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# 242 Edgehill Drive, Barrie

## FUNCTIONAL SERVICING REPORT

Rob Vellinga

# Document Control

File:

423391

Date:

January  
26, 2024

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| Issue | Date             | Description                               |
|-------|------------------|-------------------------------------------|
| 01    | July 18, 2023    | Issued for ZBA 1 <sup>st</sup> Submission |
| 02    | January 26, 2024 | Issued for ZBA 2 <sup>nd</sup> Submission |

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# 1 Introduction

Tatham Engineering Limited (Tatham) has been retained by Rob Vellinga (Client) to prepare a Functional Servicing Report (FSR) in support of a Zoning By-Law Amendment (ZBA) application for 242 Edgehill Drive (subject site) located in the City of Barrie (City).

This report presents a municipal servicing strategy, covering:

- water supply and distribution;
- sanitary sewage collection;
- drainage and stormwater management (SWM);
- grading and landscaping; and
- utility servicing.

## 1.1 SITE DESCRIPTION & SURROUNDING LAND USE

The site is located on the north side of Edgehill Drive, approximately halfway between Doyle Drive and Fox Run. It is bound by existing parkland to the north, existing residential to the west and east, and Edgehill Drive to the south. The location of the property is illustrated on Figure 1, overleaf. The property is designated 'Residential' in the City's Official Plan and is currently zoned 'Residential Single Detached Dwelling Second Density (R2)' with an existing single-family dwelling located on the property. The proposed zoning is 'Residential Multiple Dwelling Second Density - Townhouse (RM2-TH)'.

The site is located within the Lake Simcoe Region Conservation Authority (LSRCA) watershed, but is not located within the regulated area, and, therefore, will not require a works permit. The site is not within a Significant Groundwater Recharge Area or a Highly Vulnerable Aquifer area. However, the site is located within a Well Head Protection Area.

## 1.2 PROPOSED DEVELOPMENT

The proposed development consists of 3, three-story townhouse units. Each unit has a dedicated garage and driveway. The units are accessed from Edgehill Drive. The proposed site plan (prepared by Innovative Planning Solutions) is provided in Appendix A for reference.





**Figure 1: Site Location Plan**

### 1.3 OBJECTIVES

The objective of this report is to present an overall servicing strategy to demonstrate the proposed development can be adequately serviced. This report will also document the preliminary SWM strategy for the site, demonstrating the proposed development will not adversely affect local surface water conditions.

### 1.4 GUIDELINES & BACKGROUND INFORMATION

This report has been prepared in accordance with local and provincial guidelines, including the following publications:

- The Ministry of the Environment, Conservation, and Parks (MECP, formerly known as Ministry of Environment), *Stormwater Management Practices Planning and Design Manual* (March 2003);
- The MECP, *Design Guidelines for Drinking-Water Systems*, (2003);
- The MECP, *Lake Simcoe Protection Plan (LSPP)* (2009);
- Lake Simcoe Region Conservation Authority (LSRCA), *Technical Guidelines for Stormwater Management Submissions* (April 2022);
- City of Barrie, *Stormwater Infrastructure Design Standard* (June 2023);



- City of Barrie, *Sanitary Infrastructure Design Standard* (April 2023);
- City of Barrie, *Drinking Water Infrastructure Design Standard* (June 2023);
- City of Barrie, *Contours 2016* (October 26, 2018, revised March 14, 2023); and
- Research Branch, Canada Department of Agriculture and the Ontario Agricultural College, *Soil Survey of Simcoe County, Ontario - Report No. 29 of the Ontario Soil Survey* (1962).

Information relating to existing topography, ground cover, and drainage patterns was obtained through a review of relevant background studies, available plans, base mapping, and topographic survey completed by Rudy Mak Surveying Ltd., dated May 11, 2023.



## 2 Water Supply & Distribution

### 2.1 EXISTING WATER SYSTEM

The site is located within an area of the City that is serviced by the municipal water system. There is an existing 400 mm dia. transmission watermain fronting the site on the north side of Edgehill Drive, and an existing 200 mm dia. distribution watermain fronting the site on the south side of Edgehill Drive. The distribution main provides domestic supply and fire protection for the area. There is an existing fire hydrant located southeast of the Doyle Drive and Edgehill Drive intersection, and another located across the street at 241 Edgehill Drive.

The existing property is a vacant lot, as the previous single detached dwelling was demolished in 2022. There is an existing 19 mm dia. copper Type 'K' domestic service which supplied the previous dwelling.

### 2.2 PROPOSED WATER SYSTEM

Units B and C will be provided with new 25 mm dia. domestic water services, while Unit A will utilize the existing 19 mm dia. domestic service. All three domestic services will connect to the existing 200 mm dia. distribution main on Edgehill Drive. Additional information is provided on the Preliminary Site Servicing Plan (Drawing SS-1) provided in Appendix E. The final water system design will be confirmed during the detailed design stage.

### 2.3 PROPOSED DEMANDS

The estimated population for the proposed development is 8 persons (applying a medium density of 2.57 persons per unit (PPU) as per the City's engineering standards). Water system demands were estimated by applying Maximum Day Factor and Peak Rate factors from Table 3-1 of the *MOE Design Guidelines for Drinking Water Systems*.

The estimated water system demands have been estimated as per the following:

- Average Day Demand (ADD):  $8 \text{ persons} \times 225 \text{ L/cap/day} = 1,800 \text{ L/day} = 0.02 \text{ L/s}$ ;
- Maximum Day Demand (MDD):  $1,800 \text{ L/day} \times 2.75 = 4,950 \text{ L/day} = 0.06 \text{ L/s}$ ; and
- Peak Hour Demand (PHD):  $1,800 \text{ L/day} \times 4.13 = 7,434 \text{ L/day} = 0.09 \text{ L/s}$ .

Refer to Appendix B for more detailed water demand calculations.

### 2.4 FIRE PROTECTION

It is noted that City design guidelines (Section 4.3.1 of *Drinking Water Infrastructure Design Standard*) assign a minimum required fire flow of 155 L/s for townhouse developments.



Firefighting water demands have been estimated for the site using the Water Supply Public Fire Protection (2020) document prepared by the Fire Underwriters Survey (FUS). Considering the preliminary stage of the proposed development and comments provided by the City during pre-submission, reasonable assumptions have been made with respect to building design and construction methods based on Conceptual Site Plan by Innovative Planning Solutions (dated June 15, 2023). The FUS calculations were revised to reflect a building subdivided with a vertical firewall with a 2-hour fire-resistance rating between units, with building construction of ordinary materials as defined in the Water Supply for Public Fire Protection guideline (2020). As such, the required fire flow has been estimated at 100 L/s per the detailed FUS Fire Flow Calculations provided in Appendix B and will be confirmed at the detailed design stage in consultation with the architect to be retained.

A fire hydrant flow test was conducted using two nearby fire hydrants located on Edgehill Drive as documented in Appendix B. Applying the equation provided in Section 4.3.2. of the City's design standard, the estimated fire flow available at 20 psi is 1,929 USgpm (122 L/s), which is greater than the estimated required fire flow of 100 L/s. Detailed calculations are provided in Appendix B for reference.



## 3 Sanitary Sewage System

### 3.1 EXISTING SANITARY SYSTEM

The site is located in an area of the City serviced by a municipal sanitary sewer collection system that conveys sewage to the Barrie Wastewater Treatment Facility (WWTF) located at the west end of Kempenfelt Bay on Lake Simcoe.

The property is currently serviced by an existing 100 mm dia. sanitary lateral connected to the existing 450 mm dia. sanitary trunk sewer on Edgehill Drive. With a slope of approximately 1%, the existing sanitary trunk sewer has a full flow capacity of 285.11 L/s.

### 3.2 PROPOSED SANITARY SYSTEM

The proposed development will discharge sanitary sewage to the existing 450 mm dia. sanitary trunk sewer fronting the site on Edgehill Drive. Units A and C will be serviced with new 100 mm dia. sanitary services, while Unit B will utilize the existing 100 mm dia. service.

The preliminary servicing plan is depicted on Drawing SS-1 provided in Appendix E. The final sanitary servicing design will be confirmed during the detailed design stage.

The average day flow (ADF) of the proposed development is approximately equivalent to the average day water demand described in Section 2. The peak flow (PF) applies the Harmon peaking factor of 4.42 (as per City standards). The PF also includes extraneous flow (i.e. infiltration) which is estimated by applying a rate of 0.1 L/s/ha to the overall area of the site (as per City standards).

Estimated sanitary flows from the site have been estimated as per the following:

- Average Day Flow (ADF) = 8 persons x 225 L/cap/day = 1,800 L/day = 0.02 L/s; and
- Peak Flow (PF) (incl. infiltration) = 8,567 L/day = 0.10 L/s.

As the project only proposes to add 2 units to the property, we do not expect there to be any need to assess downstream sewer capacity as the proposed flows will be marginally greater than existing flows. Therefore, we expect sufficient capacity to be available within the existing municipal wastewater collection system.



## 4 Drainage & Stormwater Management

### 4.1 EXISTING CONDITIONS

Under existing conditions, site runoff (as well as an external drainage area) drain via overland flow in a southerly direction to the Edgehill Drive right-of-way (ROW). There is also currently a 750 mm dia. storm sewer fronting the site on Edgehill Drive.

The Modified Rational Method has been used to calculate pre-development peak flow rates utilizing City of Barrie rainfall data in accordance with the City's design requirements. The site has been modelled as one drainage catchment (Catchment 101), at one drainage outlet, which is defined as the south property boundary of the site. Refer to the Pre-Development Drainage Plan (Drawing DP-1) provided in Appendix E for reference.

Catchment 101 consists of the subject site, which is approximately 0.07 ha and has been assigned a runoff coefficient (RC) of 0.34. The house, driveway, and auxiliary structures (shed and patio) were demolished in 2022. However, for the purpose of analysis, the demolished impervious areas (0.02 ha in area), in addition to the landscaped areas (0.05 ha in area), were accounted for in determining existing conditions hydrology. Based on existing topography, the overland flows are captured at Outlet #1.

An external drainage catchment (identified as Catchment 301) was delineated based on the City of Barrie's *Contours 2016* (accessed July 10, 2023) which extends north/northwest past the rear of the lot. This catchment is predominantly covered in woodland, is approximately 0.21 ha in area, and has been assigned an RC of 0.18. Based on existing topography, this external drainage is routed through the site and is captured at Outlet #1.

In-situ soils are understood to consist of Alliston Sand Loam, which is part of the Hydrologic Soil Group (HSG) AB, as described in the *Soil Map of Simcoe County, Ontario - South Street* from *Soil Survey of Simcoe County, Ontario - Report No. 29 of the Ontario Soil Survey*.

A summary of peak flows at Outlet #1 under pre-development conditions (which includes both internal and external drainage areas) is provided in Table 1. Detailed calculations are provided in Appendix D.



**Table 1: Pre-Development Peak Flow Rates**

| DESIGN STORM | OUTLET #1<br>(m <sup>3</sup> /s) |
|--------------|----------------------------------|
| 1:2-Year     | 0.014                            |
| 1:5-Year     | 0.019                            |
| 1:10-Year    | 0.022                            |
| 1:25-Year    | 0.028                            |
| 1:50-Year    | 0.034                            |
| 1:100-Year   | 0.039                            |

#### 4.2 PROPOSED CONDITIONS

Catchment 201 is approximately 0.07 ha in area, drains to Outlet #1, and under proposed conditions, has been assigned an RC of 0.43. The land use in this catchment consists of 0.03 ha in impervious areas (rooftop and driveway) and 0.04 ha in landscaped areas. Refer to the Post-Development Drainage Plan (Drawing DP-2) provided in Appendix E for reference.

A summary of peak flows under post-development conditions at Outlet #1 is provided in Table 2 below while detailed calculations are provided in Appendix D.

**Table 2: Post-Development Peak Flow Rates**

| DESIGN STORM | OUTLET #1<br>(m <sup>3</sup> /s) |
|--------------|----------------------------------|
| 1:2-Year     | 0.016 (0.014)                    |
| 1:5-Year     | 0.021 (0.019)                    |
| 1:10-Year    | 0.024 (0.022)                    |
| 1:25-Year    | 0.031 (0.028)                    |
| 1:50-Year    | 0.037 (0.034)                    |
| 1:100-Year   | 0.043 (0.039)                    |

Values in *(italics)* represent pre-development peak flow rates.

As shown in Table 2, the post-development peak flow rates are marginally greater (increase of 1 L/s to 4 L/s than the existing conditions peak flow rates at Outlet #1). As mentioned, the total impervious area in post-development is 0.03 ha which is an increase from 0.02 ha of impervious



area in pre-development conditions. All considered, the differences between pre- and post-development peak flow conditions are considered negligible. As such, no water quantity controls are proposed for the site.

#### **4.3 MINOR AND MAJOR FLOW CONVEYANCE**

Minor flows (return periods up to and including the 1:5-year event) and major flows (return periods exceeding the 1:5-year event) will be conveyed to the existing storm sewer network along Edgehill Drive and to the Edgehill Drive ROW itself.

##### **4.3.1 External Drainage Conveyance**

Drainage from external Catchment 301 is conveyed through the two proposed swales on-site to Outlet #1. Based on the existing drainage patterns, it is anticipated that approximately 86% of Catchment 301, and 70% of Catchment 201 will be collected and conveyed to Outlet #1 via the swale east of the proposed house (denoted as Swale #1). The remaining drainage of Catchment 301 and 14% of Catchment 201 will be collected and conveyed via the swale west of the proposed house (denoted as Swale #2). Using a weighted-area approach, the maximum external flow is 0.034 m<sup>3</sup>/s to Swale #1 and 0.007 m<sup>3</sup>/s to Swale #2. The swales have sufficient capacity as per appended calculations provided in Appendix D.

#### **4.4 WATER QUALITY CONTROL**

As mentioned, since the increase in impervious area is negligible in comparison to existing conditions, water quality controls are not required for the proposed development.

#### **4.5 VOLUME CONTROL**

In accordance with Section 3.2.4. of the LSRCA's *Technical Guidelines for Stormwater Management Submission*, any works that meet the definition of 'major development' outlined in the Lake Simcoe Protection Plan (LSPP) should demonstrate how volume control techniques will be provided. The LSPP defines 'major development' as a development consisting of the creation of four or more lots and therefore volume control requirements are not applicable to the proposed development.

#### **4.6 WATER BALANCE**

As the project does not meet the LSRCA definition of a 'major development', water balance is not required.



#### **4.7 PHOSPHORUS BUDGET**

As the project does not meet the LSRCA definition of a 'major development', phosphorus offsetting is not required.



## 5 Siltation & Erosion Control Plan

Siltation and erosion controls will be implemented for all construction activities, including earthworks, material stockpiling, pavement construction and grading operations. Details of the sedimentation and erosion control plan are shown on Drawing ESC-1 and are summarized as follows:

- heavy duty silt control fences will be erected around the perimeter of the development and tree protection zone to control sediment movement to neighbouring properties and Edgehill Drive right-of-way;
- a stone mud mat will be installed at the construction entrance from Edgehill Drive; and
- regular inspection of control measures will be implemented and repairs will be made as necessary during construction.



## 6 Grading & Landscaping

The grading of the proposed development will match to the existing grades along the limits of the development and the tree protection zone. The site will be graded to suit the existing boundary conditions on the north boulevard of Edgehill Drive. Refer to the Preliminary Site Grading Plan (Drawing SG-1) provided in Appendix E for additional details.



## 7 Utilities

We have received confirmation from all relevant utility companies (Alectra, Bell, Rogers and Enbridge) that utility servicing is available for the proposed development. Correspondence can be found in Appendix F. Further coordination will be required during the detailed design stage.



## 8 Summary

### 8.1 WATER SUPPLY & DISTRIBUTION

Units B and C will be serviced by new 25 mm dia. water services, connected to the existing 200 mm dia. distribution watermain on Edgehill Drive. Unit A will utilize the existing 19 mm dia. copper Type 'K' service already connected to the existing 200 mm dia. main. There is sufficient capacity in the existing municipal water system to accommodate the water and fire protection demands of the proposed development.

### 8.2 SANITARY SEWER COLLECTION

Units A and C will be serviced by new 100 mm dia. sanitary services, connected to the existing 450 mm dia. sanitary trunk sewer on Edgehill Drive. Unit B will utilize the existing 100 mm dia. service already connected to the existing 450 mm dia. trunk sewer. We expect sufficient capacity in the existing municipal sanitary system to accommodate the demands of the proposed development.

### 8.3 DRAINAGE & STORMWATER MANAGEMENT

The preliminary SWM plan demonstrates the proposed development will not result in negative impacts with respect to SWM and can be designed in a way to meet the objectives and guidelines of the approving agencies. Water quantity and quality controls are not required as the storm run-off generated from the site under proposed conditions produces a negligible increase in peak flows compared to that of the existing conditions. External overland drainage from adjacent properties north of the site are conveyed through the two proposed swales on site, both of which are sized adequately to convey major storms safely to Outlet #1. Minor flows are also captured at Outlet #1 and are conveyed to the existing storm sewer network along the Edgehill Drive ROW. Volume control, water balance, and phosphorus offsetting were not proposed in the SWM plan as the site does not meet the LSRCA definition of a 'major development'.

### 8.4 SILTATION & EROSION CONTROL PLAN

Siltation and erosion controls will be provided with the proper construction mitigation efforts.

### 8.5 GRADING & LANDSCAPING

The grading of the proposed development will match to existing perimeter grades along the limits of the development and the tree protection zone.



## **8.6 UTILITIES**

All relevant utility companies (Alectra, Bell, Rogers and Enbridge) have confirmed that utility servicing for the proposed development is available from Edgehill Drive.



## **Appendix A: Conceptual Site Plan**

|                                                                                                                                                                                                                                                                                                                                                                                                                               |                     |                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------------|
|  <b>INNOVATIVE PLANNING SOLUTIONS</b><br>PLANNERS • PROJECT MANAGERS • LAND DEVELOPERS<br>647 WELHAM ROAD, UNIT 9, BARRIE, ON, L4N 0B7<br>tel: 705 • 812 • 3281 fax: 705 • 812 • 3438 e: <a href="mailto:info@ipsconsultinginc.com">info@ipsconsultinginc.com</a> <a href="http://www.ipsconsultinginc.com">www.ipsconsultinginc.com</a> |                     |                |
|                                                                                                                                                                                                                                                                                                                                                                                                                               | Date: Oct. 23, 2023 | Drawn By: A.S. |
| File: 22 - 1246                                                                                                                                                                                                                                                                                                                                                                                                               | Checked: K.G.       |                |

## **Appendix B: Water Calculations**

|         |                            |      |            |      |
|---------|----------------------------|------|------------|------|
| PROJECT | 242 Edgehill Drive, Barrie | FILE | 423391     |      |
|         |                            | DATE | 2024-01-20 |      |
| SUBJECT | Water Demand Calculations  | NAME | JLM        |      |
|         |                            | PAGE | 1          | OF 1 |

### Design Criteria (as per City of Barrie standards)

#### Demands

Medium Density PPU = 2.57  
 Per Capita Demand = 225 L/cap/day

#### Peaking Factors (from MOE Design Guidelines for Drinking Water Systems - Table 3-1)

Max Day Demand = 2.75  
 Peak Hour Demand = 4.13

### **Proposed Development**

Townhouse Units = 3      Population = 8 persons (rounded)

Average Day Demand (ADD) = 1,800 L/d = 1.80 m<sup>3</sup>/d = 0.02 L/s

Max Day Demand (MDD) = 4,950 L/d = 4.95 m<sup>3</sup>/d = 0.06 L/s

Peak Hour Demand (PHD) = 7,434 L/d = 7.43 m<sup>3</sup>/d = 0.09 L/s

Required Fire Flow (FF) = 100.00 L/s

MDD + FF = 100.06 L/s

**Note:** FUS Fire Flow Calculations resulted in a minimum required fire flow of 100 L/s.



Project: 242 Edgehill Drive, Barrie

Date: January 25, 2024

File No.: 423391

Designed: JLM

Subject: FUS Fire Flow Calculations

Checked: DB

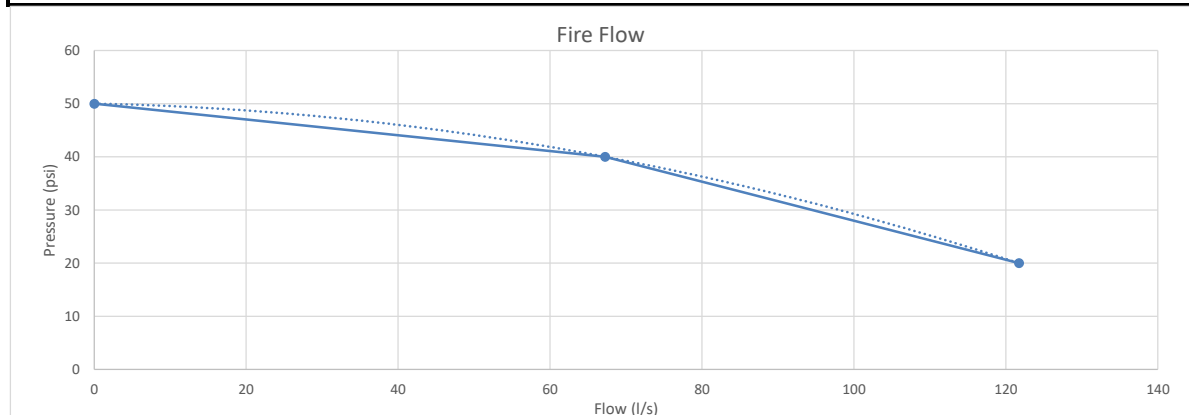
Revisions:

# Fire Underwriters Survey Fire Flow Calculations

Calculation Based on 2020 Publication "Water Supply for Public Fire Protection" by Fire Underwriters Survey (FUS) for the 3-unit row townhouse; below calculation assumes an end unit (only one 2-hr fire wall).

| Step                                                                                  | Description                                                                                   | Term                                                                                                                                                                                                                                         | Options                                                                                    | Multiplier Associated with Option | Choose                           | Value used | Unit  | Total Fire Flow (L/min) |       |
|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------------|----------------------------------|------------|-------|-------------------------|-------|
| 1                                                                                     | Frame Use for Construction of Unit                                                            | Coefficient related to type of construction (Construction Coefficient) (C)                                                                                                                                                                   | Framing Material                                                                           |                                   |                                  |            |       |                         | N/A   |
|                                                                                       |                                                                                               |                                                                                                                                                                                                                                              | Type V - Wood Frame Construction                                                           | 1.5                               | Ordinary Construction            | 1.0        | %     |                         |       |
|                                                                                       |                                                                                               |                                                                                                                                                                                                                                              | Type IVA - Mass Timber Construction                                                        | 0.8                               |                                  |            |       |                         |       |
|                                                                                       |                                                                                               |                                                                                                                                                                                                                                              | Type IVB - Mass Timber Construction                                                        | 0.9                               |                                  |            |       |                         |       |
|                                                                                       |                                                                                               |                                                                                                                                                                                                                                              | Type IVC - Mass Timber Construction                                                        | 1.0                               |                                  |            |       |                         |       |
|                                                                                       |                                                                                               |                                                                                                                                                                                                                                              | Type IVD - Mass Timber Construction                                                        | 1.5                               |                                  |            |       |                         |       |
|                                                                                       |                                                                                               |                                                                                                                                                                                                                                              | Ordinary Construction                                                                      | 1.0                               |                                  |            |       |                         |       |
|                                                                                       |                                                                                               |                                                                                                                                                                                                                                              | Non-combustible Construction                                                               | 0.8                               |                                  |            |       |                         |       |
|                                                                                       |                                                                                               |                                                                                                                                                                                                                                              | Fire Resistive Construction                                                                | 0.6                               |                                  |            |       |                         |       |
| 2                                                                                     | Total Effective Area                                                                          | Largest Floor Area                                                                                                                                                                                                                           |                                                                                            |                                   |                                  |            | 166   | m <sup>2</sup>          | N/A   |
|                                                                                       |                                                                                               | Percentage of the Total Area of the Other Floors for Coefficient 1.0 to 1.5                                                                                                                                                                  |                                                                                            |                                   |                                  | 100%       | 332   |                         |       |
|                                                                                       |                                                                                               | Percentage of the Total Area of the Other Floors for Coefficient below 1.0:                                                                                                                                                                  |                                                                                            |                                   |                                  |            |       |                         |       |
|                                                                                       |                                                                                               | a) If any vertical opening in the building are unprotected, consider the two largest adjoining floor areas plus 50% of all floors immediately above them up to a maximum of eight, <b>or</b>                                                 | 50%                                                                                        |                                   |                                  |            |       |                         |       |
|                                                                                       |                                                                                               | b) If all vertical openings and exterior vertical communications are properly protected in accordance with the National Building Code, consider only the single largest Floor Area plus 25% of each of the two immediately adjoining floors. | 25%                                                                                        |                                   |                                  |            |       |                         |       |
|                                                                                       |                                                                                               | Total Effective Area                                                                                                                                                                                                                         |                                                                                            |                                   |                                  |            | 498   |                         |       |
|                                                                                       |                                                                                               |                                                                                                                                                                                                                                              |                                                                                            |                                   |                                  |            |       |                         |       |
| 3                                                                                     | Required Fire Flow without Reductions or Increases                                            | Required Fire Flows without Reductions or Increases per FUS): (RFF= 220 x C x A <sup>0.5</sup> )                                                                                                                                             |                                                                                            |                                   |                                  |            |       |                         | 5,000 |
| 4                                                                                     | Factors Affecting Burning                                                                     | Reductions / Increases Due to Factors Affecting Burning                                                                                                                                                                                      |                                                                                            |                                   |                                  |            |       |                         |       |
| 4.1                                                                                   | Combustibility of Building Contents                                                           | Occupancy content hazard reduction or surcharge                                                                                                                                                                                              | Non-combustible                                                                            | -0.25                             | Limited combustible              | -0.15      | %     | (750)                   | 4,250 |
|                                                                                       |                                                                                               |                                                                                                                                                                                                                                              | Limited combustible                                                                        | -0.15                             |                                  |            |       |                         |       |
|                                                                                       |                                                                                               |                                                                                                                                                                                                                                              | Combustible                                                                                | 0.00                              |                                  |            |       |                         |       |
|                                                                                       |                                                                                               |                                                                                                                                                                                                                                              | Free burning                                                                               | 0.15                              |                                  |            |       |                         |       |
|                                                                                       |                                                                                               |                                                                                                                                                                                                                                              | Rapid burning                                                                              | 0.25                              |                                  |            |       |                         |       |
| 4.2                                                                                   | Reduction Due to Presence of Sprinklers                                                       | Sprinkler reduction                                                                                                                                                                                                                          | For a fully supervised system the conditions a), b) and c) below must be met.              |                                   |                                  | 0          | %     | -                       | 4,250 |
|                                                                                       |                                                                                               |                                                                                                                                                                                                                                              | a) Automatic sprinkler protection designed and installed in accordance with <b>NEPA 13</b> | -0.3                              | No                               |            |       |                         |       |
|                                                                                       |                                                                                               |                                                                                                                                                                                                                                              | b) Water supply is standard for both the system and the Fire Department hose lines         | -0.1                              | No                               |            |       |                         |       |
|                                                                                       |                                                                                               |                                                                                                                                                                                                                                              | c) Fully supervised system                                                                 | -0.1                              | No                               |            |       |                         |       |
|                                                                                       |                                                                                               |                                                                                                                                                                                                                                              | None                                                                                       | 0.0                               | No                               |            |       |                         |       |
| 4.3                                                                                   | Separation Distance Between Units (Use 10% for 2 hour Fire Separation between adjacent units) | Exposure distance between units                                                                                                                                                                                                              | North Side                                                                                 | Greater than 30.0 m               | 0.00                             | 0.3        | %     | 1,275                   | 5,525 |
|                                                                                       |                                                                                               |                                                                                                                                                                                                                                              | East Side (Other Side of 2-hr Fire Wall)                                                   | 0 to 3.0 m                        | 0.10                             |            |       |                         |       |
|                                                                                       |                                                                                               |                                                                                                                                                                                                                                              | South Side                                                                                 | Greater than 30.0 m               | 0.00                             |            |       |                         |       |
|                                                                                       |                                                                                               |                                                                                                                                                                                                                                              | West Side                                                                                  | 3.1 to 10.0 m                     | 0.20                             |            |       |                         |       |
| 4.4                                                                                   | Combustibility of Wood Shingle or Shake Roof Material                                         | Surcharge for potential to spread fire                                                                                                                                                                                                       | Non-combustible roofing material                                                           | 0                                 | Non-combustible roofing material | 0          | L/min | 0                       | 5,525 |
|                                                                                       |                                                                                               |                                                                                                                                                                                                                                              | Low risk of fire spread                                                                    | 2000                              |                                  |            |       |                         |       |
|                                                                                       |                                                                                               |                                                                                                                                                                                                                                              | Moderate risk of fire spread                                                               | 3000                              |                                  |            |       |                         |       |
|                                                                                       |                                                                                               |                                                                                                                                                                                                                                              | High risk of fire spread                                                                   | 4000                              |                                  |            |       |                         |       |
| Total Required Fire Flow, rounded to nearest 1000 L/min, with max/min limits applied: |                                                                                               |                                                                                                                                                                                                                                              |                                                                                            |                                   |                                  |            |       |                         | 6,000 |
| 5                                                                                     | Required Fire Flow, Duration and Volume                                                       | Total Required Fire Flow (above) in L/s:                                                                                                                                                                                                     |                                                                                            |                                   |                                  |            |       |                         | 100   |
|                                                                                       |                                                                                               | Required Duration of Fire Flow of 6,000 L/min (hrs):                                                                                                                                                                                         |                                                                                            |                                   |                                  |            | 2     |                         |       |
|                                                                                       |                                                                                               | Required volume for Fire Flow of 6,000 L/min (m³):                                                                                                                                                                                           |                                                                                            |                                   |                                  |            | 720   |                         |       |

| Fire Flow Test (v1.0)                                                                                                                                                                                |                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| City of Barrie                                                                                                                                                                                       |                                                                                                                                                            |
| 10-Jul-2023                                                                                                                                                                                          |                                                                                                                                                            |
| Hydrant Number (Residual and Static Pressure)                                                                                                                                                        | Residual Pressure H878                                                                                                                                     |
| Hydrant Number(s) (Flow)                                                                                                                                                                             | Pitot Pressure H876                                                                                                                                        |
| Hydrant Street / Address (Residual and Static Pressure)                                                                                                                                              | 257 Edgehill Drive                                                                                                                                         |
| Hydrant Street / Address (Flow)                                                                                                                                                                      | 241 Edgehill Drive                                                                                                                                         |
| Hydrant Locations Figure (Residual/Static and Flow)                                                                                                                                                  | Please refer Vipond's "Flow Test Results"                                                                                                                  |
| Date of Test (DD/MM/YYYY)                                                                                                                                                                            | 24/04/2023                                                                                                                                                 |
| Time (HH:MM AM or PM)                                                                                                                                                                                | 09:30:00 AM                                                                                                                                                |
| Time (HH:MM AM or PM)                                                                                                                                                                                | 10:00:00 AM                                                                                                                                                |
| Company Name                                                                                                                                                                                         | Vipond Inc.                                                                                                                                                |
| Employee Name(s)                                                                                                                                                                                     | Imran Ahmad - T.H.                                                                                                                                         |
| City of Barrie Employee Name(s)                                                                                                                                                                      | Unknown                                                                                                                                                    |
| Static Pressure                                                                                                                                                                                      | 50 psi                                                                                                                                                     |
| Residual Pressure                                                                                                                                                                                    | 40 psi                                                                                                                                                     |
| Hydrant Elevation (Residual and Static Pressure)                                                                                                                                                     | 245 m                                                                                                                                                      |
| Hydrant Elevation (Flow)                                                                                                                                                                             | 243 m                                                                                                                                                      |
| Elevation Difference (m)                                                                                                                                                                             | 2 m                                                                                                                                                        |
| Pitot Pressure - Outlet 1                                                                                                                                                                            | 10 psi                                                                                                                                                     |
| Pitot Pressure - Outlet 2                                                                                                                                                                            | psi                                                                                                                                                        |
| Outlet Size                                                                                                                                                                                          | 2.5 inch                                                                                                                                                   |
| Outlet Coefficient                                                                                                                                                                                   | 0.9                                                                                                                                                        |
| Pressure Drop Check (NFPA 291)                                                                                                                                                                       | 20.00 %<br>Minimum pressure drop of 25% is recommended, please consider opening other outlets or flowing additional hydrants                               |
| Pressure Drop Check (AWWA M17)                                                                                                                                                                       | 10.00 psi<br>Meets minimum pressure drop recommendation of 10 psi                                                                                          |
| Q Hydrant Flow - Outlet 1                                                                                                                                                                            | 1066.00 US gpm                                                                                                                                             |
| Q Hydrant Flow - Outlet 2                                                                                                                                                                            | 0.00 US gpm                                                                                                                                                |
| Q Total Flow                                                                                                                                                                                         | 67.25 l/s                                                                                                                                                  |
| Pressure at Desired Fire Flow                                                                                                                                                                        | 20.00 psi                                                                                                                                                  |
| Q Outlet 1 <sub>R</sub>                                                                                                                                                                              | 1929.31 US gpm                                                                                                                                             |
| Q Outlet 2 <sub>R</sub>                                                                                                                                                                              | 0.00 US gpm                                                                                                                                                |
| Q Total <sub>R</sub>                                                                                                                                                                                 | 1929.31 US gpm                                                                                                                                             |
| Q Total <sub>R</sub>                                                                                                                                                                                 | 121.72 l/s                                                                                                                                                 |
| Have any Cell formulas been changed? (Yes/No)                                                                                                                                                        | Yes<br>C28 (Q hydrant flow) was revised to measured value instead of theoretical calculation. Measured value is more conservative of actual flow scenario. |
| Hydrant Colour:                                                                                                                                                                                      | Blue                                                                                                                                                       |
| Boundary Conditions (ET, Reservoir, BPS, PRV, Wells etc):<br>Unknown                                                                                                                                 |                                                                                                                                                            |
| Other Considerations (flushing, fire, operational issues, outlet coefficient etc):<br>Entered data for Flow Test #3.<br>Estimated hydrant elevations from ground elevations from Simcoe GIS mapping. |                                                                                                                                                            |



|         |                               |      |            |
|---------|-------------------------------|------|------------|
| PROJECT | 242 Edgehill Drive, Barrie    | FILE | 423391     |
|         |                               | DATE | 2023-07-07 |
| SUBJECT | Available Fire Flow at 20 psi | NAME | JLM        |
|         |                               | PAGE | 1 OF 1     |

$$Q_R = Q_F \left( \frac{h_r}{h_f} \right)^{0.54}$$

From City of Barrie's *Drinking Water Infrastructure Design Standard*, page 8 (June 2023)

Test Completed By: Vipond Inc.

Date of Test: April 24, 2023

Test Location: City of Barrie

Static Pressure: 50 psi

TEST 1 Hydrant test: One 1¾" Nozzle

Values

Where  $Q_R$  = Flow at 20 psi

$Q_F$  = Flow at Test (i.e. Discharge)

$h_r$  = Pressure Drop Available (Static - 20)

$h_f$  = Pressure Drop at Test (Static - Residual)

$Q_F$  = 924 US gpm

$h_r$  = 50 - 20 = 30 psi

$h_f$  = 50 - 50 = 0 psi

$Q_R$  = --- US gpm

= --- L/s Zero pressure drop during Test 1

TEST 2 Hydrant test: One 2½" Nozzle

Values

Where  $Q_R$  = Flow at 20 psi

$Q_F$  = Flow at Test (i.e. Discharge)

$h_r$  = Pressure Drop Available (Static - 20)

$h_f$  = Pressure Drop at Test (Static - Residual)

$Q_F$  = 969 US gpm

$h_r$  = 50 - 20 = 30 psi

$h_f$  = 50 - 50 = 0 psi

$Q_R$  = --- US gpm

= --- L/s Zero pressure drop during Test 2

TEST 3 Hydrant test: Two 2½" Nozzles

Values

Where  $Q_R$  = Flow at 20 psi

$Q_F$  = Flow at Test (i.e. Discharge)

$h_r$  = Pressure Drop Available (Static - 20)

$h_f$  = Pressure Drop at Test (Static - Residual)

$Q_F$  = 1,066 US gpm

$h_r$  = 50 - 20 = 30 psi

$h_f$  = 50 - 40 = 10 psi

$Q_R$  = 1,929 US gpm

= 121.55 L/s Insufficient pressure drop during Test 3: 20%

# FLOW TEST RESULTS



DATE : APRIL 24, 2023 TIME VALVE OPENED: 9:30 AM

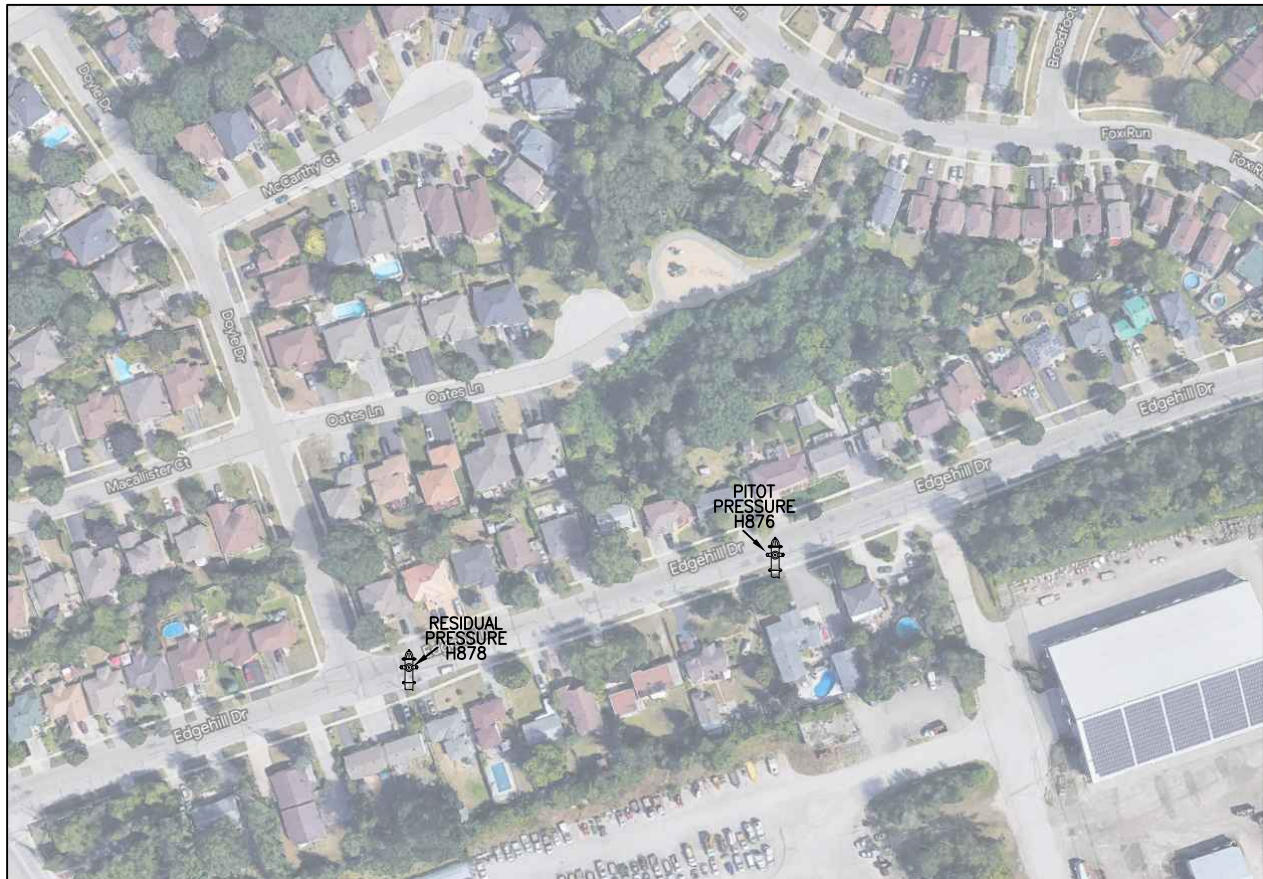
TIME LAST VALVE CLOSED: 10:00 AM

LOCATION : 242 EDGEHILL DRIVE

BARRIE

ONTARIO

TEST BY : IMRAN AHMAD – T.H.



STATIC PRESSURE : 50 PSI

| TEST NO. | NO. OF NOZZLES | NOZZLE DIAMETER (INCHES) | DISCHARGE CO-EFFICIENT | RESIDUAL PRESSURE (PSI) | PITOT PRESSURE (PSI) | DISCHARGE (U.S.GPM) |
|----------|----------------|--------------------------|------------------------|-------------------------|----------------------|---------------------|
| 1        | 1              | 1-3/4                    | 0.995                  | 50                      | 30                   | 924                 |
| 2        | 1              | 2-1/2                    | 0.90                   | 50                      | 33                   | 969                 |
| 3        | 2              | 2-1/2                    | 0.90                   | 40                      | 10                   | 1066                |



242 EDGEHILL DRIVE

BARRIE

ONTARIO

BY : IMRAN AHMAD- T.H.

OFFICE : BARRIE

TEST BY : VIPOND & PUC

DATE : APRIL 24, 2023

STATIC:

50 PSI

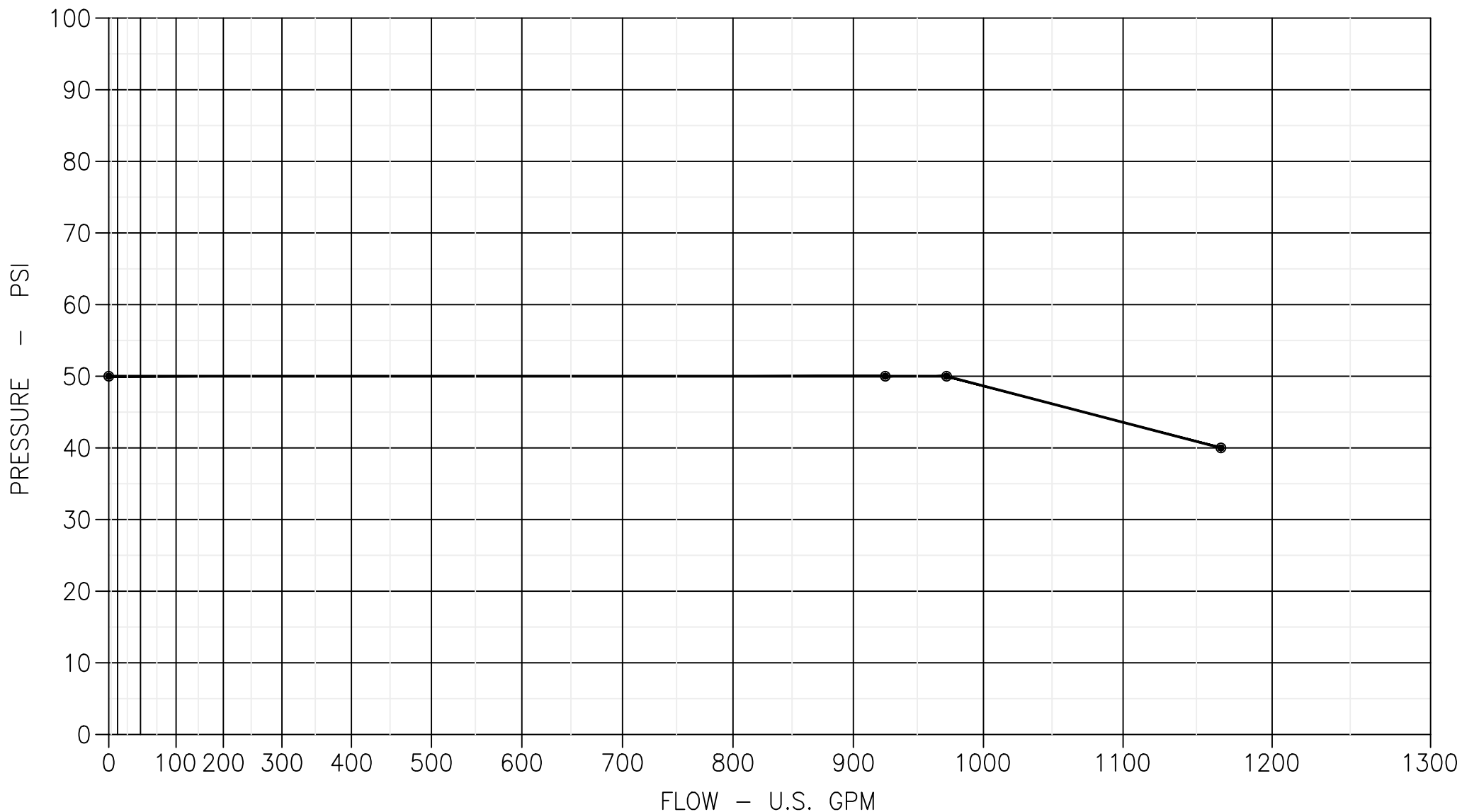
RESIDUAL:

TEST#1 50 PSI @ 924 GPM

TEST#2 50 PSI @ 969 GPM

TEST#3 40 PSI @ 1066 GPM

FLOW:



## **Appendix C: Sanitary Calculations**

|         |                            |      |            |
|---------|----------------------------|------|------------|
| PROJECT | 242 Edgehill Drive, Barrie | FILE | 423391     |
|         |                            | DATE | 2023-07-07 |
| SUBJECT | Sanitary Flows             | NAME | JLM        |
|         |                            | PAGE | 1 OF 1     |

**Design Criteria (as per City of Barrie standards)**
Flows

Per Capita Flow = 225 L/cap/day

Extraneous Flow (Infiltration) = 0.10 L/s/ha

Peaking Factors

 Residential = Harmon  
 =  $1+14/(4+0.008^{0.5})$   
 = 4.42

Population Density

Medium Density = 2.34 PPU

Site Information

 Townhouse Units = 3      Population = 8 persons (rounded)  
 Residential Area (used for Extraneous Flows only) = 0.07 ha

**Average Day Flow (ADF)**

 ADF of Proposed Development = 1,800 L/d = 1.80 m<sup>3</sup>/d = 0.02 L/s

**Peak Flow (PF)**

 PF of Proposed Development = 7,962 L/d = 7.96 m<sup>3</sup>/d = 0.09 L/s

 Extraneous Flow = 605 L/d = 0.60 m<sup>3</sup>/d = 0.01 L/s

 Total PF (including Extraneous Flow) = 8,567 L/d = 8.57 m<sup>3</sup>/d = 0.10 L/s

## **Appendix D: Drainage and Stormwater Management Calculations**

|         |                                                    |      |           |
|---------|----------------------------------------------------|------|-----------|
| PROJECT | 242 Edgehill Drive, Barrie                         | FILE | 423391    |
|         |                                                    | DATE | 1/25/2024 |
| SUBJECT | Runoff Coefficient Calculator<br>(Pre-Development) | NAME | LJC       |
|         |                                                    | PAGE | 1 OF 1    |

| CATCHMENT 101                                                                |           |                    |           |                                                                                          |
|------------------------------------------------------------------------------|-----------|--------------------|-----------|------------------------------------------------------------------------------------------|
| <u>Runoff Coefficient</u>                                                    |           |                    |           | <u>Time of Concentration</u><br>Per MTO Drainage Manual, 1997                            |
| Land Use Type                                                                | Soil Type | Runoff Coefficient | Area (ha) |                                                                                          |
| Lawn, 2-7% grade                                                             | AB        | 0.10               | 0.05      | Catchment Length (m): 30.20                                                              |
| Impervious area                                                              | -         | 0.95               | 0.02      | Maximum Elevation (m): 245.76                                                            |
| Total: 0.07                                                                  |           |                    |           | Minimum Elevation (m): 244.01                                                            |
| Composite Runoff Coefficient: <b>0.34</b>                                    |           |                    |           | Catchment Slope (%): 5.79 %                                                              |
| Source: Table 3.2 - City of Barrie Stormwater Infrastructure Design Standard |           |                    |           | Runoff Coefficient: 0.34                                                                 |
|                                                                              |           |                    |           | Airport: 7.60 min                                                                        |
|                                                                              |           |                    |           | Bransby Williams: 1.35 min                                                               |
|                                                                              |           |                    |           | Time of Concentration Method: -                                                          |
|                                                                              |           |                    |           | Time of Concentration (min): 10.00 min                                                   |
|                                                                              |           |                    |           | Where calculated $T_c$ is less than MTO standard of 10 minutes, 10 minutes has been used |
| CATCHMENT 301 (External)                                                     |           |                    |           |                                                                                          |
| <u>Runoff Coefficient</u>                                                    |           |                    |           | <u>Time of Concentration</u><br>Per MTO Drainage Manual, 1997                            |
| Land Use Type                                                                | Soil Type | Runoff Coefficient | Area (ha) |                                                                                          |
| Woodland or Cutover (10-30% slopes)                                          | AB        | 0.18               | 0.21      | Catchment Length (m): 48.80                                                              |
| Total: 0.21                                                                  |           |                    |           | Maximum Elevation (m): 251.18                                                            |
| Composite Runoff Coefficient: <b>0.18</b>                                    |           |                    |           | Minimum Elevation (m): 245.63                                                            |
| Source: Table 3.2 - City of Barrie Stormwater Infrastructure Design Standard |           |                    |           | Catchment Slope (%): 11.37 %                                                             |
|                                                                              |           |                    |           | Runoff Coefficient: 0.18                                                                 |
|                                                                              |           |                    |           | Airport: 9.39 min                                                                        |
|                                                                              |           |                    |           | Bransby Williams: 2.00 min                                                               |
|                                                                              |           |                    |           | Time of Concentration Method: -                                                          |
|                                                                              |           |                    |           | Time of Concentration (min): 10.00 min                                                   |
|                                                                              |           |                    |           | Where calculated $T_c$ is less than MTO standard of 10 minutes, 10 minutes has been used |

|         |                                                     |      |           |
|---------|-----------------------------------------------------|------|-----------|
| PROJECT | 242 Edgehill Drive, Barrie                          | FILE | 423391    |
|         |                                                     | DATE | 1/25/2024 |
| SUBJECT | Runoff Coefficient Calculator<br>(Post-Development) | NAME | LJC       |
|         |                                                     | PAGE | 1 OF 1    |

| CATCHMENT 201                                                                |           |                    |           |                                                                                          |
|------------------------------------------------------------------------------|-----------|--------------------|-----------|------------------------------------------------------------------------------------------|
| <u>Runoff Coefficient</u>                                                    |           |                    |           | <u>Time of Concentration</u><br>Per MTO Drainage Manual, 1997                            |
| Land Use Type                                                                | Soil Type | Runoff Coefficient | Area (ha) |                                                                                          |
| Lawn, 2-7% grade                                                             | AB        | 0.10               | 0.04      | Catchment Length (m): 41.47                                                              |
|                                                                              |           |                    |           | Maximum Elevation (m): 245.36                                                            |
|                                                                              |           |                    |           | Minimum Elevation (m): 244.00                                                            |
| Impervious area                                                              | -         | 0.95               | 0.03      | Catchment Slope (%): 3.28 %                                                              |
| Total: 0.07                                                                  |           |                    |           | Runoff Coefficient: 0.43                                                                 |
| Composite Runoff Coefficient: <b>0.43</b>                                    |           |                    |           | Airport: 9.43 min                                                                        |
| Source: Table 3.2 - City of Barrie Stormwater Infrastructure Design Standard |           |                    |           | Bransby Williams: 2.03 min                                                               |
|                                                                              |           |                    |           | Time of Concentration Method: -                                                          |
|                                                                              |           |                    |           | Time of Concentration (min): 10.00 min                                                   |
|                                                                              |           |                    |           | Where calculated $T_c$ is less than MTO standard of 10 minutes, 10 minutes has been used |
| CATCHMENT 301 (External)                                                     |           |                    |           |                                                                                          |
| <u>Runoff Coefficient</u>                                                    |           |                    |           | <u>Time of Concentration</u><br>Per MTO Drainage Manual, 1997                            |
| Land Use Type                                                                | Soil Type | Runoff Coefficient | Area (ha) |                                                                                          |
| Woodland or Cutover (10-30% slopes)                                          | AB        | 0.18               | 0.21      | Catchment Length (m): 48.80                                                              |
|                                                                              |           |                    |           | Maximum Elevation (m): 251.18                                                            |
|                                                                              |           |                    |           | Minimum Elevation (m): 245.63                                                            |
| Total: 0.21                                                                  |           |                    |           | Catchment Slope (%): 11.37 %                                                             |
| Composite Runoff Coefficient: <b>0.18</b>                                    |           |                    |           | Runoff Coefficient: 0.18                                                                 |
| Source: Table 3.2 - City of Barrie Stormwater Infrastructure Design Standard |           |                    |           | Airport: 9.39 min                                                                        |
|                                                                              |           |                    |           | Bransby Williams: 2.00 min                                                               |
|                                                                              |           |                    |           | Time of Concentration Method: -                                                          |
|                                                                              |           |                    |           | Time of Concentration (min): 10.00 min                                                   |
|                                                                              |           |                    |           | Where calculated $T_c$ is less than MTO standard of 10 minutes, 10 minutes has been used |

# Modified Rational Method Calculation

**Project Details**

|                            |        |
|----------------------------|--------|
| 242 Edgehill Drive, Barrie | 423391 |
|----------------------------|--------|

**Prepared By**

|     |           |
|-----|-----------|
| LJC | 1/25/2024 |
|-----|-----------|

**Municipality**

|                |
|----------------|
| City of Barrie |
|----------------|

**Pre-Development Analysis**

|                       |      |         |
|-----------------------|------|---------|
| Catchment ID:         | 101  | EXT-301 |
| Catchment Area (ha):  | 0.07 | 0.21    |
| 1:5-Year Runoff Coef: | 0.34 | 0.18    |
| Time of Conc. (min):  | 10   | 10      |

**Post-Development Analysis**

|                        |      |         |
|------------------------|------|---------|
| Catchment ID:          | 201  | EXT-301 |
| Catchment Area (ha):   | 0.07 | 0.21    |
| 1:5-Year Runoff Coef.: | 0.43 | 0.18    |
| Time of Conc. (min):   | 10   | 10      |

**Rational Method Calculations**

| Design Storm |           | 2    | 5    | 10   | 25   | 50   | 100  | Design Storm      |      | 2    | 5    | 10   | 25   | 50   | 100 |
|--------------|-----------|------|------|------|------|------|------|-------------------|------|------|------|------|------|------|-----|
| IDF Curve    | A         | 676  | 843  | 977  | 1133 | 1251 | 1384 | i (mm/hr)         | 83   | 109  | 126  | 148  | 164  | 180  |     |
|              | B         | 4.68 | 4.58 | 4.75 | 4.73 | 4.85 | 4.91 | 201 C             | 0.43 | 0.43 | 0.43 | 0.47 | 0.52 | 0.54 |     |
|              | C         | 0.78 | 0.76 | 0.76 | 0.76 | 0.75 | 0.75 | Q (m³/s)          | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 |     |
| 101          | i (mm/hr) | 83   | 109  | 126  | 148  | 164  | 180  | EXT-301 i (mm/hr) | 83   | 109  | 126  | 148  | 164  | 180  |     |
|              | C         | 0.34 | 0.34 | 0.34 | 0.37 | 0.41 | 0.43 | C                 | 0.18 | 0.18 | 0.18 | 0.20 | 0.22 | 0.23 |     |
|              | Q (m³/s)  | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | Q (m³/s)          | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 |     |

**Peak Flow Summary (m<sup>3</sup>/s)**

| Storm | Q <sub>EXISTING</sub> | Q <sub>EXTERNAL</sub> | Q <sub>INTERNAL</sub> | Q <sub>PROPOSED</sub> | Q <sub>EXISTING</sub> - Q <sub>PROPOSED</sub> |
|-------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------------------------------|
| 2     | 0.014                 | 0.009                 | 0.007                 | 0.016                 | -0.001                                        |
| 5     | 0.019                 | 0.011                 | 0.009                 | 0.021                 | -0.002                                        |
| 10    | 0.022                 | 0.013                 | 0.011                 | 0.024                 | -0.002                                        |
| 25    | 0.028                 | 0.017                 | 0.014                 | 0.031                 | -0.003                                        |
| 50    | 0.034                 | 0.021                 | 0.016                 | 0.037                 | -0.003                                        |
| 100   | 0.039                 | 0.024                 | 0.019                 | 0.043                 | -0.004                                        |

As shown, the peak flows marginally increase up to a maximum of 4 L/s in the proposed conditions. In addition, since the site is small (0.07 ha), this marginal increase in peak flows is considered negligible. Therefore, no water quantity and quality controls are proposed for the site.

## Manning's Equation Flow Calculations

### Project Details

|                            |        |
|----------------------------|--------|
| 242 Edgehill Drive, Barrie | 423391 |
|----------------------------|--------|

### Prepared By

|     |           |
|-----|-----------|
| LJC | 1/25/2024 |
|-----|-----------|

Manning's Equation: 
$$Q = \frac{1}{n} \cdot A \cdot R^{\frac{2}{3}} \cdot S^{\frac{1}{2}}$$

Where:

Q = flow (m<sup>3</sup>/s)

n = Manning's roughness coefficient

A = area of flow (m<sup>2</sup>)

R = hydraulic radius (m) equal to flow area divided by wetted perimeter

S = channel slope (m/m)

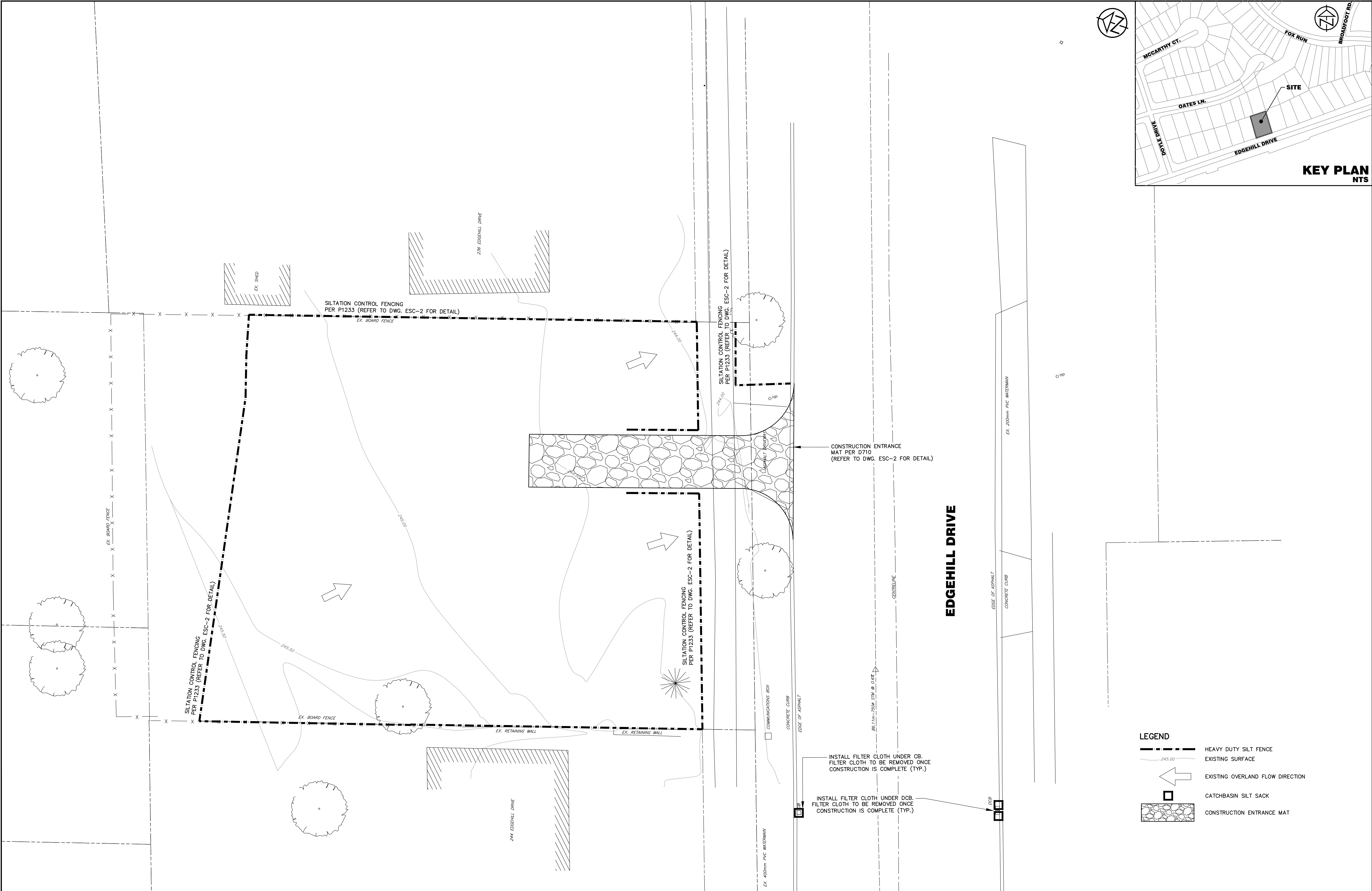
### Swale #1 - East of Proposed House

|                    |              |                                                               |                         |
|--------------------|--------------|---------------------------------------------------------------|-------------------------|
| Manning's n =      | 0.040        | Area =                                                        | 0.068 m <sup>2</sup>    |
| Slope =            | 0.018 m/m    | Wetted Perimeter =                                            | 0.949 m                 |
| Right Side Slope = | 3.0 :1 (H:V) | Hydraulic Radius =                                            | 0.071 m                 |
| Left Side Slope =  | 3.0 :1 (H:V) | Flow <sub>provided</sub> =                                    | 0.039 m <sup>3</sup> /s |
| Depth =            | 0.15 m       | Flow <sub>actual</sub> =                                      | 0.034 m <sup>3</sup> /s |
| Bottom Width =     | 0.00 m       | Therefore, the swale provides sufficient conveyance capacity. |                         |
| Swale Invert =     | 244.35 m     |                                                               |                         |

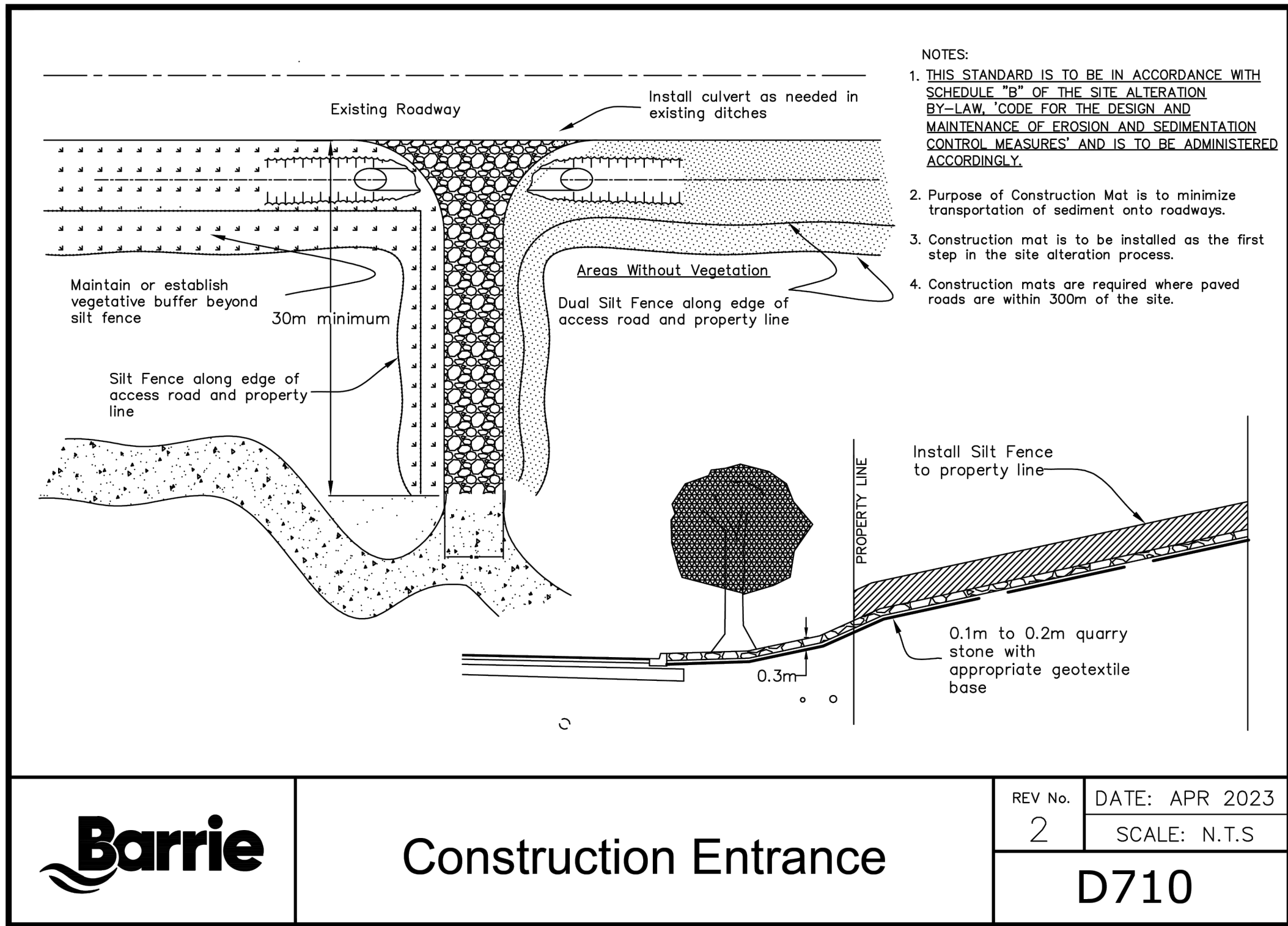
### Swale #2 - West of Proposed House

|                    |              |                                                               |                         |
|--------------------|--------------|---------------------------------------------------------------|-------------------------|
| Manning's n =      | 0.040        | Area =                                                        | 0.068 m <sup>2</sup>    |
| Slope =            | 0.033 m/m    | Wetted Perimeter =                                            | 0.949 m                 |
| Right Side Slope = | 3.0 :1 (H:V) | Hydraulic Radius =                                            | 0.071 m                 |
| Left Side Slope =  | 3.0 :1 (H:V) | Flow <sub>provided</sub> =                                    | 0.053 m <sup>3</sup> /s |
| Depth =            | 0.15 m       | Flow <sub>actual</sub> =                                      | 0.007 m <sup>3</sup> /s |
| Bottom Width =     | 0.00 m       | Therefore, the swale provides sufficient conveyance capacity. |                         |
| Swale Invert =     | 244.71 m     |                                                               |                         |

## Appendix E: Drawings

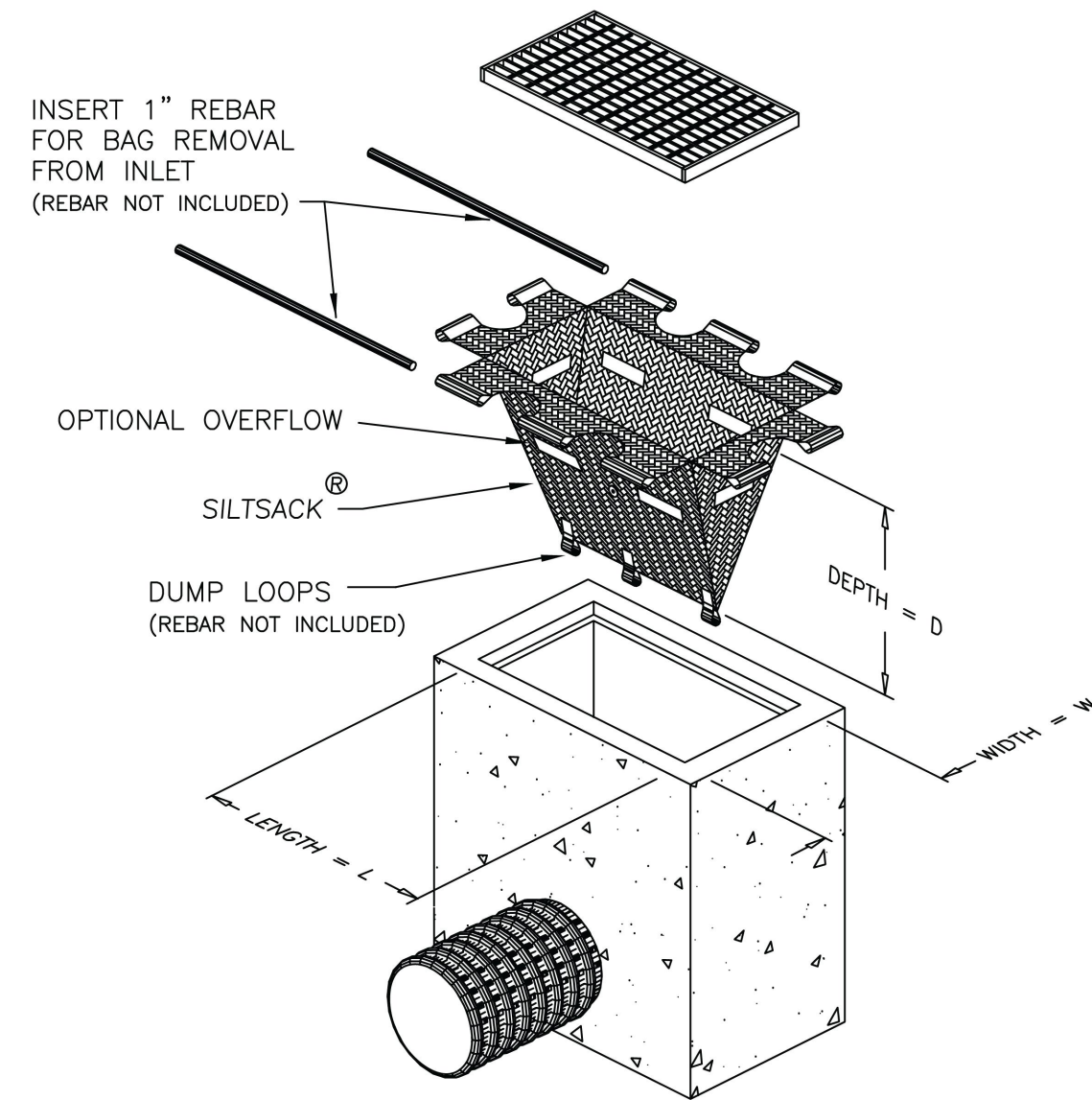
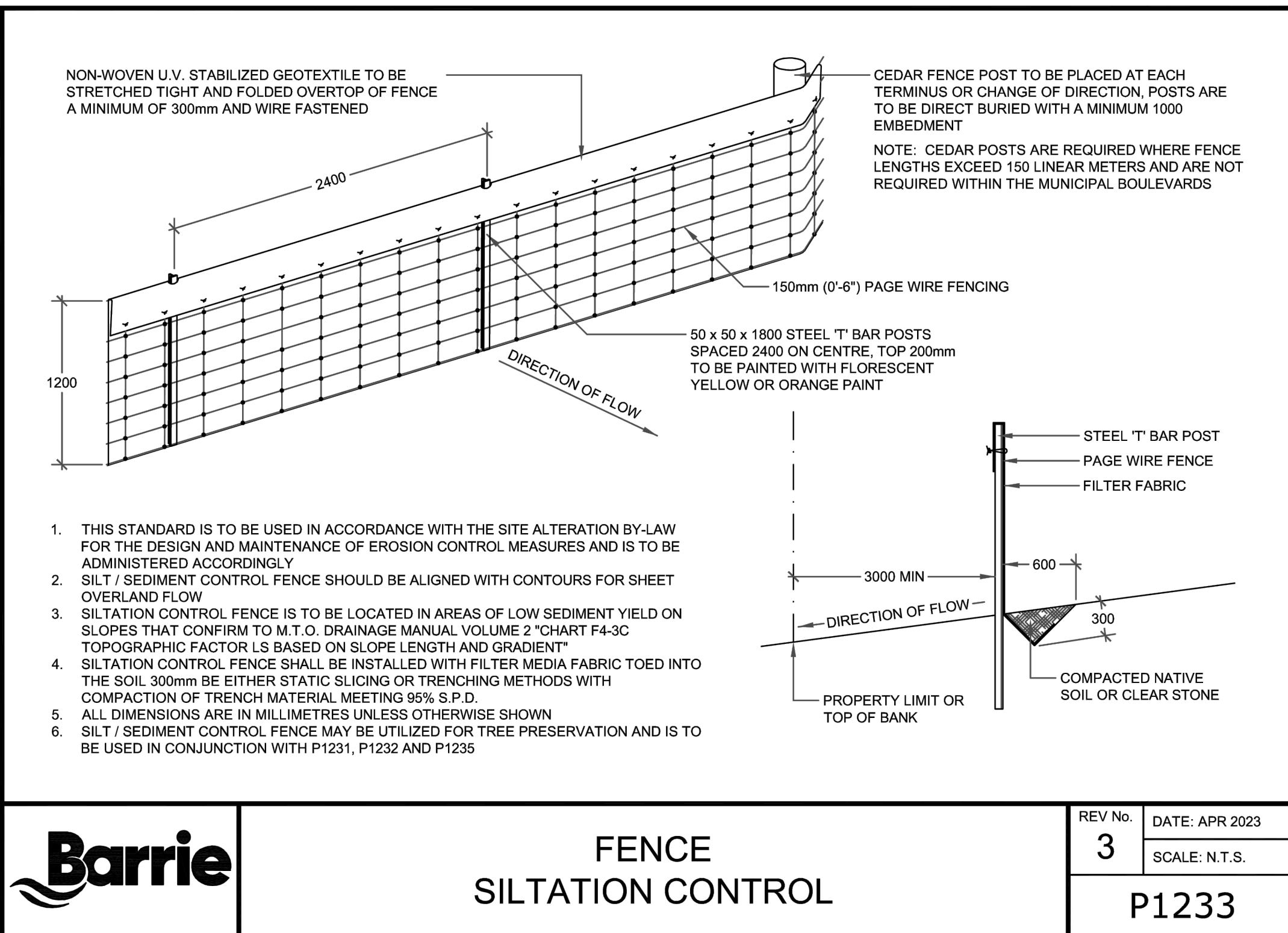


|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                            |                              |                                                                          |                                      |                                                                                                                                |                                                                                     |                           |                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|--------------------------------------------------------------------------|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------|----------------------------------|
| <div>DISCLAIMER AND COPYRIGHT</div> <div>CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE COMMENCING WORK. DRAWINGS ARE NOT TO BE SCALED.</div> <div>TATHAM ENGINEERING LIMITED CLAIMS COPYRIGHT TO THIS DRAWING WHICH MAY NOT BE USED FOR ANY PURPOSE OTHER THAN THAT PROVIDED IN THE CONTRACT BETWEEN THE OWNER/CLIENT AND THE ENGINEER WITHOUT THE EXPRESS CONSENT OF TATHAM ENGINEERING LIMITED.</div> | <div>BENCHMARKS</div> <div>SITE BENCHMARK #1 IS THE TOP OF THE IB AT THE SOUTHWEST CORNER OF PART 1, PLAN 51R-23415, HAVING AN ELEVATION OF 244.29.</div> <div>SITE BENCHMARK #2 IS THE TOP OF THE IB AT THE SOUTHEAST CORNER OF PART 2, PLAN 51R-23415, HAVING AN ELEVATION OF 244.01.</div> | <div>ELEVATION NOTES</div> <div>ELEVATION ARE GEODETIC IN ORIGIN AND WERE DERIVED FROM SPECIFIED CONTROL POINTS 03120080022 (ELEVATION=222.437, CGVD-1928:1978) AND 03120080023 (ELEVATION=226.540, CGVD-1928:1978).</div> | <div>No.</div> <div>1.</div> | <div>REVISION DESCRIPTION</div> <div>ISSUED FOR ZBA 1ST SUBMISSION</div> | <div>DATE</div> <div>JUL 18/23</div> | <div>ENGINEER STAMP</div> <div>242 EDGEHILL DRIVE</div> <div>CITY OF BARRIE</div> <div>EROSION AND SEDIMENT CONTROL PLAN</div> | <div><div><div><div></div></div><div>TATHAM</div><div>ENGINEERING</div></div></div> |                           |                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                            | <div>2.</div>                | <div>ISSUED FOR ZBA 2ND SUBMISSION</div>                                 | <div>JAN 26/24</div>                 |                                                                                                                                | <div>DESIGN: NM</div>                                                               | <div>FILE: 423391</div>   | <div>DWG:</div> <div>ESC-1</div> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                            |                              |                                                                          |                                      |                                                                                                                                | <div>DRAWN: NB</div>                                                                | <div>DATE: JUN 2023</div> |                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                            |                              |                                                                          |                                      |                                                                                                                                | <div>CHECK: MB</div>                                                                | <div>SCALE: 1:100</div>   |                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                            |                              |                                                                          |                                      |                                                                                                                                |                                                                                     |                           |                                  |



#### EROSION & SEDIMENT CONTROL

- A. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND SHALL REMAIN IN PLACE UNTIL ALL DISTURBED AREAS HAVE BEEN STABILIZED. EROSION AND SEDIMENT CONTROL MEASURES THAT ARE DESIGNED TO CONTROL RUNOFF FROM SPECIFIC AREAS MUST BE INSTALLED PRIOR TO ANY DISTURBANCE OF THAT PART OF THE SITE. THE LOCATION OF ALL EROSION AND SEDIMENT CONTROL WORKS TO BE REVIEWED ON SITE AND MAY BE REVISED AS DIRECTED BY THE ENGINEER.
- B. THE CONTRACTOR MAY CONSIDER ALTERNATIVE EROSION AND SEDIMENT CONTROL MEASURES. SUCH MEASURES MUST BE PRESENTED IN WRITING TO THE ENGINEER FOR APPROVAL BY THE CITY OF BARRIE.
- C. THE CONTRACTOR SHALL HAVE MATERIALS AVAILABLE ON-SITE TO REPAIR SEDIMENT AND EROSION CONTROL MEASURES IN THE EVENT OF UNFORESEEN CONDITIONS: HIGH WATER, EXTREME RAINFALL EVENTS, ETC.
- D. ALL EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSPECTED, CLEANED AND MAINTAINED BY THE CONTRACTOR AFTER EACH STORM EVENT. ALL WORKS WILL BE INSPECTED BY THE ENGINEER BI-WEEKLY AND AFTER EACH MAJOR STORM EVENT.
- E. CONSTRUCTION OF ALL EROSION AND SEDIMENT CONTROL WORKS ARE TO BE IN ACCORDANCE WITH THE FOLLOWING STEPS:
1. INSTALL STONE MUD MAT AS PER D710.
  2. INSTALL SILT FENCE AS PER P1233.
  3. INSTALL TEMPORARY CATCH BASIN SEDIMENT TRAPS BY TERRAFIX GEOSYNTHETICS (OR APPROVED EQUIVALENT) AS SHOWN ON DWG. ESC-1 AND AS DIRECTED BY THE ENGINEER. SEDIMENT TRAPS TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. ALL CATCH BASINS TO REMAIN SCREENED UNTIL BASE COURSE ASPHALT IS PLACED AND LOT GRADING IS COMPLETE.
- F. ALL CONSTRUCTION VEHICLES TO ACCESS SITE USING THE DESIGNATED CONSTRUCTION ENTRANCES.
- G. EROSION AND SEDIMENT CONTROL MEASURES TO BE REMOVED BY THE CONTRACTOR ONCE GROUND COVER IS ESTABLISHED AND LANDSCAPING IS COMPLETE AND AS APPROVED BY THE ENGINEER.
- H. ALL STOCKPILE LOCATIONS ARE TO BE APPROVED BY THE ENGINEER.
- I. PROVIDE SNOW FENCE OR APPROVED EQUAL ACROSS ALL CONSTRUCTION ENTRANCES DURING PERIODS OF INACTIVITY.
- J. CONSTRUCTION AREAS THAT EXCEED 30 DAYS OF INACTIVITY SHALL BE STABILIZED BY SEEDING. THIS SHALL INCLUDE STOCKPILES OF FILL AND TOPSOIL.



TYPICAL CATCH BASIN SEDIMENT CAPTURE DEVICE  
TYPE "B" ( FROM TERRAFIX GEOSYNTHETICS INC.)

#### DISCLAIMER AND COPYRIGHT

CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE COMMENCING WORK. DRAWINGS ARE NOT TO BE SCALED.

TATHAM ENGINEERING LIMITED CLAIMS COPYRIGHT TO THIS DRAWING WHICH MAY NOT BE USED FOR ANY PURPOSE OTHER THAN THAT PROVIDED IN THE CONTRACT BETWEEN THE OWNER/CLIENT AND THE ENGINEER WITHOUT THE EXPRESS CONSENT OF TATHAM ENGINEERING LIMITED.

#### BENCHMARKS

SITE BENCHMARK #1 IS THE TOP OF THE IB AT THE SOUTHWEST CORNER OF PART 1, PLAN 51R-23415, HAVING AN ELEVATION OF 244.29. SITE BENCHMARK #2 IS THE TOP OF THE IB AT THE SOUTHEAST CORNER OF PART 2, PLAN 51R-23415, HAVING AN ELEVATION OF 244.01.

#### ELEVATION NOTES

ELEVATION ARE GEODETIC IN ORIGIN AND WERE DERIVED FROM SPECIFIED CONTROL POINTS 03120080022 (ELEVATION=222.437, CGVD-1928:1978) AND 03120080023 (ELEVATION=226.540, CGVD-1928:1978).

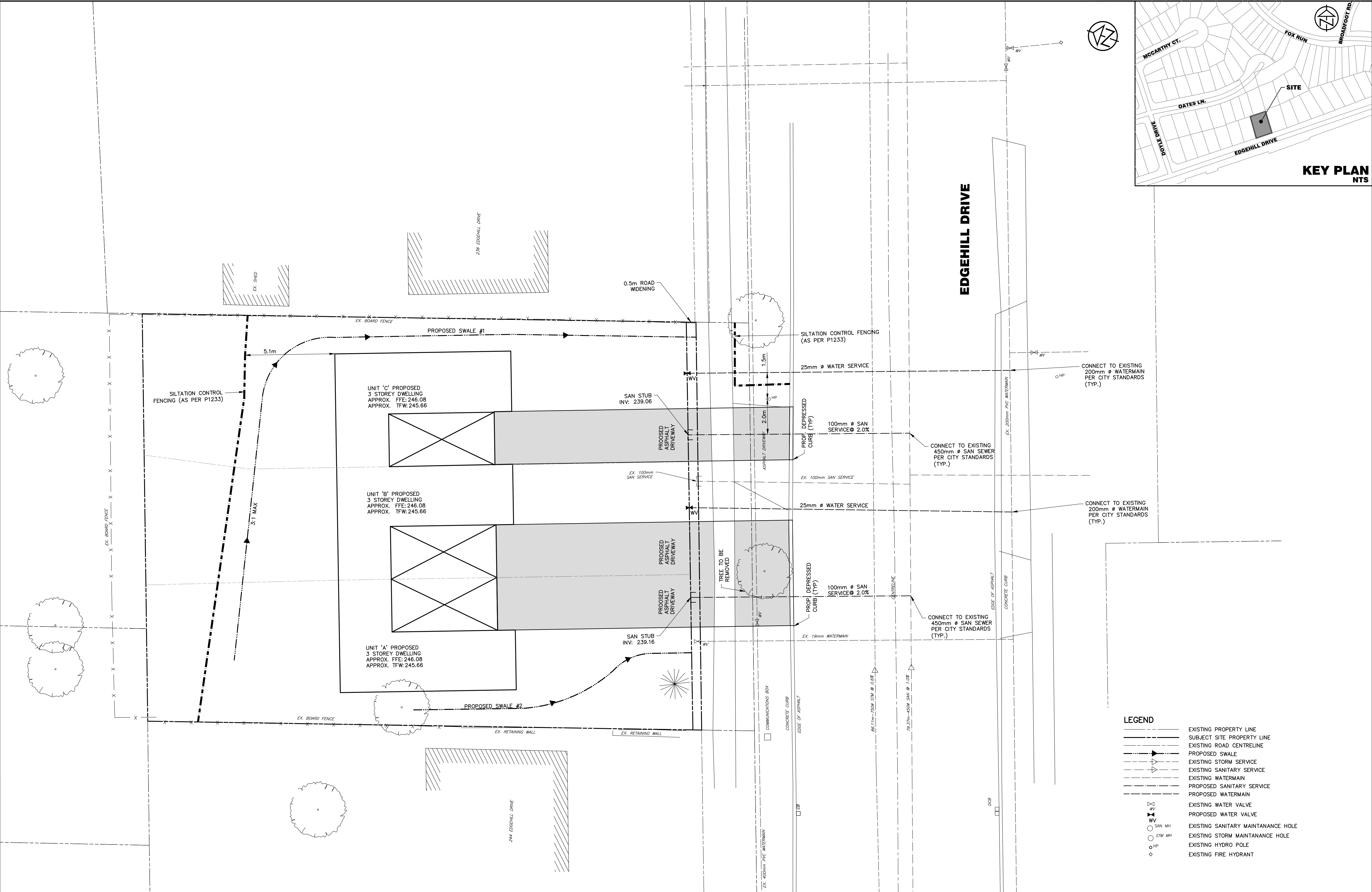
| No. | REVISION DESCRIPTION          | DATE      | ENGINEER STAMP |
|-----|-------------------------------|-----------|----------------|
| 1.  | ISSUED FOR ZBA 1ST SUBMISSION | JUL 18/23 |                |
| 2.  | ISSUED FOR ZBA 2ND SUBMISSION | JAN 26/24 |                |
|     |                               |           |                |
|     |                               |           |                |
|     |                               |           |                |

242 EDGEHILL DRIVE  
CITY OF BARRIE

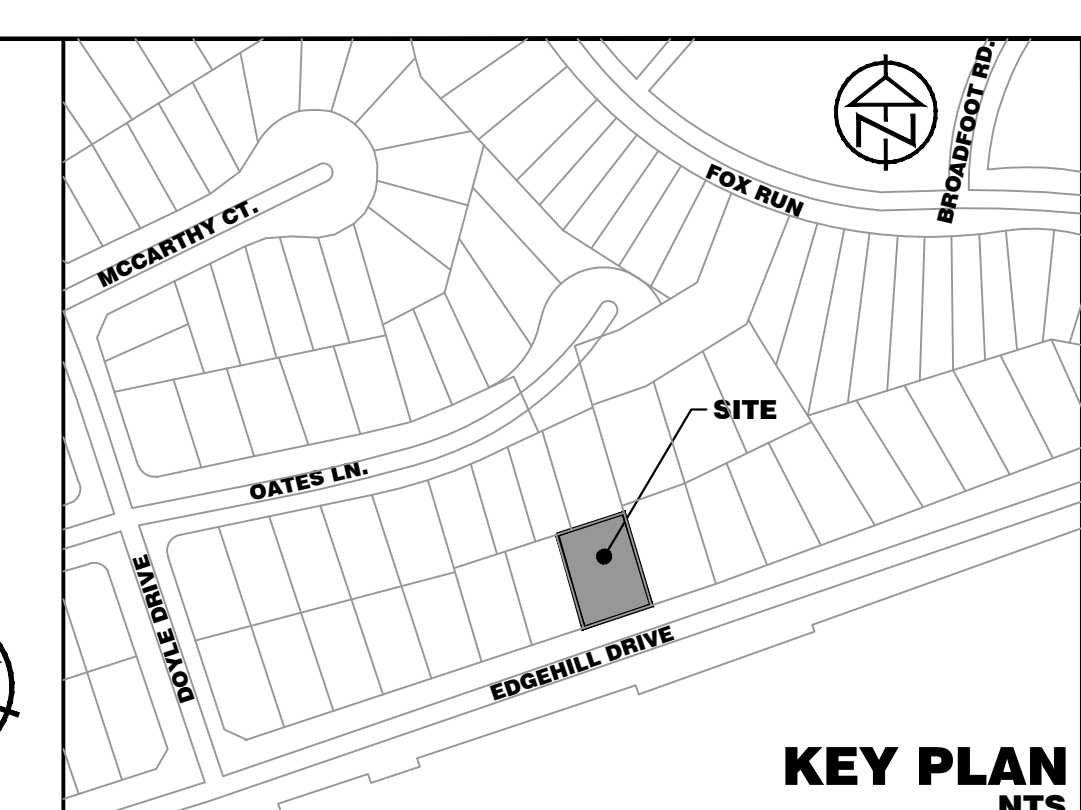
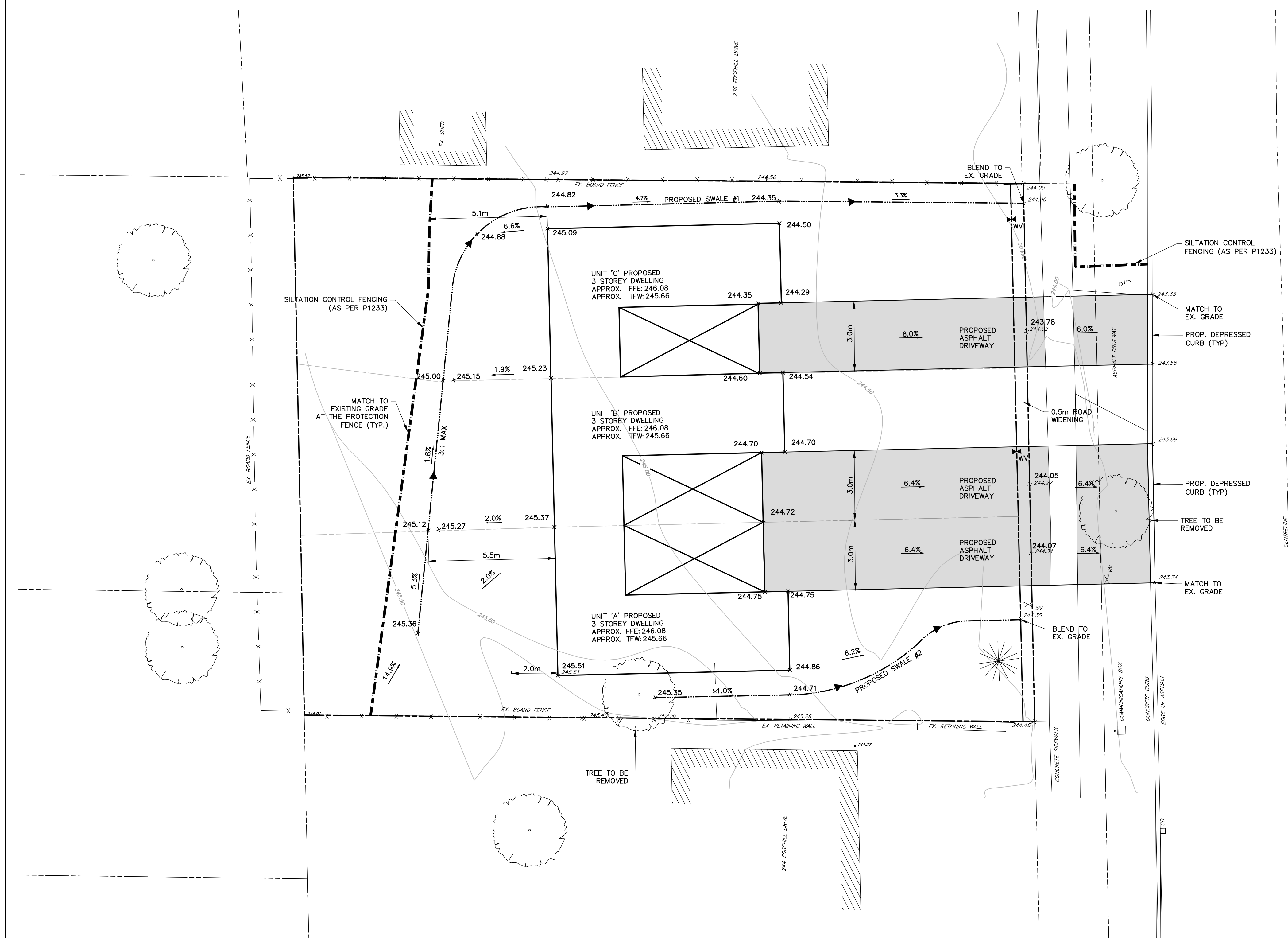
EROSION & SEDIMENT  
CONTROL PLAN:  
NOTES AND DETAILS

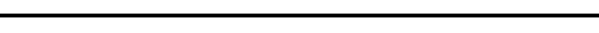
TATHAM  
ENGINEERING

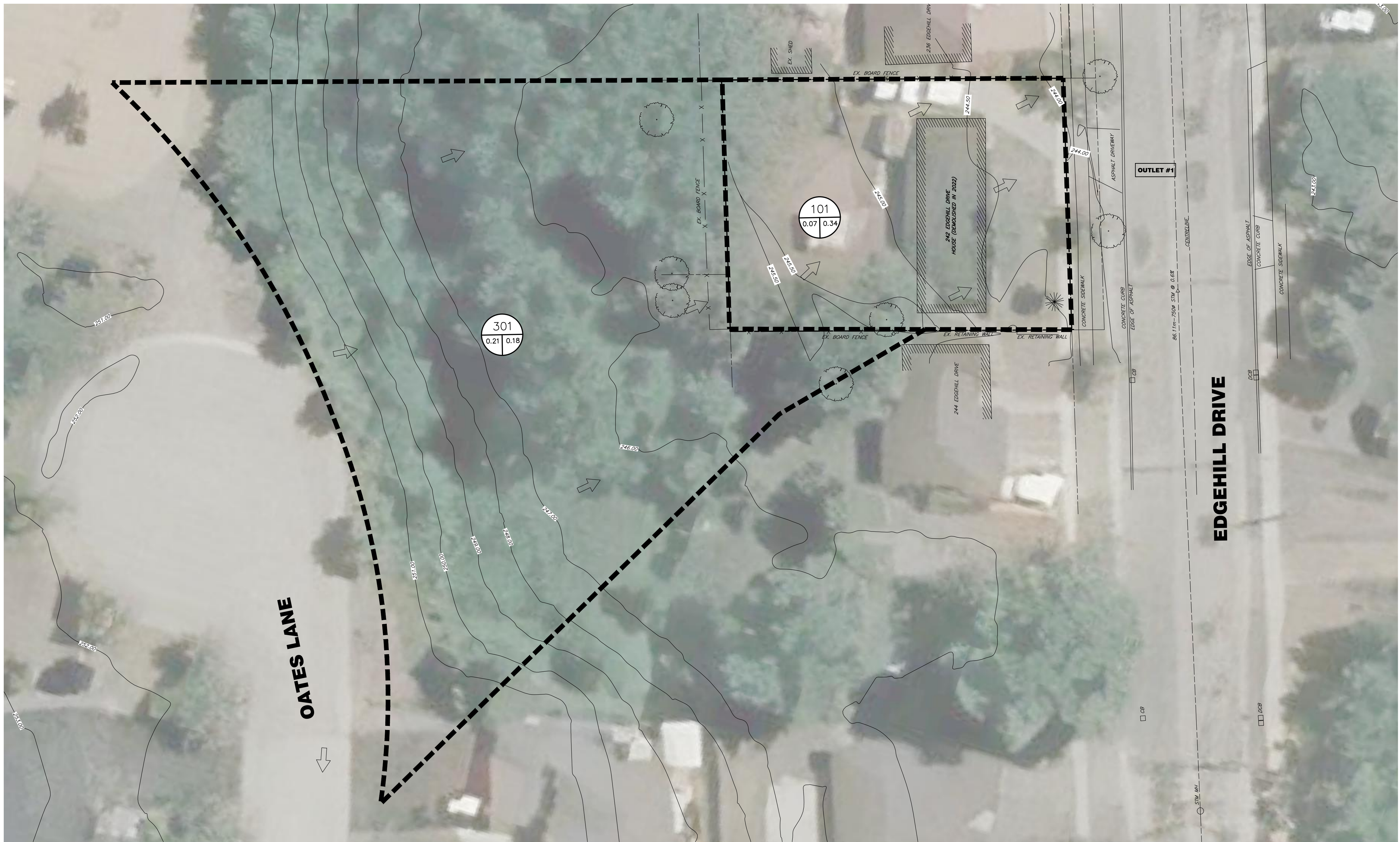
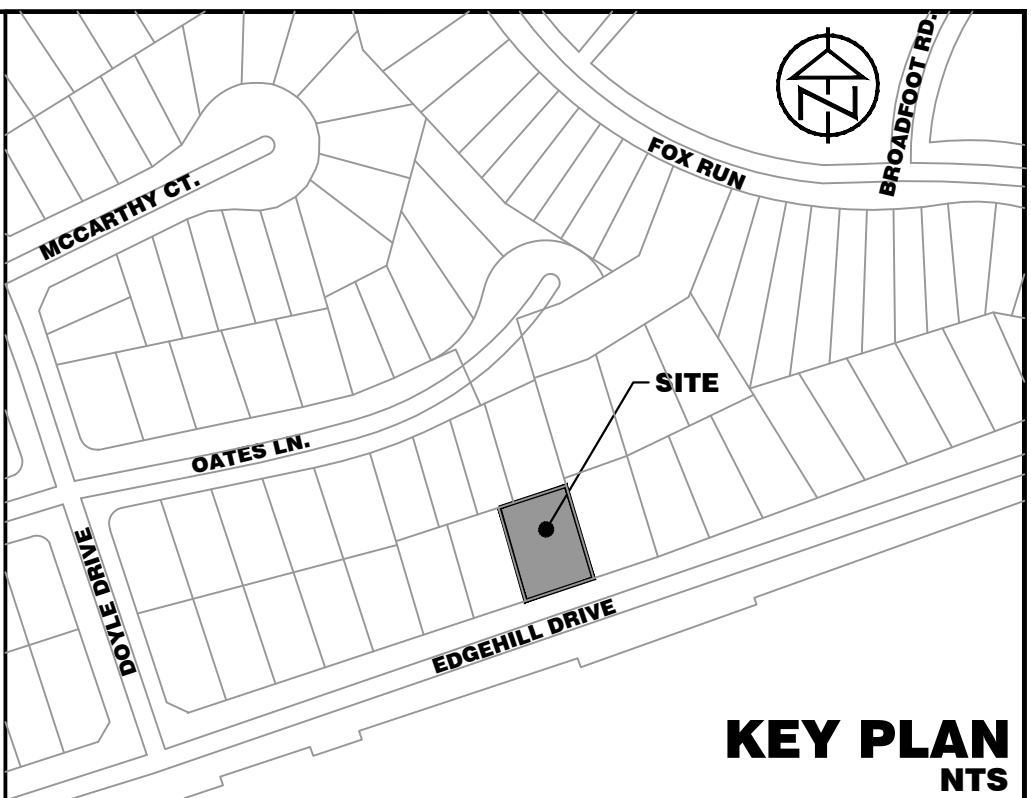
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| DESIGN: NM | FILE: 423391   | DWG:  |
| DRAWN: NB  | DATE: JUN 2023 | ESC-2 |
| CHECK: MB  | SCALE: 1:100   |       |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                     |            |                               |             |                       |                                                    |                                                                                                                                                                                                         |            |              |                  |           |                |           |              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------------------|-------------|-----------------------|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------|------------------|-----------|----------------|-----------|--------------|
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                     | 1.         | ISSUED FOR ZBA 1ST SUBMISSION | JUL 18/23   |                       |                                                    |                                                                                                                                                                                                         |            |              |                  |           |                |           |              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                     | 2.         | ISSUED FOR ZBA 2ND SUBMISSION | JAN 26/24   |                       |                                                    |                                                                                                                                                                                                         |            |              |                  |           |                |           |              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                     |            |                               |             |                       |                                                    |                                                                                                                                                                                                         |            |              |                  |           |                |           |              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                     |            |                               |             |                       |                                                    |                                                                                                                                                                                                         |            |              |                  |           |                |           |              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                     |            |                               |             |                       |                                                    |                                                                                                                                                                                                         |            |              |                  |           |                |           |              |
| <b>PRELIMINARY SITE SERVICING PLAN</b>                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                     |            |                               |             |                       |                                                    | <table><tr><td>DESIGN: NM</td><td>FILE: 423391</td><td rowspan="3">DWG: <b>SS-1</b></td></tr><tr><td>DRAWN: NB</td><td>DATE: JUN 2023</td></tr><tr><td>CHECK: MB</td><td>SCALE: 1:100</td></tr></table> | DESIGN: NM | FILE: 423391 | DWG: <b>SS-1</b> | DRAWN: NB | DATE: JUN 2023 | CHECK: MB | SCALE: 1:100 |
| DESIGN: NM                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | FILE: 423391                                                                                                                                                                                                                                                                  | DWG: <b>SS-1</b>                                                                                                                                                                                                    |            |                               |             |                       |                                                    |                                                                                                                                                                                                         |            |              |                  |           |                |           |              |
| DRAWN: NB                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | DATE: JUN 2023                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                     |            |                               |             |                       |                                                    |                                                                                                                                                                                                         |            |              |                  |           |                |           |              |
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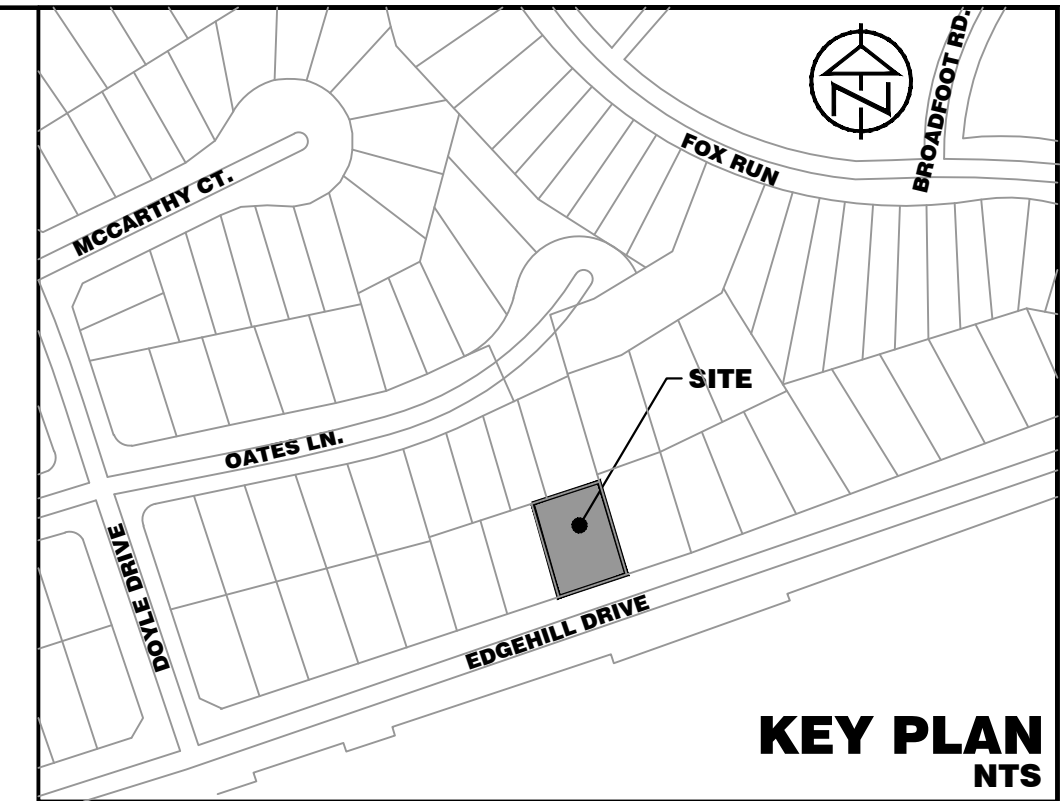
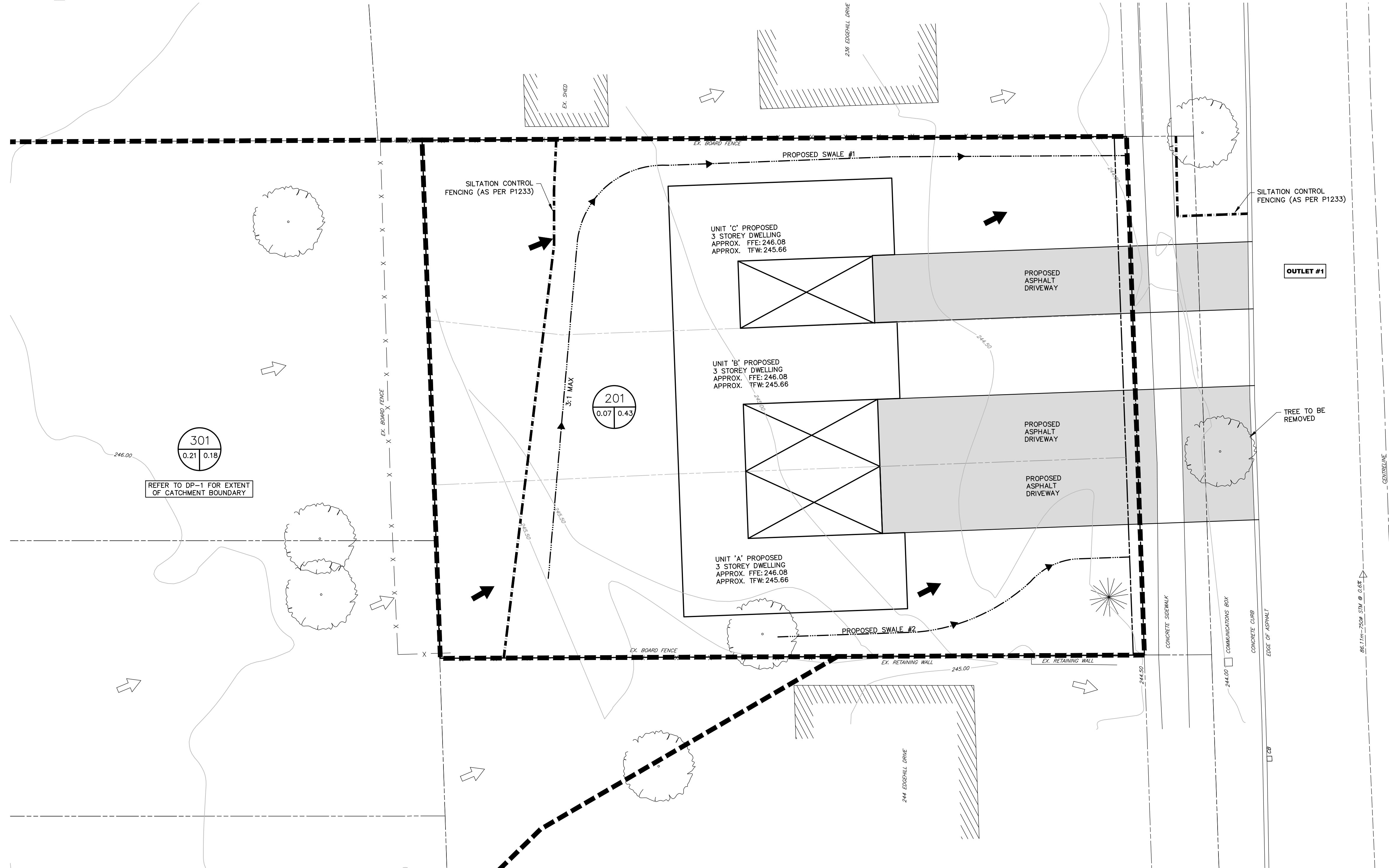
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                       |     |                               |           |                |                                                  |            |                                                                                                  |                         |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                       | 1.  | ISSUED FOR ZBA 1ST SUBMISSION | JUL 18/23 |                | <div>PRELIMINARY GRADING AND DRAINAGE PLAN</div> | DESIGN: NM | FILE: 423391                                                                                     | DWG:<br><div>SG-1</div> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                       | 2.  | ISSUED FOR ZBA 2ND SUBMISSION | JAN 26/24 |                |                                                  | DRAWN: NB  | DATE: JUN 2023                                                                                   |                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                       |     |                               |           |                |                                                  | CHECK: MB  | SCALE: 1:100                                                                                     |                         |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                       |     |                               |           |                |                                                  |            |                                                                                                  |                         |



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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                       | 1.  | ISSUED FOR ZBA 1ST SUBMISSION | JUL 18/23 |                |                                                         |  |                                                                |                                          |  |            |                |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                       | 2.  | ISSUED FOR ZBA 2ND SUBMISSION | JAN 26/24 |                |                                                         |  |                                                                | <div>PRE-DEVELOPMENT DRAINAGE PLAN</div> |  | DESIGN: NM | FILE: 423391   | DWG: |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                       |     |                               |           |                |                                                         |  |                                                                |                                          |  | DRAWN: NB  | DATE: JUN 2023 | DP-1 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                       |     |                               |           |                |                                                         |  |                                                                |                                          |  | CHECK: MB  | SCALE: 1:200   |      |

LEGEND

- 244.00 — EXISTING ELEVATION CONTOURS (0.5m INTERVALS)  
→ EXISTING CONDITIONS OVERLAND FLOW DIRECTION  
→ PROPOSED CONDITIONS OVERLAND FLOW DIRECTION  
- - - - - POST-DEVELOPMENT CATCHMENT BOUNDARY
- 201  
0.07 0.43  
POST-DEVELOPMENT CATCHMENT ID  
AREA (ha) | RUNOFF COEFFICIENT (RC)
- EXISTING PROPERTY LINE  
--- SUBJECT SITE PROPERTY LINE  
--- EXISTING ROAD CENTRELINE  
--- EXISTING EDGE OF ASPHALT  
--- EXISTING STORM SEWER  
--- PROPOSED SWALE  
○ STM MH EXISTING STORM MAINTENANCE HOLE  
□ CB EXISTING CATCH BASIN  
□ DCB EXISTING DOUBLE CATCH BASIN



EDGEHILL DRIVE

DISCLAIMER AND COPYRIGHT

CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE COMMENCING WORK. DRAWINGS ARE NOT TO BE SCALED.

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BENCHMARKS

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ELEVATION NOTES

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EXTERNAL AREA SURFACE CONTOURS OBTAINED FROM CITY OF BARRIE OPEN DATA. ACCESSED JULY 10, 2023.

| No. | REVISION DESCRIPTION          | DATE      |
|-----|-------------------------------|-----------|
| 1.  | ISSUED FOR ZBA 1ST SUBMISSION | JUL 18/23 |
| 2.  | ISSUED FOR ZBA 2ND SUBMISSION | JAN 26/24 |
|     |                               |           |
|     |                               |           |
|     |                               |           |

ENGINEER STAMP

242 EDGEHILL DRIVE  
CITY OF BARRIE

POST-DEVELOPMENT  
DRAINAGE PLAN

TATHAM  
ENGINEERING

|            |                |                  |
|------------|----------------|------------------|
| DESIGN: NM | FILE: 423391   | DWG: <b>DP-2</b> |
| DRAWN: NB  | DATE: JUN 2023 |                  |
| CHECK: MB  | SCALE: 1:100   |                  |

## **Appendix F: Utilities Correspondence**

## John-Lui Marra

---

**From:** Fournier, Andrew <andrew.fournier@bell.ca>  
**Sent:** July 10, 2023 3:09 PM  
**To:** O'Brien, Carol A; John-Lui Marra  
**Cc:** Matt Brace  
**Subject:** RE: 423391 - 242 Edgehill Drive, Barrie - Utility Inquiry

---

**CAUTION:** This email originated from outside of Tatham Engineering or Envision-Tatham. Do not click on links or open attachments unless you know the sender and have verified the sender's email address and know the content is safe.

---

Hello John

Yes we have both copper and fibre available at this location.

Thanks



Andrew Fournier  
Implementation Manager  
40 Beacon Rd, Barrie, Ontario L4N 9C8  
C: 705-627-0897

---

**From:** O'Brien, Carol A <carol.obrien@bell.ca>  
**Sent:** July-10-23 2:35 PM  
**To:** John-Lui Marra <jlmarra@tathameng.com>; Fournier, Andrew <andrew.fournier@bell.ca>  
**Cc:** Matt Brace <mbrace@tathameng.com>  
**Subject:** RE: 423391 - 242 Edgehill Drive, Barrie - Utility Inquiry

Good afternoon

My peer Andrew Fournier is responsible for the Barrie area. He will be happy to assist you with this proposed development.

Carol



Carol O'Brien  
Network Provisioning Manager  
40 Beacon rd, Barrie ON  
office: 705-722-2405  
cell: 705-627-0259

---

**From:** John-Lui Marra <[jlmarra@tathameng.com](mailto:jlmarra@tathameng.com)>  
**Sent:** July-10-23 2:33 PM  
**To:** O'Brien, Carol A <[carol.obrien@bell.ca](mailto:carol.obrien@bell.ca)>  
**Cc:** Matt Brace <[mbrace@tathameng.com](mailto:mbrace@tathameng.com)>  
**Subject:** [EXT]423391 - 242 Edgehill Drive, Barrie - Utility Inquiry

Good afternoon Carol,

I work at Tatham Engineering. We are working on behalf of our client in support of a zoning by-law amendment application for a development project located at 242 Edgehill Drive in the City of Barrie. The project proposes to develop three townhouse units on an existing, vacant residential lot (conceptual site plan attached).

We are looking for preliminary comment regarding feasibility of Bell servicing for the site to allow us to include commentary regarding such in our Functional Servicing Report.

If you could kindly review and provide comment at your earliest convenience it would be greatly appreciated.

Thanks,

John-Lui



**John-Lui Marra** EIT  
Engineering Intern

[jlmarra@tathameng.com](mailto:jlmarra@tathameng.com) T 705-733-9037 x2184  
41 King Street, Unit 4, Barrie, Ontario L4N 6B5

[tathameng.com](http://tathameng.com) in @ f



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electronic document, the appropriately dated hard copy will be the document used by Tatham Engineering to govern and resolve the dispute.

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## John-Lui Marra

---

**From:** Xinyi Wang <Xinyi.Wang@rci.rogers.com>  
**Sent:** July 10, 2023 3:17 PM  
**To:** Graham McPherson; John-Lui Marra  
**Cc:** Matt Brace  
**Subject:** RE: 423391 - 242 Edgehill Drive, Barrie - Utility Inquiry

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---

Thank you Graham.

Hi John,

Units are serviceable.

Regards,

**Xinyi Wang**  
**System Planner**  
Rogers Communications  
1 Sperling Dr., P.O. Box 8500 Barrie, ON L4M 6B8  
e [xinyi.wang@rci.rogers.com](mailto:xinyi.wang@rci.rogers.com)

o 705.812.4587



---

**From:** Graham McPherson <Graham.McPherson@rci.rogers.com>  
**Sent:** July 10, 2023 2:45 PM  
**To:** John-Lui Marra <jlmarra@tathameng.com>; Xinyi Wang <Xinyi.Wang@rci.rogers.com>  
**Cc:** Matt Brace <mbrace@tathameng.com>  
**Subject:** RE: 423391 - 242 Edgehill Drive, Barrie - Utility Inquiry

Hi John, adding Xinyi for comments.

Thanks,

**Graham McPherson**  
**System Planner - Greenfield**

## Outside Plant Engineering - York

Rogers Communications

244 Newkirk Road Richmond Hill, ON L4C 3S5

e [graham.mcperson@rci.rogers.com](mailto:graham.mcperson@rci.rogers.com)

m 705.896.9608

o 705.812.4528



---

**From:** John-Lui Marra <[jlmarra@tathameng.com](mailto:jlmarra@tathameng.com)>

**Sent:** July 10, 2023 2:27 PM

**To:** Graham McPherson <[Graham.McPherson@rci.rogers.com](mailto:Graham.McPherson@rci.rogers.com)>

**Cc:** Matt Brace <[mbrace@tathameng.com](mailto:mbrace@tathameng.com)>

**Subject:** 423391 - 242 Edgehill Drive, Barrie - Utility Inquiry

Good afternoon Graham,

We are working on behalf of our client in support of a zoning by-law amendment application for a development project located at 242 Edgehill Drive in the City of Barrie. The project proposes to develop three townhouse units on an existing, vacant residential lot (conceptual site plan attached).

We are looking for preliminary comment regarding feasibility of Rogers servicing for the site to allow us to include commentary regarding such in our Functional Servicing Report.

If you could kindly review and provide comment at your earliest convenience it would be greatly appreciated.

Thanks,

John-Lui



**John-Lui Marra** EIT  
Engineering Intern

[jlmarra@tathameng.com](mailto:jlmarra@tathameng.com) T 705-733-9037 x2184  
41 King Street, Unit 4, Barrie, Ontario L4N 6B5

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## John-Lui Marra

---

**From:** David Smith <David.Smith@enbridge.com>  
**Sent:** July 11, 2023 8:23 AM  
**To:** John-Lui Marra  
**Cc:** Matt Brace  
**Subject:** RE: 423391 - 242 Edgehill Drive, Barrie - Utility Inquiry

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

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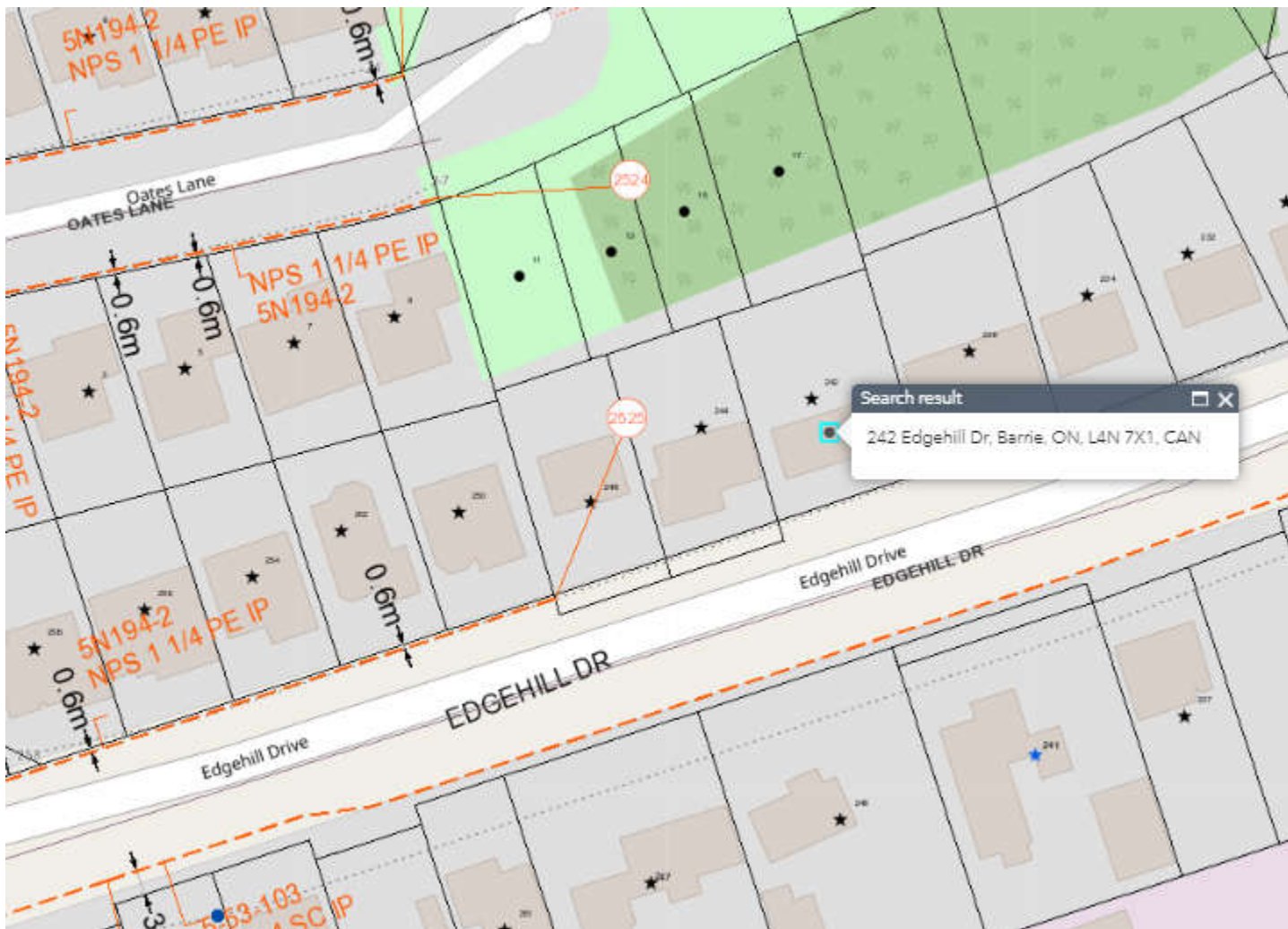
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Hi John-Lui.

We have a 4" steel main on the long side of the street. I do not see an issue with gas availability.

Thanks.



## David Smith

Customer Connections Representative

### ENBRIDGE

TEL: 705-739-5254 | CELL: 705-220-5997 | FAX: 705-739-5200  
10 Churchill Dr. Barrie ON L4N 8Z5

Customer Attachment - Residential [enbridgegas.com/connect-to-gas](https://enbridgegas.com/connect-to-gas)

Customer Attachment - Developers [enbridgegas.com/connect-to-gas/developers](https://enbridgegas.com/connect-to-gas/developers)

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[enbridge.com](https://enbridge.com)

**Safety. Integrity. Respect. Inclusion.**

**From:** John-Lui Marra <jlmarra@tathameng.com>

**Sent:** Monday, July 10, 2023 2:38 PM

**To:** David Smith <David.Smith@enbridge.com>

**Cc:** Matt Brace <mbrace@tathameng.com>

**Subject:** [External] 423391 - 242 Edgehill Drive, Barrie - Utility Inquiry

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Good afternoon David,

I work at Tatham Engineering. We are working on behalf of our client in support of a zoning by-law amendment application for a development project located at 242 Edgehill Drive in the City of Barrie. The project proposes to develop three townhouse units on an existing, vacant residential lot (conceptual site plan attached).

We are looking for preliminary comment regarding feasibility of gas servicing for the site to allow us to include commentary regarding such in our Functional Servicing Report.

If you could kindly review and provide comment at your earliest convenience it would be greatly appreciated.

Thanks,

John-Lui



**John-Lui Marra** EIT  
Engineering Intern

jlmarra@tathameng.com T 705-733-9037 x2184  
41 King Street, Unit 4, Barrie, Ontario L4N 6B5

tathameng.com in @ f



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## John-Lui Marra

---

**From:** John-Lui Marra  
**Sent:** July 12, 2023 8:30 AM  
**To:** Stephen Cranley  
**Cc:** Matt Brace  
**Subject:** RE: 423391 - 242 Edgehill Drive, Barrie - Utility Inquiry

Good morning Stephen,

I appreciate the response. The proposed development would become three individual lots.

Thanks,

John-Lui

---

**From:** Stephen Cranley <stephen.cranley@alectrautilities.com>  
**Sent:** Tuesday, July 11, 2023 4:23 PM  
**To:** John-Lui Marra <jlmarra@tathameng.com>  
**Cc:** Matt Brace <mbrace@tathameng.com>  
**Subject:** RE: 423391 - 242 Edgehill Drive, Barrie - Utility Inquiry

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Hi John-Lui,

Based on review of Alectra's GIS, our 4.16kV distribution system along Edgehill Drive would have the capacity available to supply this proposed development of 3 townhouses.

Would the 3 townhouses remain together on the same lot or would the proposed development become 3 individual lots? The end result will determine if Alectra will supply 1 – service supplying a gang of 3 meter bases (i.e. 1 lot) or supply 3 – individual services supplying 3 individual meter bases (i.e. 3 separate lots).

Regards,



**Stephen Cranley, C.E.T.**  
**Supervisor, Distribution Design, ICI & Service Layouts**

55 Patterson Road, Barrie, ON L4N 3V9

t 905.798.3009 | m 705.241.7950

[alectrautilities.com](http://alectrautilities.com)



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**From:** John-Lui Marra <[jlmarra@tathameng.com](mailto:jlmarra@tathameng.com)>  
**Sent:** Monday, July 10, 2023 3:19 PM  
**To:** Stephen Cranley <[stephen.cranley@alecrautilities.com](mailto:stephen.cranley@alecrautilities.com)>  
**Cc:** Matt Brace <[mbrace@tathameng.com](mailto:mbrace@tathameng.com)>  
**Subject:** 423391 - 242 Edgehill Drive, Barrie - Utility Inquiry

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Good afternoon Stephen,

I work at Tatham Engineering. We are working on behalf of our client in support of a zoning by-law amendment application for a development project located at 242 Edgehill Drive in the City of Barrie. The project proposes to develop three townhouse units on an existing, vacant residential lot (conceptual site plan attached).

We are looking for preliminary comment regarding feasibility of hydro servicing for the site to allow us to include commentary regarding such in our Functional Servicing Report.

If you could kindly review and provide comment at your earliest convenience it would be greatly appreciated.

Thanks,

John-Lui



**John-Lui Marra** EIT  
Engineering Intern

[jlmarra@tathameng.com](mailto:jlmarra@tathameng.com) T 705-733-9037 x2184  
41 King Street, Unit 4, Barrie, Ontario L4N 6B5

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