.25	11.67	0.63
2.500	3.76	5.583	8.15	8.667	1.25	11.75	0.63
2.583	3.76	5.667	8.15	8.750	1.25	11.83	0.63
2.667	3.76	5.750	8.15	8.833	1.25	11.92	0.63
2.750	3.76	5.833	8.15	8.917	1.25	12.00	0.63
2.833	3.76	5.917	8.15	9.000	1.25	12.08	0.63
2.917	3.76	6.000	8.15	9.083	1.25	12.17	0.63
3.000	3.76	6.083	8.15	9.167	1.25	12.25	0.63
3.083	3.76	6.167	8.15	9.250	1.25		

```
     Max.Eff.Inten.(mm/hr)=      28.84        20.56
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       4.03 (ii)   17.32 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.24         0.06
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.07         0.02         0.091 (iii)
     TIME TO PEAK    (hrs)=       5.17         5.33          5.25
     RUNOFF VOLUME    (mm)=      61.71        34.92         52.06
     TOTAL RAINFALL   (mm)=      62.71        62.71         62.71
     RUNOFF COEFFICIENT   =       0.98         0.56          0.83

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  7653)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2402):     1.31   0.091     5.25    52.06
      + ID2= 2 (  0004):    46.72   0.274     8.42    49.92
        ====================================================
        ID = 3 (  7653):    48.03   0.282     8.25    49.98

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
********************************
** SIMULATION:2.4 25yr-12hr   **
********************************

--------------------
|    READ STORM    |    Filename: C:\Users\rbrockie\AppD
|                  |              ata\Local\Temp\
|                  |              f5b64095-ca20-4c73-be55-503eb4777178\2c6efae9
| Ptotal= 73.10 mm |    Comments: 25 Year 12 Hour AES (Bloor, TRCA)
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	3.25	12.43	6.50	5.12	9.75	0.73
0.25	0.73	3.50	12.43	6.75	5.12	10.00	0.73
0.50	0.73	3.75	12.43	7.00	5.12	10.25	0.73
0.75	0.73	4.00	12.43	7.25	2.92	10.50	0.73
1.00	0.73	4.25	33.63	7.50	2.92	10.75	0.73
1.25	0.73	4.50	33.63	7.75	2.92	11.00	0.73
1.50	0.73	4.75	33.63	8.00	2.92	11.25	0.73
1.75	0.73	5.00	33.63	8.25	1.46	11.50	0.73
2.00	0.73	5.25	9.50	8.50	1.46	11.75	0.73
2.25	4.39	5.50	9.50	8.75	1.46	12.00	0.73
2.50	4.39	5.75	9.50	9.00	1.46		
2.75	4.39	6.00	9.50	9.25	0.73		
3.00	4.39	6.25	5.12	9.50	0.73		

```
--------------------------------------------------------------------------------

--------------------
| CALIB            |
| STANDHYD (  2401)|   Area    (ha)=  46.72
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  48.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
```

```
    Surface Area     (ha)=      28.03        18.69
    Dep. Storage     (mm)=       1.00         2.00
    Average Slope     (%)=       1.00         2.00
    Length            (m)=     558.09        40.00
    Mannings n           =      0.013        0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	4.39	6.250	9.50	9.33	0.73
0.167	0.00	3.250	4.39	6.333	5.12	9.42	0.73
0.250	0.00	3.333	12.43	6.417	5.12	9.50	0.73
0.333	0.73	3.417	12.43	6.500	5.12	9.58	0.73
0.417	0.73	3.500	12.43	6.583	5.12	9.67	0.73
0.500	0.73	3.583	12.43	6.667	5.12	9.75	0.73
0.583	0.73	3.667	12.43	6.750	5.12	9.83	0.73
0.667	0.73	3.750	12.43	6.833	5.12	9.92	0.73
0.750	0.73	3.833	12.43	6.917	5.12	10.00	0.73
0.833	0.73	3.917	12.43	7.000	5.12	10.08	0.73
0.917	0.73	4.000	12.43	7.083	5.12	10.17	0.73
1.000	0.73	4.083	12.43	7.167	5.12	10.25	0.73
1.083	0.73	4.167	12.43	7.250	5.12	10.33	0.73
1.167	0.73	4.250	12.43	7.333	2.92	10.42	0.73
1.250	0.73	4.333	33.63	7.417	2.92	10.50	0.73
1.333	0.73	4.417	33.63	7.500	2.92	10.58	0.73
1.417	0.73	4.500	33.63	7.583	2.92	10.67	0.73
1.500	0.73	4.583	33.63	7.667	2.92	10.75	0.73
1.583	0.73	4.667	33.63	7.750	2.92	10.83	0.73
1.667	0.73	4.750	33.63	7.833	2.92	10.92	0.73
1.750	0.73	4.833	33.63	7.917	2.92	11.00	0.73
1.833	0.73	4.917	33.63	8.000	2.92	11.08	0.73
1.917	0.73	5.000	33.63	8.083	2.92	11.17	0.73
2.000	0.73	5.083	33.63	8.167	2.92	11.25	0.73
2.083	0.73	5.167	33.63	8.250	2.92	11.33	0.73
2.167	0.73	5.250	33.63	8.333	1.46	11.42	0.73
2.250	0.73	5.333	9.50	8.417	1.46	11.50	0.73
2.333	4.39	5.417	9.50	8.500	1.46	11.58	0.73
2.417	4.39	5.500	9.50	8.583	1.46	11.67	0.73
2.500	4.39	5.583	9.50	8.667	1.46	11.75	0.73
2.583	4.39	5.667	9.50	8.750	1.46	11.83	0.73
2.667	4.39	5.750	9.50	8.833	1.46	11.92	0.73
2.750	4.39	5.833	9.50	8.917	1.46	12.00	0.73
2.833	4.39	5.917	9.50	9.000	1.46	12.08	0.73
2.917	4.39	6.000	9.50	9.083	1.46	12.17	0.73
3.000	4.39	6.083	9.50	9.167	1.46	12.25	0.73
3.083	4.39	6.167	9.50	9.250	1.46		

```
    Max.Eff.Inten.(mm/hr)=      33.63        35.71
               over (min)       10.00        25.00
    Storage Coeff.  (min)=      11.08 (ii)   21.74 (ii)
    Unit Hyd. Tpeak (min)=      10.00        25.00
    Unit Hyd. peak  (cms)=       0.10         0.05
                                                        *TOTALS*
    PEAK FLOW       (cms)=       2.09         1.56        3.629 (iii)
    TIME TO PEAK    (hrs)=       5.25         5.33         5.25
    RUNOFF VOLUME    (mm)=      72.10        48.29        59.72
    TOTAL RAINFALL   (mm)=      73.10        73.10        73.10
    RUNOFF COEFFICIENT   =       0.99         0.66         0.82


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0004)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000     0.0000   |    0.3440      2.2000
                           0.1440     1.2100   |    0.4060      2.4600
                           0.2220     1.5900   |    0.4550      2.7200
                           0.2740     1.8600   |    3.5970      6.0900

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2401)     46.720      3.629      5.25      59.72
   OUTFLOW: ID= 1 (  0004)     46.720      0.345      8.33      59.67
```

```
                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  9.52
                    TIME SHIFT OF PEAK FLOW         (min)=185.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  2.2063

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2402)|   Area    (ha)=   1.31
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  64.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.84         0.47
     Dep. Storage     (mm)=       1.00         2.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      93.45        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    0.00 | 3.167    4.39 | 6.250    9.50 |  9.33    0.73
                0.167    0.00 | 3.250    4.39 | 6.333    5.12 |  9.42    0.73
                0.250    0.00 | 3.333   12.43 | 6.417    5.12 |  9.50    0.73
                0.333    0.73 | 3.417   12.43 | 6.500    5.12 |  9.58    0.73
                0.417    0.73 | 3.500   12.43 | 6.583    5.12 |  9.67    0.73
                0.500    0.73 | 3.583   12.43 | 6.667    5.12 |  9.75    0.73
                0.583    0.73 | 3.667   12.43 | 6.750    5.12 |  9.83    0.73
                0.667    0.73 | 3.750   12.43 | 6.833    5.12 |  9.92    0.73
                0.750    0.73 | 3.833   12.43 | 6.917    5.12 | 10.00    0.73
                0.833    0.73 | 3.917   12.43 | 7.000    5.12 | 10.08    0.73
                0.917    0.73 | 4.000   12.43 | 7.083    5.12 | 10.17    0.73
                1.000    0.73 | 4.083   12.43 | 7.167    5.12 | 10.25    0.73
                1.083    0.73 | 4.167   12.43 | 7.250    5.12 | 10.33    0.73
                1.167    0.73 | 4.250   12.43 | 7.333    2.92 | 10.42    0.73
                1.250    0.73 | 4.333   33.63 | 7.417    2.92 | 10.50    0.73
                1.333    0.73 | 4.417   33.63 | 7.500    2.92 | 10.58    0.73
                1.417    0.73 | 4.500   33.63 | 7.583    2.92 | 10.67    0.73
                1.500    0.73 | 4.583   33.63 | 7.667    2.92 | 10.75    0.73
                1.583    0.73 | 4.667   33.63 | 7.750    2.92 | 10.83    0.73
                1.667    0.73 | 4.750   33.63 | 7.833    2.92 | 10.92    0.73
                1.750    0.73 | 4.833   33.63 | 7.917    2.92 | 11.00    0.73
                1.833    0.73 | 4.917   33.63 | 8.000    2.92 | 11.08    0.73
                1.917    0.73 | 5.000   33.63 | 8.083    2.92 | 11.17    0.73
                2.000    0.73 | 5.083   33.63 | 8.167    2.92 | 11.25    0.73
                2.083    0.73 | 5.167   33.63 | 8.250    2.92 | 11.33    0.73
                2.167    0.73 | 5.250   33.63 | 8.333    1.46 | 11.42    0.73
                2.250    0.73 | 5.333    9.50 | 8.417    1.46 | 11.50    0.73
                2.333    4.39 | 5.417    9.50 | 8.500    1.46 | 11.58    0.73
                2.417    4.39 | 5.500    9.50 | 8.583    1.46 | 11.67    0.73
                2.500    4.39 | 5.583    9.50 | 8.667    1.46 | 11.75    0.73
                2.583    4.39 | 5.667    9.50 | 8.750    1.46 | 11.83    0.73
                2.667    4.39 | 5.750    9.50 | 8.833    1.46 | 11.92    0.73
                2.750    4.39 | 5.833    9.50 | 8.917    1.46 | 12.00    0.73
                2.833    4.39 | 5.917    9.50 | 9.000    1.46 | 12.08    0.73
                2.917    4.39 | 6.000    9.50 | 9.083    1.46 | 12.17    0.73
                3.000    4.39 | 6.083    9.50 | 9.167    1.46 | 12.25    0.73
                3.083    4.39 | 6.167    9.50 | 9.250    1.46 |

     Max.Eff.Inten.(mm/hr)=      33.63        25.37
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       3.79 (ii)   16.01 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.25         0.07
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.08         0.03         0.108 (iii)
     TIME TO PEAK    (hrs)=       5.08         5.25          5.25
     RUNOFF VOLUME    (mm)=      72.10        43.61         61.84
     TOTAL RAINFALL   (mm)=      73.10        73.10         73.10
     RUNOFF COEFFICIENT   =       0.99         0.60          0.85

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
```

```
--------------------
| ADD HYD  (  7653)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2402):     1.31   0.108     5.25    61.84
      + ID2= 2 (  0004):    46.72   0.345     8.33    59.67
        ====================================================
        ID = 3 (  7653):    48.03   0.355     8.25    59.73

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
********************************
** SIMULATION:2.5 50yr-12hr   **
********************************

--------------------
|    READ STORM    |    Filename: C:\Users\rbrockie\AppD
|                  |              ata\Local\Temp\
|                  |              f5b64095-ca20-4c73-be55-503eb4777178\4a30faeb
| Ptotal= 80.82 mm |    Comments: 50 Year 12 Hour AES (Bloor, TRCA)
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	3.25	13.74	6.50	5.66	9.75	0.81
0.25	0.81	3.50	13.74	6.75	5.66	10.00	0.81
0.50	0.81	3.75	13.74	7.00	5.66	10.25	0.81
0.75	0.81	4.00	13.74	7.25	3.23	10.50	0.81
1.00	0.81	4.25	37.17	7.50	3.23	10.75	0.81
1.25	0.81	4.50	37.17	7.75	3.23	11.00	0.81
1.50	0.81	4.75	37.17	8.00	3.23	11.25	0.81
1.75	0.81	5.00	37.17	8.25	1.62	11.50	0.81
2.00	0.81	5.25	10.50	8.50	1.62	11.75	0.81
2.25	4.85	5.50	10.50	8.75	1.62	12.00	0.81
2.50	4.85	5.75	10.50	9.00	1.62		
2.75	4.85	6.00	10.50	9.25	0.81		
3.00	4.85	6.25	5.66	9.50	0.81		

```
-------------------------------------------------------------------------------

--------------------
| CALIB            |
| STANDHYD (  2401)|   Area    (ha)=  46.72
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  48.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      28.03        18.69
     Dep. Storage     (mm)=       1.00         2.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     558.09        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	4.85	6.250	10.50	9.33	0.81
0.167	0.00	3.250	4.85	6.333	5.66	9.42	0.81
0.250	0.00	3.333	13.74	6.417	5.66	9.50	0.81
0.333	0.81	3.417	13.74	6.500	5.66	9.58	0.81
0.417	0.81	3.500	13.74	6.583	5.66	9.67	0.81
0.500	0.81	3.583	13.74	6.667	5.66	9.75	0.81
0.583	0.81	3.667	13.74	6.750	5.66	9.83	0.81
0.667	0.81	3.750	13.74	6.833	5.66	9.92	0.81
0.750	0.81	3.833	13.74	6.917	5.66	10.00	0.81
0.833	0.81	3.917	13.74	7.000	5.66	10.08	0.81
0.917	0.81	4.000	13.74	7.083	5.66	10.17	0.81
1.000	0.81	4.083	13.74	7.167	5.66	10.25	0.81
1.083	0.81	4.167	13.74	7.250	5.66	10.33	0.81
1.167	0.81	4.250	13.74	7.333	3.23	10.42	0.81
1.250	0.81	4.333	37.17	7.417	3.23	10.50	0.81
1.333	0.81	4.417	37.17	7.500	3.23	10.58	0.81
1.417	0.81	4.500	37.17	7.583	3.23	10.67	0.81
1.500	0.81	4.583	37.17	7.667	3.23	10.75	0.81
1.583	0.81	4.667	37.17	7.750	3.23	10.83	0.81
1.667	0.81	4.750	37.17	7.833	3.23	10.92	0.81
1.750	0.81	4.833	37.17	7.917	3.23	11.00	0.81
1.833	0.81	4.917	37.17	8.000	3.23	11.08	0.81
1.917	0.81	5.000	37.17	8.083	3.23	11.17	0.81
2.000	0.81	5.083	37.17	8.167	3.23	11.25	0.81
2.083	0.81	5.167	37.17	8.250	3.23	11.33	0.81
2.167	0.81	5.250	37.17	8.333	1.62	11.42	0.81
2.250	0.81	5.333	10.50	8.417	1.62	11.50	0.81

2.333	4.85	5.417	10.50	8.500	1.62	11.58	0.81
2.417	4.85	5.500	10.50	8.583	1.62	11.67	0.81
2.500	4.85	5.583	10.50	8.667	1.62	11.75	0.81
2.583	4.85	5.667	10.50	8.750	1.62	11.83	0.81
2.667	4.85	5.750	10.50	8.833	1.62	11.92	0.81
2.750	4.85	5.833	10.50	8.917	1.62	12.00	0.81
2.833	4.85	5.917	10.50	9.000	1.62	12.08	0.81
2.917	4.85	6.000	10.50	9.083	1.62	12.17	0.81
3.000	4.85	6.083	10.50	9.167	1.62	12.25	0.81
3.083	4.85	6.167	10.50	9.250	1.62		

```
    Max.Eff.Inten.(mm/hr)=      37.17        40.47
               over (min)       10.00        25.00
    Storage Coeff.  (min)=      10.65 (ii)   20.78 (ii)
    Unit Hyd. Tpeak (min)=      10.00        25.00
    Unit Hyd. peak  (cms)=       0.11         0.05
                                                          *TOTALS*
    PEAK FLOW       (cms)=       2.31         1.80          4.091 (iii)
    TIME TO PEAK    (hrs)=       5.25         5.33           5.25
    RUNOFF VOLUME    (mm)=      79.82        55.25          67.04
    TOTAL RAINFALL   (mm)=      80.82        80.82          80.82
    RUNOFF COEFFICIENT   =       0.99         0.68           0.83


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0004)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000      0.0000   |    0.3440      2.2000
                           0.1440      1.2100   |    0.4060      2.4600
                           0.2220      1.5900   |    0.4550      2.7200
                           0.2740      1.8600   |    3.5970      6.0900

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2401)     46.720      4.091      5.25      67.04
   OUTFLOW: ID= 1 (  0004)     46.720      0.406      8.25      66.99

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  9.92
                  TIME SHIFT OF PEAK FLOW         (min)=180.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  2.4594

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2402)|   Area    (ha)=   1.31
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  64.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       0.84         0.47
    Dep. Storage     (mm)=       1.00         2.00
    Average Slope     (%)=       1.00         2.00
    Length            (m)=      93.45        40.00
    Mannings n           =      0.013        0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.083    0.00 | 3.167    4.85 | 6.250   10.50 |  9.33    0.81
                 0.167    0.00 | 3.250    4.85 | 6.333    5.66 |  9.42    0.81
                 0.250    0.00 | 3.333   13.74 | 6.417    5.66 |  9.50    0.81
                 0.333    0.81 | 3.417   13.74 | 6.500    5.66 |  9.58    0.81
                 0.417    0.81 | 3.500   13.74 | 6.583    5.66 |  9.67    0.81
                 0.500    0.81 | 3.583   13.74 | 6.667    5.66 |  9.75    0.81
                 0.583    0.81 | 3.667   13.74 | 6.750    5.66 |  9.83    0.81
                 0.667    0.81 | 3.750   13.74 | 6.833    5.66 |  9.92    0.81
                 0.750    0.81 | 3.833   13.74 | 6.917    5.66 | 10.00    0.81
                 0.833    0.81 | 3.917   13.74 | 7.000    5.66 | 10.08    0.81
                 0.917    0.81 | 4.000   13.74 | 7.083    5.66 | 10.17    0.81
                 1.000    0.81 | 4.083   13.74 | 7.167    5.66 | 10.25    0.81
                 1.083    0.81 | 4.167   13.74 | 7.250    5.66 | 10.33    0.81
                 1.167    0.81 | 4.250   13.74 | 7.333    3.23 | 10.42    0.81
                 1.250    0.81 | 4.333   37.17 | 7.417    3.23 | 10.50    0.81
```

1.333	0.81	4.417	37.17	7.500	3.23	10.58	0.81
1.417	0.81	4.500	37.17	7.583	3.23	10.67	0.81
1.500	0.81	4.583	37.17	7.667	3.23	10.75	0.81
1.583	0.81	4.667	37.17	7.750	3.23	10.83	0.81
1.667	0.81	4.750	37.17	7.833	3.23	10.92	0.81
1.750	0.81	4.833	37.17	7.917	3.23	11.00	0.81
1.833	0.81	4.917	37.17	8.000	3.23	11.08	0.81
1.917	0.81	5.000	37.17	8.083	3.23	11.17	0.81
2.000	0.81	5.083	37.17	8.167	3.23	11.25	0.81
2.083	0.81	5.167	37.17	8.250	3.23	11.33	0.81
2.167	0.81	5.250	37.17	8.333	1.62	11.42	0.81
2.250	0.81	5.333	10.50	8.417	1.62	11.50	0.81
2.333	4.85	5.417	10.50	8.500	1.62	11.58	0.81
2.417	4.85	5.500	10.50	8.583	1.62	11.67	0.81
2.500	4.85	5.583	10.50	8.667	1.62	11.75	0.81
2.583	4.85	5.667	10.50	8.750	1.62	11.83	0.81
2.667	4.85	5.750	10.50	8.833	1.62	11.92	0.81
2.750	4.85	5.833	10.50	8.917	1.62	12.00	0.81
2.833	4.85	5.917	10.50	9.000	1.62	12.08	0.81
2.917	4.85	6.000	10.50	9.083	1.62	12.17	0.81
3.000	4.85	6.083	10.50	9.167	1.62	12.25	0.81
3.083	4.85	6.167	10.50	9.250	1.62		

```
     Max.Eff.Inten.(mm/hr)=      37.17        28.97
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       3.64 (ii)   15.23 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.25         0.07
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.09         0.03         0.121 (iii)
     TIME TO PEAK    (hrs)=       5.08         5.25          5.25
     RUNOFF VOLUME    (mm)=      79.82        50.25         69.17
     TOTAL RAINFALL   (mm)=      80.82        80.82         80.82
     RUNOFF COEFFICIENT   =       0.99         0.62          0.86

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  7653)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2402):     1.31   0.121     5.25    69.17
      + ID2= 2 (  0004):    46.72   0.406     8.25    66.99
        ====================================================
        ID = 3 (  7653):    48.03   0.417     8.25    67.05

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
********************************
** SIMULATION:2.6 100yr-12hr  **
********************************

--------------------
|    READ STORM    |    Filename: C:\Users\rbrockie\AppD
|                  |              ata\Local\Temp\
|                  |              f5b64095-ca20-4c73-be55-503eb4777178\eb7441f0
| Ptotal= 88.54 mm |    Comments: 100 Year 12 Hour AES (Bloor, TRCA)
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	3.25	15.05	6.50	6.20	9.75	0.89
0.25	0.89	3.50	15.05	6.75	6.20	10.00	0.89
0.50	0.89	3.75	15.05	7.00	6.20	10.25	0.89
0.75	0.89	4.00	15.05	7.25	3.54	10.50	0.89
1.00	0.89	4.25	40.71	7.50	3.54	10.75	0.89
1.25	0.89	4.50	40.71	7.75	3.54	11.00	0.89
1.50	0.89	4.75	40.71	8.00	3.54	11.25	0.89
1.75	0.89	5.00	40.71	8.25	1.77	11.50	0.89
2.00	0.89	5.25	11.51	8.50	1.77	11.75	0.89
2.25	5.31	5.50	11.51	8.75	1.77	12.00	0.89
2.50	5.31	5.75	11.51	9.00	1.77		
2.75	5.31	6.00	11.51	9.25	0.89		
3.00	5.31	6.25	6.20	9.50	0.89		

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--------------------
| CALIB            |
| STANDHYD (  2401)|   Area    (ha)=  46.72
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  48.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      28.03        18.69
     Dep. Storage     (mm)=       1.00         2.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     558.09        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    0.00 | 3.167    5.31 | 6.250   11.51 |  9.33    0.89
                0.167    0.00 | 3.250    5.31 | 6.333    6.20 |  9.42    0.89
                0.250    0.00 | 3.333   15.05 | 6.417    6.20 |  9.50    0.89
                0.333    0.89 | 3.417   15.05 | 6.500    6.20 |  9.58    0.89
                0.417    0.89 | 3.500   15.05 | 6.583    6.20 |  9.67    0.89
                0.500    0.89 | 3.583   15.05 | 6.667    6.20 |  9.75    0.89
                0.583    0.89 | 3.667   15.05 | 6.750    6.20 |  9.83    0.89
                0.667    0.89 | 3.750   15.05 | 6.833    6.20 |  9.92    0.89
                0.750    0.89 | 3.833   15.05 | 6.917    6.20 | 10.00    0.89
                0.833    0.89 | 3.917   15.05 | 7.000    6.20 | 10.08    0.89
                0.917    0.89 | 4.000   15.05 | 7.083    6.20 | 10.17    0.89
                1.000    0.89 | 4.083   15.05 | 7.167    6.20 | 10.25    0.89
                1.083    0.89 | 4.167   15.05 | 7.250    6.20 | 10.33    0.89
                1.167    0.89 | 4.250   15.05 | 7.333    3.54 | 10.42    0.89
                1.250    0.89 | 4.333   40.71 | 7.417    3.54 | 10.50    0.89
                1.333    0.89 | 4.417   40.71 | 7.500    3.54 | 10.58    0.89
                1.417    0.89 | 4.500   40.71 | 7.583    3.54 | 10.67    0.89
                1.500    0.89 | 4.583   40.71 | 7.667    3.54 | 10.75    0.89
                1.583    0.89 | 4.667   40.71 | 7.750    3.54 | 10.83    0.89
                1.667    0.89 | 4.750   40.71 | 7.833    3.54 | 10.92    0.89
                1.750    0.89 | 4.833   40.71 | 7.917    3.54 | 11.00    0.89
                1.833    0.89 | 4.917   40.71 | 8.000    3.54 | 11.08    0.89
                1.917    0.89 | 5.000   40.71 | 8.083    3.54 | 11.17    0.89
                2.000    0.89 | 5.083   40.71 | 8.167    3.54 | 11.25    0.89
                2.083    0.89 | 5.167   40.71 | 8.250    3.54 | 11.33    0.89
                2.167    0.89 | 5.250   40.71 | 8.333    1.77 | 11.42    0.89
                2.250    0.89 | 5.333   11.51 | 8.417    1.77 | 11.50    0.89
                2.333    5.31 | 5.417   11.51 | 8.500    1.77 | 11.58    0.89
                2.417    5.31 | 5.500   11.51 | 8.583    1.77 | 11.67    0.89
                2.500    5.31 | 5.583   11.51 | 8.667    1.77 | 11.75    0.89
                2.583    5.31 | 5.667   11.51 | 8.750    1.77 | 11.83    0.89
                2.667    5.31 | 5.750   11.51 | 8.833    1.77 | 11.92    0.89
                2.750    5.31 | 5.833   11.51 | 8.917    1.77 | 12.00    0.89
                2.833    5.31 | 5.917   11.51 | 9.000    1.77 | 12.08    0.89
                2.917    5.31 | 6.000   11.51 | 9.083    1.77 | 12.17    0.89
                3.000    5.31 | 6.083   11.51 | 9.167    1.77 | 12.25    0.89
                3.083    5.31 | 6.167   11.51 | 9.250    1.77 |

     Max.Eff.Inten.(mm/hr)=      40.71        45.54
                over (min)       10.00        20.00
     Storage Coeff.  (min)=      10.27 (ii)   19.93 (ii)
     Unit Hyd. Tpeak (min)=      10.00        20.00
     Unit Hyd. peak  (cms)=       0.11         0.06
                                                          *TOTALS*
     PEAK FLOW       (cms)=       2.53         2.07         4.602 (iii)
     TIME TO PEAK    (hrs)=       5.25         5.25          5.25
     RUNOFF VOLUME    (mm)=      87.54        62.31         74.42
     TOTAL RAINFALL   (mm)=      88.54        88.54         88.54
     RUNOFF COEFFICIENT   =       0.99         0.70          0.84


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0004)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000      0.0000   |    0.3440      2.2000
                           0.1440      1.2100   |    0.4060      2.4600
                           0.2220      1.5900   |    0.4550      2.7200
```

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                          0.2740      1.8600   |    3.5970      6.0900

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2401)     46.720      4.602      5.25      74.42
   OUTFLOW: ID= 1 (  0004)     46.720      0.455      8.25      74.36

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  9.89
                   TIME SHIFT OF PEAK FLOW         (min)=180.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  2.7193

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2402)|   Area    (ha)=   1.31
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  64.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.84         0.47
     Dep. Storage     (mm)=       1.00         2.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      93.45        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    0.00 | 3.167    5.31 | 6.250   11.51 |  9.33    0.89
               0.167    0.00 | 3.250    5.31 | 6.333    6.20 |  9.42    0.89
               0.250    0.00 | 3.333   15.05 | 6.417    6.20 |  9.50    0.89
               0.333    0.89 | 3.417   15.05 | 6.500    6.20 |  9.58    0.89
               0.417    0.89 | 3.500   15.05 | 6.583    6.20 |  9.67    0.89
               0.500    0.89 | 3.583   15.05 | 6.667    6.20 |  9.75    0.89
               0.583    0.89 | 3.667   15.05 | 6.750    6.20 |  9.83    0.89
               0.667    0.89 | 3.750   15.05 | 6.833    6.20 |  9.92    0.89
               0.750    0.89 | 3.833   15.05 | 6.917    6.20 | 10.00    0.89
               0.833    0.89 | 3.917   15.05 | 7.000    6.20 | 10.08    0.89
               0.917    0.89 | 4.000   15.05 | 7.083    6.20 | 10.17    0.89
               1.000    0.89 | 4.083   15.05 | 7.167    6.20 | 10.25    0.89
               1.083    0.89 | 4.167   15.05 | 7.250    6.20 | 10.33    0.89
               1.167    0.89 | 4.250   15.05 | 7.333    3.54 | 10.42    0.89
               1.250    0.89 | 4.333   40.71 | 7.417    3.54 | 10.50    0.89
               1.333    0.89 | 4.417   40.71 | 7.500    3.54 | 10.58    0.89
               1.417    0.89 | 4.500   40.71 | 7.583    3.54 | 10.67    0.89
               1.500    0.89 | 4.583   40.71 | 7.667    3.54 | 10.75    0.89
               1.583    0.89 | 4.667   40.71 | 7.750    3.54 | 10.83    0.89
               1.667    0.89 | 4.750   40.71 | 7.833    3.54 | 10.92    0.89
               1.750    0.89 | 4.833   40.71 | 7.917    3.54 | 11.00    0.89
               1.833    0.89 | 4.917   40.71 | 8.000    3.54 | 11.08    0.89
               1.917    0.89 | 5.000   40.71 | 8.083    3.54 | 11.17    0.89
               2.000    0.89 | 5.083   40.71 | 8.167    3.54 | 11.25    0.89
               2.083    0.89 | 5.167   40.71 | 8.250    3.54 | 11.33    0.89
               2.167    0.89 | 5.250   40.71 | 8.333    1.77 | 11.42    0.89
               2.250    0.89 | 5.333   11.51 | 8.417    1.77 | 11.50    0.89
               2.333    5.31 | 5.417   11.51 | 8.500    1.77 | 11.58    0.89
               2.417    5.31 | 5.500   11.51 | 8.583    1.77 | 11.67    0.89
               2.500    5.31 | 5.583   11.51 | 8.667    1.77 | 11.75    0.89
               2.583    5.31 | 5.667   11.51 | 8.750    1.77 | 11.83    0.89
               2.667    5.31 | 5.750   11.51 | 8.833    1.77 | 11.92    0.89
               2.750    5.31 | 5.833   11.51 | 8.917    1.77 | 12.00    0.89
               2.833    5.31 | 5.917   11.51 | 9.000    1.77 | 12.08    0.89
               2.917    5.31 | 6.000   11.51 | 9.083    1.77 | 12.17    0.89
               3.000    5.31 | 6.083   11.51 | 9.167    1.77 | 12.25    0.89
               3.083    5.31 | 6.167   11.51 | 9.250    1.77 |

     Max.Eff.Inten.(mm/hr)=      40.71        32.60
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.51 (ii)   14.56 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.26         0.08
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.09         0.04         0.135 (iii)
     TIME TO PEAK    (hrs)=       5.08         5.25          5.25
     RUNOFF VOLUME    (mm)=      87.54        57.01         76.54
     TOTAL RAINFALL   (mm)=      88.54        88.54         88.54
     RUNOFF COEFFICIENT   =       0.99         0.64          0.86

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
```

```
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  7653)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2402):     1.31   0.135     5.25    76.54
      + ID2= 2 (  0004):    46.72   0.455     8.25    74.36
        ==================================================
        ID = 3 (  7653):    48.03   0.469     7.25    74.42

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
*********************************
** SIMULATION:25mm 4hr Chicago **
*********************************

--------------------
|    READ STORM    |    Filename: C:\Users\rbrockie\AppD
|                  |              ata\Local\Temp\
|                  |              f5b64095-ca20-4c73-be55-503eb4777178\7cef6036
| Ptotal= 25.00 mm |    Comments: 25MM4HR
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.00    2.07 |  1.00    5.70 |  2.00    5.19 |  3.00    2.80
                 0.17    2.27 |  1.17   10.78 |  2.17    4.47 |  3.17    2.62
                 0.33    2.52 |  1.33   50.21 |  2.33    3.95 |  3.33    2.48
                 0.50    2.88 |  1.50   13.37 |  2.50    3.56 |  3.50    2.35
                 0.67    3.38 |  1.67    8.29 |  2.67    3.25 |  3.67    2.23
                 0.83    4.18 |  1.83    6.30 |  2.83    3.01 |  3.83    2.14

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--------------------
| CALIB            |
| STANDHYD (  2401)|   Area    (ha)=  46.72
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  48.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      28.03        18.69
     Dep. Storage     (mm)=       1.00         2.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     558.09        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    2.07 | 1.083    5.70 | 2.083    5.19 |  3.08    2.80
                0.167    2.07 | 1.167    5.70 | 2.167    5.19 |  3.17    2.80
                0.250    2.27 | 1.250   10.78 | 2.250    4.47 |  3.25    2.62
                0.333    2.27 | 1.333   10.78 | 2.333    4.47 |  3.33    2.62
                0.417    2.52 | 1.417   50.21 | 2.417    3.95 |  3.42    2.48
                0.500    2.52 | 1.500   50.21 | 2.500    3.95 |  3.50    2.48
                0.583    2.88 | 1.583   13.37 | 2.583    3.56 |  3.58    2.35
                0.667    2.88 | 1.667   13.37 | 2.667    3.56 |  3.67    2.35
                0.750    3.38 | 1.750    8.29 | 2.750    3.25 |  3.75    2.23
                0.833    3.38 | 1.833    8.29 | 2.833    3.25 |  3.83    2.23
                0.917    4.18 | 1.917    6.30 | 2.917    3.01 |  3.92    2.14
                1.000    4.18 | 2.000    6.30 | 3.000    3.01 |  4.00    2.14

     Max.Eff.Inten.(mm/hr)=      50.21        17.68
                over (min)       10.00        25.00
     Storage Coeff.  (min)=       9.44 (ii)   23.56 (ii)
     Unit Hyd. Tpeak (min)=      10.00        25.00
     Unit Hyd. peak  (cms)=       0.12         0.05
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.99         0.43         2.200 (iii)
     TIME TO PEAK    (hrs)=       1.58         1.83          1.58
     RUNOFF VOLUME    (mm)=      24.00         9.50         16.46
     TOTAL RAINFALL   (mm)=      25.00        25.00         25.00
     RUNOFF COEFFICIENT   =       0.96         0.38          0.66


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
```

```
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0004)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000      0.0000   |    0.3440      2.2000
                           0.1440      1.2100   |    0.4060      2.4600
                           0.2220      1.5900   |    0.4550      2.7200
                           0.2740      1.8600   |    3.5970      6.0900

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2401)     46.720      2.200      1.58      16.46
   OUTFLOW: ID= 1 (  0004)     46.720      0.082      4.42      16.41

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.73
                  TIME SHIFT OF PEAK FLOW         (min)=170.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.6898

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2402)|   Area    (ha)=   1.31
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  64.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.84         0.47
     Dep. Storage     (mm)=       1.00         2.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      93.45        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    2.07 | 1.083    5.70 | 2.083    5.19 |  3.08    2.80
                0.167    2.07 | 1.167    5.70 | 2.167    5.19 |  3.17    2.80
                0.250    2.27 | 1.250   10.78 | 2.250    4.47 |  3.25    2.62
                0.333    2.27 | 1.333   10.78 | 2.333    4.47 |  3.33    2.62
                0.417    2.52 | 1.417   50.21 | 2.417    3.95 |  3.42    2.48
                0.500    2.52 | 1.500   50.21 | 2.500    3.95 |  3.50    2.48
                0.583    2.88 | 1.583   13.37 | 2.583    3.56 |  3.58    2.35
                0.667    2.88 | 1.667   13.37 | 2.667    3.56 |  3.67    2.35
                0.750    3.38 | 1.750    8.29 | 2.750    3.25 |  3.75    2.23
                0.833    3.38 | 1.833    8.29 | 2.833    3.25 |  3.83    2.23
                0.917    4.18 | 1.917    6.30 | 2.917    3.01 |  3.92    2.14
                1.000    4.18 | 2.000    6.30 | 3.000    3.01 |  4.00    2.14

     Max.Eff.Inten.(mm/hr)=      50.21         9.47
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       3.23 (ii)   21.35 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.27         0.05
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.11         0.01         0.115 (iii)
     TIME TO PEAK    (hrs)=       1.50         1.83          1.50
     RUNOFF VOLUME    (mm)=      24.00         7.80         18.16
     TOTAL RAINFALL   (mm)=      25.00        25.00         25.00
     RUNOFF COEFFICIENT   =       0.96         0.31          0.73

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  7653)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2402):     1.31   0.115     1.50    18.16
      + ID2= 2 (  0004):    46.72   0.082     4.42    16.41
```

```
        ==================================================
        ID = 3 (  7653):    48.03   0.130     1.50    16.46

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
```

```
*******************************
** SIMULATION:Hazel All       **
*******************************
```

Regional Outputs
SWMF 4

```
--------------------
|    READ STORM    |    Filename: C:\Users\rbrockie\AppD
|                  |              ata\Local\Temp\
|                  |              f932e37b-5458-4325-b889-6013b474715a\6ac31bfe
| Ptotal=212.00 mm |    Comments:
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	6.00	3.00	13.00	6.00	23.00	9.00	53.00
1.00	4.00	4.00	17.00	7.00	13.00	10.00	38.00
2.00	6.00	5.00	13.00	8.00	13.00	11.00	13.00

```
--------------------
| CALIB            |
| STANDHYD (  2401)|   Area    (ha)=  46.72
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  48.00
--------------------
```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	28.03	18.69
Dep. Storage	(mm)=	1.00	2.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	558.09	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)=		53.00	68.38	
	over (min)	10.00	20.00	
Storage Coeff.	(min)=	9.24 (ii)	17.46 (ii)	
Unit Hyd. Tpeak	(min)=	10.00	20.00	
Unit Hyd. peak	(cms)=	0.12	0.06	
				TOTALS
PEAK FLOW	(cms)=	3.30	3.40	6.691 (iii)
TIME TO PEAK	(hrs)=	10.00	10.00	10.00
RUNOFF VOLUME	(mm)=	211.00	196.72	203.57
TOTAL RAINFALL	(mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT	=	1.00	0.93	0.96

```
      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  93.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0004)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000      0.0000   |    0.3440      2.2000
                           0.1440      1.2100   |    0.4060      2.4600
                           0.2220      1.5900   |    0.4550      2.7200
                           0.2740      1.8600   |    3.4970      5.7000

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2401)     46.720      6.691     10.00     203.57
   OUTFLOW: ID= 1 (  0004)     46.720      3.460     11.25     203.49

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 51.71
                  TIME SHIFT OF PEAK FLOW         (min)= 75.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  5.6656

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2402)|   Area    (ha)=   1.31
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  64.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.84         0.47
     Dep. Storage     (mm)=       1.00         2.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      93.45        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                            ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
                0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
                0.250    6.00 | 3.250   13.00 | 6.250   23.00 |  9.25   53.00
                0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
                0.417    6.00 | 3.417   13.00 | 6.417   23.00 |  9.42   53.00
                0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
                0.583    6.00 | 3.583   13.00 | 6.583   23.00 |  9.58   53.00
                0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
                0.750    6.00 | 3.750   13.00 | 6.750   23.00 |  9.75   53.00
                0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
                0.917    6.00 | 3.917   13.00 | 6.917   23.00 |  9.92   53.00
                1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
                1.083    4.00 | 4.083   17.00 | 7.083   13.00 | 10.08   38.00
                1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
                1.250    4.00 | 4.250   17.00 | 7.250   13.00 | 10.25   38.00
                1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
                1.417    4.00 | 4.417   17.00 | 7.417   13.00 | 10.42   38.00
                1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
                1.583    4.00 | 4.583   17.00 | 7.583   13.00 | 10.58   38.00
                1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
                1.750    4.00 | 4.750   17.00 | 7.750   13.00 | 10.75   38.00
                1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
                1.917    4.00 | 4.917   17.00 | 7.917   13.00 | 10.92   38.00
                2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   38.00
                2.083    6.00 | 5.083   13.00 | 8.083   13.00 | 11.08   13.00
                2.167    6.00 | 5.167   13.00 | 8.167   13.00 | 11.17   13.00
                2.250    6.00 | 5.250   13.00 | 8.250   13.00 | 11.25   13.00
                2.333    6.00 | 5.333   13.00 | 8.333   13.00 | 11.33   13.00
                2.417    6.00 | 5.417   13.00 | 8.417   13.00 | 11.42   13.00
                2.500    6.00 | 5.500   13.00 | 8.500   13.00 | 11.50   13.00
                2.583    6.00 | 5.583   13.00 | 8.583   13.00 | 11.58   13.00
                2.667    6.00 | 5.667   13.00 | 8.667   13.00 | 11.67   13.00
                2.750    6.00 | 5.750   13.00 | 8.750   13.00 | 11.75   13.00
                2.833    6.00 | 5.833   13.00 | 8.833   13.00 | 11.83   13.00
                2.917    6.00 | 5.917   13.00 | 8.917   13.00 | 11.92   13.00
                3.000    6.00 | 6.000   13.00 | 9.000   13.00 | 12.00   13.00
```

```
     Max.Eff.Inten.(mm/hr)=      53.00        52.36
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.16 (ii)   12.30 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.27         0.09
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.12         0.07          0.191 (iii)
     TIME TO PEAK    (hrs)=       9.83        10.00          10.00
     RUNOFF VOLUME    (mm)=     211.00       192.48         204.33
     TOTAL RAINFALL   (mm)=     212.00       212.00         212.00
     RUNOFF COEFFICIENT   =       1.00         0.91           0.96

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  93.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  7653)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2402):     1.31   0.191    10.00   204.33
      + ID2= 2 (  0004):    46.72   3.460    11.25   203.49
        ==================================================
        ID = 3 (  7653):    48.03   3.529    11.17   203.51

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
```

```
*******************************
** SIMULATION:2.1 2yr-12hr    **
*******************************
--------------------
| CALIB            |
| NASHYD   (  2503)|   Area    (ha)=   3.35   Curve Number   (CN)= 73.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.10
```

2 - 100 Year Outputs
SWMF 5

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	3.06	18.33	0.24
0.167	0.00	6.250	1.41	12.333	1.65	18.42	0.24
0.250	0.00	6.333	4.00	12.417	1.65	18.50	0.24
0.333	0.24	6.417	4.00	12.500	1.65	18.58	0.24
0.417	0.24	6.500	4.00	12.583	1.65	18.67	0.24
0.500	0.24	6.583	4.00	12.667	1.65	18.75	0.24
0.583	0.24	6.667	4.00	12.750	1.65	18.83	0.24
0.667	0.24	6.750	4.00	12.833	1.65	18.92	0.24
0.750	0.24	6.833	4.00	12.917	1.65	19.00	0.24
0.833	0.24	6.917	4.00	13.000	1.65	19.08	0.24
0.917	0.24	7.000	4.00	13.083	1.65	19.17	0.24
1.000	0.24	7.083	4.00	13.167	1.65	19.25	0.24
1.083	0.24	7.167	4.00	13.250	1.65	19.33	0.24
1.167	0.24	7.250	4.00	13.333	1.65	19.42	0.24
1.250	0.24	7.333	4.00	13.417	1.65	19.50	0.24
1.333	0.24	7.417	4.00	13.500	1.65	19.58	0.24
1.417	0.24	7.500	4.00	13.583	1.65	19.67	0.24
1.500	0.24	7.583	4.00	13.667	1.65	19.75	0.24
1.583	0.24	7.667	4.00	13.750	1.65	19.83	0.24
1.667	0.24	7.750	4.00	13.833	1.65	19.92	0.24
1.750	0.24	7.833	4.00	13.917	1.65	20.00	0.24
1.833	0.24	7.917	4.00	14.000	1.65	20.08	0.24
1.917	0.24	8.000	4.00	14.083	1.65	20.17	0.24
2.000	0.24	8.083	4.00	14.167	1.65	20.25	0.24
2.083	0.24	8.167	4.00	14.250	1.65	20.33	0.24
2.167	0.24	8.250	4.00	14.333	0.94	20.42	0.24
2.250	0.24	8.333	10.81	14.417	0.94	20.50	0.24
2.333	0.24	8.417	10.81	14.500	0.94	20.58	0.24
2.417	0.24	8.500	10.81	14.583	0.94	20.67	0.24
2.500	0.24	8.583	10.81	14.667	0.94	20.75	0.24
2.583	0.24	8.667	10.81	14.750	0.94	20.83	0.24
2.667	0.24	8.750	10.81	14.833	0.94	20.92	0.24
2.750	0.24	8.833	10.81	14.917	0.94	21.00	0.24
2.833	0.24	8.917	10.81	15.000	0.94	21.08	0.24
2.917	0.24	9.000	10.81	15.083	0.94	21.17	0.24
3.000	0.24	9.083	10.81	15.167	0.94	21.25	0.24
3.083	0.24	9.167	10.81	15.250	0.94	21.33	0.24
3.167	0.24	9.250	10.81	15.333	0.94	21.42	0.24
3.250	0.24	9.333	10.81	15.417	0.94	21.50	0.24
3.333	0.24	9.417	10.81	15.500	0.94	21.58	0.24
3.417	0.24	9.500	10.81	15.583	0.94	21.67	0.24
3.500	0.24	9.583	10.81	15.667	0.94	21.75	0.24
3.583	0.24	9.667	10.81	15.750	0.94	21.83	0.24
3.667	0.24	9.750	10.81	15.833	0.94	21.92	0.24
3.750	0.24	9.833	10.81	15.917	0.94	22.00	0.24
3.833	0.24	9.917	10.81	16.000	0.94	22.08	0.24
3.917	0.24	10.000	10.81	16.083	0.94	22.17	0.24
4.000	0.24	10.083	10.81	16.167	0.94	22.25	0.24
4.083	0.24	10.167	10.81	16.250	0.94	22.33	0.24
4.167	0.24	10.250	10.81	16.333	0.47	22.42	0.24
4.250	0.24	10.333	3.06	16.417	0.47	22.50	0.24
4.333	1.41	10.417	3.06	16.500	0.47	22.58	0.24
4.417	1.41	10.500	3.06	16.583	0.47	22.67	0.24
4.500	1.41	10.583	3.06	16.667	0.47	22.75	0.24
4.583	1.41	10.667	3.06	16.750	0.47	22.83	0.24
4.667	1.41	10.750	3.06	16.833	0.47	22.92	0.24
4.750	1.41	10.833	3.06	16.917	0.47	23.00	0.24
4.833	1.41	10.917	3.06	17.000	0.47	23.08	0.24
4.917	1.41	11.000	3.06	17.083	0.47	23.17	0.24
5.000	1.41	11.083	3.06	17.167	0.47	23.25	0.24
5.083	1.41	11.167	3.06	17.250	0.47	23.33	0.24
5.167	1.41	11.250	3.06	17.333	0.47	23.42	0.24
5.250	1.41	11.333	3.06	17.417	0.47	23.50	0.24
5.333	1.41	11.417	3.06	17.500	0.47	23.58	0.24
5.417	1.41	11.500	3.06	17.583	0.47	23.67	0.24
5.500	1.41	11.583	3.06	17.667	0.47	23.75	0.24
5.583	1.41	11.667	3.06	17.750	0.47	23.83	0.24
5.667	1.41	11.750	3.06	17.833	0.47	23.92	0.24
5.750	1.41	11.833	3.06	17.917	0.47	24.00	0.24

5.833	1.41	11.917	3.06	18.000	0.47	24.08	0.24
5.917	1.41	12.000	3.06	18.083	0.47	24.17	0.24
6.000	1.41	12.083	3.06	18.167	0.47	24.25	0.24
6.083	1.41	12.167	3.06	18.250	0.47		

Unit Hyd Qpeak (cms)= 1.280

PEAK FLOW (cms)= 0.034 (i)
TIME TO PEAK (hrs)= 10.250
RUNOFF VOLUME (mm)= 10.221
TOTAL RAINFALL (mm)= 47.080
RUNOFF COEFFICIENT = 0.217

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB              |
| STANDHYD (  2502)|   Area    (ha)=   0.75
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  64.00
```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.48	0.27
Dep. Storage	(mm)=	1.00	2.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	70.71	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	6.167	1.41	12.250	3.06	18.33	0.24
0.167	0.00	6.250	1.41	12.333	1.65	18.42	0.24
0.250	0.00	6.333	4.00	12.417	1.65	18.50	0.24
0.333	0.24	6.417	4.00	12.500	1.65	18.58	0.24
0.417	0.24	6.500	4.00	12.583	1.65	18.67	0.24
0.500	0.24	6.583	4.00	12.667	1.65	18.75	0.24
0.583	0.24	6.667	4.00	12.750	1.65	18.83	0.24
0.667	0.24	6.750	4.00	12.833	1.65	18.92	0.24
0.750	0.24	6.833	4.00	12.917	1.65	19.00	0.24
0.833	0.24	6.917	4.00	13.000	1.65	19.08	0.24
0.917	0.24	7.000	4.00	13.083	1.65	19.17	0.24
1.000	0.24	7.083	4.00	13.167	1.65	19.25	0.24
1.083	0.24	7.167	4.00	13.250	1.65	19.33	0.24
1.167	0.24	7.250	4.00	13.333	1.65	19.42	0.24
1.250	0.24	7.333	4.00	13.417	1.65	19.50	0.24
1.333	0.24	7.417	4.00	13.500	1.65	19.58	0.24
1.417	0.24	7.500	4.00	13.583	1.65	19.67	0.24
1.500	0.24	7.583	4.00	13.667	1.65	19.75	0.24
1.583	0.24	7.667	4.00	13.750	1.65	19.83	0.24
1.667	0.24	7.750	4.00	13.833	1.65	19.92	0.24
1.750	0.24	7.833	4.00	13.917	1.65	20.00	0.24
1.833	0.24	7.917	4.00	14.000	1.65	20.08	0.24
1.917	0.24	8.000	4.00	14.083	1.65	20.17	0.24
2.000	0.24	8.083	4.00	14.167	1.65	20.25	0.24
2.083	0.24	8.167	4.00	14.250	1.65	20.33	0.24
2.167	0.24	8.250	4.00	14.333	0.94	20.42	0.24
2.250	0.24	8.333	10.81	14.417	0.94	20.50	0.24
2.333	0.24	8.417	10.81	14.500	0.94	20.58	0.24
2.417	0.24	8.500	10.81	14.583	0.94	20.67	0.24
2.500	0.24	8.583	10.81	14.667	0.94	20.75	0.24
2.583	0.24	8.667	10.81	14.750	0.94	20.83	0.24
2.667	0.24	8.750	10.81	14.833	0.94	20.92	0.24
2.750	0.24	8.833	10.81	14.917	0.94	21.00	0.24
2.833	0.24	8.917	10.81	15.000	0.94	21.08	0.24
2.917	0.24	9.000	10.81	15.083	0.94	21.17	0.24
3.000	0.24	9.083	10.81	15.167	0.94	21.25	0.24
3.083	0.24	9.167	10.81	15.250	0.94	21.33	0.24
3.167	0.24	9.250	10.81	15.333	0.94	21.42	0.24
3.250	0.24	9.333	10.81	15.417	0.94	21.50	0.24
3.333	0.24	9.417	10.81	15.500	0.94	21.58	0.24
3.417	0.24	9.500	10.81	15.583	0.94	21.67	0.24
3.500	0.24	9.583	10.81	15.667	0.94	21.75	0.24
3.583	0.24	9.667	10.81	15.750	0.94	21.83	0.24
3.667	0.24	9.750	10.81	15.833	0.94	21.92	0.24
3.750	0.24	9.833	10.81	15.917	0.94	22.00	0.24
3.833	0.24	9.917	10.81	16.000	0.94	22.08	0.24
3.917	0.24	10.000	10.81	16.083	0.94	22.17	0.24
4.000	0.24	10.083	10.81	16.167	0.94	22.25	0.24
4.083	0.24	10.167	10.81	16.250	0.94	22.33	0.24
4.167	0.24	10.250	10.81	16.333	0.47	22.42	0.24

4.250	0.24	10.333	3.06	16.417	0.47	22.50	0.24
4.333	1.41	10.417	3.06	16.500	0.47	22.58	0.24
4.417	1.41	10.500	3.06	16.583	0.47	22.67	0.24
4.500	1.41	10.583	3.06	16.667	0.47	22.75	0.24
4.583	1.41	10.667	3.06	16.750	0.47	22.83	0.24
4.667	1.41	10.750	3.06	16.833	0.47	22.92	0.24
4.750	1.41	10.833	3.06	16.917	0.47	23.00	0.24
4.833	1.41	10.917	3.06	17.000	0.47	23.08	0.24
4.917	1.41	11.000	3.06	17.083	0.47	23.17	0.24
5.000	1.41	11.083	3.06	17.167	0.47	23.25	0.24
5.083	1.41	11.167	3.06	17.250	0.47	23.33	0.24
5.167	1.41	11.250	3.06	17.333	0.47	23.42	0.24
5.250	1.41	11.333	3.06	17.417	0.47	23.50	0.24
5.333	1.41	11.417	3.06	17.500	0.47	23.58	0.24
5.417	1.41	11.500	3.06	17.583	0.47	23.67	0.24
5.500	1.41	11.583	3.06	17.667	0.47	23.75	0.24
5.583	1.41	11.667	3.06	17.750	0.47	23.83	0.24
5.667	1.41	11.750	3.06	17.833	0.47	23.92	0.24
5.750	1.41	11.833	3.06	17.917	0.47	24.00	0.24
5.833	1.41	11.917	3.06	18.000	0.47	24.08	0.24
5.917	1.41	12.000	3.06	18.083	0.47	24.17	0.24
6.000	1.41	12.083	3.06	18.167	0.47	24.25	0.24
6.083	1.41	12.167	3.06	18.250	0.47		

```
Max.Eff.Inten.(mm/hr)=      10.81         6.60
            over (min)       5.00        30.00
Storage Coeff.  (min)=       5.05 (ii)   25.99 (ii)
Unit Hyd. Tpeak (min)=       5.00        30.00
Unit Hyd. peak  (cms)=       0.21         0.04
                                                      *TOTALS*
PEAK FLOW       (cms)=       0.01         0.00          0.019 (iii)
TIME TO PEAK    (hrs)=       9.50        10.33          10.25
RUNOFF VOLUME    (mm)=      46.08        21.74          37.30
TOTAL RAINFALL   (mm)=      47.08        47.08          47.08
RUNOFF COEFFICIENT   =       0.98         0.46           0.79


   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
        CN*  =  84.0    Ia = Dep. Storage  (Above)
  (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
       THAN THE STORAGE COEFFICIENT.
 (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  7657)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2502):     0.75   0.019    10.25    37.30
      + ID2= 2 (  2503):     3.35   0.034    10.25    10.22
        ====================================================
        ID = 3 (  7657):     4.10   0.053    10.25    15.17

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2501)|   Area    (ha)=  56.41
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=  53.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      37.79        18.62
     Dep. Storage     (mm)=       1.00         2.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     613.24        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    0.00 | 6.167    1.41 |12.250    3.06 | 18.33    0.24
                0.167    0.00 | 6.250    1.41 |12.333    1.65 | 18.42    0.24
                0.250    0.00 | 6.333    4.00 |12.417    1.65 | 18.50    0.24
                0.333    0.24 | 6.417    4.00 |12.500    1.65 | 18.58    0.24
                0.417    0.24 | 6.500    4.00 |12.583    1.65 | 18.67    0.24
                0.500    0.24 | 6.583    4.00 |12.667    1.65 | 18.75    0.24
                0.583    0.24 | 6.667    4.00 |12.750    1.65 | 18.83    0.24
                0.667    0.24 | 6.750    4.00 |12.833    1.65 | 18.92    0.24
                0.750    0.24 | 6.833    4.00 |12.917    1.65 | 19.00    0.24
                0.833    0.24 | 6.917    4.00 |13.000    1.65 | 19.08    0.24
```

0.917	0.24	7.000	4.00	13.083	1.65	19.17	0.24
1.000	0.24	7.083	4.00	13.167	1.65	19.25	0.24
1.083	0.24	7.167	4.00	13.250	1.65	19.33	0.24
1.167	0.24	7.250	4.00	13.333	1.65	19.42	0.24
1.250	0.24	7.333	4.00	13.417	1.65	19.50	0.24
1.333	0.24	7.417	4.00	13.500	1.65	19.58	0.24
1.417	0.24	7.500	4.00	13.583	1.65	19.67	0.24
1.500	0.24	7.583	4.00	13.667	1.65	19.75	0.24
1.583	0.24	7.667	4.00	13.750	1.65	19.83	0.24
1.667	0.24	7.750	4.00	13.833	1.65	19.92	0.24
1.750	0.24	7.833	4.00	13.917	1.65	20.00	0.24
1.833	0.24	7.917	4.00	14.000	1.65	20.08	0.24
1.917	0.24	8.000	4.00	14.083	1.65	20.17	0.24
2.000	0.24	8.083	4.00	14.167	1.65	20.25	0.24
2.083	0.24	8.167	4.00	14.250	1.65	20.33	0.24
2.167	0.24	8.250	4.00	14.333	0.94	20.42	0.24
2.250	0.24	8.333	10.81	14.417	0.94	20.50	0.24
2.333	0.24	8.417	10.81	14.500	0.94	20.58	0.24
2.417	0.24	8.500	10.81	14.583	0.94	20.67	0.24
2.500	0.24	8.583	10.81	14.667	0.94	20.75	0.24
2.583	0.24	8.667	10.81	14.750	0.94	20.83	0.24
2.667	0.24	8.750	10.81	14.833	0.94	20.92	0.24
2.750	0.24	8.833	10.81	14.917	0.94	21.00	0.24
2.833	0.24	8.917	10.81	15.000	0.94	21.08	0.24
2.917	0.24	9.000	10.81	15.083	0.94	21.17	0.24
3.000	0.24	9.083	10.81	15.167	0.94	21.25	0.24
3.083	0.24	9.167	10.81	15.250	0.94	21.33	0.24
3.167	0.24	9.250	10.81	15.333	0.94	21.42	0.24
3.250	0.24	9.333	10.81	15.417	0.94	21.50	0.24
3.333	0.24	9.417	10.81	15.500	0.94	21.58	0.24
3.417	0.24	9.500	10.81	15.583	0.94	21.67	0.24
3.500	0.24	9.583	10.81	15.667	0.94	21.75	0.24
3.583	0.24	9.667	10.81	15.750	0.94	21.83	0.24
3.667	0.24	9.750	10.81	15.833	0.94	21.92	0.24
3.750	0.24	9.833	10.81	15.917	0.94	22.00	0.24
3.833	0.24	9.917	10.81	16.000	0.94	22.08	0.24
3.917	0.24	10.000	10.81	16.083	0.94	22.17	0.24
4.000	0.24	10.083	10.81	16.167	0.94	22.25	0.24
4.083	0.24	10.167	10.81	16.250	0.94	22.33	0.24
4.167	0.24	10.250	10.81	16.333	0.47	22.42	0.24
4.250	0.24	10.333	3.06	16.417	0.47	22.50	0.24
4.333	1.41	10.417	3.06	16.500	0.47	22.58	0.24
4.417	1.41	10.500	3.06	16.583	0.47	22.67	0.24
4.500	1.41	10.583	3.06	16.667	0.47	22.75	0.24
4.583	1.41	10.667	3.06	16.750	0.47	22.83	0.24
4.667	1.41	10.750	3.06	16.833	0.47	22.92	0.24
4.750	1.41	10.833	3.06	16.917	0.47	23.00	0.24
4.833	1.41	10.917	3.06	17.000	0.47	23.08	0.24
4.917	1.41	11.000	3.06	17.083	0.47	23.17	0.24
5.000	1.41	11.083	3.06	17.167	0.47	23.25	0.24
5.083	1.41	11.167	3.06	17.250	0.47	23.33	0.24
5.167	1.41	11.250	3.06	17.333	0.47	23.42	0.24
5.250	1.41	11.333	3.06	17.417	0.47	23.50	0.24
5.333	1.41	11.417	3.06	17.500	0.47	23.58	0.24
5.417	1.41	11.500	3.06	17.583	0.47	23.67	0.24
5.500	1.41	11.583	3.06	17.667	0.47	23.75	0.24
5.583	1.41	11.667	3.06	17.750	0.47	23.83	0.24
5.667	1.41	11.750	3.06	17.833	0.47	23.92	0.24
5.750	1.41	11.833	3.06	17.917	0.47	24.00	0.24
5.833	1.41	11.917	3.06	18.000	0.47	24.08	0.24
5.917	1.41	12.000	3.06	18.083	0.47	24.17	0.24
6.000	1.41	12.083	3.06	18.167	0.47	24.25	0.24
6.083	1.41	12.167	3.06	18.250	0.47		

			TOTALS
Max.Eff.Inten.(mm/hr)=	10.81	11.08	
over (min)	20.00	40.00	
Storage Coeff. (min)=	18.47 (ii)	35.48 (ii)	
Unit Hyd. Tpeak (min)=	20.00	40.00	
Unit Hyd. peak (cms)=	0.06	0.03	
PEAK FLOW (cms)=	0.90	0.49	1.380 (iii)
TIME TO PEAK (hrs)=	10.25	10.42	10.25
RUNOFF VOLUME (mm)=	46.08	26.19	36.73
TOTAL RAINFALL (mm)=	47.08	47.08	47.08
RUNOFF COEFFICIENT =	0.98	0.56	0.78

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 84.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0005)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000      0.0000   |    0.8850      2.2500
                           0.3800      1.1800   |    1.0150      2.5200
                           0.5750      1.6400   |    1.1700      2.7800
                           0.7050      1.9200   |    4.1670      6.2050

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2501)     56.410      1.380     10.25      36.73
   OUTFLOW: ID= 1 (  0005)     56.410      0.377     12.58      36.72

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 27.32
                   TIME SHIFT OF PEAK FLOW         (min)=140.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  1.1705

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  7656)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0005):    56.41   0.377    12.58    36.72
      + ID2= 2 (  7657):     4.10   0.053    10.25    15.17
        ====================================================
        ID = 3 (  7656):    60.51   0.392    12.25    35.26

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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********************************
** SIMULATION:2.2 5yr-12hr    **
********************************
--------------------
| CALIB            |
| NASHYD   (  2503)|   Area    (ha)=   3.35   Curve Number   (CN)= 73.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.10

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.26	6.250	7.07	9.33	0.54
0.167	0.00	3.250	3.26	6.333	3.81	9.42	0.54
0.250	0.00	3.333	9.25	6.417	3.81	9.50	0.54
0.333	0.54	3.417	9.25	6.500	3.81	9.58	0.54
0.417	0.54	3.500	9.25	6.583	3.81	9.67	0.54
0.500	0.54	3.583	9.25	6.667	3.81	9.75	0.54
0.583	0.54	3.667	9.25	6.750	3.81	9.83	0.54
0.667	0.54	3.750	9.25	6.833	3.81	9.92	0.54
0.750	0.54	3.833	9.25	6.917	3.81	10.00	0.54
0.833	0.54	3.917	9.25	7.000	3.81	10.08	0.54
0.917	0.54	4.000	9.25	7.083	3.81	10.17	0.54
1.000	0.54	4.083	9.25	7.167	3.81	10.25	0.54
1.083	0.54	4.167	9.25	7.250	3.81	10.33	0.54
1.167	0.54	4.250	9.25	7.333	2.18	10.42	0.54
1.250	0.54	4.333	25.02	7.417	2.18	10.50	0.54
1.333	0.54	4.417	25.02	7.500	2.18	10.58	0.54
1.417	0.54	4.500	25.02	7.583	2.18	10.67	0.54
1.500	0.54	4.583	25.02	7.667	2.18	10.75	0.54
1.583	0.54	4.667	25.02	7.750	2.18	10.83	0.54
1.667	0.54	4.750	25.02	7.833	2.18	10.92	0.54
1.750	0.54	4.833	25.02	7.917	2.18	11.00	0.54
1.833	0.54	4.917	25.02	8.000	2.18	11.08	0.54
1.917	0.54	5.000	25.02	8.083	2.18	11.17	0.54
2.000	0.54	5.083	25.02	8.167	2.18	11.25	0.54
2.083	0.54	5.167	25.02	8.250	2.18	11.33	0.54
2.167	0.54	5.250	25.02	8.333	1.09	11.42	0.54
2.250	0.54	5.333	7.07	8.417	1.09	11.50	0.54
2.333	3.26	5.417	7.07	8.500	1.09	11.58	0.54
2.417	3.26	5.500	7.07	8.583	1.09	11.67	0.54
2.500	3.26	5.583	7.07	8.667	1.09	11.75	0.54
2.583	3.26	5.667	7.07	8.750	1.09	11.83	0.54
2.667	3.26	5.750	7.07	8.833	1.09	11.92	0.54
2.750	3.26	5.833	7.07	8.917	1.09	12.00	0.54
2.833	3.26	5.917	7.07	9.000	1.09	12.08	0.54
2.917	3.26	6.000	7.07	9.083	1.09	12.17	0.54
3.000	3.26	6.083	7.07	9.167	1.09	12.25	0.54
3.083	3.26	6.167	7.07	9.250	1.09		

```
     Unit Hyd Qpeak  (cms)=   1.280

     PEAK FLOW       (cms)=   0.087 (i)
     TIME TO PEAK    (hrs)=   5.250
     RUNOFF VOLUME    (mm)=  13.869
     TOTAL RAINFALL   (mm)=  54.380
     RUNOFF COEFFICIENT   =   0.255

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2502)|   Area    (ha)=   0.75
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  64.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.48         0.27
     Dep. Storage     (mm)=       1.00         2.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      70.71        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    0.00 | 3.167    3.26 | 6.250    7.07 |  9.33    0.54
               0.167    0.00 | 3.250    3.26 | 6.333    3.81 |  9.42    0.54
               0.250    0.00 | 3.333    9.25 | 6.417    3.81 |  9.50    0.54
               0.333    0.54 | 3.417    9.25 | 6.500    3.81 |  9.58    0.54
               0.417    0.54 | 3.500    9.25 | 6.583    3.81 |  9.67    0.54
               0.500    0.54 | 3.583    9.25 | 6.667    3.81 |  9.75    0.54
               0.583    0.54 | 3.667    9.25 | 6.750    3.81 |  9.83    0.54
               0.667    0.54 | 3.750    9.25 | 6.833    3.81 |  9.92    0.54
               0.750    0.54 | 3.833    9.25 | 6.917    3.81 | 10.00    0.54
               0.833    0.54 | 3.917    9.25 | 7.000    3.81 | 10.08    0.54
               0.917    0.54 | 4.000    9.25 | 7.083    3.81 | 10.17    0.54
               1.000    0.54 | 4.083    9.25 | 7.167    3.81 | 10.25    0.54
               1.083    0.54 | 4.167    9.25 | 7.250    3.81 | 10.33    0.54
               1.167    0.54 | 4.250    9.25 | 7.333    2.18 | 10.42    0.54
               1.250    0.54 | 4.333   25.02 | 7.417    2.18 | 10.50    0.54
               1.333    0.54 | 4.417   25.02 | 7.500    2.18 | 10.58    0.54
               1.417    0.54 | 4.500   25.02 | 7.583    2.18 | 10.67    0.54
               1.500    0.54 | 4.583   25.02 | 7.667    2.18 | 10.75    0.54
               1.583    0.54 | 4.667   25.02 | 7.750    2.18 | 10.83    0.54
               1.667    0.54 | 4.750   25.02 | 7.833    2.18 | 10.92    0.54
               1.750    0.54 | 4.833   25.02 | 7.917    2.18 | 11.00    0.54
               1.833    0.54 | 4.917   25.02 | 8.000    2.18 | 11.08    0.54
               1.917    0.54 | 5.000   25.02 | 8.083    2.18 | 11.17    0.54
               2.000    0.54 | 5.083   25.02 | 8.167    2.18 | 11.25    0.54
               2.083    0.54 | 5.167   25.02 | 8.250    2.18 | 11.33    0.54
               2.167    0.54 | 5.250   25.02 | 8.333    1.09 | 11.42    0.54
               2.250    0.54 | 5.333    7.07 | 8.417    1.09 | 11.50    0.54
               2.333    3.26 | 5.417    7.07 | 8.500    1.09 | 11.58    0.54
               2.417    3.26 | 5.500    7.07 | 8.583    1.09 | 11.67    0.54
               2.500    3.26 | 5.583    7.07 | 8.667    1.09 | 11.75    0.54
               2.583    3.26 | 5.667    7.07 | 8.750    1.09 | 11.83    0.54
               2.667    3.26 | 5.750    7.07 | 8.833    1.09 | 11.92    0.54
               2.750    3.26 | 5.833    7.07 | 8.917    1.09 | 12.00    0.54
               2.833    3.26 | 5.917    7.07 | 9.000    1.09 | 12.08    0.54
               2.917    3.26 | 6.000    7.07 | 9.083    1.09 | 12.17    0.54
               3.000    3.26 | 6.083    7.07 | 9.167    1.09 | 12.25    0.54
               3.083    3.26 | 6.167    7.07 | 9.250    1.09 |

     Max.Eff.Inten.(mm/hr)=      25.02        16.27
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       3.61 (ii)   18.20 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.25         0.06
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.03         0.01         0.044 (iii)
     TIME TO PEAK    (hrs)=       5.08         5.33          5.25
     RUNOFF VOLUME    (mm)=      53.38        27.23         43.95
     TOTAL RAINFALL   (mm)=      54.38        54.38         54.38
     RUNOFF COEFFICIENT   =       0.98         0.50          0.81

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  84.0    Ia = Dep. Storage  (Above)
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      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  7657)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2502):     0.75   0.044     5.25    43.95
      + ID2= 2 (  2503):     3.35   0.087     5.25    13.87
        ==================================================
        ID = 3 (  7657):     4.10   0.131     5.25    19.37

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2501)|   Area    (ha)=  56.41
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=  53.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      37.79        18.62
     Dep. Storage     (mm)=       1.00         2.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     613.24        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    0.00 | 3.167    3.26 | 6.250    7.07 |  9.33    0.54
               0.167    0.00 | 3.250    3.26 | 6.333    3.81 |  9.42    0.54
               0.250    0.00 | 3.333    9.25 | 6.417    3.81 |  9.50    0.54
               0.333    0.54 | 3.417    9.25 | 6.500    3.81 |  9.58    0.54
               0.417    0.54 | 3.500    9.25 | 6.583    3.81 |  9.67    0.54
               0.500    0.54 | 3.583    9.25 | 6.667    3.81 |  9.75    0.54
               0.583    0.54 | 3.667    9.25 | 6.750    3.81 |  9.83    0.54
               0.667    0.54 | 3.750    9.25 | 6.833    3.81 |  9.92    0.54
               0.750    0.54 | 3.833    9.25 | 6.917    3.81 | 10.00    0.54
               0.833    0.54 | 3.917    9.25 | 7.000    3.81 | 10.08    0.54
               0.917    0.54 | 4.000    9.25 | 7.083    3.81 | 10.17    0.54
               1.000    0.54 | 4.083    9.25 | 7.167    3.81 | 10.25    0.54
               1.083    0.54 | 4.167    9.25 | 7.250    3.81 | 10.33    0.54
               1.167    0.54 | 4.250    9.25 | 7.333    2.18 | 10.42    0.54
               1.250    0.54 | 4.333   25.02 | 7.417    2.18 | 10.50    0.54
               1.333    0.54 | 4.417   25.02 | 7.500    2.18 | 10.58    0.54
               1.417    0.54 | 4.500   25.02 | 7.583    2.18 | 10.67    0.54
               1.500    0.54 | 4.583   25.02 | 7.667    2.18 | 10.75    0.54
               1.583    0.54 | 4.667   25.02 | 7.750    2.18 | 10.83    0.54
               1.667    0.54 | 4.750   25.02 | 7.833    2.18 | 10.92    0.54
               1.750    0.54 | 4.833   25.02 | 7.917    2.18 | 11.00    0.54
               1.833    0.54 | 4.917   25.02 | 8.000    2.18 | 11.08    0.54
               1.917    0.54 | 5.000   25.02 | 8.083    2.18 | 11.17    0.54
               2.000    0.54 | 5.083   25.02 | 8.167    2.18 | 11.25    0.54
               2.083    0.54 | 5.167   25.02 | 8.250    2.18 | 11.33    0.54
               2.167    0.54 | 5.250   25.02 | 8.333    1.09 | 11.42    0.54
               2.250    0.54 | 5.333    7.07 | 8.417    1.09 | 11.50    0.54
               2.333    3.26 | 5.417    7.07 | 8.500    1.09 | 11.58    0.54
               2.417    3.26 | 5.500    7.07 | 8.583    1.09 | 11.67    0.54
               2.500    3.26 | 5.583    7.07 | 8.667    1.09 | 11.75    0.54
               2.583    3.26 | 5.667    7.07 | 8.750    1.09 | 11.83    0.54
               2.667    3.26 | 5.750    7.07 | 8.833    1.09 | 11.92    0.54
               2.750    3.26 | 5.833    7.07 | 8.917    1.09 | 12.00    0.54
               2.833    3.26 | 5.917    7.07 | 9.000    1.09 | 12.08    0.54
               2.917    3.26 | 6.000    7.07 | 9.083    1.09 | 12.17    0.54
               3.000    3.26 | 6.083    7.07 | 9.167    1.09 | 12.25    0.54
               3.083    3.26 | 6.167    7.07 | 9.250    1.09 |

     Max.Eff.Inten.(mm/hr)=      25.02        26.74
                over (min)       15.00        30.00
     Storage Coeff.  (min)=      13.20 (ii)   25.16 (ii)
     Unit Hyd. Tpeak (min)=      15.00        30.00
     Unit Hyd. peak  (cms)=       0.08         0.04
                                                          *TOTALS*
     PEAK FLOW       (cms)=       2.06         1.08         3.093 (iii)
     TIME TO PEAK    (hrs)=       5.25         5.42          5.25
     RUNOFF VOLUME    (mm)=      53.38        32.28         43.46
     TOTAL RAINFALL   (mm)=      54.38        54.38         54.38
     RUNOFF COEFFICIENT   =       0.98         0.59          0.80
```

```
       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  84.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0005)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000      0.0000   |    0.8850      2.2500
                           0.3800      1.1800   |    1.0150      2.5200
                           0.5750      1.6400   |    1.1700      2.7800
                           0.7050      1.9200   |    4.1670      6.2050

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2501)     56.410      3.093      5.25      43.46
   OUTFLOW: ID= 1 (  0005)     56.410      0.574      7.33      43.45

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 18.56
                   TIME SHIFT OF PEAK FLOW         (min)=125.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  1.6380

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--------------------
| ADD HYD  (  7656)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0005):    56.41   0.574     7.33    43.45
      + ID2= 2 (  7657):     4.10   0.131     5.25    19.37
        ===================================================
        ID = 3 (  7656):    60.51   0.599     7.25    41.82

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
********************************
** SIMULATION:2.3 10yr-12hr   **
********************************
--------------------
| CALIB            |
| NASHYD   (  2503)|   Area    (ha)=   3.35   Curve Number   (CN)= 73.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.10

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    0.00 | 3.167    3.76 | 6.250    8.15 |  9.33    0.63
                0.167    0.00 | 3.250    3.76 | 6.333    4.39 |  9.42    0.63
                0.250    0.00 | 3.333   10.66 | 6.417    4.39 |  9.50    0.63
                0.333    0.63 | 3.417   10.66 | 6.500    4.39 |  9.58    0.63
                0.417    0.63 | 3.500   10.66 | 6.583    4.39 |  9.67    0.63
                0.500    0.63 | 3.583   10.66 | 6.667    4.39 |  9.75    0.63
                0.583    0.63 | 3.667   10.66 | 6.750    4.39 |  9.83    0.63
                0.667    0.63 | 3.750   10.66 | 6.833    4.39 |  9.92    0.63
                0.750    0.63 | 3.833   10.66 | 6.917    4.39 | 10.00    0.63
                0.833    0.63 | 3.917   10.66 | 7.000    4.39 | 10.08    0.63
                0.917    0.63 | 4.000   10.66 | 7.083    4.39 | 10.17    0.63
                1.000    0.63 | 4.083   10.66 | 7.167    4.39 | 10.25    0.63
                1.083    0.63 | 4.167   10.66 | 7.250    4.39 | 10.33    0.63
                1.167    0.63 | 4.250   10.66 | 7.333    2.51 | 10.42    0.63
                1.250    0.63 | 4.333   28.84 | 7.417    2.51 | 10.50    0.63
                1.333    0.63 | 4.417   28.84 | 7.500    2.51 | 10.58    0.63
                1.417    0.63 | 4.500   28.84 | 7.583    2.51 | 10.67    0.63
                1.500    0.63 | 4.583   28.84 | 7.667    2.51 | 10.75    0.63
                1.583    0.63 | 4.667   28.84 | 7.750    2.51 | 10.83    0.63
                1.667    0.63 | 4.750   28.84 | 7.833    2.51 | 10.92    0.63
                1.750    0.63 | 4.833   28.84 | 7.917    2.51 | 11.00    0.63
                1.833    0.63 | 4.917   28.84 | 8.000    2.51 | 11.08    0.63
                1.917    0.63 | 5.000   28.84 | 8.083    2.51 | 11.17    0.63
                2.000    0.63 | 5.083   28.84 | 8.167    2.51 | 11.25    0.63
                2.083    0.63 | 5.167   28.84 | 8.250    2.51 | 11.33    0.63
                2.167    0.63 | 5.250   28.84 | 8.333    1.25 | 11.42    0.63
                2.250    0.63 | 5.333    8.15 | 8.417    1.25 | 11.50    0.63
                2.333    3.76 | 5.417    8.15 | 8.500    1.25 | 11.58    0.63
```

2.417	3.76	5.500	8.15	8.583	1.25	11.67	0.63
2.500	3.76	5.583	8.15	8.667	1.25	11.75	0.63
2.583	3.76	5.667	8.15	8.750	1.25	11.83	0.63
2.667	3.76	5.750	8.15	8.833	1.25	11.92	0.63
2.750	3.76	5.833	8.15	8.917	1.25	12.00	0.63
2.833	3.76	5.917	8.15	9.000	1.25	12.08	0.63
2.917	3.76	6.000	8.15	9.083	1.25	12.17	0.63
3.000	3.76	6.083	8.15	9.167	1.25	12.25	0.63
3.083	3.76	6.167	8.15	9.250	1.25		

Unit Hyd Qpeak (cms)= 1.280

PEAK FLOW (cms)= 0.114 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 18.452
TOTAL RAINFALL (mm)= 62.710
RUNOFF COEFFICIENT = 0.294

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB              |
| STANDHYD (  2502)|   Area    (ha)=   0.75
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  64.00
```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.48	0.27
Dep. Storage	(mm)=	1.00	2.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	70.71	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.76	6.250	8.15	9.33	0.63
0.167	0.00	3.250	3.76	6.333	4.39	9.42	0.63
0.250	0.00	3.333	10.66	6.417	4.39	9.50	0.63
0.333	0.63	3.417	10.66	6.500	4.39	9.58	0.63
0.417	0.63	3.500	10.66	6.583	4.39	9.67	0.63
0.500	0.63	3.583	10.66	6.667	4.39	9.75	0.63
0.583	0.63	3.667	10.66	6.750	4.39	9.83	0.63
0.667	0.63	3.750	10.66	6.833	4.39	9.92	0.63
0.750	0.63	3.833	10.66	6.917	4.39	10.00	0.63
0.833	0.63	3.917	10.66	7.000	4.39	10.08	0.63
0.917	0.63	4.000	10.66	7.083	4.39	10.17	0.63
1.000	0.63	4.083	10.66	7.167	4.39	10.25	0.63
1.083	0.63	4.167	10.66	7.250	4.39	10.33	0.63
1.167	0.63	4.250	10.66	7.333	2.51	10.42	0.63
1.250	0.63	4.333	28.84	7.417	2.51	10.50	0.63
1.333	0.63	4.417	28.84	7.500	2.51	10.58	0.63
1.417	0.63	4.500	28.84	7.583	2.51	10.67	0.63
1.500	0.63	4.583	28.84	7.667	2.51	10.75	0.63
1.583	0.63	4.667	28.84	7.750	2.51	10.83	0.63
1.667	0.63	4.750	28.84	7.833	2.51	10.92	0.63
1.750	0.63	4.833	28.84	7.917	2.51	11.00	0.63
1.833	0.63	4.917	28.84	8.000	2.51	11.08	0.63
1.917	0.63	5.000	28.84	8.083	2.51	11.17	0.63
2.000	0.63	5.083	28.84	8.167	2.51	11.25	0.63
2.083	0.63	5.167	28.84	8.250	2.51	11.33	0.63
2.167	0.63	5.250	28.84	8.333	1.25	11.42	0.63
2.250	0.63	5.333	8.15	8.417	1.25	11.50	0.63
2.333	3.76	5.417	8.15	8.500	1.25	11.58	0.63
2.417	3.76	5.500	8.15	8.583	1.25	11.67	0.63
2.500	3.76	5.583	8.15	8.667	1.25	11.75	0.63
2.583	3.76	5.667	8.15	8.750	1.25	11.83	0.63
2.667	3.76	5.750	8.15	8.833	1.25	11.92	0.63
2.750	3.76	5.833	8.15	8.917	1.25	12.00	0.63
2.833	3.76	5.917	8.15	9.000	1.25	12.08	0.63
2.917	3.76	6.000	8.15	9.083	1.25	12.17	0.63
3.000	3.76	6.083	8.15	9.167	1.25	12.25	0.63
3.083	3.76	6.167	8.15	9.250	1.25		

Max.Eff.Inten.(mm/hr)=		28.84	19.97
over (min)		5.00	20.00
Storage Coeff. (min)=		3.41 (ii)	16.86 (ii)
Unit Hyd. Tpeak (min)=		5.00	20.00
Unit Hyd. peak (cms)=		0.26	0.06
			TOTALS
PEAK FLOW (cms)=		0.04	0.01	0.051 (iii)

```
     TIME TO PEAK    (hrs)=       5.08         5.33           5.25
     RUNOFF VOLUME    (mm)=      61.71        33.79          51.64
     TOTAL RAINFALL   (mm)=      62.71        62.71          62.71
     RUNOFF COEFFICIENT   =       0.98         0.54           0.82

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  84.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  7657)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2502):     0.75   0.051     5.25    51.64
      + ID2= 2 (  2503):     3.35   0.114     5.25    18.45
        ===================================================
        ID = 3 (  7657):     4.10   0.165     5.25    24.52

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2501)|   Area    (ha)=  56.41
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=  53.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      37.79        18.62
     Dep. Storage     (mm)=       1.00         2.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     613.24        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    0.00 | 3.167    3.76 | 6.250    8.15 |  9.33    0.63
                0.167    0.00 | 3.250    3.76 | 6.333    4.39 |  9.42    0.63
                0.250    0.00 | 3.333   10.66 | 6.417    4.39 |  9.50    0.63
                0.333    0.63 | 3.417   10.66 | 6.500    4.39 |  9.58    0.63
                0.417    0.63 | 3.500   10.66 | 6.583    4.39 |  9.67    0.63
                0.500    0.63 | 3.583   10.66 | 6.667    4.39 |  9.75    0.63
                0.583    0.63 | 3.667   10.66 | 6.750    4.39 |  9.83    0.63
                0.667    0.63 | 3.750   10.66 | 6.833    4.39 |  9.92    0.63
                0.750    0.63 | 3.833   10.66 | 6.917    4.39 | 10.00    0.63
                0.833    0.63 | 3.917   10.66 | 7.000    4.39 | 10.08    0.63
                0.917    0.63 | 4.000   10.66 | 7.083    4.39 | 10.17    0.63
                1.000    0.63 | 4.083   10.66 | 7.167    4.39 | 10.25    0.63
                1.083    0.63 | 4.167   10.66 | 7.250    4.39 | 10.33    0.63
                1.167    0.63 | 4.250   10.66 | 7.333    2.51 | 10.42    0.63
                1.250    0.63 | 4.333   28.84 | 7.417    2.51 | 10.50    0.63
                1.333    0.63 | 4.417   28.84 | 7.500    2.51 | 10.58    0.63
                1.417    0.63 | 4.500   28.84 | 7.583    2.51 | 10.67    0.63
                1.500    0.63 | 4.583   28.84 | 7.667    2.51 | 10.75    0.63
                1.583    0.63 | 4.667   28.84 | 7.750    2.51 | 10.83    0.63
                1.667    0.63 | 4.750   28.84 | 7.833    2.51 | 10.92    0.63
                1.750    0.63 | 4.833   28.84 | 7.917    2.51 | 11.00    0.63
                1.833    0.63 | 4.917   28.84 | 8.000    2.51 | 11.08    0.63
                1.917    0.63 | 5.000   28.84 | 8.083    2.51 | 11.17    0.63
                2.000    0.63 | 5.083   28.84 | 8.167    2.51 | 11.25    0.63
                2.083    0.63 | 5.167   28.84 | 8.250    2.51 | 11.33    0.63
                2.167    0.63 | 5.250   28.84 | 8.333    1.25 | 11.42    0.63
                2.250    0.63 | 5.333    8.15 | 8.417    1.25 | 11.50    0.63
                2.333    3.76 | 5.417    8.15 | 8.500    1.25 | 11.58    0.63
                2.417    3.76 | 5.500    8.15 | 8.583    1.25 | 11.67    0.63
                2.500    3.76 | 5.583    8.15 | 8.667    1.25 | 11.75    0.63
                2.583    3.76 | 5.667    8.15 | 8.750    1.25 | 11.83    0.63
                2.667    3.76 | 5.750    8.15 | 8.833    1.25 | 11.92    0.63
                2.750    3.76 | 5.833    8.15 | 8.917    1.25 | 12.00    0.63
                2.833    3.76 | 5.917    8.15 | 9.000    1.25 | 12.08    0.63
                2.917    3.76 | 6.000    8.15 | 9.083    1.25 | 12.17    0.63
                3.000    3.76 | 6.083    8.15 | 9.167    1.25 | 12.25    0.63
                3.083    3.76 | 6.167    8.15 | 9.250    1.25 |

     Max.Eff.Inten.(mm/hr)=      28.84        32.28
                over (min)       10.00        25.00
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```
     Storage Coeff.  (min)=      12.47 (ii)   23.57 (ii)
     Unit Hyd. Tpeak (min)=      10.00        25.00
     Unit Hyd. peak  (cms)=       0.10         0.05
                                                          *TOTALS*
     PEAK FLOW       (cms)=       2.38         1.37         3.722 (iii)
     TIME TO PEAK    (hrs)=       5.25         5.33          5.25
     RUNOFF VOLUME    (mm)=      61.71        39.45         51.25
     TOTAL RAINFALL   (mm)=      62.71        62.71         62.71
     RUNOFF COEFFICIENT   =       0.98         0.63          0.82


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  84.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0005)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000      0.0000   |    0.8850      2.2500
                           0.3800      1.1800   |    1.0150      2.5200
                           0.5750      1.6400   |    1.1700      2.7800
                           0.7050      1.9200   |    4.1670      6.2050

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2501)     56.410      3.722      5.25      51.25
   OUTFLOW: ID= 1 (  0005)     56.410      0.703      7.08      51.23

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 18.90
                   TIME SHIFT OF PEAK FLOW         (min)=110.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  1.9163

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--------------------
| ADD HYD  (  7656)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0005):    56.41   0.703     7.08    51.23
      + ID2= 2 (  7657):     4.10   0.165     5.25    24.52
        ===================================================
        ID = 3 (  7656):    60.51   0.734     7.17    49.42

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
*********************************
** SIMULATION:2.4 25yr-12hr   **
*********************************
--------------------
| CALIB            |
| NASHYD   (  2503)|   Area    (ha)=   3.35   Curve Number   (CN)= 73.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.10

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.083    0.00 | 3.167    4.39 | 6.250    9.50 |  9.33    0.73
                 0.167    0.00 | 3.250    4.39 | 6.333    5.12 |  9.42    0.73
                 0.250    0.00 | 3.333   12.43 | 6.417    5.12 |  9.50    0.73
                 0.333    0.73 | 3.417   12.43 | 6.500    5.12 |  9.58    0.73
                 0.417    0.73 | 3.500   12.43 | 6.583    5.12 |  9.67    0.73
                 0.500    0.73 | 3.583   12.43 | 6.667    5.12 |  9.75    0.73
                 0.583    0.73 | 3.667   12.43 | 6.750    5.12 |  9.83    0.73
                 0.667    0.73 | 3.750   12.43 | 6.833    5.12 |  9.92    0.73
                 0.750    0.73 | 3.833   12.43 | 6.917    5.12 | 10.00    0.73
                 0.833    0.73 | 3.917   12.43 | 7.000    5.12 | 10.08    0.73
                 0.917    0.73 | 4.000   12.43 | 7.083    5.12 | 10.17    0.73
                 1.000    0.73 | 4.083   12.43 | 7.167    5.12 | 10.25    0.73
                 1.083    0.73 | 4.167   12.43 | 7.250    5.12 | 10.33    0.73
                 1.167    0.73 | 4.250   12.43 | 7.333    2.92 | 10.42    0.73
                 1.250    0.73 | 4.333   33.63 | 7.417    2.92 | 10.50    0.73
                 1.333    0.73 | 4.417   33.63 | 7.500    2.92 | 10.58    0.73
                 1.417    0.73 | 4.500   33.63 | 7.583    2.92 | 10.67    0.73
                 1.500    0.73 | 4.583   33.63 | 7.667    2.92 | 10.75    0.73
                 1.583    0.73 | 4.667   33.63 | 7.750    2.92 | 10.83    0.73
```

1.667	0.73	4.750	33.63	7.833	2.92	10.92	0.73
1.750	0.73	4.833	33.63	7.917	2.92	11.00	0.73
1.833	0.73	4.917	33.63	8.000	2.92	11.08	0.73
1.917	0.73	5.000	33.63	8.083	2.92	11.17	0.73
2.000	0.73	5.083	33.63	8.167	2.92	11.25	0.73
2.083	0.73	5.167	33.63	8.250	2.92	11.33	0.73
2.167	0.73	5.250	33.63	8.333	1.46	11.42	0.73
2.250	0.73	5.333	9.50	8.417	1.46	11.50	0.73
2.333	4.39	5.417	9.50	8.500	1.46	11.58	0.73
2.417	4.39	5.500	9.50	8.583	1.46	11.67	0.73
2.500	4.39	5.583	9.50	8.667	1.46	11.75	0.73
2.583	4.39	5.667	9.50	8.750	1.46	11.83	0.73
2.667	4.39	5.750	9.50	8.833	1.46	11.92	0.73
2.750	4.39	5.833	9.50	8.917	1.46	12.00	0.73
2.833	4.39	5.917	9.50	9.000	1.46	12.08	0.73
2.917	4.39	6.000	9.50	9.083	1.46	12.17	0.73
3.000	4.39	6.083	9.50	9.167	1.46	12.25	0.73
3.083	4.39	6.167	9.50	9.250	1.46		

Unit Hyd Qpeak (cms)= 1.280

PEAK FLOW (cms)= 0.150 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 24.694
TOTAL RAINFALL (mm)= 73.100
RUNOFF COEFFICIENT = 0.338

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  2502)|   Area    (ha)=   0.75
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  64.00
--------------------
```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.48	0.27
Dep. Storage	(mm)=	1.00	2.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	70.71	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	4.39	6.250	9.50	9.33	0.73
0.167	0.00	3.250	4.39	6.333	5.12	9.42	0.73
0.250	0.00	3.333	12.43	6.417	5.12	9.50	0.73
0.333	0.73	3.417	12.43	6.500	5.12	9.58	0.73
0.417	0.73	3.500	12.43	6.583	5.12	9.67	0.73
0.500	0.73	3.583	12.43	6.667	5.12	9.75	0.73
0.583	0.73	3.667	12.43	6.750	5.12	9.83	0.73
0.667	0.73	3.750	12.43	6.833	5.12	9.92	0.73
0.750	0.73	3.833	12.43	6.917	5.12	10.00	0.73
0.833	0.73	3.917	12.43	7.000	5.12	10.08	0.73
0.917	0.73	4.000	12.43	7.083	5.12	10.17	0.73
1.000	0.73	4.083	12.43	7.167	5.12	10.25	0.73
1.083	0.73	4.167	12.43	7.250	5.12	10.33	0.73
1.167	0.73	4.250	12.43	7.333	2.92	10.42	0.73
1.250	0.73	4.333	33.63	7.417	2.92	10.50	0.73
1.333	0.73	4.417	33.63	7.500	2.92	10.58	0.73
1.417	0.73	4.500	33.63	7.583	2.92	10.67	0.73
1.500	0.73	4.583	33.63	7.667	2.92	10.75	0.73
1.583	0.73	4.667	33.63	7.750	2.92	10.83	0.73
1.667	0.73	4.750	33.63	7.833	2.92	10.92	0.73
1.750	0.73	4.833	33.63	7.917	2.92	11.00	0.73
1.833	0.73	4.917	33.63	8.000	2.92	11.08	0.73
1.917	0.73	5.000	33.63	8.083	2.92	11.17	0.73
2.000	0.73	5.083	33.63	8.167	2.92	11.25	0.73
2.083	0.73	5.167	33.63	8.250	2.92	11.33	0.73
2.167	0.73	5.250	33.63	8.333	1.46	11.42	0.73
2.250	0.73	5.333	9.50	8.417	1.46	11.50	0.73
2.333	4.39	5.417	9.50	8.500	1.46	11.58	0.73
2.417	4.39	5.500	9.50	8.583	1.46	11.67	0.73
2.500	4.39	5.583	9.50	8.667	1.46	11.75	0.73
2.583	4.39	5.667	9.50	8.750	1.46	11.83	0.73
2.667	4.39	5.750	9.50	8.833	1.46	11.92	0.73
2.750	4.39	5.833	9.50	8.917	1.46	12.00	0.73
2.833	4.39	5.917	9.50	9.000	1.46	12.08	0.73
2.917	4.39	6.000	9.50	9.083	1.46	12.17	0.73
3.000	4.39	6.083	9.50	9.167	1.46	12.25	0.73

```
                3.083    4.39 | 6.167    9.50 | 9.250    1.46 |

     Max.Eff.Inten.(mm/hr)=      33.63        24.72
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       3.21 (ii)   15.55 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.27         0.07
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.04         0.02         0.061 (iii)
     TIME TO PEAK    (hrs)=       5.08         5.25          5.25
     RUNOFF VOLUME    (mm)=      72.10        42.31         61.36
     TOTAL RAINFALL   (mm)=      73.10        73.10         73.10
     RUNOFF COEFFICIENT   =       0.99         0.58          0.84

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  84.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  7657)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2502):     0.75   0.061     5.25    61.36
      + ID2= 2 (  2503):     3.35   0.150     5.25    24.69
        ====================================================
        ID = 3 (  7657):     4.10   0.212     5.25    31.40

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2501)|   Area    (ha)=  56.41
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=  53.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      37.79        18.62
     Dep. Storage     (mm)=       1.00         2.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     613.24        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    0.00 | 3.167    4.39 | 6.250    9.50 |  9.33    0.73
                0.167    0.00 | 3.250    4.39 | 6.333    5.12 |  9.42    0.73
                0.250    0.00 | 3.333   12.43 | 6.417    5.12 |  9.50    0.73
                0.333    0.73 | 3.417   12.43 | 6.500    5.12 |  9.58    0.73
                0.417    0.73 | 3.500   12.43 | 6.583    5.12 |  9.67    0.73
                0.500    0.73 | 3.583   12.43 | 6.667    5.12 |  9.75    0.73
                0.583    0.73 | 3.667   12.43 | 6.750    5.12 |  9.83    0.73
                0.667    0.73 | 3.750   12.43 | 6.833    5.12 |  9.92    0.73
                0.750    0.73 | 3.833   12.43 | 6.917    5.12 | 10.00    0.73
                0.833    0.73 | 3.917   12.43 | 7.000    5.12 | 10.08    0.73
                0.917    0.73 | 4.000   12.43 | 7.083    5.12 | 10.17    0.73
                1.000    0.73 | 4.083   12.43 | 7.167    5.12 | 10.25    0.73
                1.083    0.73 | 4.167   12.43 | 7.250    5.12 | 10.33    0.73
                1.167    0.73 | 4.250   12.43 | 7.333    2.92 | 10.42    0.73
                1.250    0.73 | 4.333   33.63 | 7.417    2.92 | 10.50    0.73
                1.333    0.73 | 4.417   33.63 | 7.500    2.92 | 10.58    0.73
                1.417    0.73 | 4.500   33.63 | 7.583    2.92 | 10.67    0.73
                1.500    0.73 | 4.583   33.63 | 7.667    2.92 | 10.75    0.73
                1.583    0.73 | 4.667   33.63 | 7.750    2.92 | 10.83    0.73
                1.667    0.73 | 4.750   33.63 | 7.833    2.92 | 10.92    0.73
                1.750    0.73 | 4.833   33.63 | 7.917    2.92 | 11.00    0.73
                1.833    0.73 | 4.917   33.63 | 8.000    2.92 | 11.08    0.73
                1.917    0.73 | 5.000   33.63 | 8.083    2.92 | 11.17    0.73
                2.000    0.73 | 5.083   33.63 | 8.167    2.92 | 11.25    0.73
                2.083    0.73 | 5.167   33.63 | 8.250    2.92 | 11.33    0.73
                2.167    0.73 | 5.250   33.63 | 8.333    1.46 | 11.42    0.73
                2.250    0.73 | 5.333    9.50 | 8.417    1.46 | 11.50    0.73
                2.333    4.39 | 5.417    9.50 | 8.500    1.46 | 11.58    0.73
                2.417    4.39 | 5.500    9.50 | 8.583    1.46 | 11.67    0.73
                2.500    4.39 | 5.583    9.50 | 8.667    1.46 | 11.75    0.73
                2.583    4.39 | 5.667    9.50 | 8.750    1.46 | 11.83    0.73
```

2.667	4.39	5.750	9.50	8.833	1.46	11.92	0.73
2.750	4.39	5.833	9.50	8.917	1.46	12.00	0.73
2.833	4.39	5.917	9.50	9.000	1.46	12.08	0.73
2.917	4.39	6.000	9.50	9.083	1.46	12.17	0.73
3.000	4.39	6.083	9.50	9.167	1.46	12.25	0.73
3.083	4.39	6.167	9.50	9.250	1.46		

```
     Max.Eff.Inten.(mm/hr)=      33.63        39.30
                over (min)       10.00        25.00
     Storage Coeff.  (min)=      11.73 (ii)   21.98 (ii)
     Unit Hyd. Tpeak (min)=      10.00        25.00
     Unit Hyd. peak  (cms)=       0.10         0.05
                                                          *TOTALS*
     PEAK FLOW       (cms)=       2.78         1.71          4.468 (iii)
     TIME TO PEAK    (hrs)=       5.25         5.33           5.25
     RUNOFF VOLUME    (mm)=      72.10        48.65          61.08
     TOTAL RAINFALL   (mm)=      73.10        73.10          73.10
     RUNOFF COEFFICIENT   =       0.99         0.67           0.84


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  84.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0005)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000      0.0000   |    0.8850      2.2500
                           0.3800      1.1800   |    1.0150      2.5200
                           0.5750      1.6400   |    1.1700      2.7800
                           0.7050      1.9200   |    4.1670      6.2050

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2501)     56.410      4.468      5.25      61.08
   OUTFLOW: ID= 1 (  0005)     56.410      0.890      6.83      61.06

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 19.91
                   TIME SHIFT OF PEAK FLOW         (min)= 95.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  2.2599

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  7656)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0005):    56.41   0.890     6.83    61.06
      + ID2= 2 (  7657):     4.10   0.212     5.25    31.40
        ==================================================
        ID = 3 (  7656):    60.51   0.928     6.83    59.05

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
********************************
** SIMULATION:2.5 50yr-12hr   **
********************************
--------------------
| CALIB            |
| NASHYD   (  2503)|   Area    (ha)=   3.35   Curve Number   (CN)= 73.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.10

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.083    0.00 | 3.167    4.85 | 6.250   10.50 |  9.33    0.81
                 0.167    0.00 | 3.250    4.85 | 6.333    5.66 |  9.42    0.81
                 0.250    0.00 | 3.333   13.74 | 6.417    5.66 |  9.50    0.81
                 0.333    0.81 | 3.417   13.74 | 6.500    5.66 |  9.58    0.81
                 0.417    0.81 | 3.500   13.74 | 6.583    5.66 |  9.67    0.81
                 0.500    0.81 | 3.583   13.74 | 6.667    5.66 |  9.75    0.81
                 0.583    0.81 | 3.667   13.74 | 6.750    5.66 |  9.83    0.81
                 0.667    0.81 | 3.750   13.74 | 6.833    5.66 |  9.92    0.81
                 0.750    0.81 | 3.833   13.74 | 6.917    5.66 | 10.00    0.81
                 0.833    0.81 | 3.917   13.74 | 7.000    5.66 | 10.08    0.81
```

0.917	0.81	4.000	13.74	7.083	5.66	10.17	0.81
1.000	0.81	4.083	13.74	7.167	5.66	10.25	0.81
1.083	0.81	4.167	13.74	7.250	5.66	10.33	0.81
1.167	0.81	4.250	13.74	7.333	3.23	10.42	0.81
1.250	0.81	4.333	37.17	7.417	3.23	10.50	0.81
1.333	0.81	4.417	37.17	7.500	3.23	10.58	0.81
1.417	0.81	4.500	37.17	7.583	3.23	10.67	0.81
1.500	0.81	4.583	37.17	7.667	3.23	10.75	0.81
1.583	0.81	4.667	37.17	7.750	3.23	10.83	0.81
1.667	0.81	4.750	37.17	7.833	3.23	10.92	0.81
1.750	0.81	4.833	37.17	7.917	3.23	11.00	0.81
1.833	0.81	4.917	37.17	8.000	3.23	11.08	0.81
1.917	0.81	5.000	37.17	8.083	3.23	11.17	0.81
2.000	0.81	5.083	37.17	8.167	3.23	11.25	0.81
2.083	0.81	5.167	37.17	8.250	3.23	11.33	0.81
2.167	0.81	5.250	37.17	8.333	1.62	11.42	0.81
2.250	0.81	5.333	10.50	8.417	1.62	11.50	0.81
2.333	4.85	5.417	10.50	8.500	1.62	11.58	0.81
2.417	4.85	5.500	10.50	8.583	1.62	11.67	0.81
2.500	4.85	5.583	10.50	8.667	1.62	11.75	0.81
2.583	4.85	5.667	10.50	8.750	1.62	11.83	0.81
2.667	4.85	5.750	10.50	8.833	1.62	11.92	0.81
2.750	4.85	5.833	10.50	8.917	1.62	12.00	0.81
2.833	4.85	5.917	10.50	9.000	1.62	12.08	0.81
2.917	4.85	6.000	10.50	9.083	1.62	12.17	0.81
3.000	4.85	6.083	10.50	9.167	1.62	12.25	0.81
3.083	4.85	6.167	10.50	9.250	1.62		

Unit Hyd Qpeak (cms)= 1.280

PEAK FLOW (cms)= 0.178 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 29.649
TOTAL RAINFALL (mm)= 80.820
RUNOFF COEFFICIENT = 0.367

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB              |
| STANDHYD (  2502)|   Area    (ha)=   0.75
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  64.00
```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.48	0.27
Dep. Storage	(mm)=	1.00	2.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	70.71	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	4.85	6.250	10.50	9.33	0.81
0.167	0.00	3.250	4.85	6.333	5.66	9.42	0.81
0.250	0.00	3.333	13.74	6.417	5.66	9.50	0.81
0.333	0.81	3.417	13.74	6.500	5.66	9.58	0.81
0.417	0.81	3.500	13.74	6.583	5.66	9.67	0.81
0.500	0.81	3.583	13.74	6.667	5.66	9.75	0.81
0.583	0.81	3.667	13.74	6.750	5.66	9.83	0.81
0.667	0.81	3.750	13.74	6.833	5.66	9.92	0.81
0.750	0.81	3.833	13.74	6.917	5.66	10.00	0.81
0.833	0.81	3.917	13.74	7.000	5.66	10.08	0.81
0.917	0.81	4.000	13.74	7.083	5.66	10.17	0.81
1.000	0.81	4.083	13.74	7.167	5.66	10.25	0.81
1.083	0.81	4.167	13.74	7.250	5.66	10.33	0.81
1.167	0.81	4.250	13.74	7.333	3.23	10.42	0.81
1.250	0.81	4.333	37.17	7.417	3.23	10.50	0.81
1.333	0.81	4.417	37.17	7.500	3.23	10.58	0.81
1.417	0.81	4.500	37.17	7.583	3.23	10.67	0.81
1.500	0.81	4.583	37.17	7.667	3.23	10.75	0.81
1.583	0.81	4.667	37.17	7.750	3.23	10.83	0.81
1.667	0.81	4.750	37.17	7.833	3.23	10.92	0.81
1.750	0.81	4.833	37.17	7.917	3.23	11.00	0.81
1.833	0.81	4.917	37.17	8.000	3.23	11.08	0.81
1.917	0.81	5.000	37.17	8.083	3.23	11.17	0.81
2.000	0.81	5.083	37.17	8.167	3.23	11.25	0.81
2.083	0.81	5.167	37.17	8.250	3.23	11.33	0.81
2.167	0.81	5.250	37.17	8.333	1.62	11.42	0.81
2.250	0.81	5.333	10.50	8.417	1.62	11.50	0.81

2.333	4.85	5.417	10.50	8.500	1.62	11.58	0.81
2.417	4.85	5.500	10.50	8.583	1.62	11.67	0.81
2.500	4.85	5.583	10.50	8.667	1.62	11.75	0.81
2.583	4.85	5.667	10.50	8.750	1.62	11.83	0.81
2.667	4.85	5.750	10.50	8.833	1.62	11.92	0.81
2.750	4.85	5.833	10.50	8.917	1.62	12.00	0.81
2.833	4.85	5.917	10.50	9.000	1.62	12.08	0.81
2.917	4.85	6.000	10.50	9.083	1.62	12.17	0.81
3.000	4.85	6.083	10.50	9.167	1.62	12.25	0.81
3.083	4.85	6.167	10.50	9.250	1.62		

```
     Max.Eff.Inten.(mm/hr)=      37.17        28.29
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.08 (ii)   14.78 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.27         0.08
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.05         0.02          0.069 (iii)
     TIME TO PEAK    (hrs)=       5.08         5.25           5.25
     RUNOFF VOLUME    (mm)=      79.82        48.84          68.66
     TOTAL RAINFALL   (mm)=      80.82        80.82          80.82
     RUNOFF COEFFICIENT   =       0.99         0.60           0.85

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  84.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  7657)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2502):     0.75   0.069     5.25    68.66
      + ID2= 2 (  2503):     3.35   0.178     5.25    29.65
        ==================================================
        ID = 3 (  7657):     4.10   0.248     5.25    36.78

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2501)|   Area    (ha)=  56.41
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=  53.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      37.79        18.62
     Dep. Storage     (mm)=       1.00         2.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     613.24        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	4.85	6.250	10.50	9.33	0.81
0.167	0.00	3.250	4.85	6.333	5.66	9.42	0.81
0.250	0.00	3.333	13.74	6.417	5.66	9.50	0.81
0.333	0.81	3.417	13.74	6.500	5.66	9.58	0.81
0.417	0.81	3.500	13.74	6.583	5.66	9.67	0.81
0.500	0.81	3.583	13.74	6.667	5.66	9.75	0.81
0.583	0.81	3.667	13.74	6.750	5.66	9.83	0.81
0.667	0.81	3.750	13.74	6.833	5.66	9.92	0.81
0.750	0.81	3.833	13.74	6.917	5.66	10.00	0.81
0.833	0.81	3.917	13.74	7.000	5.66	10.08	0.81
0.917	0.81	4.000	13.74	7.083	5.66	10.17	0.81
1.000	0.81	4.083	13.74	7.167	5.66	10.25	0.81
1.083	0.81	4.167	13.74	7.250	5.66	10.33	0.81
1.167	0.81	4.250	13.74	7.333	3.23	10.42	0.81
1.250	0.81	4.333	37.17	7.417	3.23	10.50	0.81
1.333	0.81	4.417	37.17	7.500	3.23	10.58	0.81
1.417	0.81	4.500	37.17	7.583	3.23	10.67	0.81
1.500	0.81	4.583	37.17	7.667	3.23	10.75	0.81
1.583	0.81	4.667	37.17	7.750	3.23	10.83	0.81
1.667	0.81	4.750	37.17	7.833	3.23	10.92	0.81
1.750	0.81	4.833	37.17	7.917	3.23	11.00	0.81
1.833	0.81	4.917	37.17	8.000	3.23	11.08	0.81

```
                1.917    0.81 | 5.000   37.17 | 8.083    3.23 | 11.17    0.81
                2.000    0.81 | 5.083   37.17 | 8.167    3.23 | 11.25    0.81
                2.083    0.81 | 5.167   37.17 | 8.250    3.23 | 11.33    0.81
                2.167    0.81 | 5.250   37.17 | 8.333    1.62 | 11.42    0.81
                2.250    0.81 | 5.333   10.50 | 8.417    1.62 | 11.50    0.81
                2.333    4.85 | 5.417   10.50 | 8.500    1.62 | 11.58    0.81
                2.417    4.85 | 5.500   10.50 | 8.583    1.62 | 11.67    0.81
                2.500    4.85 | 5.583   10.50 | 8.667    1.62 | 11.75    0.81
                2.583    4.85 | 5.667   10.50 | 8.750    1.62 | 11.83    0.81
                2.667    4.85 | 5.750   10.50 | 8.833    1.62 | 11.92    0.81
                2.750    4.85 | 5.833   10.50 | 8.917    1.62 | 12.00    0.81
                2.833    4.85 | 5.917   10.50 | 9.000    1.62 | 12.08    0.81
                2.917    4.85 | 6.000   10.50 | 9.083    1.62 | 12.17    0.81
                3.000    4.85 | 6.083   10.50 | 9.167    1.62 | 12.25    0.81
                3.083    4.85 | 6.167   10.50 | 9.250    1.62 |

     Max.Eff.Inten.(mm/hr)=      37.17        44.83
                over (min)       10.00        25.00
     Storage Coeff.  (min)=      11.27 (ii)   21.00 (ii)
     Unit Hyd. Tpeak (min)=      10.00        25.00
     Unit Hyd. peak  (cms)=       0.10         0.05
                                                          *TOTALS*
     PEAK FLOW       (cms)=       3.07         1.97         5.026 (iii)
     TIME TO PEAK    (hrs)=       5.25         5.33          5.25
     RUNOFF VOLUME    (mm)=      79.82        55.62         68.45
     TOTAL RAINFALL   (mm)=      80.82        80.82         80.82
     RUNOFF COEFFICIENT   =       0.99         0.69          0.85


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  84.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0005)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000      0.0000   |    0.8850      2.2500
                           0.3800      1.1800   |    1.0150      2.5200
                           0.5750      1.6400   |    1.1700      2.7800
                           0.7050      1.9200   |    4.1670      6.2050

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2501)     56.410      5.026      5.25      68.45
   OUTFLOW: ID= 1 (  0005)     56.410      1.014      6.83      68.43

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 20.18
                   TIME SHIFT OF PEAK FLOW         (min)= 95.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  2.5191

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  7656)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0005):    56.41   1.014     6.83    68.43
      + ID2= 2 (  7657):     4.10   0.248     5.25    36.78
        ===================================================
        ID = 3 (  7656):    60.51   1.064     6.25    66.29

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
********************************
** SIMULATION:2.6 100yr-12hr  **
********************************
--------------------
| CALIB            |
| NASHYD   (  2503)|   Area    (ha)=   3.35   Curve Number   (CN)= 73.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.10

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                                  ---- TRANSFORMED HYETOGRAPH ----
                  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.083    0.00 | 3.167    5.31 | 6.250   11.51 |  9.33    0.89
```

0.167	0.00	3.250	5.31	6.333	6.20	9.42	0.89
0.250	0.00	3.333	15.05	6.417	6.20	9.50	0.89
0.333	0.89	3.417	15.05	6.500	6.20	9.58	0.89
0.417	0.89	3.500	15.05	6.583	6.20	9.67	0.89
0.500	0.89	3.583	15.05	6.667	6.20	9.75	0.89
0.583	0.89	3.667	15.05	6.750	6.20	9.83	0.89
0.667	0.89	3.750	15.05	6.833	6.20	9.92	0.89
0.750	0.89	3.833	15.05	6.917	6.20	10.00	0.89
0.833	0.89	3.917	15.05	7.000	6.20	10.08	0.89
0.917	0.89	4.000	15.05	7.083	6.20	10.17	0.89
1.000	0.89	4.083	15.05	7.167	6.20	10.25	0.89
1.083	0.89	4.167	15.05	7.250	6.20	10.33	0.89
1.167	0.89	4.250	15.05	7.333	3.54	10.42	0.89
1.250	0.89	4.333	40.71	7.417	3.54	10.50	0.89
1.333	0.89	4.417	40.71	7.500	3.54	10.58	0.89
1.417	0.89	4.500	40.71	7.583	3.54	10.67	0.89
1.500	0.89	4.583	40.71	7.667	3.54	10.75	0.89
1.583	0.89	4.667	40.71	7.750	3.54	10.83	0.89
1.667	0.89	4.750	40.71	7.833	3.54	10.92	0.89
1.750	0.89	4.833	40.71	7.917	3.54	11.00	0.89
1.833	0.89	4.917	40.71	8.000	3.54	11.08	0.89
1.917	0.89	5.000	40.71	8.083	3.54	11.17	0.89
2.000	0.89	5.083	40.71	8.167	3.54	11.25	0.89
2.083	0.89	5.167	40.71	8.250	3.54	11.33	0.89
2.167	0.89	5.250	40.71	8.333	1.77	11.42	0.89
2.250	0.89	5.333	11.51	8.417	1.77	11.50	0.89
2.333	5.31	5.417	11.51	8.500	1.77	11.58	0.89
2.417	5.31	5.500	11.51	8.583	1.77	11.67	0.89
2.500	5.31	5.583	11.51	8.667	1.77	11.75	0.89
2.583	5.31	5.667	11.51	8.750	1.77	11.83	0.89
2.667	5.31	5.750	11.51	8.833	1.77	11.92	0.89
2.750	5.31	5.833	11.51	8.917	1.77	12.00	0.89
2.833	5.31	5.917	11.51	9.000	1.77	12.08	0.89
2.917	5.31	6.000	11.51	9.083	1.77	12.17	0.89
3.000	5.31	6.083	11.51	9.167	1.77	12.25	0.89
3.083	5.31	6.167	11.51	9.250	1.77		

Unit Hyd Qpeak (cms)= 1.280

PEAK FLOW (cms)= 0.208 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 34.833
TOTAL RAINFALL (mm)= 88.540
RUNOFF COEFFICIENT = 0.393

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB              |
| STANDHYD (  2502)|   Area    (ha)=   0.75
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  64.00
```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.48	0.27
Dep. Storage	(mm)=	1.00	2.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	70.71	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	5.31	6.250	11.51	9.33	0.89
0.167	0.00	3.250	5.31	6.333	6.20	9.42	0.89
0.250	0.00	3.333	15.05	6.417	6.20	9.50	0.89
0.333	0.89	3.417	15.05	6.500	6.20	9.58	0.89
0.417	0.89	3.500	15.05	6.583	6.20	9.67	0.89
0.500	0.89	3.583	15.05	6.667	6.20	9.75	0.89
0.583	0.89	3.667	15.05	6.750	6.20	9.83	0.89
0.667	0.89	3.750	15.05	6.833	6.20	9.92	0.89
0.750	0.89	3.833	15.05	6.917	6.20	10.00	0.89
0.833	0.89	3.917	15.05	7.000	6.20	10.08	0.89
0.917	0.89	4.000	15.05	7.083	6.20	10.17	0.89
1.000	0.89	4.083	15.05	7.167	6.20	10.25	0.89
1.083	0.89	4.167	15.05	7.250	6.20	10.33	0.89
1.167	0.89	4.250	15.05	7.333	3.54	10.42	0.89
1.250	0.89	4.333	40.71	7.417	3.54	10.50	0.89
1.333	0.89	4.417	40.71	7.500	3.54	10.58	0.89
1.417	0.89	4.500	40.71	7.583	3.54	10.67	0.89
1.500	0.89	4.583	40.71	7.667	3.54	10.75	0.89

1.583	0.89	4.667	40.71	7.750	3.54	10.83	0.89
1.667	0.89	4.750	40.71	7.833	3.54	10.92	0.89
1.750	0.89	4.833	40.71	7.917	3.54	11.00	0.89
1.833	0.89	4.917	40.71	8.000	3.54	11.08	0.89
1.917	0.89	5.000	40.71	8.083	3.54	11.17	0.89
2.000	0.89	5.083	40.71	8.167	3.54	11.25	0.89
2.083	0.89	5.167	40.71	8.250	3.54	11.33	0.89
2.167	0.89	5.250	40.71	8.333	1.77	11.42	0.89
2.250	0.89	5.333	11.51	8.417	1.77	11.50	0.89
2.333	5.31	5.417	11.51	8.500	1.77	11.58	0.89
2.417	5.31	5.500	11.51	8.583	1.77	11.67	0.89
2.500	5.31	5.583	11.51	8.667	1.77	11.75	0.89
2.583	5.31	5.667	11.51	8.750	1.77	11.83	0.89
2.667	5.31	5.750	11.51	8.833	1.77	11.92	0.89
2.750	5.31	5.833	11.51	8.917	1.77	12.00	0.89
2.833	5.31	5.917	11.51	9.000	1.77	12.08	0.89
2.917	5.31	6.000	11.51	9.083	1.77	12.17	0.89
3.000	5.31	6.083	11.51	9.167	1.77	12.25	0.89
3.083	5.31	6.167	11.51	9.250	1.77		

```
     Max.Eff.Inten.(mm/hr)=      40.71        31.90
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.97 (ii)   14.12 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.28         0.08
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.05         0.02          0.077 (iii)
     TIME TO PEAK    (hrs)=       5.08         5.25           5.25
     RUNOFF VOLUME    (mm)=      87.54        55.51          76.00
     TOTAL RAINFALL   (mm)=      88.54        88.54          88.54
     RUNOFF COEFFICIENT   =       0.99         0.63           0.86

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  84.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  7657)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2502):     0.75   0.077     5.25    76.00
      + ID2= 2 (  2503):     3.35   0.208     5.25    34.83
        ====================================================
        ID = 3 (  7657):     4.10   0.284     5.25    42.36

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2501)|   Area    (ha)=  56.41
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=  53.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      37.79        18.62
     Dep. Storage     (mm)=       1.00         2.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     613.24        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.083    0.00 | 3.167    5.31 | 6.250   11.51 |  9.33    0.89
                 0.167    0.00 | 3.250    5.31 | 6.333    6.20 |  9.42    0.89
                 0.250    0.00 | 3.333   15.05 | 6.417    6.20 |  9.50    0.89
                 0.333    0.89 | 3.417   15.05 | 6.500    6.20 |  9.58    0.89
                 0.417    0.89 | 3.500   15.05 | 6.583    6.20 |  9.67    0.89
                 0.500    0.89 | 3.583   15.05 | 6.667    6.20 |  9.75    0.89
                 0.583    0.89 | 3.667   15.05 | 6.750    6.20 |  9.83    0.89
                 0.667    0.89 | 3.750   15.05 | 6.833    6.20 |  9.92    0.89
                 0.750    0.89 | 3.833   15.05 | 6.917    6.20 | 10.00    0.89
                 0.833    0.89 | 3.917   15.05 | 7.000    6.20 | 10.08    0.89
                 0.917    0.89 | 4.000   15.05 | 7.083    6.20 | 10.17    0.89
                 1.000    0.89 | 4.083   15.05 | 7.167    6.20 | 10.25    0.89
                 1.083    0.89 | 4.167   15.05 | 7.250    6.20 | 10.33    0.89
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                1.167    0.89 | 4.250   15.05 | 7.333    3.54 | 10.42    0.89
                1.250    0.89 | 4.333   40.71 | 7.417    3.54 | 10.50    0.89
                1.333    0.89 | 4.417   40.71 | 7.500    3.54 | 10.58    0.89
                1.417    0.89 | 4.500   40.71 | 7.583    3.54 | 10.67    0.89
                1.500    0.89 | 4.583   40.71 | 7.667    3.54 | 10.75    0.89
                1.583    0.89 | 4.667   40.71 | 7.750    3.54 | 10.83    0.89
                1.667    0.89 | 4.750   40.71 | 7.833    3.54 | 10.92    0.89
                1.750    0.89 | 4.833   40.71 | 7.917    3.54 | 11.00    0.89
                1.833    0.89 | 4.917   40.71 | 8.000    3.54 | 11.08    0.89
                1.917    0.89 | 5.000   40.71 | 8.083    3.54 | 11.17    0.89
                2.000    0.89 | 5.083   40.71 | 8.167    3.54 | 11.25    0.89
                2.083    0.89 | 5.167   40.71 | 8.250    3.54 | 11.33    0.89
                2.167    0.89 | 5.250   40.71 | 8.333    1.77 | 11.42    0.89
                2.250    0.89 | 5.333   11.51 | 8.417    1.77 | 11.50    0.89
                2.333    5.31 | 5.417   11.51 | 8.500    1.77 | 11.58    0.89
                2.417    5.31 | 5.500   11.51 | 8.583    1.77 | 11.67    0.89
                2.500    5.31 | 5.583   11.51 | 8.667    1.77 | 11.75    0.89
                2.583    5.31 | 5.667   11.51 | 8.750    1.77 | 11.83    0.89
                2.667    5.31 | 5.750   11.51 | 8.833    1.77 | 11.92    0.89
                2.750    5.31 | 5.833   11.51 | 8.917    1.77 | 12.00    0.89
                2.833    5.31 | 5.917   11.51 | 9.000    1.77 | 12.08    0.89
                2.917    5.31 | 6.000   11.51 | 9.083    1.77 | 12.17    0.89
                3.000    5.31 | 6.083   11.51 | 9.167    1.77 | 12.25    0.89
                3.083    5.31 | 6.167   11.51 | 9.250    1.77 |

     Max.Eff.Inten.(mm/hr)=      40.71        50.07
                over (min)       10.00        25.00
     Storage Coeff.  (min)=      10.87 (ii)   20.17 (ii)
     Unit Hyd. Tpeak (min)=      10.00        25.00
     Unit Hyd. peak  (cms)=       0.11         0.05
                                                          *TOTALS*
     PEAK FLOW       (cms)=       3.37         2.23          5.587 (iii)
     TIME TO PEAK    (hrs)=       5.25         5.33           5.25
     RUNOFF VOLUME    (mm)=      87.54        62.69          75.86
     TOTAL RAINFALL   (mm)=      88.54        88.54          88.54
     RUNOFF COEFFICIENT   =       0.99         0.71           0.86


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  84.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0005)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000      0.0000   |    0.8850      2.2500
                           0.3800      1.1800   |    1.0150      2.5200
                           0.5750      1.6400   |    1.1700      2.7800
                           0.7050      1.9200   |    4.1670      6.2050

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2501)     56.410      5.587      5.25      75.86
   OUTFLOW: ID= 1 (  0005)     56.410      1.167      6.75      75.85

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 20.89
                   TIME SHIFT OF PEAK FLOW         (min)= 90.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  2.7752

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--------------------
| ADD HYD  (  7656)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0005):    56.41   1.167     6.75    75.85
      + ID2= 2 (  7657):     4.10   0.284     5.25    42.36
        ===================================================
        ID = 3 (  7656):    60.51   1.223     6.25    73.58

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
**********************************
** SIMULATION:25mm 4hr Chicago **
**********************************
--------------------
| CALIB            |
| NASHYD   (  2503)|   Area    (ha)=   3.35   Curve Number   (CN)= 73.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 3.00
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--------------------   U.H. Tp(hrs)=   0.10

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                                  ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    2.07 | 1.083    5.70 | 2.083    5.19 |  3.08    2.80
                0.167    2.07 | 1.167    5.70 | 2.167    5.19 |  3.17    2.80
                0.250    2.27 | 1.250   10.78 | 2.250    4.47 |  3.25    2.62
                0.333    2.27 | 1.333   10.78 | 2.333    4.47 |  3.33    2.62
                0.417    2.52 | 1.417   50.21 | 2.417    3.95 |  3.42    2.48
                0.500    2.52 | 1.500   50.21 | 2.500    3.95 |  3.50    2.48
                0.583    2.88 | 1.583   13.37 | 2.583    3.56 |  3.58    2.35
                0.667    2.88 | 1.667   13.37 | 2.667    3.56 |  3.67    2.35
                0.750    3.38 | 1.750    8.29 | 2.750    3.25 |  3.75    2.23
                0.833    3.38 | 1.833    8.29 | 2.833    3.25 |  3.83    2.23
                0.917    4.18 | 1.917    6.30 | 2.917    3.01 |  3.92    2.14
                1.000    4.18 | 2.000    6.30 | 3.000    3.01 |  4.00    2.14

     Unit Hyd Qpeak  (cms)=   1.280

     PEAK FLOW       (cms)=   0.012 (i)
     TIME TO PEAK    (hrs)=   1.667
     RUNOFF VOLUME    (mm)=   2.011
     TOTAL RAINFALL   (mm)=  24.997
     RUNOFF COEFFICIENT   =   0.080

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB             |
| STANDHYD (  2502)|   Area    (ha)=   0.75
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  64.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.48         0.27
     Dep. Storage     (mm)=       1.00         2.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      70.71        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                                  ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    2.07 | 1.083    5.70 | 2.083    5.19 |  3.08    2.80
                0.167    2.07 | 1.167    5.70 | 2.167    5.19 |  3.17    2.80
                0.250    2.27 | 1.250   10.78 | 2.250    4.47 |  3.25    2.62
                0.333    2.27 | 1.333   10.78 | 2.333    4.47 |  3.33    2.62
                0.417    2.52 | 1.417   50.21 | 2.417    3.95 |  3.42    2.48
                0.500    2.52 | 1.500   50.21 | 2.500    3.95 |  3.50    2.48
                0.583    2.88 | 1.583   13.37 | 2.583    3.56 |  3.58    2.35
                0.667    2.88 | 1.667   13.37 | 2.667    3.56 |  3.67    2.35
                0.750    3.38 | 1.750    8.29 | 2.750    3.25 |  3.75    2.23
                0.833    3.38 | 1.833    8.29 | 2.833    3.25 |  3.83    2.23
                0.917    4.18 | 1.917    6.30 | 2.917    3.01 |  3.92    2.14
                1.000    4.18 | 2.000    6.30 | 3.000    3.01 |  4.00    2.14

     Max.Eff.Inten.(mm/hr)=      50.21         8.94
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       2.73 (ii)   21.28 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.29         0.05
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.07         0.00         0.067 (iii)
     TIME TO PEAK    (hrs)=       1.50         1.83          1.50
     RUNOFF VOLUME    (mm)=      24.00         7.41         18.01
     TOTAL RAINFALL   (mm)=      25.00        25.00         25.00
     RUNOFF COEFFICIENT   =       0.96         0.30          0.72

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  84.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  7657)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2502):     0.75   0.067     1.50    18.01
      + ID2= 2 (  2503):     3.35   0.012     1.67     2.01
        ==================================================
        ID = 3 (  7657):     4.10   0.075     1.50     4.94

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2501)|   Area    (ha)=  56.41
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=  53.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      37.79        18.62
     Dep. Storage     (mm)=       1.00         2.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     613.24        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    2.07 | 1.083    5.70 | 2.083    5.19 |  3.08    2.80
                0.167    2.07 | 1.167    5.70 | 2.167    5.19 |  3.17    2.80
                0.250    2.27 | 1.250   10.78 | 2.250    4.47 |  3.25    2.62
                0.333    2.27 | 1.333   10.78 | 2.333    4.47 |  3.33    2.62
                0.417    2.52 | 1.417   50.21 | 2.417    3.95 |  3.42    2.48
                0.500    2.52 | 1.500   50.21 | 2.500    3.95 |  3.50    2.48
                0.583    2.88 | 1.583   13.37 | 2.583    3.56 |  3.58    2.35
                0.667    2.88 | 1.667   13.37 | 2.667    3.56 |  3.67    2.35
                0.750    3.38 | 1.750    8.29 | 2.750    3.25 |  3.75    2.23
                0.833    3.38 | 1.833    8.29 | 2.833    3.25 |  3.83    2.23
                0.917    4.18 | 1.917    6.30 | 2.917    3.01 |  3.92    2.14
                1.000    4.18 | 2.000    6.30 | 3.000    3.01 |  4.00    2.14

     Max.Eff.Inten.(mm/hr)=      50.21        19.79
                over (min)       10.00        25.00
     Storage Coeff.  (min)=       9.99 (ii)   23.48 (ii)
     Unit Hyd. Tpeak (min)=      10.00        25.00
     Unit Hyd. peak  (cms)=       0.11         0.05
                                                          *TOTALS*
     PEAK FLOW       (cms)=       2.61         0.48         2.839 (iii)
     TIME TO PEAK    (hrs)=       1.58         1.83          1.58
     RUNOFF VOLUME    (mm)=      24.00         9.67         17.26
     TOTAL RAINFALL   (mm)=      25.00        25.00         25.00
     RUNOFF COEFFICIENT   =       0.96         0.39          0.69


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  84.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0005)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                            0.0000      0.0000   |    0.8850      2.2500
                            0.3800      1.1800   |    1.0150      2.5200
                            0.5750      1.6400   |    1.1700      2.7800
                            0.7050      1.9200   |    4.1670      6.2050

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2501)     56.410      2.839      1.58      17.26
   OUTFLOW: ID= 1 (  0005)     56.410      0.242      4.08      17.25

                     PEAK   FLOW   REDUCTION [Qout/Qin](%)=  8.53
                     TIME SHIFT OF PEAK FLOW         (min)=150.00
                     MAXIMUM  STORAGE   USED       (ha.m.)=  0.7525

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```

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--------------------
| ADD HYD  (  7656)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0005):    56.41   0.242     4.08    17.25
      + ID2= 2 (  7657):     4.10   0.075     1.50     4.94
        ====================================================
        ID = 3 (  7656):    60.51   0.251     4.00    16.41

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
```

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*******************************
** SIMULATION:Hazel All       **
*******************************
```

Regional Outputs
SWMF 5

```
--------------------
| CALIB            |
| NASHYD   (  2503)|   Area    (ha)=   3.35   Curve Number   (CN)= 96.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.10

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

```
     Unit Hyd Qpeak  (cms)=   1.280

     PEAK FLOW       (cms)=   0.478 (i)
     TIME TO PEAK    (hrs)=  10.000
     RUNOFF VOLUME    (mm)= 186.956
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =   0.882

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  2502)|   Area    (ha)=   0.75
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=  64.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.48         0.27
     Dep. Storage     (mm)=       1.00         2.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      70.71        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00

0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

```
     Max.Eff.Inten.(mm/hr)=      53.00        52.36
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.67 (ii)   11.82 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.29         0.09
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.07         0.04         0.110 (iii)
     TIME TO PEAK    (hrs)=       9.67        10.00         10.00
     RUNOFF VOLUME    (mm)=     211.00       192.48        204.32
     TOTAL RAINFALL   (mm)=     212.00       212.00        212.00
     RUNOFF COEFFICIENT   =       1.00         0.91          0.96

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  93.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  7657)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2502):     0.75   0.110    10.00   204.32
      + ID2= 2 (  2503):     3.35   0.478    10.00   186.96
        ====================================================
        ID = 3 (  7657):     4.10   0.588    10.00   190.13

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2501)|   Area    (ha)=  56.41
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=  53.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      37.79        18.62
     Dep. Storage     (mm)=       1.00         2.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     613.24        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
```

hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

```
Max.Eff.Inten.(mm/hr)=      53.00        75.01
            over (min)      10.00        20.00
Storage Coeff.  (min)=       9.78 (ii)   17.70 (ii)
Unit Hyd. Tpeak (min)=      10.00        20.00
Unit Hyd. peak  (cms)=       0.11         0.06
                                                      *TOTALS*
PEAK FLOW       (cms)=       4.39         3.70          8.096 (iii)
TIME TO PEAK    (hrs)=      10.00        10.00          10.00
RUNOFF VOLUME    (mm)=     211.00       197.98         204.88
TOTAL RAINFALL   (mm)=     212.00       212.00         212.00
RUNOFF COEFFICIENT   =       1.00         0.93           0.97


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  93.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0005)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000      0.0000   |    0.8850      2.2500
                           0.3800      1.1800   |    1.0150      2.5200
                           0.5750      1.6400   |    1.1700      2.7800
                           0.7050      1.9200   |    4.2500      5.9600

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2501)     56.410      8.096     10.00     204.88
   OUTFLOW: ID= 1 (  0005)     56.410      4.228     11.25     204.87

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 52.22
                   TIME SHIFT OF PEAK FLOW         (min)= 75.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  5.9405

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  7656)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0005):    56.41   4.228    11.25   204.87
```

```
      + ID2= 2 (  7657):     4.10   0.588    10.00   190.13
        ====================================================
        ID = 3 (  7656):    60.51   4.574    11.00   203.87

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
```