Claridge Homes

# Mer Bleue Phase 1

## Assessment of Adequacy of Public Services

December 9, 2025

# Mer Bleue Phase

**Mer Bleue Urban Expansion Area**

**Assessment of Adequacy of Public Services**

**City of Ottawa**

**Development Application File:**

December 9, 2025

**Prepared By:**
Arcadis Professional Services (Canada) Inc.
333 Preston Street, Suite 500
Ottawa, Ontario K1S 5N4
Canada
Phone: 613-241-3300

**Prepared For:**
Claridge Homes
505 Preston Street
Ottawa, ON K1S 4N7
Canada
Phone: 613-233-6030

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Ryan Magladry, C.E.T.
Associate Principal | Manager, Land Engineering

Demetrius Yannoulopoulos, P. Eng.
Director, Ottawa Office Lead

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# 1 Introduction

## 1.1 Purpose

The purpose of this report is to investigate and confirm the Adequacy of Public Services for Claridge's first Phase of their Mer Bleue Urban expansion Area lands in support of their application for Draft Plan Approval. This report will review major municipal infrastructure including water supply, wastewater collection and stormwater collection and management. This report will also include a Sedimentation and Erosion Control Plan. A review of transportation components will be the subject of a separate report.

Phase 1 of Claridge's lands is comprised of approximately 46.41 Ha located between Mer Bleue Road and Tenth Line Road. AOV Surveyors have prepared a Preliminary Draft Plan which demonstrates the functionality of the subject lands based on comments received during the pre-consultation process with City staff, refer to **Appendix A** for a copy of the draft plan.

This report will provide stakeholders with conceptual level layout of the proposed development sufficient to support the re-zoning and Draft Plan approval of the subject lands.

## 1.2 Background

When the Official Plan was reviewed in 2009, City Council and the Ontario Municipal Board (OMB) approved OPA 76 which included a number of urban expansion areas. The Mer Bleue Urban Expansion Area (MBUEA) was part of the approximately 850 Ha of lands identified by council to support the projected population growth for Ottawa to the year 2031. The subject land is part of the MBUEA. In 2013, a Landowners group initiated a Community Design Plan (CDP) for the MBUEA.

## 1.3 Previous Studies

The inclusion of the MBUEA within the new urban lands created the overall project need of guiding the development of these lands to meet the goal of Council to accommodate projected growth. To achieve this goal several Studies/Reports were completed:

- The Mer Bleue Expansion Area 10 Master Servicing Study, report dated December 2017 deals specifically with servicing including water supply, wastewater services and stormwater services to achieve the urbanization, (MSS).
- The Mer Bleue Area 10 Urban Expansion Area, Environmental Management Plan (EMP).

In addition to the above noted studies the following guidelines were utilized in the preparation of this report:

- City of Ottawa Sewer Design Guidelines, October 2012 including all current updates.
- City of Ottawa Design Guidelines-Water Distribution, July 2010 including all current updates
- MOE Stormwater Management Planning and Design Manual, March 2003.

There have been minor revisions to the City of Ottawa Design Guidelines since the approval of the MSS in 2017 and this report will include those changes with regards to servicing the subject parcel.

## 1.4 Subject Property

The MBUEA is located in the South of the Orleans East Urban Community (EUC), between Mer-Bleue Road and Tenth Line Road. It is south of the Avalon West Community and north of the Notre Dame des Champs (NDDC) community. The subject property is approximately 46.4Ha of the 210Ha MBUEA. It is bound to the north by Mattamy's proposed Summerside West residential development, to the south by existing Wall Road, to the east by Tenth Line Road and to the west by future phases. Refer to Figure 1.1 below for the key map.

The proposed development will include a mixture of single and street town residential units. The development will also include a community park, one commercial block, and a SWM block. The proposed draft plan of subdivision for the subject property is included in **Appendix A**.

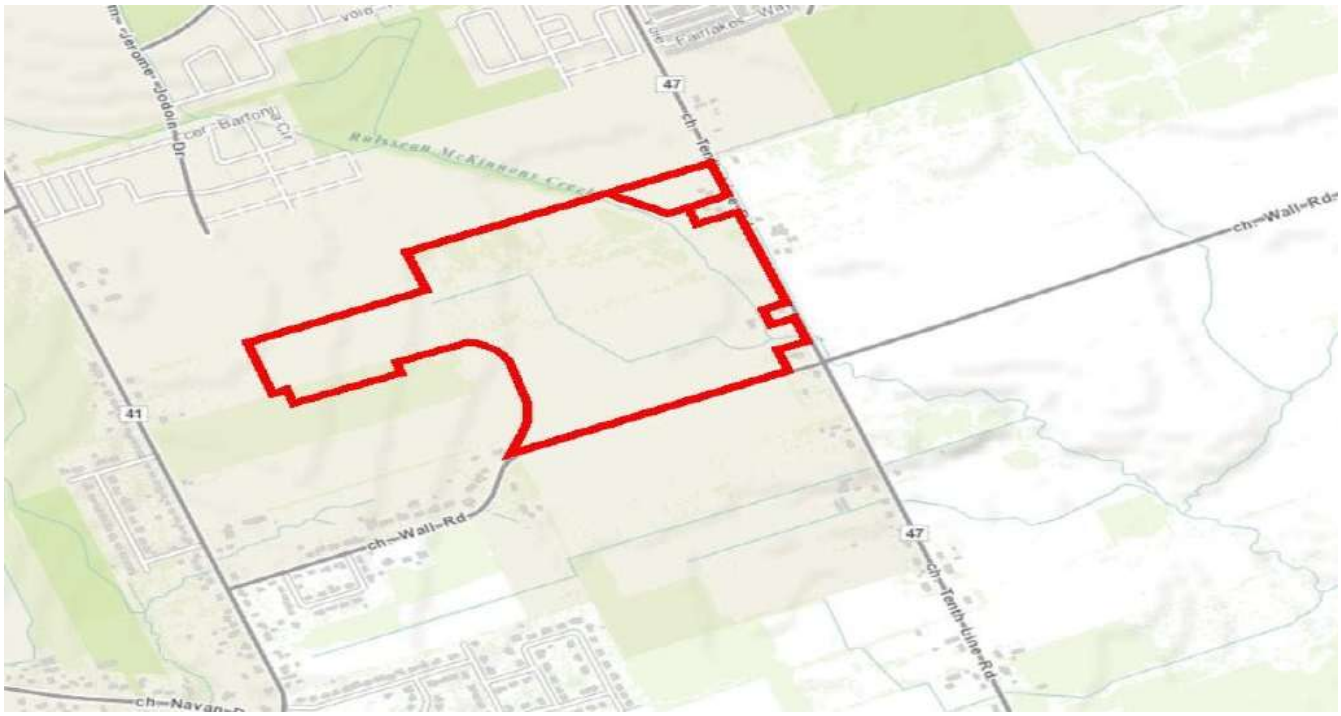



*Figure 1-1 Key Map of Subject Lands*

## 1.5 Existing Topography

The subject property is generally flat with slight slope from west to east towards McKinnon's Creek, the portion of the property on the east side of McKinnon's generally slopes from east to west. Contours for Phase 1 West range between 86 and 85 meters. Contours for the Phase 1 East range between 87 and 86.5 meters. Since these lands were actively farmed various farm ditches cross the property and discharge into McKinnon's Creek. **Figure 1.2,** which is included in **Appendix A**, shows the general topography of the subject property.

All surface drainage from the property flows to McKinnon's Creek, where it is conveyed under Tenth Line Road and Wall Road via existing culverts.

## 1.6 Geotechnical Considerations

Paterson Group Inc. was retained to prepare a geotechnical investigation for the site. The objectives of the investigation were to prepare a report to:

- Determine the subsoil and groundwater conditions at the site by means of test pits and boreholes
- To provide geotechnical recommendations pertaining to the design of the proposed development including construction considerations

Among other items, the report comments on the following:

- Site grading
- Foundation design
- Pavement design
- Sub-surface Conditions
- Groundwater Control
- Seismic design
- Corrosion potential
- Trees
- Site Servicing

The geotechnical investigation report PG5072-1 Dated May 15, 2020 confirmed that the site consists of an agriculturally disturbed organic layer overlying a stiff to firm, brown silty clay crust followed by a deep, firm to soft grey silty clay deposit.

One of the critical recommendations from that study included defining the grade raise restriction for the Mer Bleue Lands. The report noted a basic grade raise limit of 1.2m to 1.5m.

## 1.7 Water Course and Setbacks

McKinnon's Creek bisects the northeast quadrant of the subject property. This section of McKinnon's creek was previously enhanced in 2008 to support flows from the Avalon West SWM pond. A recommendation of the 2017 MSS was that this section of the creek was to be further reviewed to determine if additional enhancement would further benefit the upstream infrastructure. This review was recently completed, refer to IBI report dated May of 2019, "Mer Bleue Urban Expansion Area McKinnon's Creek Stage 1 Evaluation of Enhancement Concepts for Upper Reach". That report provided recommendations to lower this section of the creek and provide an increase in longitudinal slope.

The EMP supporting the CDP identified the requirement to provide a development setback consisting of the greater of 15 m from the top-of-slope or 30 m from the normal high water mark within the urban area for the McKinnon's Creek corridor. Figure 1.3 in **Appendix A** illustrates the current proposed enhancement of McKinnon's Creek and demonstrates that the setback requirements have been respected for the proposed corridor.

A slope stability review shall be provided as part of the McKinnon's Creek Design.

## 1.8 Pre-Consultation

A pre-consultation meeting was held on September 28, 2018. The meeting notes can be found in **Appendix A**, along with a follow up memo from Parks and Facilities Planning Branch. The following are some of the topics reviewed and discussed, for a full list please see meeting notes:

- Potential enhancements of Upper reach of McKinnon's Creek to be evaluated and based on results detail design of the enhance to be designed as one
- Drainage Engineer's works on McKinnon's Creek on-going
- Avalon West SWM Pond drainage area under review
- Various Studies required to support proposed development, including but not limited to:
  - TIA
  - Planning Rationale
  - Pedestrian Circulation Plan
  - Area Park Plan
  - Assessment of Adequacy of Public Services Report
  - Noise Feasibility Study
  - Phase 1 ESA
  - TCR
  - Geotechnical Report
  - Servicing and SWM design briefs
  - EIS

It should be noted that in addition to the pre-consultation meeting, a series of meetings and discussions have occurred with the South Nation Conservation Authority, and the Drainage Engineer.

# 2 Water Distribution

## 2.1 Existing Conditions

The subject site is located within Pressure Zone 2E of the City of Ottawa's water distribution system. City staff have noted that no specific upgrades to any existing or proposed piping or pumping is required to service these expansion lands. Appendix B contains Figure 3 from the MBUEA MSS which illustrates the existing water distribution system adjacent to the study area and shows the 2E water pressure zone boundary which runs through the center of the study area and follows the north and west boundaries. The main feed for Pressure Zone 2E is the Innes Road elevated storage tank at Belcourt Boulevard. There is a strong network of watermains which services the Neighbourhood 4 community to the northeast of the study area. A 610 mm watermain on Innes Road extends from the elevated tank at Belcourt Boulevard east with 406 mm watermains branching south on Tenth Line Road, Esprit Drive and Portobello Boulevard. A network of 406 mm and 305 mm watermains extend south up to the northeast corner of the study area. Currently, there is an existing 406mm and 152 mm watermain on Tenth Line Road along a portion of the east boundary of the study area.

Directly north of the study area is the Summerside West development which is presently under development. Completion of this development will provide a network of local and 305 mm watermain connections between the proposed development and the water network in this area.

The opportunity exists to expand the City water network through Phase 1 lands and connect to the NDDC community, (an existing 150mm watermain is located within the Wall Road ROW), which currently has water supply, and connection of the local networks will provide greater overall redundancy in the system.

## 2.2 Design Criteria

### 2.2.1 Water Demand

The watermains for the subject site are proposed to be sized based on Tables 4.1 and 4.2 of the City of Ottawa Design Guidelines – Water Distribution, and based on the 2021-03 TSB with updated demands, and are summarized as follows:

- Single Family — 3.4 person per unit
- Townhouse and Semi-Detached — 2.7 person per unit
- Average Apartment — 1.8 person per unit
- Residential Average Day Demand — 280 l/cap/day
- Residential Peak Daily Demand — 700 l/cap/day
- Residential Peak Hour Demand — 1,540 l/cap/day
- ICI Average Day Demand — 50,000 l/gross ha/day
- ICI peak Daily Demand — 75,000 l/gross ha/day
- ICI Peak Hour Demand — 135,000 l/gross ha/day

Fire flow requirements for the subject site shall be calculated by the Fire Underwater Survey and in accordance with Technical Bulletin ISDTB-2014-02. The following "C" valves will be used in the design of the watermain pipes.

| Pipe Diameter (mm) | C-Factor |
|---|---|
| 150 | 100 |
| 200 to 250 | 110 |
| 300 to 600 | 120 |
| Over 600 | 130 |

A watermain demand calculation sheet is included in Appendix B and the total water demands are summarized as follows:

- Average Day 5.84 l/s
- Maximum Day 14.19 l/s
- Peak Hour 30.98 l/s

### 2.2.2 System Pressure

The 2010 City of Ottawa Water Distribution Design Guidelines states that the preferred practice for design of a new distribution system is to have normal operating pressures range between 345 kPa (50 psi) and 552 kPa (80 psi) under maximum daily flow conditions. Other pressure criteria identified in the guidelines are as follows:

| | |
|---|---|
| Minimum Pressure | Minimum system pressure under peak hour demand conditions shall not be less than 276 kPa (40 psi) |
| Fire Flow | During the period of maximum day demand, the system pressure shall not be less than 150 kPa (22 psi) during a fire flow event. |
| Maximum Pressure | In accordance with the Ontario Building/Plumbing Code, the maximum pressure should not exceed 552 kPa (80 psi). Pressure reduction controls will be required for buildings where it is not possible/feasible to maintain the system pressure below 552 kPa. |

## 2.3 Proposed Water Distribution System

### 2.3.1 Hydraulic Model

The recommended water distribution system illustrated in the MSS was hydraulically modeled by Stantec. See **Appendix B** in Mer Bleue Urban Expansion Area 10 MSS Report - (Dated 2017 November), which contains Stantec's detail report regarding the water network analysis.

Based on the existing hydraulic grade line in Zone 2E, operating pressures in the Mer Bleue Expansion Study Area (MBESA) development are not anticipated to drop below 276 kPa (40 psi) or exceed 552 kPa (80 psi). Hydraulic modelling results show that during basic day conditions and peak hour conditions, the proposed system is capable of operating between the objective pressure ranges or 345–483 kPa (50-70 psi). During emergency conditions, the proposed system is capable of providing sufficient fire flow while maintaining a residual pressure of 138 kPa (20 psi) using the proposed pipe layout and sizing.

Per Mer Bleue CDP Potable Water Servicing Analysis by Stantec, a minimum of 13,000 L/min can be provide for fire flow. Based on Water Supply for Public Fire Protection – Fire Underwriters Survey (FUS), for single family and traditional townhouse blocks, fire flow can be capped from 2,000 – 12,000 L/min depending on the exposure

distances and building materials (Table 7 & 8 “Simple Method”). Detailed FUS calculations will be provided for lots that do not meet the FUS “Simple Method” requirements in detailed design stage. Lots exceeding the 13,000 L/min fire flow will require additional measures to meet the fire flow requirements.

A reliability analysis was also performed by Stantec to examine critical watermain breaks on the future 406 mm diameter watermains on Mer Bleue and Tenth Line. Hydraulic modelling results showed that the proposed layout and sizing is capable of providing basic day plus fire flow while maintaining a residual pressure of 138 kPa (20 psi) in the system under these critical watermain breaks.

Although no facility upgrades are required for the MBESA, the future 406 mm diameter watermains on Mer Bleue and Tenth Line are required to service the MBESA.

### 2.3.2 Phase 1 Proposed Water Plan

Figure 2.1 in Appendix B illustrates the conceptual Water Distribution System for Phase 1. The network utilizes a typical hierarchy of watermain sizes to provide necessary domestic and fire flows to support the development. The conceptual network includes extension of 400mm diameter water trunk along Tenth Line Road which is interconnected to the development via a 300mm diameter main along Wall Road.

At detail design stage for the study area, updated boundary conditions will be obtained from the City of Ottawa and a detailed hydraulic analysis will be completed to confirm the proposed water network can provided the required flows in accordance with the City of Ottawa, MOECP, and Fire Underwriters.

# 3 Wastewater Disposal

## 3.1 Existing Conditions and Previous Studies

The proposed sanitary outlet for the MBUEA is the existing Tenth Line Pump Station (TLPS) located immediately north of the study area on the west side of Tenth Line Road, as illustrated in Figure 4 of the MBUEA MSS a copy is included in Appendix C. Figure 4 also illustrates the existing wastewater system within the area.

The Tenth Line pump station has a design capacity of 425 l/s, and discharges wastewater via dual (305 & 406 mm Ø) forcemains to the upper reach of the Cumberland Trunk (900 mm Ø) located on South Field Way. This facility is currently operating under interim conditions and is currently fitted up to accommodate approximately 50% of its approved capacity.

Adjacent to the study area, there are several buildings with existing private sewage disposal systems. Ultimately, these private systems will need to be decommissioned, all in accordance with MOE requirements, regardless of whether or not the building is retained or demolished under the new lotting fabric of the CDP.

During the development of the preferred wastewater plan for the MBUEA MSS an attribute deemed desirable to include in the preferred plan was the ability to service adjacent lands. The road pattern was designed to provide a linkage to the lots currently developed along Wall Road, and a linkage was also provided to the North Park subdivision currently being developed. Houses within both these areas currently use private sewage disposal systems to deal with their wastewater.

The Wall Road and North Park areas consists of approximately 150 homes within 24.7 Ha. Based on 3.4 p/u, this is a population of approximately 510 persons.

In addition to the above, the potential exists that special zoning would allow for future expansion of the servicing limits boundary to the southwest for the inclusion of approximately 49.1 Ha. If this was to occur, based on a density of 65 p/Ha, a population of 3,191 could be realized within these lands. The proposed wastewater system has been sized to accommodate this possible scenario.

The sanitary sewer servicing strategy for the MBUEA development area includes a new pump station in subsequent phases to accommodate the southern portion of the MBUEA lands, future external expansion lands to the south, Wall Road, and the West Park subdivision to the south-west. By utilizing a new pump station at this location, a significant reduction in deep trunks in poor soil conditions can be achieved. The proposed road pattern also provides for a connection to existing neighbourhoods which are on private system. These linkages allow for the possible expansion into these developed lands and adjacent vacant lands. The sanitary pump station for this development will be located in the southeast corner of the development adjacent to the proposed southern stormwater management pond. Refer to MBUEA MSS Report (Dated 2017 November) figure 8.2.2 for pump station details. The pump station is not required for the serviceability of the Phase 1 development lands.

## 3.2 Design Criteria

The sanitary flows for the subject lands are determined based on current City of Ottawa design criteria as per Technical Bulletin ISTB-2018-01, which includes, but is not limited to the following:

### 3.2.1 Design Flow

Figure The estimated wastewater flows from the subject site are based on the revised City of Ottawa design criteria. Among other items, these include:

- Average residential flow = 280 l/c/d
- Peak residential flow factor = (Harmon Formula) x 0.80
- Average commercial flow = 28,000 l/s/ha
- Average institutional flow = 28,000 l/s/ha
- Peak ICI flow factor = 1.5 if ICI area is ≤ 20% total area
  = 1.0 if ICI area is > 20% total area
- Inflow and Infiltration Rate = 0.33 l/s/ha
- Minimum Full Flow Velocity = 0.60 m/s
- Maximum Full Flow Velocity = 3.0 m/s
- Minimum Pipe Size = 200 mm diameter
- Population (Residential) 3.4 persons per single family unit
  2.7 persons per semi or townhouse unit
  1.8 persons per apartment unit

## 3.3 Proposed Wastewater Disposal System

With consideration the MSS level network of sanitary sewers and trunks to service the MBUEA, the Phase 1 sanitary servicing layout is provided Figure 3.1 in **Appendix C**. Figure 3.2 illustrates the conceptual tributary area for the trunks and main lines, a sanitary sewer design sheet for the trunk sewers is included in Appendix C. The conceptual layout closely follows the intent of the MSS, with the Mattamy lands north of Phase 1 being considered as external tributary flows through the main trunks within the proposed draft plan.

The Phase 1 plan includes 302 single family and 241 townhouse units. The external Mattamy lands is approximately 25.3 ha and consists of 236 single family, 168 townhouses and 74 back-to-back townhouse units. The Phase 1 plan consists of extending the trunk main from the existing TLPS south on Tenth Line Road until it is redirected internal to the subject lands. A future twin 200mm forcemain is anticipated further south on Tenth Line Road to service future Phases within the MBUEA, and external lands to the south.

To contain the sanitary HGL during catastrophic failure at the existing pump station, several sanitary overflows were installed along the existing system, refer to previously noted Figure 4 from the MSS for the location of the overflows, included in **Appendix C**. These overflows would convey the sanitary flow to the connected storm sewer to prevent basement flooding should catastrophic events occur. As part of the detailed design of the proposed sanitary sewer system for Phase 1 it is envisioned a new sanitary overflow as noted in Figure 3.1 may result in the existing overflows being redundant, to which end they may be removed, or kept as emergency backup. Detailed modelling at detail design will confirm requirements.

# 4 Stormwater Management

## 4.1 Objective

The purpose of this section is to present an overview of the proposed stormwater management servicing for Phase 1 of the Claridge development, including the dual drainage system concept (minor and major system), stormwater management facility, and improvements to McKinnon's Creek.

## 4.2 Synopsis of Previous Reports

In December of 2017, IBI Group completed the "Mer Bleue Urban Expansion Area 10 Master Servicing Study", henceforth referred to as the MSS. That study outlined the overall stormwater management servicing for the Mer Bleue area, including the conceptual stormwater management facilities, established the McKinnons Creek corridor within the development area, and recommended Mer Bleue McKinnon's Creek improvements downstream of Wall Rd. to accommodate the proposed MBUEA development.

In May of 2019, IBI Group completed the "Mer Bleue Urban Expansion Area McKinnon's Creek Stage 1 Evaluation of Enhancement Concepts for Upper Reach", henceforth referred to as the Upper Reach report. That study outlined the proposed enhancements to McKinnon's Creek from the outlet of the existing Avalon West SWMF to upstream of Navan Rd.

In October 2021, IBI completed the "Mer Bleue Urban Expansion Area Northern Stormwater Management Facility" Design Brief. The brief outlines the design constraints and regulatory requirements, along with the hydrologic and Hydraulic evaluation of the proposed SWMF.

In June 2024, Arcadis completed the "Mer Bleue Urban Expansion Area: Mckinnon's Creek Enhancement Design Brief" henceforth referred to as Mckinnons Creek Design Brief. The brief outlines the detail design for the creek and details the management plan for the headwater drainage features as per the recommended approach discussed in the MSS report.

## 4.3 Existing Conditions

Lands within the study area have been actively farmed and are serviced by a series of swales and ditches which have been constructed over the years to assist, primarily, the farming of these lands. Other ditches were constructed to facilitate the construction and operation of existing municipal roads within and abutting the study area. The vast majority of these drainage features discharge into McKinnon's Creek. Figure 5 in Appendix D is taken from the MBUEA MSS and illustrates the location of these swales. It also illustrates the location of the existing SWM facility located immediately north of the study area. This SWM pond (Avalon West) was constructed to service the development lands to the north (Neighbourhood 5). The pond has since been expanded to accommodate Phase 4 of the adjacent Summerside West development. In addition, a small 4.4 Ha area within the proposed Draft Plan will also drain via Summerside West Phase 4 to the expanded pond. The pond outlets to McKinnon's Creek which at the time of the original SWM pond construction was channelized to facilitate the conveyance from Pond 5.

While not located within Phase 1, several municipal drains are located in the area. The Tasse Regimbald Municipal Drain and the Lalonde Cleroux Municipal Drain are located in the southern portion of the MBUEA CDP area. These Drains currently provide drainage for the southern portion of the CDP site, south of Wall Road. These Drains, or portions thereof, will be formally closed in accordance with the Municipal Drainage Act to allow for the orderly development of the lands within the CDP. The Ottawa Front Municipal Drain currently provides drainage for a small portion of the western edge of the CDP lands along Mer Bleue Road. The previously noted Figure 5 illustrates the

location of the existing Municipal Drains adjacent to the subject lands. In addition the MBUEA Land Owners Group has petitioned the City of Ottawa to commence the process of creating a Municipal Drain (under the Drainage Act) along the McKinnon's Creek corridor from the limits of the Avalon West SWM pond to the confluence with the existing Richard Clarke MD downstream of Smith Rd).

## 4.4 Overall Stormwater Management System

As outlined within the MSS, the overall stormwater management system proposed for the MBUEA consists of a hierarchy of storm sewers which collect stormwater runoff from the development area and utilize end of pipe treatment facilities before discharging into the recommended stormwater outlet which is approximately 2400 m of enhanced McKinnon's Creek.

The Phase 1 development will be serviced by the proposed stormwater management facility (identified as the Northern SWMF in the MSS), which will discharge to the improved McKinnon's Creek downstream of Wall Rd. The following sections provides a description of how the proposed system will function. The proposed stormwater system incorporates standard urban drainage design and stormwater management features that can be summarized as follows:

- A dual drainage concept
- Major system conveyance with on-site detention
- End of pipe stormwater Management Facility
- Improved McKinnon's Creek

## 4.5 Dual Drainage Design

The subject lands will be designed to be consistent with the findings of the MSS, City of Ottawa sewer design Guidelines (OSDG October 2012), the OSDG guidelines of September 2016 Technical Bulletin PIEDTB-2016-01, and the February 2014 Technical Bulletin ISDTP-2014-1.

The site will be designed with dual drainage features, accommodating minor and major system flows. During frequent storm events, the effective runoff of a catchment area is directly released via catch basin inlets to the network of storm sewers, called the minor system. During less frequent storm events, the balance of the flow (in excess of the minor flow) is accommodated by a system of street segments, and in some cases oversized storm sewers, called the major system.

Where possible, storage will be provided in street sags or low points within the roadway and once the maximum storage is utilized, the excess flow will cascade to the next downstream street sag. Inlet control devices (ICD's) will be proposed across the site to maximize the use of available on-site storage and control surcharge to the minor system.

The final design of the subject lands will demonstrate that minor system capture and major flow conveyance is consistent with the findings of the MSS and the Ottawa Sewer Design Guidelines.

### 4.5.1 Minor System

The minimum minor system capture of ICDs for the Phase 1 site will be based on 2 year SWMHYMO generated flows for all individual areas, with the exception of collector roads which will be based on a 5 year capture. The subject site will be modelled using SWMHYMO to confirm minor and major system flows. Hydrographs from the site will be downloaded to XPSWMM hydraulic model to confirm hydraulic grade line within the proposed storm sewers.

### 4.5.2 Major System

Inlet control devices (ICDs) will be proposed to control the surcharge in the minor system during infrequent storm events and maximize the use of available on site storage. Due to the relatively flat topography of the site, on-site storage will be maximized throughout the site. Surface runoff in excess of the minor system capture will cascade via street segments and rear yard swales to the outlets from the site.

## 4.6 End-of-Pipe Facility

In accordance with the CDP, the Phase 1 lands will be tributary to the proposed SWMF identified as the Northern SWMF. The facility will be located at the northwest corner of the intersection of Tenth Line Rd. and Wall Rd. The proposed SWMF has been designed to provide water quality and quantity control of stormwater flows discharging to the enhanced McKinnon's Creek downstream. The SWMF is illustrated within Figure 4.1 in Appendix D.

To address the water quality criteria of the subject site and receiving McKinnon's Creek, the proposed Mer Bleue SWM facility will be designed to provide an Enhanced Level of Protection. According to the MOE Stormwater Management Planning and Design Manual (March 2003), treatment volume is a function of drainage area, type of pond, urban imperviousness ratio, and Level of Protection. The Enhanced Level of Protection corresponds to end-of-pipe storage volumes required for the long-term average removal of 80% of total suspended solids.

The Conceptual SWM facility was sized to provide water quantity control to maintain pre-development flow rates in the receiving McKinnon's Creek downstream. The outflow from the North and South SWM facilities will discharge into a shared storm sewer and be conveyed to McKinnon's Creek. There will be no other flow contribution to the storm sewer other than the outflow from the two SWM facilities. The storm sewer is proposed to be a 1650 mm diameter pipe and connected to McKinnon's Creek at an invert of 79.40 m.

According to the Mer Bleue Urban Expansion Area Northern Stormwater Facility Design Brief, Oct 2021, Section 3.1 the Proposed SWM facility is designed to accommodate 5.53 ha-m of storage subdivided in 3.91 ha-m of permanent storage and 1.62 ha-m of extended detention storage. The design and the calculation confirming capacity are provided in the 2021 design brief.

## 4.7 Improved McKinnon's Creek

As per the June 2024 McKinnon's Creek Design Brief in order to provide a sufficient outlet for the proposed stormwater solution, McKinnon's Creek is required to be deepened and rehabilitated from the outlet of the proposed Mer Bleue SWM facilities to approximately the unopened road allowance located approximately 2.4 kilometers downstream. The enhancement will include the deepening and enhancements of the creek to contain the 1:100 flood plain within the banks of the rehabilitated creek, and lower the 1:100 yr. level upstream to minimize the need for lightweight fill within the development area. The detailed design of the McKinnon's Creek enhancements is provided within the McKinnon's Creek Design Brief. All of the above works will form part of the overall McKinnon's Creek Municipal Drain project currently undertaken by the Drainage Engineer.

## 4.8 Hydrological Analysis

Hydrological analysis of the proposed dual drainage system of the subject site will be conducted using SWMHYMO. This technique offers a single storm event flow generation and routing. The primary focus of the hydrological analysis will be to evaluate surface flow and ponding conditions during the 100 year storm event in order to satisfy City of Ottawa Sewer Design Guidelines (2012) in terms of velocity x depth. The 2 and 5 year simulation will be performed to assure that after the storm is over there will be no ponding on local and collector streets.

### 4.8.1 Design Storms and Drainage Area Parameters

The following design parameters will be used in the evaluation of the stormwater management system for the subject site:

### 4.8.2 Design Storms

- 2 year, 5 year, and 100 year, 3 hour Chicago storm event with a 10 minute time step, including a 100 year + 20% 3hr Chicago storm per ISDTB-2012-1
- July 1, 1979 and August 8, 1996 Historical storms as per the City of Ottawa Sewer Design Guidelines (2012)
- 100 year, 12 hour SCS type II storm event with a 20% increase in intensity, as per the Technical Bulletin ISDTB-2012-1

## 4.9 Storm Sewer Design Criteria

The minor system storm sewers for the subject site will be sized based on the rational method, applying standards of both the City of Ottawa and MOECC. Some of the key criteria for this site include the following:

- Sewer Sizing: Rational Method
- Design Return Period: 1:2 year (local streets)
  1:5 year (collector streets)
  1:10 year (arterial roads)
- Initial Time of Concentration 10 minutes
- Manning's: 0.013
- Minimum Velocity: 0.80 m/s
- Maximum Velocity: 3.00 m/s
- Minimum Slope:

| Pipe Diameter (mm) | Slope (%) |
|---|---|
| 250 | 0.432 |
| 300 | 0.34 |
| 375 | 0.25 |
| 450 | 0.195 |
| 525 | 0.16 |
| 600 | 0.132 |
| 675 | 0.113 |
| 750 and larger | 0.1 |

- Runoff Coefficients (to be confirmed at detailed design stage):

| Land Use | | Runoff Coefficient |
|---|---|---|
| Residential | Low Density | 0.65 |
| | Medium Density | 0.70 |

| Land Use | Runoff Coefficient |
|---|---|
| High Density | 0.80 |
| Commercial | 0.75 |
| Green Space | 0.30 |
| Institutional | 0.75 |
| Park | 0.20 |
| Transitway | 0.82 |
| Arterial Road | 0.82 |
| Collector Road | 0.82 |

**Figure 4.3** illustrates the conceptual layout of the proposed minor system to service the Phase 1 lands. **Figure 4.4** illustrates the conceptual tributary area for the trunks and main lines, a storm sewer design sheet for the trunk sewers is included in **Appendix D**. The final layout and sizing will be confirmed during the detailed design process.

# 5 Stormwater Management

Lot level grading for the proposed detail design of the development will be required to meet the City of Ottawa grading criteria, however, this is to be completed with consideration of the macro grading requirements which include but are not limited to the following: Overland Flow Routing, Storm and Sanitary HGL, and geotechnical grade raise limit.

## 5.1 Overland Flow Routing

Previous sections identified the proposed storm servicing will include overland routing of major storm runoff within the development. The conveyance route will be required to accommodate various major storm scenarios limiting ponding depth to 0.3 m, and the depth X velocity ratio of 0.6 m2/s is not to be exceeded. A preliminary overland routing was established along the proposed street pattern to allow for the conveyance of major storm to the appropriate outlet per City of Ottawa Design Guidelines, final routing will be established at detail design.

## 5.2 Storm and Sanitary HGL

Previous sections noted the requirements for the design of the storm and sanitary systems. The key element impacting the macro grading is the City of Ottawa requirement for 0.3 m freeboard between the respective 1:100 yr. HGL and building underside of footing (USF). While each system was modelled separately in the MSS, the modelling was completed iteratively to establish a balance between the two systems. Two factors intertwined the systems, sanitary overflow into the storm system (at 1:100 yr. level), plus pipe crossing coordination. The resulting HGL's were added to the respective sewer servicing plans, and the USF's were noted respecting the governing HGL. A typical residential foundation depth of 2.89 m was used from USF to finished floor elevation. Detailed HGL modelling analysis will be completed for the respective systems at detail design stage and the results used to establish minimum USF.

## 5.3 Geotechnical Grade Raise

Maximum permissible grade raises of 1.2m for majority of the site is recommended by Paterson. In areas where the proposed grading exceeds the above noted limit several options exist including additional site specific testing/analysis to increase the limit or possibly use one of the following supplemental measures:

1. Use of Lightweight Fill

2. Surcharge Fill Settlement Monitoring Program

Based on the above noted maximum grade raise, the macro grading should respect the grade raise requirement and note any areas of which exceed the allowable and which will require supplemental measures.

A detailed site specific geotechnical report to support detail design of the subject property will be completed in accordance with City of Ottawa guideline, and submitted with the detail design package.

## 5.4 Preliminary Grading

Based on the requirements of overland flow route continuity, storm and sanitary HGL, geotechnical permissible grade raise limit plus other factors, a conceptual macro grading plan has been prepared for the proposed draft plan and is illustrated in Figure 5.1 in **Appendix E**.

Geotechnical study identifies a basic grade raise limit of 1.2m to 1.5m, primarily located on the central portion of the proposed development site, within Phase 1C and 1B. More accurate area of lightweight fill will be determined in detailed design stage. Grading plan review will also be provided by a geotechnical engineer.

Detailed grading plans will be submitted with the detailed design package and will follow the City of Ottawa guidelines which include but are not limited to the following:

- Grading of landscaped areas from 2% to 7%,
- Where required terracing not to exceed 3:1,
- Swales to be minimum 0.15m deep with typical 3:1 side slope,
- Swales with slopes between 1% and 1.5% shall include perforated subdrains,
- Maximum driveway slopes 6%,
- Minimum freeboard from ponding to building opening 0.15m during 100-year events.

## 5.5 Vegetation

As with most subdivision agreements, the developer will be required to complete a vegetation and planting program. Vegetation throughout the development including planting along roadsides and within the individual blocks provides opportunities to re-create lost vegetation.

## 5.6 Groundwater Recharge

Perforated sub-drain systems will be implemented at capture locations in all vegetated areas. Roof leaders for pitched roofs are to direct runoff to landscaped areas. This will promote increased infiltration during low flow events before water is collected by the storm sewer system.

# 6 CONVEYANCE CONTROLS

## 6.1 General

Besides source controls, the development also proposes to use several conveyance control measures to improve runoff quality. These will include:

- vegetated swales; and
- catch basin sumps and manhole sumps.

## 6.2 Vegetated Swales

All rear yards within the proposed development make use of relatively vegetated swales. These swales generally employ saw-toothing at regular intervals and encourage infiltration and runoff treatment.

## 6.3 Catch Basins and Maintenance Hole Sumps

All catch basins within the development, either rear yard or street, will be constructed with minimum 600 mm deep sumps. These sumps trap pollutants, sand, grit and debris which can be mechanically removed prior to being flushed into the minor pipe system. Both rear yard and street catch basins will be to OPSD 705.02. All storm sewer maintenance holes serving local sewers less than 900 mm diameter shall be constructed with a 300 mm sump as per City standards.

# 7 Sediment and Erosion Control Plan

## 7.1 General

During construction, existing stream and conveyance systems can be exposed to significant sediment loadings. Although construction is only a temporary situation, it is proposed to introduce a number of mitigative construction techniques to reduce unnecessary construction sediment loadings. These will include:

- groundwater in trench will be pumped into a filter mechanism prior to release to the environment
- bulkhead barriers will be installed at the nearest downstream manhole in each sewer which connects to an existing downstream sewer
- seepage barriers will be constructed in any temporary drainage ditches
- filter cloths will remain on open surface structure such as manholes and catch basins until these structures are commissioned and put into use
- Silt fence on the site perimeter

## 7.2 Trench Dewatering

Any trench dewatering using pumps will be discharged into a filter trap made up of geotextile filters and straw bales similar in design to the OPSD 219.240 Dewatering Trap. These will be constructed in a bowl shape with the fabric forming the bottom and the straw bales forming the sides. Any pumped groundwater will be filtered prior to release to the existing surface runoff. The contractor will inspect and maintain the filters as needed including sediment removal and disposal and material replacement as needed.

## 7.3 Bulkhead Barriers

At the first new manhole constructed within the development that is immediately upstream of an existing sewer a temporary bulkhead will be constructed to limit flow from the sewer to not exceed the peak design flow. In addition to controlling peak flow this bulkhead will trap any sediment carrying flows thus limiting construction-related contamination of existing sewers. The bulkheads will be inspected and maintained including periodic sediment removal as needed and removed prior to top course asphalt being laid.

## 7.4 Seepage Barriers

The presence of road side ditches along Tenth Line Road and Wall Road necessitate the installation of seepage barriers. These barriers will consist of both the Light Duty Straw Bale Barrier as per OPSD 219.100 or the Light Duty Silt Fence Barrier as per OPSD 219.110. The barriers are typically made of layers of straw bales or geotextile fabric staked in place. All seepage barriers will be inspected and maintained as needed.

## 7.5 Surface Structure Filters

All catch basins, and to a lesser degree manholes, convey surface water to sewers. However, until the surrounding surface has been completed these structures should be covered in some fashion to prevent sediment from entering the minor storm sewer system. Until landscape are sodded or until roads are asphalted and curbed, catch basins and manholes will be constructed with geotextile filter bags located between the structure frame and cover

respectively. These will stay in place and be maintained during construction and build until it is appropriate to remove same.

## 7.6 Stockpile Management

During construction of any development similar to that proposed by the Owner, both imported and native soils are stockpiled. Mitigative measures and proper management are required to prevent these materials entering the sewer systems or surrounding ditches.

During construction of the deeper municipal services, water, sewers and service connections, imported granular bedding materials are temporarily stockpiled on site. These materials are however quickly used up and generally before any catch basins are installed.

The roadway granular materials are not stockpiled on site. They are immediately placed in the roadway and have little opportunity of contamination. Lot grading sometimes generates stockpiles of native materials. However, this is only a temporary event since the materials are quickly moved off site.

To assist in the control of transporting sediment off-site into municipal roadside ditches and adjacent McKinnon's Creek, mud matts will be employed at the construction entrances. Additionally, an interceptor swale on both sides of McKinnon's creek will we constructed to intercept any surface runoff transporting sediment. The swale will convey the runoff to a sediment trap complete with dewatering facility such as OPSD 219.240, before discharging into McKinnon's Creek. The above is illustrated in Figure 6 Erosion and Sediment Control Plan.

# 8 Approvals and Permit Requirements

## 8.1 City of Ottawa

The City of Ottawa will review all development documents including final working drawings and related reports. Upon completion, the City will approve the local watermains, and submit the sewer extension MOECP application under the transfer review program to the province and eventually issue a Commence Work Notification for servicing and utility works.

## 8.2 Province of Ontario

The on-site sewage and water works will be subjected to City of Ottawa's CLI-ECA.

## 8.3 Conversation Authority

The South Nation Conservation Authority will be providing permits for works within the McKinnon's Creek corridor.

## 8.4 Federal Government

There are no required permits, authorizations or approvals needed expressly for Claridge's Phase 1 from the federal government. However, DFO approval will be required for Habitat compensation along the McKinnon's Creek corridor being completed by the Mer Bleue Owners Group.

## 8.5 Drainage Act

The City has appointed a Drainage Engineer to create a Municipal Drain under the Drainage Act along McKinnon's Creek, McKinnon's Creek Municipal drain will be the legal outlet for the MBUEA. In addition, as the MBUEA are developed two existing Municipal Drains are within the development area, these drains will be closed under the drainage act.

# 9 Conclusions and Recommendations

Infrastructure necessary for the orderly development of Phase 1 of Claridge's Mer Bleue lands can be constructed or extended to adequately service the site. This includes but is not limited to the following:

- Watermains designed in accordance with City of Ottawa guidelines extending from Tenth Line Road, and the existing Summerside West development to provide domestic and fire flows in accordance with governmental requirements to service the proposed development.
- Sanitary sewers designed in accordance with City of Ottawa guidelines extending from the proposed Summerside development (discharging to the existing Tenth Line Sanitary pump station) will service the proposed development.
- SWM facility designed in accordance with City of Ottawa guidelines will service the proposed development, the SWM facility will be designed to provide 80% TSS removal and will discharge into McKinnon's Creek. An enhanced McKinnon's creek under the Drainage Act will become a Municipal drain to provide legal outlet for the SWM facility.
- Storm sewers designed in accordance with City of Ottawa guidelines will discharge into the proposed SWM facility.
- Grading of the site will be design in accordance with City of Ottawa guidelines. Geotechnical constraints limit the majority site to a 1.2m grade raise restriction at the dwellings otherwise supplemental measures are required. Finished grades along the road network will be designed to assist in the conveyance of major storm runoff to the SWM facility.
- Sediment and erosion control measures employed during construction will minimize harmful impacts on surface water.

This report has provided supporting documentation demonstrating the subject lands can be developed in an orderly and effective manner and in accordance with the City of Ottawa's current level of service requirements.

From an assessment of major municipal infrastructure perspective, it is recommended that the development application for Claridge's Phase 1 of their MBUEA lands be accepted and that the development of the property move forward.

# Appendix A

- **AOV Draft Plan**
- **Figure 1.2 Existing Topography**
- **Figure 1.3 McKinnon's Creek Corridor**
- **City of Ottawa Pre-Consultation Meeting Notes**
- **City of Ottawa Parks Pre-Consultation Meeting Notes**

REVISION SCHEDULE

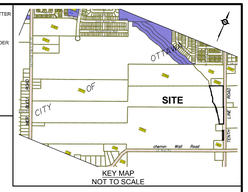
| NO. | REVISION | DATE | BY |
|---|---|---|---|
| 15. | BLOCK 12 (H) AND BREAK BLOCKS INTO TWO BLOCKS, (H) & (THH), & SET OUT ZONES | DEC. 4, 2025 | RK |
| 14. | BREAK NEIGHBOURHOOD PARK INTO 2 BLOCKS | DEC. 3, 2025 | RK |
| 13. | ADD STREET NAMES | OCT. 6, 2025 | R |
| 13. | DPS REVISIONS | JULY 22, 2025 | N |
| 12. | ROUNDABOUT @ STREET 4 | JULY 17, 2025 | N |
| 11. | DPS REVISIONS | MAY 8, 2025 | N |
| 10. | REVISE SOUTHWEST CITYGATE AND WALKWAY BLOCK 'A' DECEMBER | MAY 5, 2025 | N |
| 7. | UPDATED LOT/BLOCK LIMITS FROM 17547-19 | JAN. 24, 2023 | N |
| 6. | REVISIONS | JAN. 31, 2019 | N |
| 5. | REVISIONS | Nov. 2018 | N |
| 3. | REVISIONS | OCT. 2018 | N |
| 2. | REVISIONS | MAR. 2018 | N |
| 1. | STARTED | 2017 | N |

SUBJECT TO THE CONDITIONS, IF ANY, SET FORTH IN OUR LETTER DATED

_____

THIS DRAFT PLAN IS APPROVED BY THE CITY OF OTTAWA UNDER SECTION 51 OF THE PLANNING ACT.
THIS ____ DAY OF _____, 20__.

_____
LILY XU, MCIP, RPP, MANAGER,
DEVELOPMENT REVIEW-SOUTH
PLANNING, DEVELOPMENT AND BUILDING SERVICES
DEPARTMENT, CITY OF OTTAWA



KEY MAP
NOT TO SCALE

*DRAFT PLAN OF SUBDIVISION OF*
**PART OF LOT 5**
**CONCESSION 11**
Geographic Township of Cumberland
**CITY OF OTTAWA**
Prepared by Annis , O'Sullivan , Vollebekk Ltd.

Scale 1 : 1250
0 12.5 25 12.5 0 25 50 Metres

Metric
DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

SURVEYOR'S CERTIFICATE

I CERTIFY THAT :
The boundaries of the lands to be subdivided and their relationship to adjoining lands have been accurately and correctly shown.

_____ _____
Date T. Hamacek
ONTARIO LAND SURVEYOR

OWNER'S CERTIFICATE

This is to certify that we are the owners of the lands to be subdivided and that this plan was prepared in accordance with our instructions.

_____ _____
Date Jim Burghout
CLARIDGE HOMES ( MER BLEAU ) INC.
I have authority to bind the corporation.

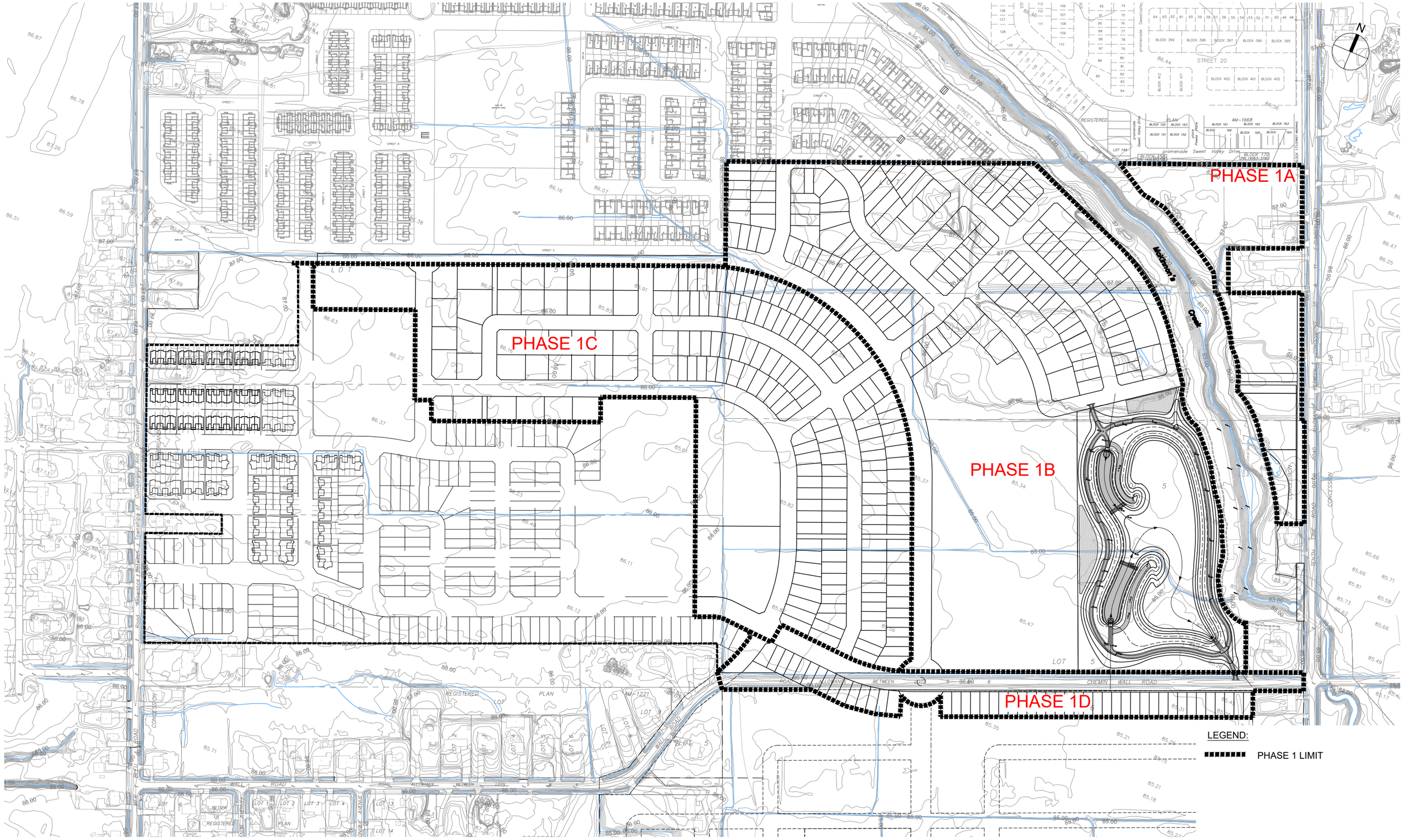
ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51-17 OF THE PLANNING ACT

(a) see plan
(b) see plan
(c) see plan
(d) (purpose for which lots are to be used)
(e) see plan
(f) see plan
(g) see plan
(h) City of Ottawa
(i) see soils report
(j) see plan
(k) (municipal services available or to be available)
(l) see plan

PROPOSED LAND USE TABLE

| PROPOSED USE | LOT/BLOCK | No. OF UNITS | AREA(Ha)/(Ac) |
|---|---|---|---|
| SINGLE FAMILY | 1 - 309 | 309 | 12.304 / 30.40 |
| PARTIAL SINGLES | 374-381 ; 383-389 | | 0.536 / 1.32 |
| TOWNHOMES | 310 - 373 | 270 | 6.002 / 14.83 |
| COMMERCIAL | 394 | | 0.667 / 1.65 |
| PARK | 397,404 | | 7.795 / 19.26 |
| WALKWAY | 382, 390-393, 400 | | 0.219 / 0.54 |
| STREETS / WIDENING | 402, 403 | | 9.819 / 24.26 |
| OTHER | 396 | | 0.030 / 0.07 |
| | 399 | | 0.710 / 1.75 |
| | 401 | | 0.785 / 1.94 |
| STORM WATER MANAGEMENT | 398 | | 5.564 / 13.75 |
| DRY POND | 395 | | 0.902 / 2.23 |
| TOTAL | | 579 | 45.333 / 112.02 |

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ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
14 Concourse Gate, Suite 500
Ottawa, Ontario, K2E 7S4
Phone: (613) 727-0850 / Fax: (613) 727-1079
E-mail: mail@aovltd.com
Ontario Land Surveyors
Job No. 18SU-05 Dwg No. P-U 5 (C 11) DFS 2D 1




J:\116761_MerBleuePh1\5.0 Drawings\59civil\current\Adequacy\Report\Layout\FIGURE 1.2 EXISTING TOPOGRAPHY.dwg Plotted At: 12/5/2025 Last Saved By: henrive6006 Last Saved At: Dec. 5, 25

Project Title

MER BLEUE
PHASE 1

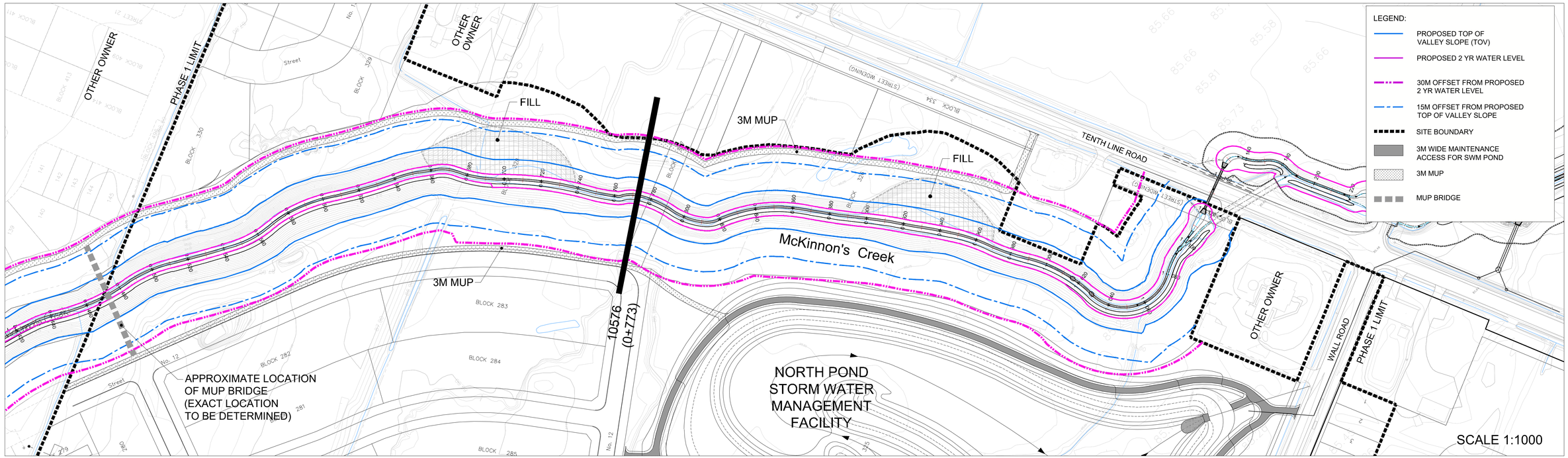
Drawing Title

EXISTING TOPOGRAPHY

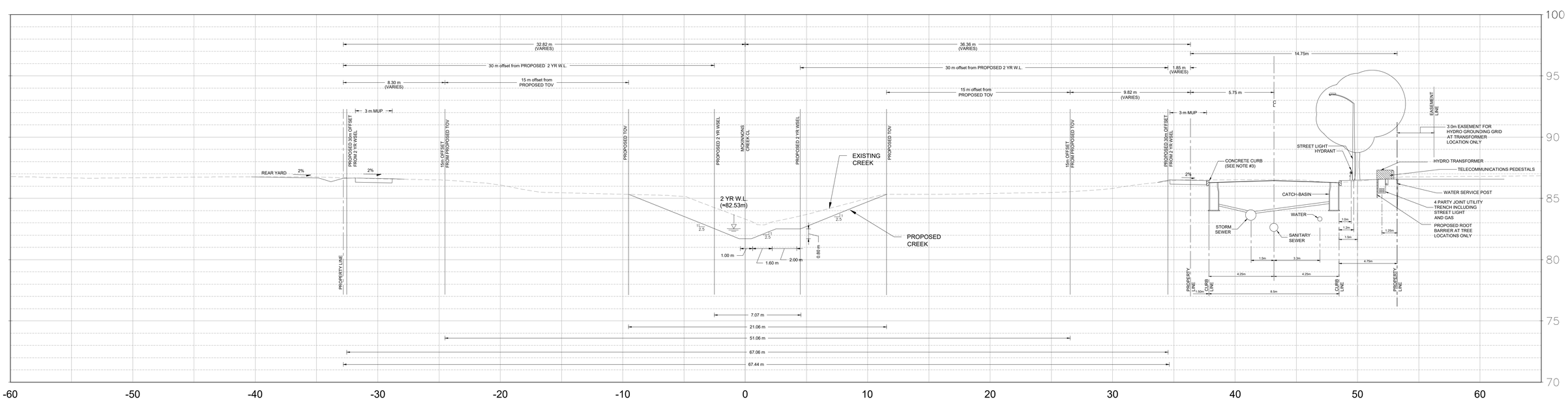
Sheet No.

FIGURE 1.2
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C:\11761_MerBleuePh1\5.9 Drawings\59swm\current\Adequacy Report\FIGURE 1.3 MCKINNONS CREEK CORRIDOR.dwg Layout Name: Fig 1.3 24x36 Plot Scale: 1:5.13 Plotted At: 7/12/2019 Last Saved By: Jesse-Sebastien.Forg Last Saved At: Jul. 12, 19




10576




| Scale | Project Title | Drawing Title | Sheet No. |
|---|---|---|---|
| IBI<br>H = 1:150<br>V= 1:150 | MER BLEUE DEVELOPMENT<br>PHASE 1 | MER BLEUE PROPOSED CORRIDOR | FIGURE 1.3 |

**From:** "Murshid, Shoma" <Shoma.Murshid@ottawa.ca>
**Date:** October 11, 2018 at 3:09:46 PM EDT
**To:** 'Jim Burghout' <jim.burghout@claridgehomes.com>
**Cc:** 'James Holland' <jholland@nation.on.ca>, "Boyer, Jennifer" <Jennifer.Boyer@ottawa.ca>, "Reed, Kerry" <kerry.reed@ottawa.ca>, "Curry, William" <William.Curry@ottawa.ca>, "White, Joshua (Planning)" <Joshua.White@ottawa.ca>, "Giles, Peter" <peter.giles1@ottawa.ca>, "'Vincent Denomme'" <vincent.denomme@claridgehomes.com>, "Young, Mark" <Mark.Young@ottawa.ca>, "Wood, Mary Ellen" <MaryEllen.Wood@ottawa.ca>
**Subject: Pre-Consultation Follow Up for 2559 Mer Bleue Road - Zoning and Subdivision**

Jim and Vincent,

Thank you for meeting with us this past September 28, 2018 to discuss your zoning by-law amendment and plan of subdivision requirements at 2559 Mer Bleue Road. The discussion was based on a proposal shown within the attached plan. This proposal will be triggering an Application for a New Development, Plan of Subdivision and a Major Zoning By-law Amendment. The plan of subdivision submission fee that will be applicable for 251 or more dwelling units plus non-residential uses has a corresponding planning fee of $81,935.56 PLUS Initial Engineering design Review and Inspection Fee of $10,000 (for infrastructure and landscaping value greater than $300K) Plus Initial Conservation Authority Fee of $3,610 + HST. The Zoning By-law Amendment Fee is $16,545.30 Plus an Initial Conservation Authority Fee of $360.00.

As multiple applications will be submitted at the same time, each planning fee will be reduced by 10%. Please note that if you make your applications in 2019, the planning fees are subject to change.

The following are required plans and reports, when both development review applications are submitted concurrently, for the applications to be deemed complete:

**Draft Plan of Subdivision** (10 plans + PDF) - please ensure creek block with proper setbacks are shown, as detailed in the EMP.

**A CD containing the Draft Plan of Subdivision in AutoCAD or MicroStation CAD** format (See technical requirements on application form).

**Planning Rationale** (4 copies + PDF) -Detailed report - including Design Statement, CDP requirements and targets, Integrated Environmental Review Statement summary, requested zoning's concept plan, zoning request, which should include tables, rationales for the rezoning and to what, and identification of any exceptions to requested zoning (if required), McKinnon's Creek corridor, buffer around creeks, woodland blocks, etc., discussion and status of the most recently submitted EMP, MSS and Drainage Act processes and implications for the area within this subdivision and zoning jurisdiction, including but not limited to describing the processes for updating hydraulic and hydrologic models for any modifications to McKinnon's Creek to demonstrate no negative impacts to upstream and downstream erosion and flooding

and acknowledgement of the current Regulation Limit under Ontario Regulation 170/06) – may be same document as the one submitted for Zoning By-law Amendment application
**Concept Plan** (3 copies + PDF) - which includes the proper McKinnon's Creek Corridor, MUP, and pedestrian footbridge(s)
**Pedestrian Circulation & Connection Plan** (3 copies + PDF) - may be combined with the Concept Plan

**Community Transportation Study** (7 copies + PDF) as per the approved and attached TIA Guidelines
**Roadway Modification Plan** (maybe required, depending on conclusions of the Community Transportation Study (If triggered, please contact us about the submission requirements regarding number of plans)
**TCR** (5 copies + PDF)
**Area Park Plan** (CDP Parks Master Plan) (5 copies+ PDF) (stand-alone document)
**Functional Servicing Report** (7 copies + PDF)
**Sanitary Sewer Analysis for Area 10** (4 copies + PDF)
**Geotechnical Report**, with Limit of Development line included (4 + PDF)
**Servicing and SWM Design Briefs** (4 copies + PDF)
**Survey Plan** (2 copies + PDF)
**Topographical Plan of Survey** (2 copies + PDF)
**McKinnon's Creek Corridor Concept Plan** - showing full setbacks as detailed in Section 4-4 of the EMP; Multi-Use Pathway, landscaping, rehabilitation features and hazard limits of meander belt widths. This will include Cross –Sections at a minimum of 3 specific locations.
**ToR*** (5 copies + PDF)
**Noise Feasibility Study** (3 copies + PDF)
**Phase 1 ESA** (5 copies + PDF)
**Environmental Impact Statement/Impact Assessment of Endangered Species** (7 copies + PDF)
**Creek Cross Sections** (5 cross sections) (4 copies + PDF)
**Corridor Concept Plan** (5 copies + PDF)
**Headwater Drainage Feature Assessment/ Aquatic Habitat Assessment** (5 copies + PDF)

The following need to be taken into consideration when finalizing your draft plan of subdivision application:

Attached, you will find Parks comments.

East-west Collector street needs to be intersecting the locals at 90 degrees, as we discussed the other day.

Development should be set back 30 m from the normal high water mark or 15 m from top of bank, whichever is greater.

An EIS is required as the subject property is located within 30 m of an Urban Natural Feature as designated on Schedule B of the OP and located in or within 120 m of known or potential significant habitat for an endangered or threatened species. A survey for grassland birds and butternut will need to be completed and the butternut health assessment from 2014 will need to be updated. In addition to grassland birds, the EIS will need to focus on the wooded area on the east side of Mer Bleue Road identified on Schedule L1 of the City's Natural Heritage System Overlay for development proposed in or adjacent to the woodlot. The EIS will need to demonstrate that the proposed development will not result in negative impacts to the natural features or their ecological functions.

*A Terms of Reference for the McKinnon's Creek Corridor will need to be prepared not just for this parcel, but for the entire creek corridor from the SWM Pond Outlet to the end of the downstream rural portion.

Cross-section plans demonstrating that infrastructure (eg. Mixed Use Path, road right of ways, etc.) is excluded from within the McKinnon's Creek setbacks

A planting plan within the McKinnon's Creek corridor, as described in the EMP

Please note that prior to Draft Plan of Subdivision Approval, there are to be two Limit of Development lines on the Subdivision Plan layout. 1. One Limit of Development line shall be based upon current cross sections and geotechnical slope analysis. The second Limit of Development line shall show the conclusions of the ultimate scenario, where the required deepening of the overall creek would change the cross sections and or bank slope and would provide a secondary Limit of Development Line.

Besides providing standard information in a Functional Servicing Report (and subsequent Servicing and SWM Design Briefs) to demonstrate consistency with the Area 10 Master Servicing Study, the FSR and Design Briefs need to also provide the following information to demonstrate consistency with improvements required in McKinnons Creek:

1. Documentation to demonstrate compatibility of McKinnons Creek corridor Block with creek restoration requirements currently being developed through Mattamy's Summerside West development, as well as the Drainage Act process underway on McKinnons Creek; and
2. An Implementation Plan that details key pre-requisite milestones that must be completed during the planning, design, and construction of the Drainage Act works, to enable development approvals to be issued during the Planning Act process.

Another requirement Claridge and IBI should be aware of: the need for assessing the impact, and identification of any mitigation measures (such as LIDs) to avoid impacts to Sabourin Creek (located west of Mer Bleu Road) that could result from diverting 35 ha

away from it, to McKinnons Creek (primarily from Claridge's lands), as is discussed in Section 5.5.3.2 of the MSS:

The Ottawa Front Municipal Drain is located west of Mer Bleue Road, illustrated within **Figure 5** from the Existing Conditions Report (within **Appendix B**), and provides drainage for a small portion of the western edge of the subject site, approximately 35ha. The Ottawa Front MD continues in a southerly direction, crossing Navan Road and discharges to an area along the northern edge of the Mer Bleue Bog. This area is also the headwaters for the East Branch of the Savage Municipal Drain. It is anticipated that when this area is urbanized as part of the CDP it will become tributary to an end of pipe SWM facility to service the entire CDP area. It is also anticipated that the end of pipe SWM facilities that will service the urbanized CDP area will be tributary to McKinnons Creek. This would result in the removal of the tributary drainage area from the Ottawa Front Municipal Drain. Additional studies including but not limited to Hydrogeological, Geotechnical and/or Hydrological will be completed in support of the draft plan of subdivision for this area and will assess the impact of this redirection of tributary drainage area to the receiving Ottawa Front Municipal drain. The analysis will also identify if additional SWM (LIDs, etc.) will be required in this portion of the CDP to mitigate loss of frequent flows and/or baseflow (to Ottawa Front MD and downstream recipient Sabourin Creek).

The potential impact could largely be offset by a separate 30 ha diversion of drainage away from Mud Creek, into the Savage Municipal Drain as illustrated in the figure below that is sourced from an Area 10 MSS appendix:

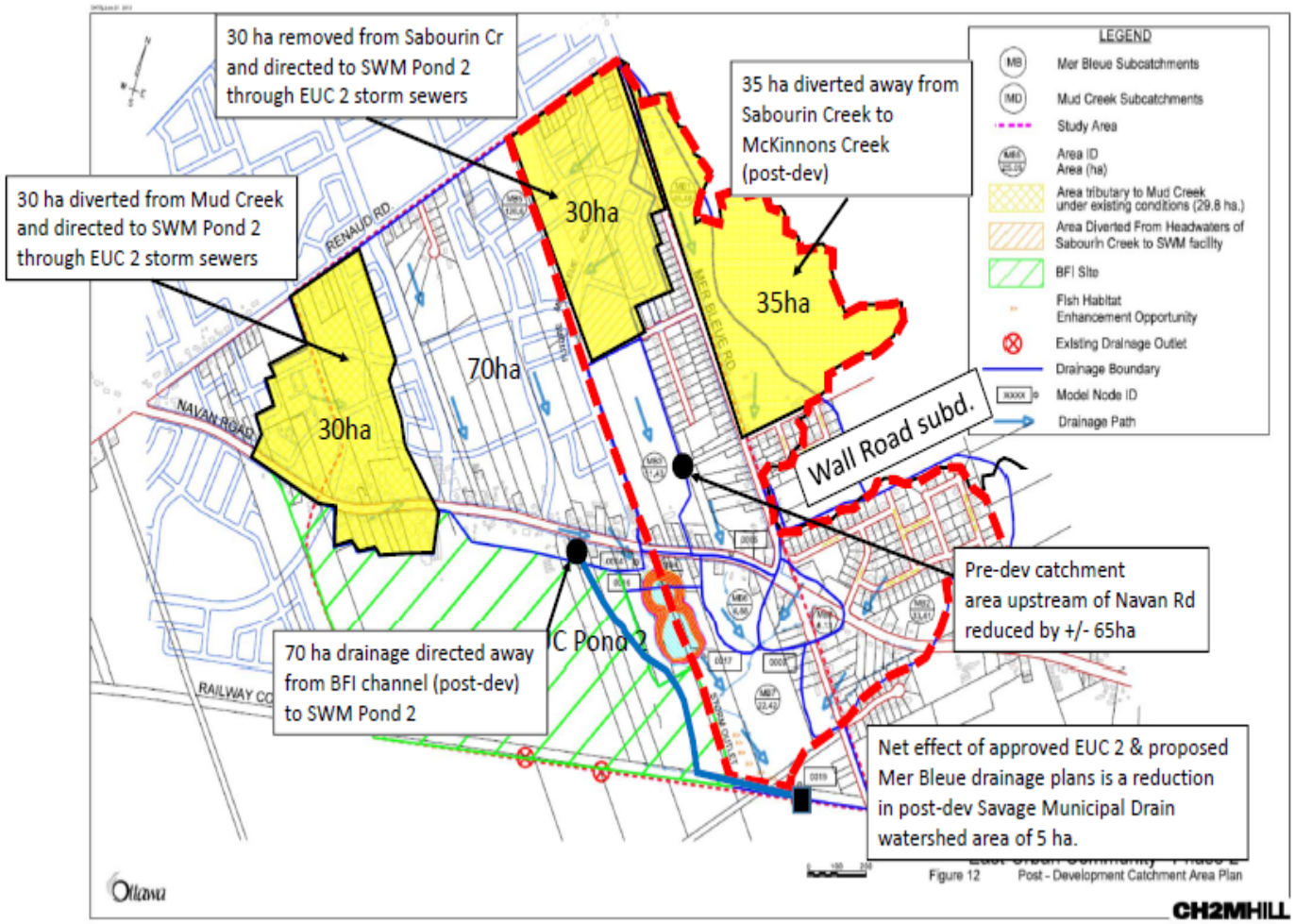


Figure 12 Post - Development Catchment Area Plan

Please do not hesitate to contact me should there be any questions or concerns related to the discussions and requirements above.

Regards,

**Shoma Murshid, MCIP, RPP**
**File Lead, Planner II**
**Responsable de dossier, urbaniste II**
City of Ottawa/ Ville d'Ottawa
Development Review (Suburban Services, East)/ Examen des projets d'aménagement (Services suburbains Est)
Planning, Infrastructure, and Economic Development Department/ Service de la planification, de l'infrastructure et du développement économique
110 Laurier Avenue West, 4th Floor, Ottawa ON K1P 1J1/ 110, avenue Laurier Ouest, 4e étage, Ottawa (Ontario) K1P 1J1
Mail Code/ Code de courrier : 01-14
Tel/ Tél: (613) 580-2424 ext. 15430
Fax/ Téléc. : (613) 580-4751
e-mail/ courriel : shoma.murshid@ottawa.ca
www.ottawa.ca

**M E M O / N O T E D E S E R V I C E**

| | | |
|---|---|---|
| To / Destinataire | Shoma Murshid, Planner<br>Development Review East Branch | File/N° de fichier:<br>Pre-consultation application |
| From / Expéditeur | Mary Ellen Wood, Planner<br>Parks and Facilities Planning Branch | |
| Subject / Objet | Draft Plan of Subdivision & Zoning<br>2559 Mer Bleue - Claridge | Date: October 3, 2018 |

Below please find pre-consultation comments on the above-noted development applications:

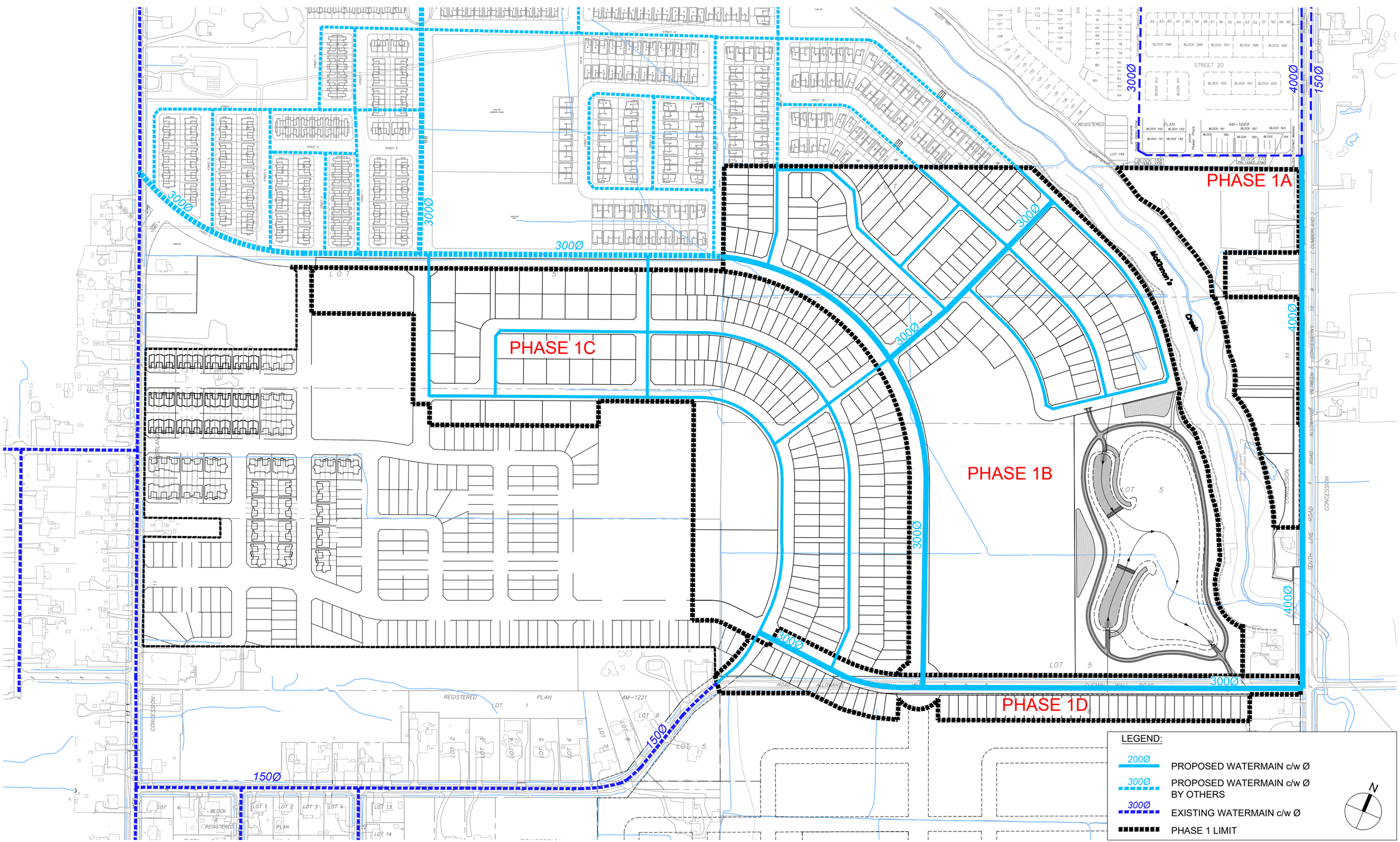
1. The subject lands include the Community Park (6.473ha) and the Neighbourhood Park (2.283ha) as identified in the Mer Bleue Urban Expansion Area, Area Parks Plan (APP).
2. The proposed park blocks are appropriate in size and shape with adequate street frontage and consistent with the Area Parks Plan.
3. The City's Parkland Dedication By-law requirement of 1 hectare/300 units will be used to determine parkland dedication once unit counts are generated.
4. Parks does not accept parkland dedication of constraint land (land used for stormwater management facility). Please remove the dry pond from the Neighbourhood Park into a separate block on the draft plan.
5. Through the draft plan of subdivision process, please work with Park staff to develop Facility Fit Plans for the Community Park and Neighbourhood Park. Please use the Area Parks Plan as a starting point for the Fit Plans.
6. Note that sidewalks are required along all park frontages and sidewalk connections must connect into the existing pedestrian network.
7. As discussed at our pre-consultation meeting held Sept 28th, please ensure a 3m recreational pathway is included within the window street ROW along McKinnon's Creek.
8. Please investigate options to include a MUP connecting Tenth Lind Road to a pedestrian crossing over McKinnon's Creek and along the north-east side of McKinnon's Creek.
9. Please note draft conditions will be included regarding the timing, development and coordination of the dry pond pathway connections and landscaping to be coordinated with the park design (beside the Neighbourhood Park). Pathways and landscaping of the dry pond will be the responsibility of the developer and beyond the park budget.

10. Please coordinate the location of services and utilities (water, sanitary, storm and hydro) for the two park blocks with the Facility Fit Plans.
11. Parks Planning will provide a full suite of draft plan conditions for draft approval once an application is submitted and moves through the review process.
12. Zoning for the park blocks will need to be included at the time of the zoning by-law amendment to Parks and Open Space (O1).

# Appendix B

- **Figure 2.1 Conceptual Watermain Distribution System**
- **Water Demand Calculation Sheet**
- **MSS Figure 3 Water Distribution Infrastructure**
- **MSS Figure 8.1A Recommended Water Distribution System**
- **Mer Bleue CDP Potable Water Servicing Analysis - Stantec**

J:\116761_MerBleuePh1\5.9 Drawings\59civil\current\Adequacy Report\Layout\FIGURE 2.1 CONCEPTUAL WATERMAIN DISTRIBUTION SYSTEM.dwg Plotted At: 12/5/2025 Last Saved By: henrie6006 Last Saved At: May. 16, 25




Project Title

MER BLEUE
PHASE 1

Drawing Title

CONCEPTUAL WATERMAIN DISTRIBUTION SYSTEM

Sheet No.

FIGURE 2.1
---

ARCADIS IBI GROUP
500-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
ibigroup.com

**WATERMAIN DEMAND CALCULATION SHEET**

Mer Bleue Phase 1 APSR | Claridge Homes
116761-6.4.4 | Rev #3 | 2025-05-16
Prepared By: WZ | Checked By: RM

| NODE | RESIDENTIAL | | | | NON-RESIDENTIAL (ICI) | | | AVERAGE DAILY DEMAND (l/s) | | | MAXIMUM DAILY DEMAND (l/s) | | | MAXIMUM HOURLY DEMAND (l/s) | | | FIRE DEMAND (l/min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SINGLE FAMILY UNITS | TOWNHOUSE UNITS | 2 BEDROOM UNITS | POPULATION | INDUST. (ha) | COMM. (ha) | INSTIT. (ha) | RESIDENTIAL | ICI | TOTAL | RESIDENTIAL | ICI | TOTAL | RESIDENTIAL | ICI | TOTAL | |
| **Site** | 302 | 241 | | 1677.50 | | 0.69 | | 5.44 | 0.40 | 5.84 | 13.59 | 0.60 | 14.19 | 29.90 | 1.08 | 30.98 | 13,000 |
| **TOTAL** | **302** | **241** | | **1677.50** | | **0.69** | | | | **5.84** | | | **14.19** | | | **30.98** | 13,000 |

**ASSUMPTIONS**

**POPULATION DENSITY**

| | |
|---|---|
| Single Family | 3.4 persons/unit |
| Townhouse | 2.7 persons/unit |
| 2 Bedroom Units | 1.8 persons/unit |

**WATER DEMAND RATES**

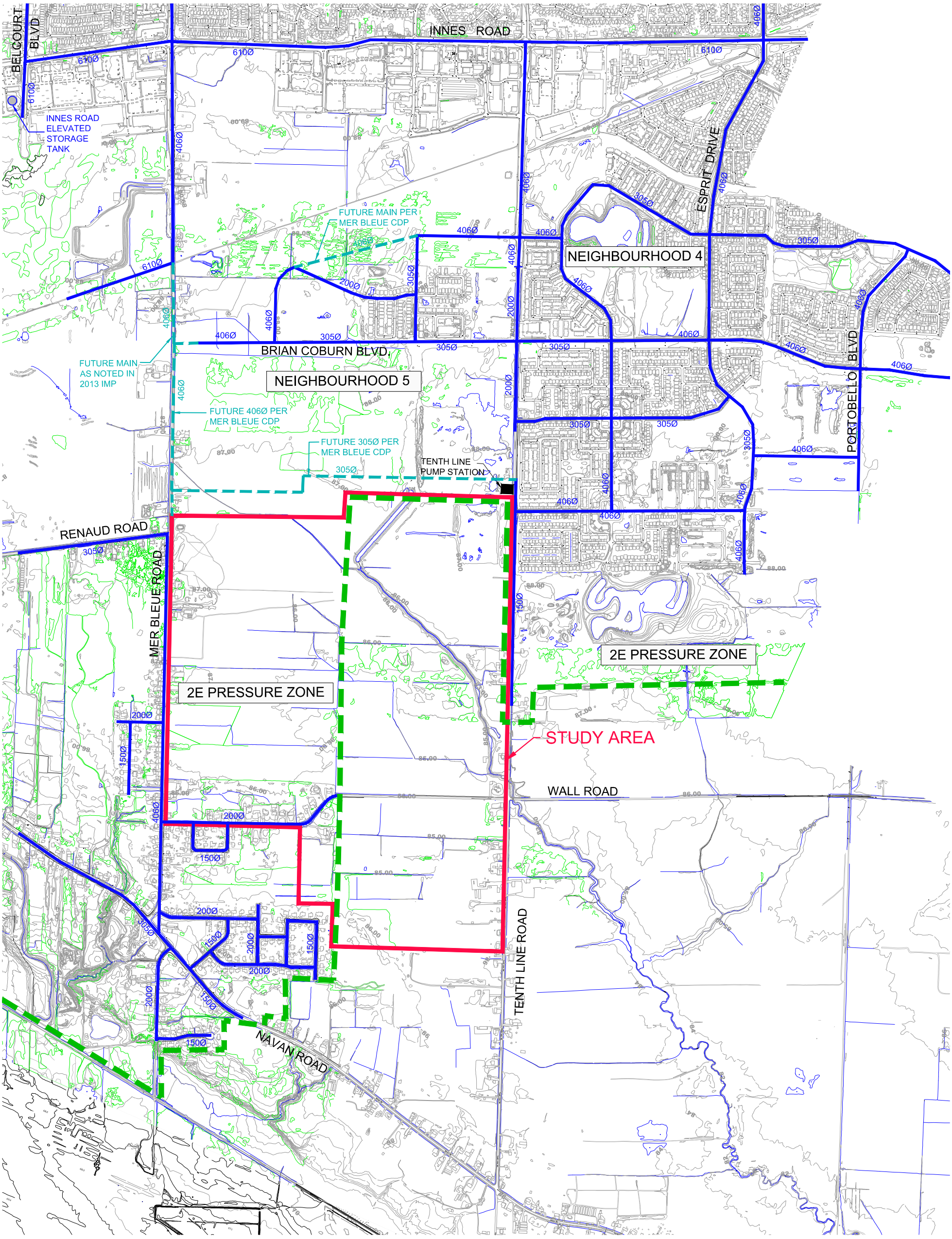
| | |
|---|---|
| Residential | 280 l/cap/day |
| ICI | 50,000 l/Ha/day |
| Commercial Shopping Center | 2,500 L/(1000m2)/day |

**PEAKING FACTORS**

| | | |
|---|---|---|
| Maximum Daily | | |
| | Residential | 2.5 x avg. day |
| | Commercial | 1.5 x avg. day |
| Maximum Hourly | | |
| | Residential | 2.2 x max. day |
| | Commercial | 1.8 x max. day |

**FIRE DEMANDS**

| | |
|---|---|
| Single Family | 10,000 l/min (166.7 l/s) |
| Semi Detached & Townhouse | 10,000 l/min (166.7 l/s) |
| Medium Density | 15,000 l/min (250 l/s) |




J:\34739-CumbServ\Report\5.9 Drawings\59civil\current\Mer Bleue Expansion Study Area Report\Figure3-4-6.dwg Layout Name: Figure 3 Plot Style: ---- Plot Scale: 1:8.704 Plotted At: 2/19/2014 1:32 PM Last Saved By: mmiline Last Saved At: Feb. 19, 14

IBI GROUP

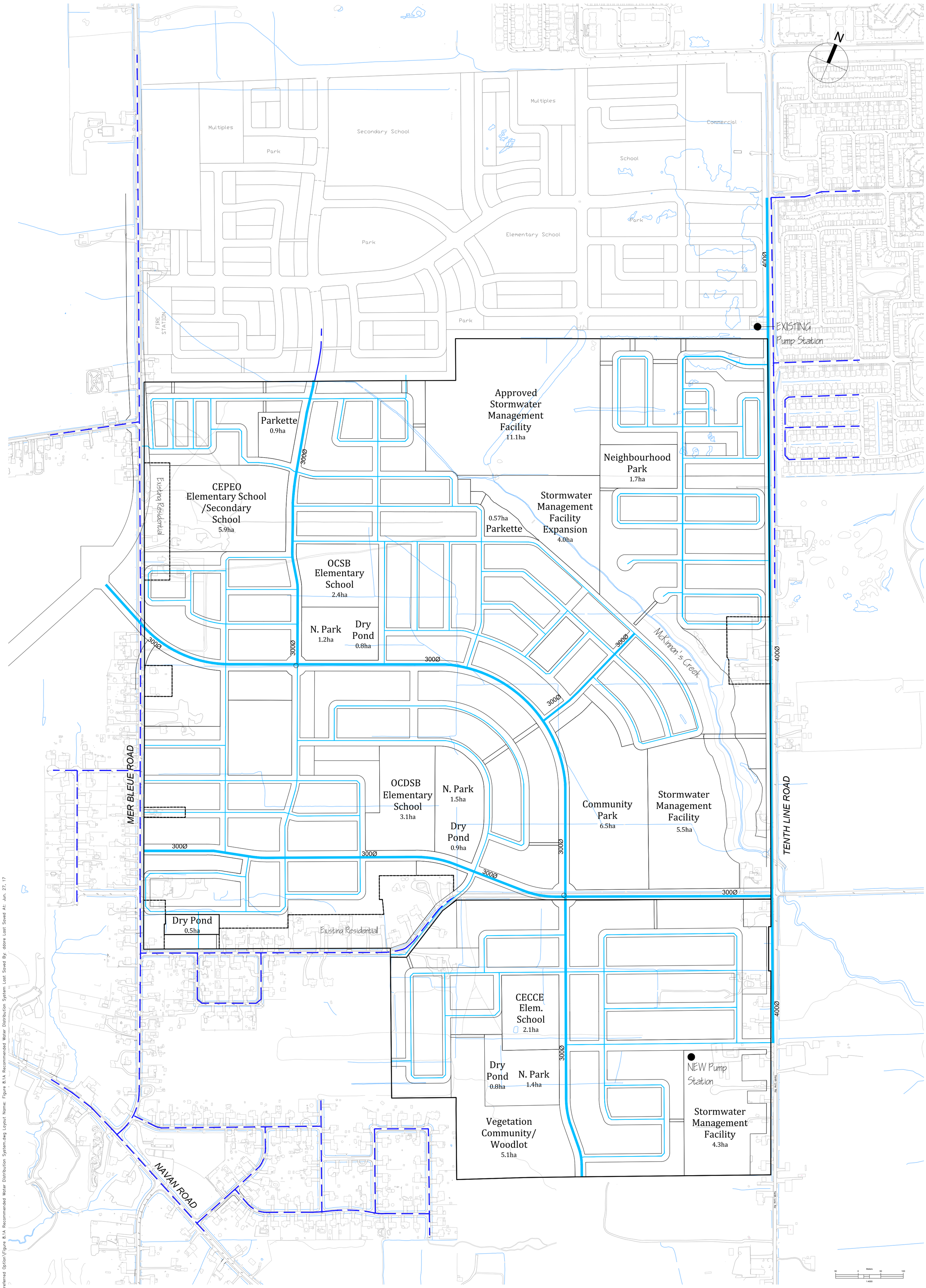
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Project Title: MER BLEUE EXPANSION STUDY AREA

Drawing Title: WATER DISTRIBUTION INFRASTRUCTURE

Sheet No.: FIGURE 3

FEBRUARY 2014




LEGEND:

300Ø PROPOSED TRUNK WATERMAIN INCLUDING APPROXIMATE DIAMETER

PROPOSED WATERMAIN

EXISTING WATERMAIN

J:\34739-CumbServ\Report\5.9 Drawings\59civil\layouts\MSS-Apr2017\Preferred Option\Figure 8.1A Recommended Water Distribution System.dwg Layout Name: Figure 8.1A Recommended Water Distribution System Last Saved By: ddore Last Saved At: Jun. 27, 17

Sheet No.

FIGURE 8.1A
JUNE 2017

Drawing Title

RECOMMENDED WATER DISTRIBUTION SYSTEM FOR UPDATED DEMONSTRATION PLAN

Project Title

MER BLEUE
MASTER SERVICING STUDY

IBI

# Mer Bleue CDP Potable Water Servicing Analysis

Final Report



Prepared for:
IBI Group Inc.

Prepared by:
Stantec Consulting Ltd.
400-1331 Clyde Avenue
Ottawa ON
K2C 3G4

April 10, 2017

# Sign-off Sheet

This document entitled **Mer Bleue CDP Potable Water Servicing Analysis** was prepared by Stantec Consulting Ltd. for the account of IBI Group Inc. Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by _____
(Signature)
**Val Hoang, M.A.Sc., Engineering Intern**

Reviewed by _____
(Signature)
**Kevin Alemany, M.A.Sc., P.Eng. Associate**

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# Executive Summary

Stantec has completed the hydraulic assessment for the potable water servicing of the Mer Bleue Urban Expansion Area (MBUEA) on behalf of IBI Group Inc. The purpose of this study is to review the existing conditions of watermain infrastructure within the proposed development as well as assessment of a potential servicing alternative opportunities and constraints.

The MBUEA is located between Mer Bleue Road and Tenth Line Road in the east end of Ottawa. The development is on relatively flat land with ground elevations ranging from 85.0m to 88.2m. This area is located within Pressure Zone 2E of the City of Ottawa's water distribution system.

The hydraulic assessment for MBUEA was based on the proposed layout and watermain sizing to meet build-out conditions. Future plans for phasing will need to consider the City of Ottawa's design guideline of having at least two (**2**) feeds into an area of 50 units or greater. The proposed layout includes a 305mm diameter watermain "spine" through the network with a combination of 254mm, 203mm and 152mm diameter pipes.

The proposed MBUEA development is to connect to future 406mm diameter watermain extensions along Mer Bleue and Tenth Line as well as two (**2**) subdivisions located north (Neighbourhood 5) and south (North Park) of MBEUA.

Based on the ground elevations of the development and the existing hydraulic gradeline in Zone 2E, operating pressures in the MBUEA development are not anticipated to drop below 276kPa (40 psi) or exceed 552kPa (80 psi). Hydraulic modelling results show that during basic day conditions and peak hour conditions, the proposed system is capable of operating between the objective pressure ranges or 345 - 483kPa (50 - 70 psi).

During emergency fire conditions, the proposed system is capable of providing a fire flow of 13,000 L/min while maintaining a residual pressure of 138kPa (20 psi) using the proposed pipe layout and sizing at most locations in the development.

A reliability analysis was also performed to examine critical watermain breaks on the future 406mm diameter watermains on Mer Bleue on Tenth Line. Hydraulic modelling results showed that the proposed layout and sizing is capable of providing basic day plus fire flow of 13,000 L/min while maintaining a residual pressure of 138kPa (20 psi) in the system under these critical watermain breaks at most locations.

Locations that were unable to meet the zone level fire flow requirement of 13,000 L/min were, however, able to satisfy the City's technical bulletin objective that caps the fire flow at 10,000 L/m for new developments. The required Fire Underwriters Survey (FUS) fire flows for the development will need to need to be calculated and confirmed upon the detailed design stage.

The proponent will be required to confirm and verify the required FUS fire flows of Summerside West Phase 1, 2 and 3 (separate from this hydraulic analysis) which is currently in the detailed design stage.

Although no facility upgrades are required for the MBEUA, the future 406mm diameter watermains on Mer Bleue and Tenth Line are required to service the MBEUA.

# 1.0 INTRODUCTION

## 1.1 OVERVIEW

Stantec Consulting Ltd. (Stantec) completed the potable water servicing plan for the Mer Bleue Urban Expansion Area (MBUEA). This work will be part of the overall community design plan (CDP) being led by IBI Group Inc.

The Mer Bleue Urban Expansion development is located in the east end of the City of Ottawa and is bounded by Mer Bleue Rd. (west), Wall Rd. (south) and Tenth Line Rd. (east) as shown in **Figure 1-1**. The development will be serviced by Zone 2E. This development is approximately 219ha and will be comprised of mixed-use residential, institutional and commercial lands with ground elevations ranging from 85.0m to 88.2m.

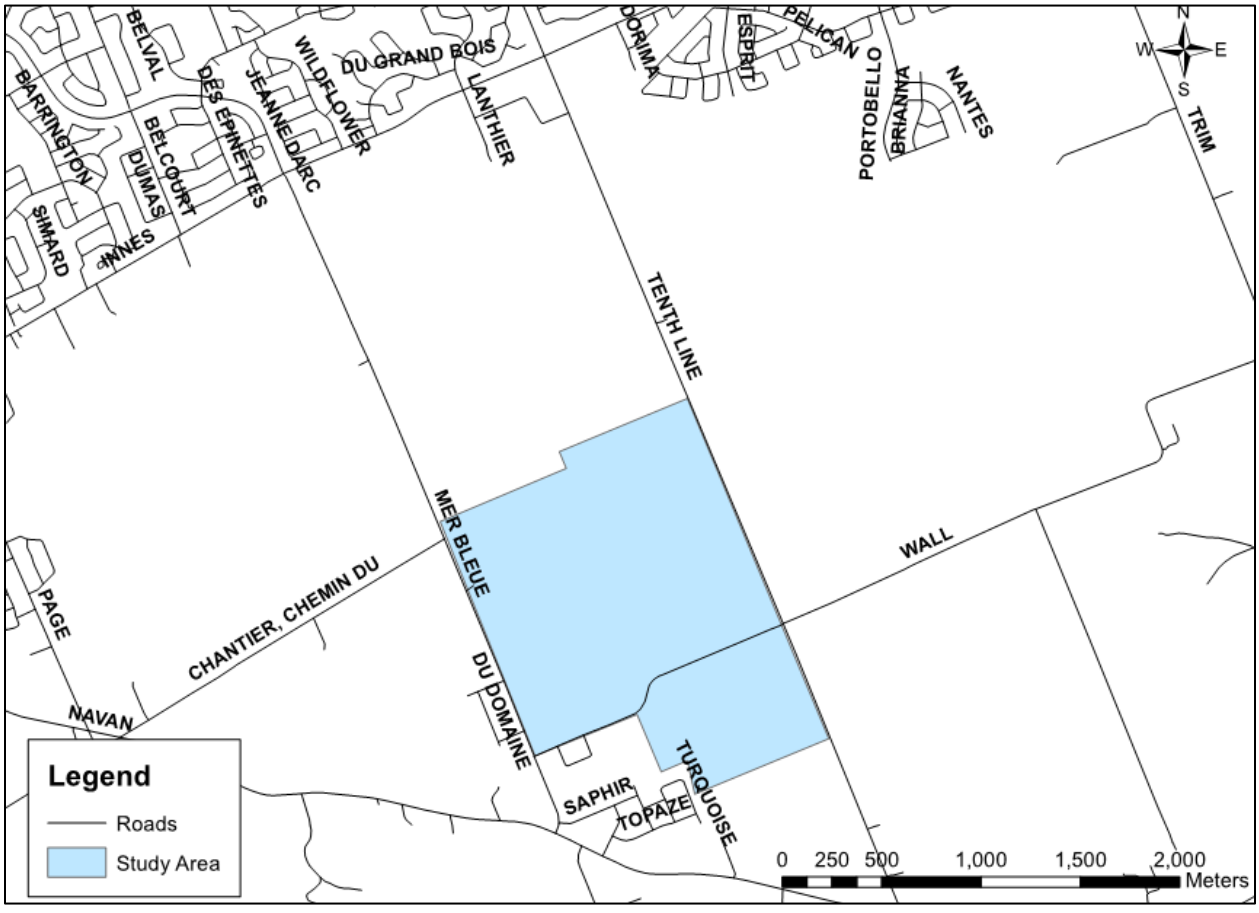



**Figure 1-1: Location of Study Site**

## 1.2 EXISTING CONDITONS

Pressure Zone 2E is serviced by both the Orleans Pumping Station (OPS) and Forrest Ridge Pumping Station (FRPS) with the Innes Road Elevated Storage Tank providing balancing, fire and emergency storage. Zone 2E pump stations generally operate at a minimum hydraulic gradeline (HGL) of 129m and a maximum HGL of 131m (ORPS) and 133m (FRPS). **Figure 1-2** shows existing watermains of 305mm in diameter and greater in the area surround MBUEA.

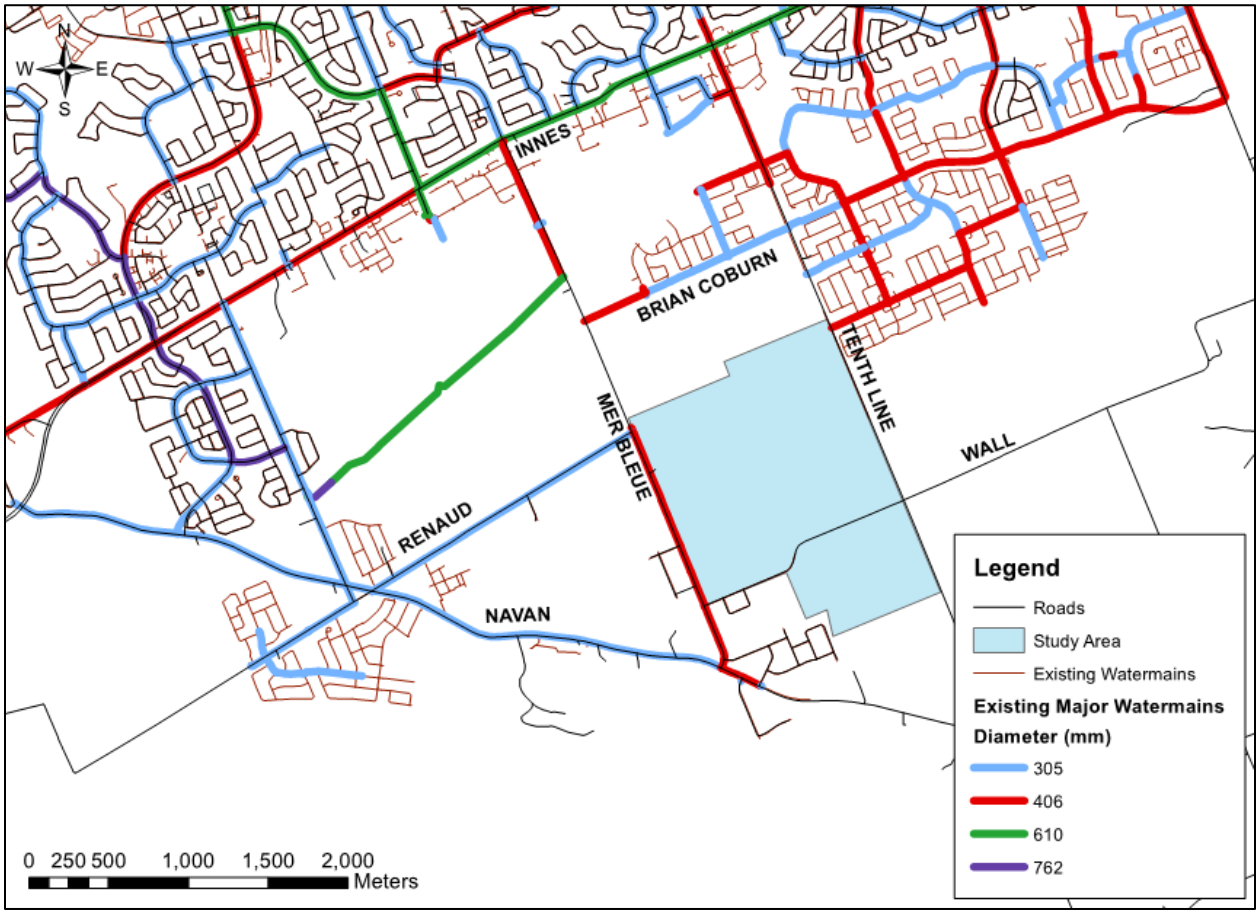



**Figure 1-2: Major Existing Watermains Surrounding MBUEA**

# 2.0 PROPOSED INFRASTRUCTURE

## 2.1 FUTURE INFRASTRUCTURE IN SURROUNDING AREA

As per the City of Ottawa's 2013 Water Master Plan (WMP) Update, capacity upgrades to the Zone 2E pump stations and Innes Road Elevated Storage Tank are not anticipated to be required before 2031. As such, the development of MBUEA is not dependent on any facility upgrades. The existing pumping and available storage capacity in Zone 2E is anticipated to be sufficient to support the MBUEA as this area was included in the 2013 WMP growth area. This is further confirmed in more detail through hydraulic modelling in this study.

As shown in **Figure 2-1**, major future infrastructure around the development area includes:

- a 406mm diameter watermain along Mer Bleue that runs through Brian Coburn to Renaud;
- a 406mm diameter watermain extension along Tenth Line to Wall.

These two (**2**) major watermains provide improved transmission and will support development of growth areas, including the development of MBUEA.

The MBUEA lands will be supplied by the future Mer Bleue watermain at two (**2**) locations and by the Tenth Line watermain at three (**3**) locations. External lands worth mentioning are the Avalon West (Neighbourhood 5) area north of MBUEA and the North Park area south of MBEUA. The 305mm diameter watermain through the Avalon West area will connect to the MBUEA and will also be connected to the future 406mm diameter watermains. In regards to the North Park area, the southeast portion of the MBUEA development will provide two (**2**) future connections to supply potable water to the North Park lands. Connections are shown in **Figure 2-1**.

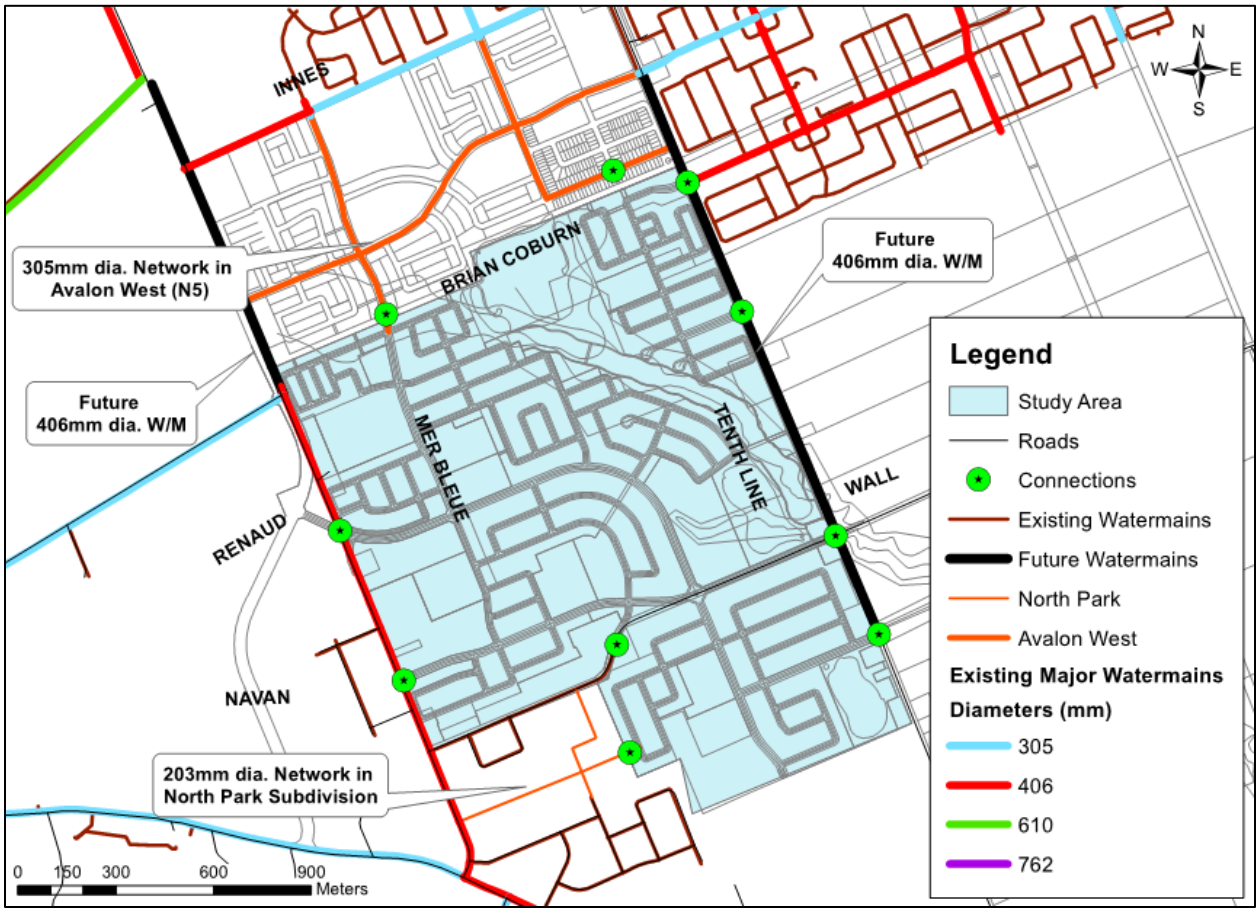



**Figure 2-1: Connections Points to Future and Existing Infrastructure**

## 2.2 PIPE LAYOUT

Ground elevations in the development range from 85.0m to 88.2m (**Figure 2-2**). To keep operating pressures in the objective range of 345 - 483kPa (50 - 70 psi), the HGL in the area must not drop below 123m or exceed 134m. This HGL range falls in line with the existing operating HGL of Zone 2E in this area and therefore, minimum pressures below 276kPa (40 psi) and maximum pressures above 552kPa (80 psi) are not anticipated in the MBEUA under normal operating conditions.

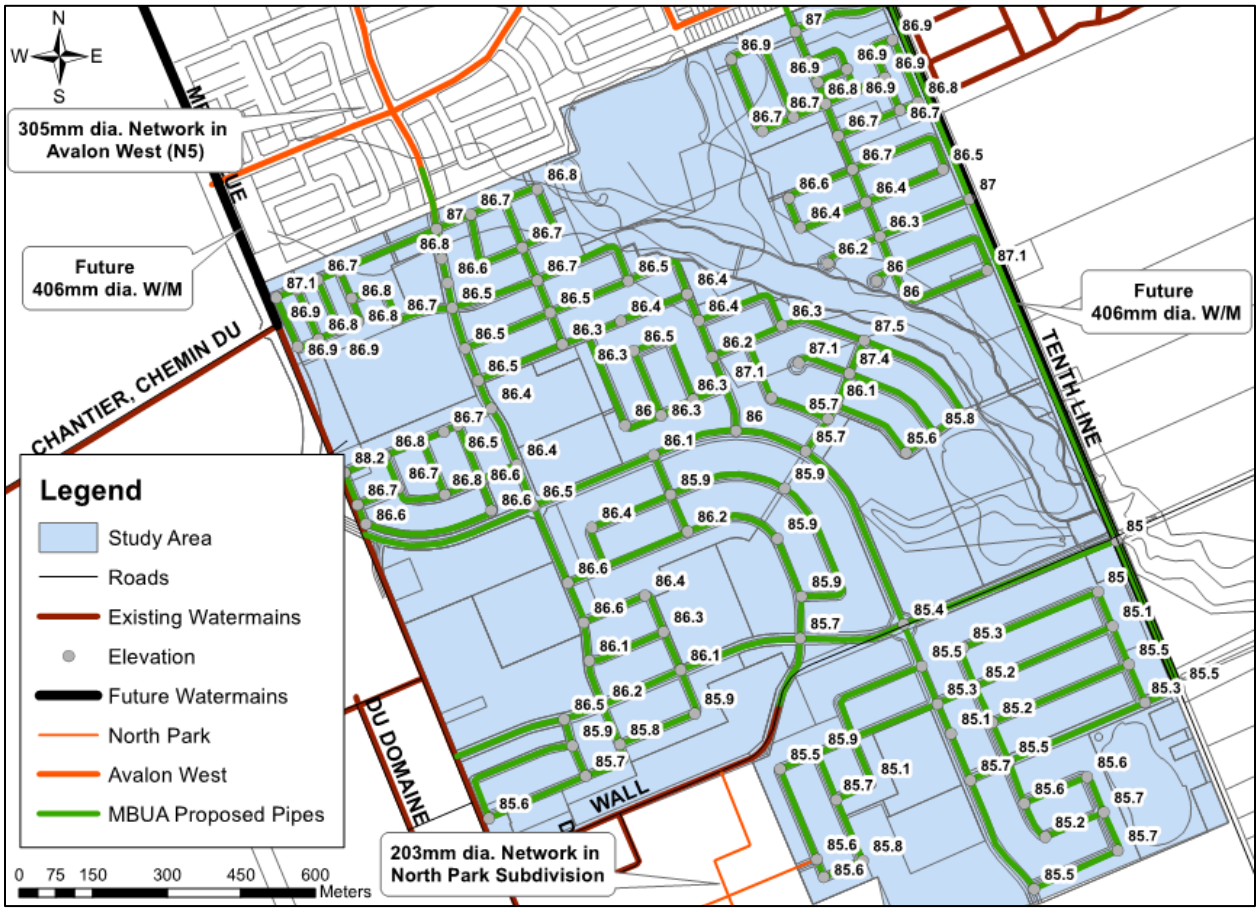



**Figure 2-2: Ground Elevations in MBUEA**

**Figure 2-3** shows the preliminary alignments and sizing based on the most current road layout provided by IBI Group in November 2015. The proposed watermain network is comprised of a 305mm diameter "spine" throughout the network with a combination of branching and looping 254mm, 205mm, and 152mm diameter piping.

For the hydraulic analysis herein, the proposed pipe layout and sizing shown in **Figure 2-3** was considered as the complete build-out of MBUEA. Future plans for phasing will need to consider the City of Ottawa's design guidelines requiring at least two (**2**) feeds into an area of 50 units or greater.

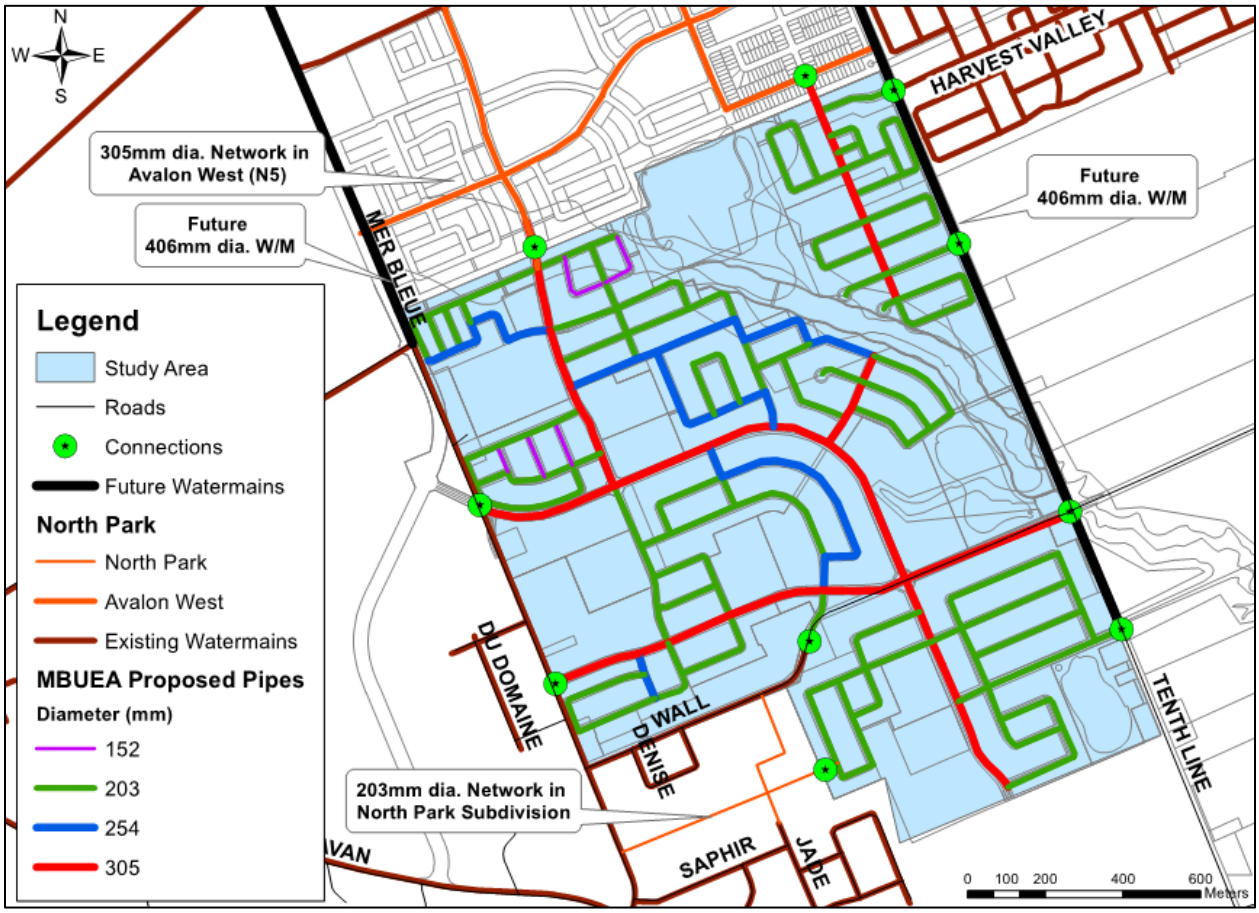



**Figure 2-3: Proposed Pipe Layout and Sizing**

It should be noted that the proposed pipe sizing at this planning stage is often oversized to satisfy zone level fire flow requirements. Upon the subdivision approval phase and detailed design, the required fire flows are to be calculated based on the Fire Underwriters Survey (FUS) which is directly related to the proposed unit type/spacing and construction details. For example, a watermain supplying water to single family homes (small fire area) will require less fire flow than a row of 5 townhomes (large fire area). Pipe sizing will therefore be revised at the detailed design stage based on the required FUS fire flow for all locations of the development. Furthermore, areas with low available flows in which larger watermain sizes are not permitted (i.e. dead-ends are not to be sized larger than 200mm in diameter as per the City's guidelines) could be restricted to a certain building/unit type that requires a smaller FUS fire flow or looping should be considered.

## 2.3 AREAS CURRENTLY IN THE DETAILED DESIGN STAGE

Through email correspondence on November 13, 2015 and April 3, 2017, IBI Group informed Stantec that Phase 1, 2 and 3 of the Mattamy lands is currently in the detailed design stage as shown in **Figure 2-4**.

Site plans provided to Stantec on November 13, 2015 (prepared by David Schaeffer Engineering Ltd (DSEL)) indicated pipe sizing as shown in **Figure 2-4** for Phase 1. There will be one (**1**) connection to the 305mm diameter pipe in Avalon West (N5) and another connection to the 406mm diameter watermain along Harvest Valley Avenue at the Tenth Line intersection.

Furthermore, DSEL indicated Phase 2 and 3 of Summerside West will connect to the 305 diameter pipe running through Avalon West (N5) as shown in in **Figure 2-4. At the subdivision approval stage,** the proponent will need to confirm that there are less than 50 units in Phase 2 and 3 if there is only a single feed to this area or alternatively they will need to consider a second connection to achieve looping requirements. Two (**2**) water services are to be provided with an isolation valve as per the City's Water Distribution Design Guidelines technical bulletin (ISDTB-2014-02) for an estimated basic demand of 50m$^3$/d (equivalent to approximately 50 units).

Since these areas are in the detailed design stage, the City requires local internal watermains to be checked for their ability to provide fire flow based on FUS requirements. The proponent is responsible for confirming building specific fire flow in accordance to the FUS separately from this hydraulic assessment.

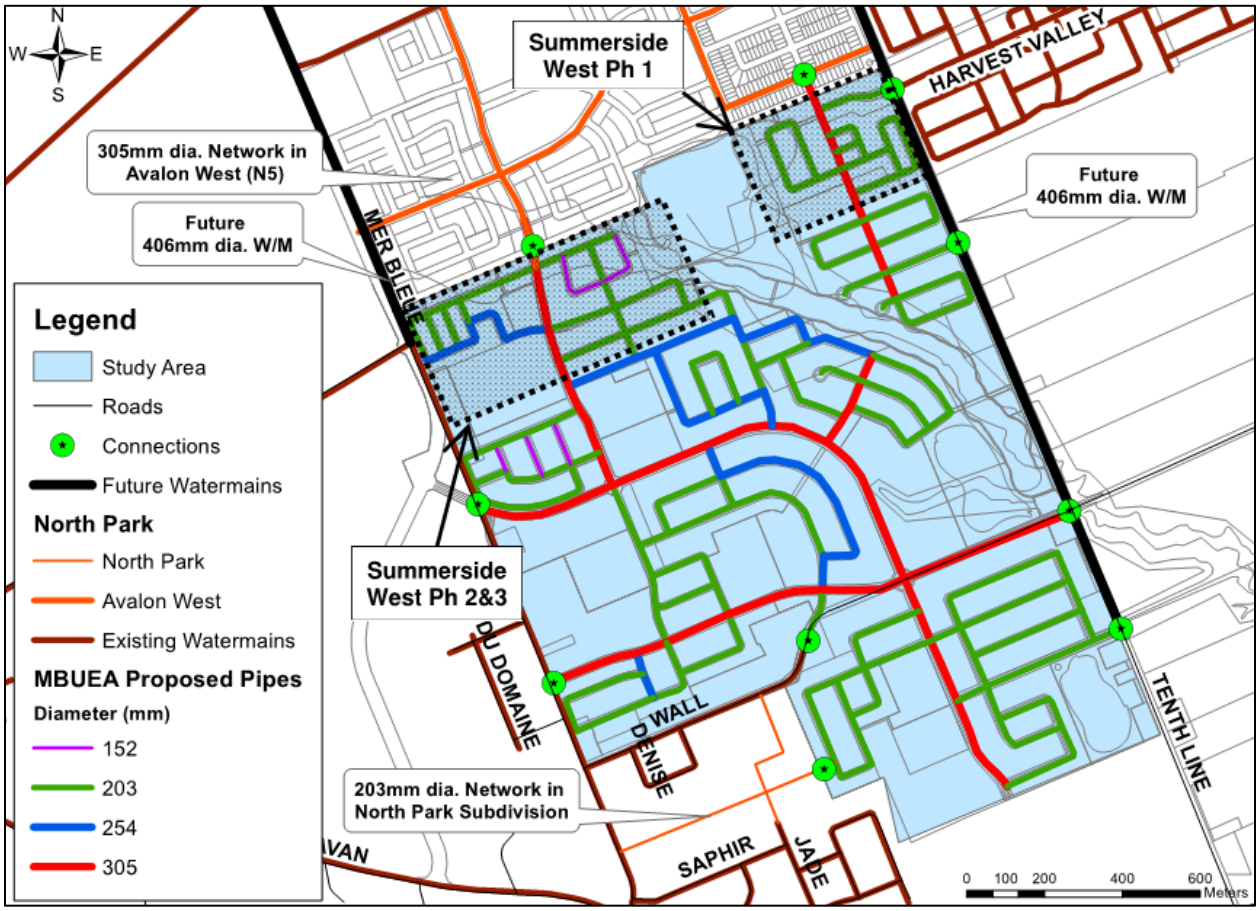



**Figure 2-4: Summerside West Phase 1, 2 and 3**

# 3.0 HYDRAULIC ASSESSMENT

The computer modelling software package used to carry out the analysis for the Mer Bleue Urban Expansion Area was H2OMAP Water by Innovyze. In 2013, Stantec prepared an update to the City's hydraulic model as part of the Water Master Plan (WMP) update. As per correspondence with the City of Ottawa on February 11th, 2015, Stantec was granted permission to use this hydraulic model for the purpose of this current undertaking.

This model is deemed as the most up to date model of the entirety of the City of Ottawa's water distribution network. Existing and future scenarios included were: present conditions (2012), projected 2031 conditions, and projected 2060 conditions each under summer (maximum day) and winter (basic day) demand conditions respectively.

## 3.1 SERVICEABILITY

### 3.1.1 System Pressures

Based on the City of Ottawa Water Design Guidelines, the desired range of pressure under basic day, maximum day and peak hour demands is 50 to 70 psi and no *less than 40 psi* at ground elevation (i.e. at hydrant level). Furthermore, the maximum pressure at any point in the water distribution should not exceed 100 psi; pressure reducing measures are required to service areas where pressures *greater than 80 psi* are anticipated. Therefore, objective operating range is 50 - 70 psi and should not drop below 40 psi or exceed 80 psi.

Existing ground elevations in Zone 2E vary between 60.2m to 94.0m and the MBUEA has ground elevations ranging from 85.0 m to 88.2m. The HGL in the area must not drop below 123m or exceed 134m to maintain objective operating pressures. This HGL range falls in line with the existing operating HGL of Zone 2E and therefore, minimum pressures below 276kPa (40 psi) and maximum pressures above 552kPa (80 psi) are not anticipated in the MBEUA.

Under emergency fire conditions, the system must be able to supply the appropriate fire flow while maintaining a residual pressure of 138kPa (20 psi).

### 3.1.2 Fire Flows

A fire flow of 13,000 L/min is used following the recommendations presented in the 2013 Water Master Plan Update for system/zone level analysis in the core area. It should be noted that the City also requires a fire flow assessment to be carried out at the subdivision approval phase in which local watermains are checked for their ability to provide the objective Fire Underwriter Survey (FUS) fire flows specific to the types of units and spacing proposed. Dead-end pipe sizes of 200mm in diameter (as per City guidelines) that are not capable of providing the required FUS fire flow may be restricted to certain unit types that require less fire flow.

Since Summerside West Phase 1, 2 and 3 are currently in the detailed design stage, the proponent is to verify and confirm the required FUS fire flow based on unit types and building construction details of this area.

## 3.2 MODEL DEVELOPMENT

### 3.2.1 Hazen Williams C-Factors

New watermains were added to the hydraulic model to simulate the proposed distribution system for MBUEA. Hazen-Williams coefficients ("C-Factors") were applied to the new watermain in accordance with the City of Ottawa's Water Distribution Design Guidelines (**Table 3-1**).

**Table 3-1: Hazen Williams C-Factors for Different Pipe Sizes**

| Pipe Diameter (mm) | C-Factor |
|---|---|
| 150 | 100 |
| 200 to 300 | 110 |
| 350 to 600 | 120 |
| > 600 | 130 |

### 3.2.2 Growth Projections

IBI Group provided the gross area for each type of land use with a total of 105ha for residential development. A range of maximum and minimum unit numbers was provided for low, medium and high density residential development. Stantec used the *maximum* percentage for the analysis of 3,939 residential units comprised of 55% single family/semis, 27 % multi- family and 17% apartments.

The estimated residential population is determined based on projected household sizes as per the City of Ottawa's Water Design Guidelines. Shown in **Table 3-2** are the projected populations for the development based on the distribution of residential types. The residential population is projected to be 11,557 persons.

**Table 3-2: Estimated Residential Population based on Unit Types**

| Land Use | Area (ha) | Unit Type | Max Density (UPH) | Unit Mix | Max Units | PPU | Population |
|---|---|---|---|---|---|---|---|
| Low Density | 78 | Singles/Semis | 28 | 55% | 2,184 | 3.4 | 7,426 |
| Med. Density | 18 | Multi-Family | 60 | 27% | 1,080 | 2.7 | 2,916 |
| High Density | 9 | Apartments | 75 | 17% | 675 | 1.8 | 1,215 |
| | **105** | | | **100%** | **3,939** | | **11,557** |

In addition to the residential component, the anticipated institutional and commercial component of the future growth as well as park lands is shown in **Table 3-3**. Approximately 29ha of land will be dedicated to four schools, a small commercial space and park lands.

**Table 3-3: Non- Residential Land Use**

| | Area (ha) |
|---|---|
| Commercial | 5 |
| Institutional | 12 |
| Parks | 12 |

The remaining lands in the development are dedicated to stormwater management, a new sanitary servicing pump station, road widenings and woodlots/open spaces.

### 3.2.3 Demand Projections

The criteria outlined in the 2013 WMP were followed to determine water demands of the MBUEA. Zone Level demands for populations greater than 3,000 persons were used. The consumption rates from the WMP were applied to the population projections based on land use and location with respect to the Greenbelt (inside or outside, denoted as "inside greenbelt" or IGB). It is noted that the Zone Level demands are generally used to assess larger service areas and are not generally used to size smaller internal piping. However, fire flows generally govern the minimum sizing for smaller internal watermain infrastructure and therefore, using these Zone Level demands for this analysis is considered appropriate.

The projected basic day (BSDY) and maximum day (MXDY) demands for the site were distributed to the nodes within the piping network for the corresponding scenarios (i.e. winter/BSDY and summer/MXDY). Demand patterns developed by the City of the entire Zone 2E were applied to the demands within the MBEUA.

For residential land-uses, single family and semi-detached homes were considered to have similar demands, with both types of residential home categorized under "single family home" or SFH. Similarly, all townhomes were categorized under "multi-level townhomes" or MLT and all apartments were categorized under APT. **Table 3-4** shows the consumption rate of each unit type along with estimated BSDY water demands.

**Table 3-4: Residential Consumption Rate & Water Demand Based on Unit Type**

| Unit Type | Consumption Rate (L/cap/d) | Total Units | Population | BSDY (L/s) | BSDY (ML/d) |
|---|---|---|---|---|---|
| SFH | 180 | 2,184 | 7,426 | 15.47 | 1.34 |
| MLT | 198 | 1,080 | 2,916 | 6.68 | 0.58 |
| APT | 219 | 675 | 1,215 | 3.08 | 0.27 |
| | **TOTAL** | **3,939** | **11,557** | **25.23** | **2.18** |

A commercial and institutional consumption rate of 50,000 L/d/ha was estimated using the City of Ottawa's Water Distribution Design Guidelines. For parks, a water consumption rate of 1,000L/d was applied. **Table 3-5** shows the non-residential area and the estimated BSDY water demands.

**Table 3-5: Non-Residential Water Demands**

| | Area (ha) | Consumption Rate (L/ha/d) | BSDY (L/s) | BSDY (ML/d) |
|---|---|---|---|---|
| Commercial | 5 | 50,000 | 2.89 | 0.25 |
| Institutional | 12 | 50,000 | 6.94 | 0.60 |
| Parks | 12 | 1,000 | 0.14 | 0.01 |
| | | **TOTAL** | **9.98** | **0.86** |

To determine the maximum day demand of the development, the 2013 WMP allocates an outdoor water demand to all SFH units located within the development. This outdoor water demand is added to the basic day demand to obtain the maximum day demand for the development.

To determine the MXDY demands, an outdoor water demand (OWD) of 1,049 L/SFH/d was applied to all SFH units in the development:

Total Number of SFH Units = 2,184 units
Outdoor Water Demand = 1,049 L/SFH/d *2,184 SFH / 1,000,000 L/d = 2.29 ML/d
Maximum Day Demand = 2.18 ML/d + 0.86 ML/d + 2.29 ML/d = 5.47 ML/d

Peak hour (PKHR) demands were determined by applying the City developed diurnal patterns to the maximum day demands. The diurnal patterns are different for each unit type and all vary with time. The overall maximum observed demand when patterns are applied is the PKHR demand

The total demand in the Mer Bleue Urban Expansion Area is represented in **Table 3-6** for BSDY, MXDY and PKHR demands.

**Table 3-6: Total Demands in the Mer Bleue Urban Expansion Area**

| | BSDY | MXDY | PKHR |
|---|---|---|---|
| L/s | 35.2 | 61.7 | 127.3 |
| ML/d | 3.04 | 5.33 | 11.0 |

### 3.2.4 External Lands

To account for these surrounding lands, Avalon West (N5) and the North Park subdivision, major piping through the areas along with their projected water demands was added.

A "future demand node" representative of the Avalon West was in the City's most up to date model. After adding the 305mm diameter watermain network through this development, the demand of the "future demand node" was distributed evenly within the network. The total demand of this area is shown in **Table 3-7**.

Information for the North Park subdivision was provided in the servicing brief of the area (Kollaard Associates Engineers, 2013) provided by IBI Group. A total of 36 residential units were proposed for the area with an occupancy of 3.4PPU and equating to a population of 133 persons. These are presumed to be single homes based on the PPU. Using the WMP 2013 consumption rate of 180 L/cap/d for "SFH", the applied diurnal pattern for single family homes and the consumption rate of 1,049 L/SFH/d for outdoor water use, the demands for North Park are shown in **Table 3-7**.

**Table 3-7: Water Demands of External Lands**

| | BSDY (L/s) | MXDY (L/s) | PKHR (L/s) |
|---|---|---|---|
| Avalon West (N5) | 14.1 | 25.6 | 54.6 |
| North Park | 0.28 | 0.75 | 1.86 |

# 4.0 HYDRAULIC MODELLING RESULTS

The hydraulic model was performed under 2031 demand conditions, to verify how the proposed network would respond with the complete build-out. The following sections present the hydraulic modelling results with under basic day (BSDY) demands, maximum day (MXDY) and peak hour (PKHR) demands, and under emergency fire flow (FF) conditions.

## 4.1 BASIC DAY DEMANDS PEAK HOUR DEMANDS

Hydraulic modelling results show that the proposed pipe layout and sizing is sufficient in supply the domestic water demand. Under basic day demand, the anticipated maximum pressure is approximately 448kPa (65 psi) and is well below the maximum objective pressure of 552kPa (80 psi). During peak hour demands, the anticipated minimum pressure is approximately 365kPa (53 psi) and is greater than the minimum objective pressure of 276kPa (40 psi).

## 4.2 MAXIMUM DAY + FIRE FLOW

A 2031 maximum day demand fire flow analysis was carried out to determine the anticipated available flows at each node within the MBEUA. Within the proposed development, fire flows greater than the zone level requirement of 13,000 L/min with a residual pressure of 138kPa (20 psi) are anticipated at most locations along the watermains shown in **Figure 2-3. Figure 4-1** shows the locations that supplied a fire flow less than 13,000 L/min during the model simulation. See **Appendix A** for details of available fire flows within the development.

As per the City's Technical Bulletin ISDTB-2014-02, the type of development and condition that allow fire flow requirements is capped at 10,000L/min. Since modelling results showed all locations being capable of providing 10,000 L/min of available flow, all locations satisfy the fire flow requirements based on this criterion. Upon the subdivision approval phase, all locations of the development are to be confirmed for their required FUS fire flow and whether the available flow is sufficient for the proposed unit types and construction. The proponent is to confirm the FUS fire flow required for Summerside West Phase 1, 2 and 3 to verify that the observed flows are sufficient.

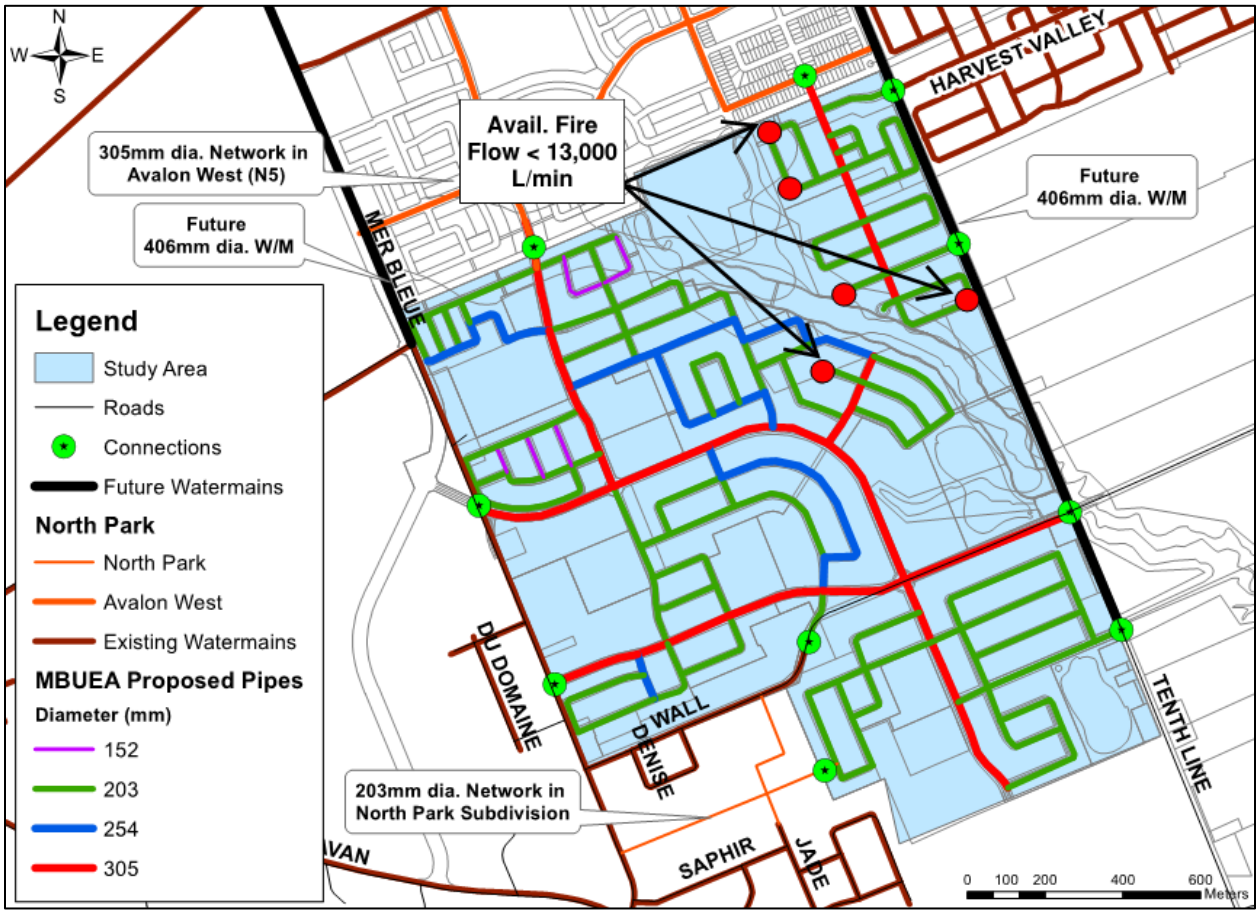



**Figure 4-1: Areas with Available Flow Less Than 13,000 L/min**

## 4.3 RELIABILITY

During a major failure scenario, the system must be able to provide basic day demands plus fire for populations greater than 10,000 while maintaining a residual pressure of 138kPa (20 psi). A reliability analysis was performed that considers a break of the 406mm diameter watermains on Mer Bleue and Tenth Line (**Figure 4-1**).

According the hydraulic modelling results (**Appendix A**), the proposed piping network can provide BSDY plus a fire flow of 13,000 L/min while maintaining a pressure of 138kPa (20 psi) during the critical watermain breaks shown in **Figure 4-2** at most locations in the development. The available fire flows at locations outlined **Figure 4-1** (previous section) were observed to be greater than 10,000 L/min at a residual pressure of138kPa (20 psi) during these critical watermain breaks. As mentioned in the previous section, FUS fire flow requirements at these locations will need to be confirmed during the detailed design stage. If the FUS fire flow is capped at 10,000 L/min (City's Technical Bulletin ISDTB-2014-02), all locations satisfy the level of service.

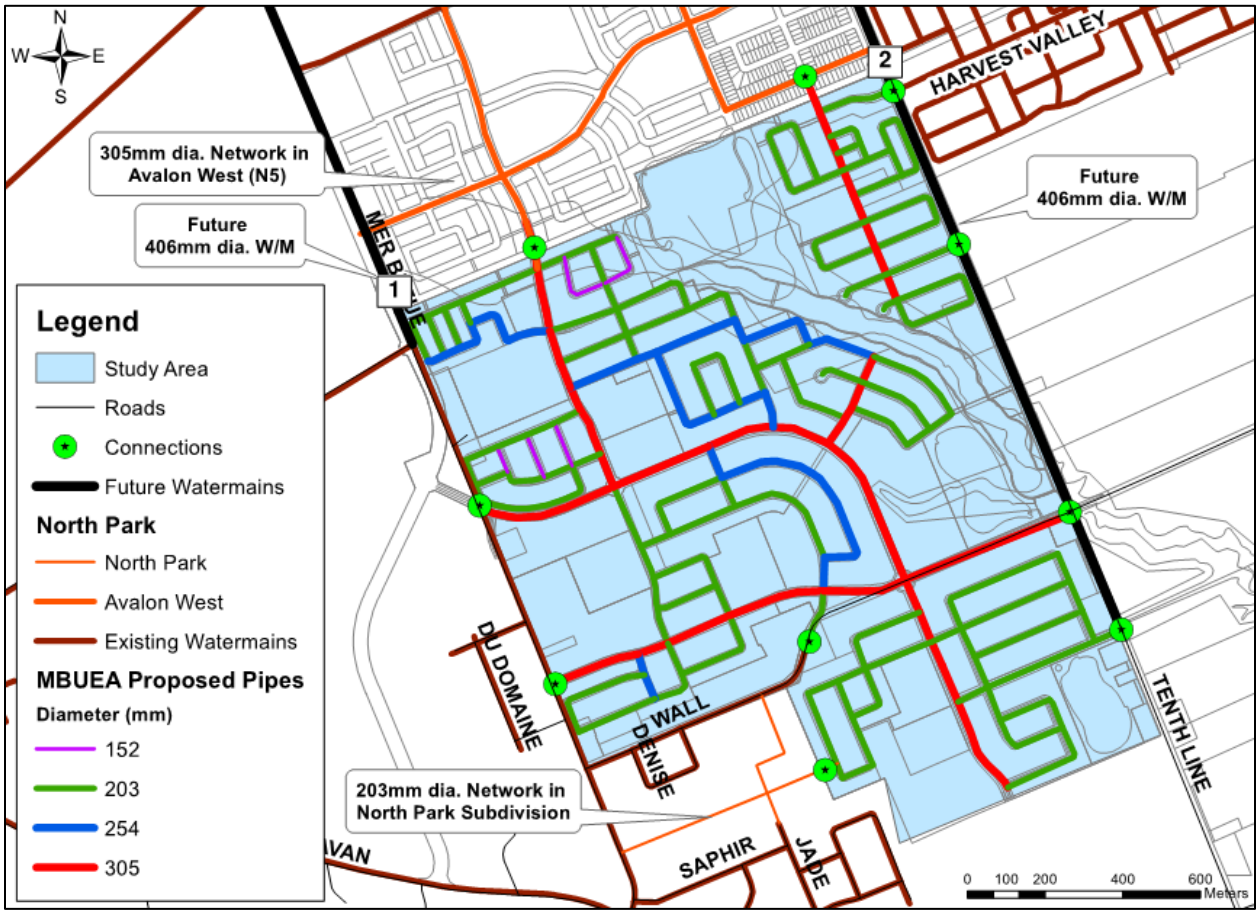



**Figure 4-2: Locations of Critical Watermain Breaks**

**Table 4-1: Alternate Feeds during a Watermain Break (BSDY + Fire Flow)**

| Break Location | Alternates Feeds to MBUEA |
|---|---|
| 1 (Mer Bleue) | Tenth Line, North Park, N5 |
| 2 (Tenth Line) | Mer Bleue, North Park, N5 |

# 5.0 CONCLUSION

Stantec has completed, on behalf of IBI Group, the hydraulic assessment for the potable water servicing of the Mer Bleue Urban Expansion Area. After reviewing the existing conditions and analysis of the potential servicing alternative opportunities and constraints, the following was concluded:

- The proposed water distribution system is recommended to include a 305mm diameter watermain as the spine of the network with a combination of 254mm, 203mm and 152mm diameter pipes (as shown in **Figure 2-3**);
- Future 406mm diameter watermain extensions along Mer Bleue and Tenth Line are required to supply potable water to the MBUEA;
- No additional capacity upgrades to the Zone 2E pump stations or Innes Road Tank are anticipated for the development of MBUEA;
- Based on the ground elevations of the development and the existing HGL in Zone 2E, operating pressures in the development are not anticipated to drop below 276kPa (40 psi) or exceed 552kPa (80 psi);
- During basic day conditions and peak hour conditions, the proposed system is capable of operating between the City's objective pressure range;
- During emergency conditions, the proposed system is capable of providing a fire flow of 13,000 L/min while maintaining a residual pressure of 138kPa (20 psi) using the proposed pipe layout and sizing to most locations of the development;
- During a critical watermain break at the 406mm diameter watermain along Mer Bleue or the 406mm diameter watermain along Tenth Line, the proposed system is capable of providing basic day plus a fire flow of 13,000 L/min while maintaining minimum pressures greater than 138kPa (20 psi) to most locations of the development;
- During fire emergency condition or a critical watermain break, modelling results showed that the available fire flow to a few locations were slightly less than 13,000 L/min; based on the City's technical bulletin that caps the fire flow at 10,000 L/min for new developments, these locations meet the objective - however, the required FUS fire flows will need to be calculated and verified upon the detailed design stage based on proposed unit types at these locations;
- The proponent will be required to confirm and verify the required FUS fire flows of Summerside West Phase 1, 2 and 3 (separate from this hydraulic analysis) which is currently in the detailed design stage;

- The proponent should confirm whether Summerside West Phase 2 and 3 (currently in detailed design) has a basic demand less than 50m$^3$/d (equivalent to approximately 50 units) or consider two (**2**) water services during this interim as per the City's Water Distribution Design Guidelines technical bulletin;

- Areas with low available flows in which larger watermain sizes are not permitted (ie. dead-ends) could be restricted to a certain building/unit type with smaller required fire flows or looping should be considered.

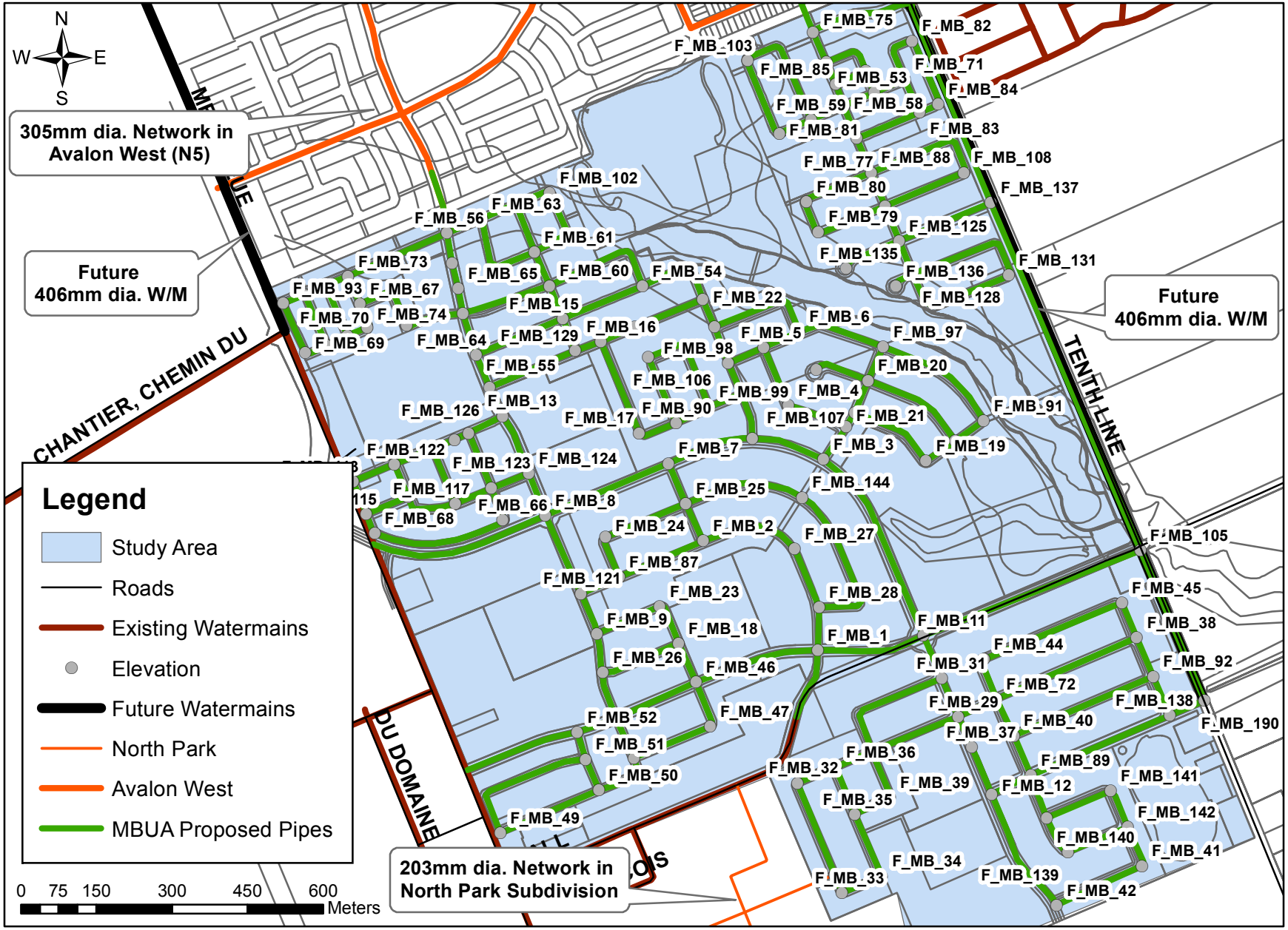
A few aspects that were mentioned briefly throughout this report should be considered as planning of the MBUEA continues:

- The proposed pipe alignment and sizing were based on build-out conditions and additional looping or connections in the system may be required depending on phasing of the area;

- Additional fire flow assessment based on the subdivision approval phase will be required to confirm local watermain sizing based on required Fire Underwriter Survey (FUS) fire flows specific to proposed building types and spacing.

# Appendix A HYDRAULIC MODELLING RESULTS

## Figure A-1: Model Node IDs



**BSDY**

**Max** **65** **psi**

**Min** **57** **psi**

**Table A-1: Pressures During BSDY Demand Conditions**

| ID | Max. Pressure (psi) | Min. Pressure (psi) | ID | Max. Pressure (psi) | Min. Pressure (psi) | ID | Max. Pressure (psi) | Min. Pressure (psi) |
|---|---|---|---|---|---|---|---|---|
| F_MB_1 | 64 | 60 | F_MB_48 | 63 | 60 | F_MB_98 | 63 | 60 |
| F_MB_2 | 63 | 60 | F_MB_49 | 64 | 61 | F_MB_99 | 63 | 60 |
| F_MB_3 | 64 | 61 | F_MB_50 | 64 | 60 | F_MB_100 | 63 | 60 |
| F_MB_4 | 62 | 59 | F_MB_51 | 63 | 60 | F_MB_101 | 63 | 59 |
| F_MB_5 | 63 | 60 | F_MB_52 | 62 | 59 | F_MB_102 | 62 | 59 |
| F_MB_6 | 63 | 60 | F_MB_54 | 62 | 59 | F_MB_103 | 62 | 59 |
| F_MB_7 | 63 | 60 | F_MB_55 | 62 | 59 | F_MB_104 | 64 | 61 |
| F_MB_8 | 63 | 59 | F_MB_56 | 62 | 59 | F_MB_105 | 65 | 61 |
| F_MB_9 | 62 | 59 | F_MB_57 | 62 | 59 | F_MB_108 | 62 | 59 |
| F_MB_10 | 63 | 60 | F_MB_60 | 62 | 59 | F_MB_106 | 62 | 59 |
| F_MB_11 | 64 | 61 | F_MB_61 | 62 | 59 | F_MB_107 | 63 | 60 |
| F_MB_12 | 64 | 60 | F_MB_62 | 62 | 59 | F_MB_109 | 63 | 60 |
| F_MB_13 | 63 | 59 | F_MB_63 | 62 | 59 | F_MB_110 | 62 | 58 |
| F_MB_14 | 62 | 59 | F_MB_64 | 62 | 59 | F_MB_111 | 63 | 59 |
| F_MB_15 | 62 | 59 | F_MB_65 | 62 | 59 | F_MB_112 | 62 | 58 |
| F_MB_16 | 63 | 60 | F_MB_66 | 62 | 59 | F_MB_113 | 60 | 57 |
| F_MB_17 | 63 | 60 | F_MB_68 | 62 | 59 | F_MB_114 | 62 | 59 |
| F_MB_18 | 63 | 60 | F_MB_69 | 62 | 59 | F_MB_115 | 62 | 59 |
| F_MB_19 | 64 | 61 | F_MB_70 | 62 | 59 | F_MB_116 | 62 | 59 |
| F_MB_20 | 61 | 58 | F_MB_73 | 62 | 59 | F_MB_117 | 62 | 59 |
| F_MB_21 | 64 | 60 | F_MB_74 | 62 | 59 | F_MB_118 | 62 | 59 |
| F_MB_22 | 63 | 59 | F_MB_75 | 62 | 59 | F_MB_119 | 62 | 59 |
| F_MB_23 | 63 | 59 | F_MB_76 | 62 | 59 | F_MB_120 | 62 | 59 |
| F_MB_24 | 63 | 59 | F_MB_77 | 62 | 59 | F_MB_121 | 62 | 59 |
| F_MB_25 | 63 | 60 | F_MB_78 | 63 | 60 | F_MB_122 | 62 | 59 |
| F_MB_26 | 63 | 60 | F_MB_79 | 63 | 60 | F_MB_123 | 62 | 59 |
| F_MB_27 | 63 | 60 | F_MB_80 | 62 | 59 | F_MB_124 | 63 | 59 |
| F_MB_28 | 63 | 60 | F_MB_81 | 62 | 59 | F_MB_126 | 62 | 59 |
| F_MB_29 | 64 | 61 | F_MB_82 | 62 | 59 | F_MB_129 | 63 | 60 |
| F_MB_30 | 64 | 61 | F_MB_83 | 62 | 59 | F_MB_130 | 62 | 59 |
| F_MB_31 | 64 | 61 | F_MB_84 | 62 | 59 | F_MB_132 | 62 | 59 |
| F_MB_32 | 64 | 61 | F_MB_85 | 62 | 59 | F_MB_125 | 63 | 60 |
| F_MB_33 | 64 | 61 | F_MB_87 | 63 | 59 | F_MB_128 | 63 | 60 |
| F_MB_34 | 63 | 60 | F_MB_88 | 62 | 59 | F_MB_131 | 62 | 59 |
| F_MB_35 | 64 | 60 | F_MB_89 | 64 | 61 | F_MB_135 | 63 | 60 |
| F_MB_36 | 63 | 60 | F_MB_90 | 63 | 60 | F_MB_136 | 63 | 60 |
| F_MB_37 | 64 | 61 | F_MB_91 | 63 | 60 | F_MB_137 | 62 | 59 |
| F_MB_38 | 64 | 61 | F_MB_92 | 64 | 61 | F_MB_138 | 64 | 61 |
| F_MB_39 | 64 | 61 | F_MB_93 | 62 | 58 | F_MB_139 | 64 | 61 |
| F_MB_40 | 64 | 61 | F_MB_97 | 61 | 58 | F_MB_140 | 64 | 61 |
| F_MB_41 | 64 | 60 | F_MB_67 | 62 | 59 | F_MB_141 | 64 | 61 |
| F_MB_42 | 64 | 61 | F_MB_59 | 62 | 59 | F_MB_142 | 64 | 60 |
| F_MB_44 | 64 | 61 | F_MB_58 | 62 | 59 | F_MB_190 | 64 | 61 |
| F_MB_45 | 64 | 61 | F_MB_53 | 62 | 59 | F_MB_143 | 62 | 59 |
| F_MB_46 | 63 | 60 | F_MB_71 | 62 | 59 | F_MB_144 | 63 | 60 |
| F_MB_47 | 63 | 60 | F_MB_72 | 64 | 61 | | | |

**PKHR**

**Max** **64** **psi**

**Min** **53** **psi**

**Table A-2: Pressures During PKHR Demand Conditions**

| ID | Max. Pressure (psi) | Min. Pressure (psi) | ID | Max. Pressure (psi) | Min. Pressure (psi) | ID | Max. Pressure (psi) | Min. Pressure (psi) |
|---|---|---|---|---|---|---|---|---|
| F_MB_1 | 63 | 57 | F_MB_48 | 63 | 56 | F_MB_98 | 62 | 56 |
| F_MB_2 | 62 | 56 | F_MB_49 | 63 | 57 | F_MB_99 | 62 | 56 |
| F_MB_3 | 63 | 57 | F_MB_50 | 63 | 56 | F_MB_100 | 63 | 56 |
| F_MB_4 | 62 | 55 | F_MB_51 | 63 | 56 | F_MB_101 | 62 | 56 |
| F_MB_5 | 62 | 56 | F_MB_52 | 62 | 55 | F_MB_102 | 62 | 55 |
| F_MB_6 | 62 | 56 | F_MB_54 | 62 | 55 | F_MB_103 | 61 | 56 |
| F_MB_7 | 63 | 56 | F_MB_55 | 62 | 55 | F_MB_104 | 63 | 57 |
| F_MB_8 | 62 | 55 | F_MB_56 | 61 | 55 | F_MB_105 | 64 | 58 |
| F_MB_9 | 62 | 55 | F_MB_57 | 62 | 55 | F_MB_108 | 62 | 56 |
| F_MB_10 | 62 | 56 | F_MB_60 | 62 | 55 | F_MB_106 | 62 | 55 |
| F_MB_11 | 64 | 57 | F_MB_61 | 62 | 55 | F_MB_107 | 63 | 56 |
| F_MB_12 | 63 | 57 | F_MB_62 | 62 | 55 | F_MB_109 | 63 | 56 |
| F_MB_13 | 62 | 56 | F_MB_63 | 62 | 55 | F_MB_110 | 61 | 54 |
| F_MB_14 | 62 | 55 | F_MB_64 | 62 | 55 | F_MB_111 | 62 | 56 |
| F_MB_15 | 62 | 55 | F_MB_65 | 62 | 55 | F_MB_112 | 61 | 55 |
| F_MB_16 | 62 | 56 | F_MB_66 | 62 | 55 | F_MB_113 | 60 | 53 |
| F_MB_17 | 63 | 56 | F_MB_68 | 62 | 55 | F_MB_114 | 61 | 55 |
| F_MB_18 | 62 | 56 | F_MB_69 | 62 | 55 | F_MB_115 | 62 | 55 |
| F_MB_19 | 63 | 57 | F_MB_70 | 61 | 55 | F_MB_116 | 62 | 55 |
| F_MB_20 | 61 | 54 | F_MB_73 | 61 | 55 | F_MB_117 | 62 | 55 |
| F_MB_21 | 63 | 56 | F_MB_74 | 62 | 55 | F_MB_118 | 62 | 55 |
| F_MB_22 | 62 | 56 | F_MB_75 | 61 | 56 | F_MB_119 | 61 | 55 |
| F_MB_23 | 62 | 56 | F_MB_76 | 61 | 56 | F_MB_120 | 62 | 55 |
| F_MB_24 | 62 | 56 | F_MB_77 | 62 | 56 | F_MB_121 | 62 | 55 |
| F_MB_25 | 63 | 56 | F_MB_78 | 62 | 56 | F_MB_122 | 62 | 55 |
| F_MB_26 | 63 | 56 | F_MB_79 | 62 | 56 | F_MB_123 | 62 | 55 |
| F_MB_27 | 63 | 56 | F_MB_80 | 62 | 56 | F_MB_124 | 62 | 56 |
| F_MB_28 | 63 | 56 | F_MB_81 | 62 | 56 | F_MB_126 | 62 | 55 |
| F_MB_29 | 64 | 57 | F_MB_82 | 61 | 56 | F_MB_129 | 62 | 56 |
| F_MB_30 | 64 | 57 | F_MB_83 | 62 | 56 | F_MB_130 | 62 | 55 |
| F_MB_31 | 64 | 57 | F_MB_84 | 62 | 56 | F_MB_132 | 62 | 55 |
| F_MB_32 | 63 | 57 | F_MB_85 | 62 | 56 | F_MB_125 | 62 | 56 |
| F_MB_33 | 63 | 57 | F_MB_87 | 62 | 56 | F_MB_128 | 63 | 57 |
| F_MB_34 | 63 | 56 | F_MB_88 | 62 | 56 | F_MB_131 | 61 | 55 |
| F_MB_35 | 63 | 56 | F_MB_89 | 63 | 57 | F_MB_135 | 62 | 57 |
| F_MB_36 | 63 | 56 | F_MB_90 | 62 | 56 | F_MB_136 | 63 | 57 |
| F_MB_37 | 64 | 57 | F_MB_91 | 63 | 56 | F_MB_137 | 61 | 55 |
| F_MB_38 | 64 | 57 | F_MB_92 | 64 | 57 | F_MB_138 | 64 | 57 |
| F_MB_39 | 64 | 57 | F_MB_93 | 61 | 55 | F_MB_139 | 64 | 57 |
| F_MB_40 | 64 | 57 | F_MB_97 | 61 | 54 | F_MB_140 | 63 | 57 |
| F_MB_41 | 63 | 57 | F_MB_67 | 62 | 55 | F_MB_141 | 63 | 57 |
| F_MB_42 | 63 | 57 | F_MB_59 | 62 | 56 | F_MB_142 | 63 | 57 |
| F_MB_44 | 64 | 57 | F_MB_58 | 62 | 56 | F_MB_190 | 63 | 57 |
| F_MB_45 | 64 | 58 | F_MB_53 | 61 | 56 | F_MB_143 | 62 | 56 |
| F_MB_46 | 63 | 56 | F_MB_71 | 62 | 56 | F_MB_144 | 63 | 56 |
| F_MB_47 | 63 | 56 | F_MB_72 | 64 | 57 | | | |

**MXDY + FF**

**Table A-3: Available Flow at 20 psi During MXDY+FF Conditions**

| ID | Static Demand (L/s) | Static Pressure (psi) | Static Head (m) | Fire-Flow Demand (L/min) | Residual Pressure (psi) | Available Flow at Hydrant (L/min) | Available Flow Pressure (psi) |
|---|---|---|---|---|---|---|---|
| F_MB_1 | 0.693 | 60 | 127.8 | 13,000 | 50 | 32,000 | 32000 |
| F_MB_10 | 0.693 | 59 | 127.8 | 13,000 | 48 | 28,000 | 28000 |
| F_MB_100 | 0.693 | 59 | 127.7 | 13,000 | 49 | 31,000 | 31000 |
| F_MB_101 | 0.693 | 59 | 127.8 | 13,000 | 45 | 24,000 | 24000 |
| F_MB_102 | 0.693 | 58 | 127.8 | 13,000 | 22 | 14,000 | 14000 |
| F_MB_103 | 0.297 | 59 | 128.1 | 13,000 | -1 | 10,000 | 10000 |
| F_MB_104 | 0.693 | 60 | 127.8 | 13,000 | 32 | 16,000 | 16000 |
| F_MB_105 | 0.693 | 61 | 127.9 | 13,000 | 54 | 38,000 | 38000 |
| F_MB_106 | 0.693 | 59 | 127.7 | 13,000 | 27 | 15,000 | 15000 |
| F_MB_107 | 0.693 | 59 | 127.7 | 13,000 | 46 | 26,000 | 26000 |
| F_MB_108 | 0.297 | 59 | 128.1 | 13,000 | 26 | 14,000 | 14000 |
| F_MB_109 | 0.693 | 60 | 127.7 | 13,000 | 34 | 17,000 | 17000 |
| F_MB_11 | 0.693 | 60 | 127.8 | 13,000 | 52 | 36,000 | 36000 |
| F_MB_110 | 0.693 | 58 | 127.7 | 13,000 | 4 | 11,000 | 11000 |
| F_MB_111 | 0.693 | 59 | 127.7 | 13,000 | 45 | 25,000 | 25000 |
| F_MB_112 | 0.693 | 58 | 127.7 | 13,000 | 46 | 26,000 | 26000 |
| F_MB_113 | 0.693 | 56 | 127.7 | 13,000 | 19 | 13,000 | 13000 |
| F_MB_114 | 0.693 | 58 | 127.8 | 13,000 | 32 | 16,000 | 16000 |
| F_MB_115 | 0.693 | 58 | 127.7 | 13,000 | 25 | 14,000 | 14000 |
| F_MB_116 | 0.693 | 58 | 127.7 | 13,000 | 26 | 14,000 | 14000 |
| F_MB_117 | 0.693 | 58 | 127.7 | 13,000 | 30 | 15,000 | 15000 |
| F_MB_118 | 0.693 | 58 | 127.7 | 13,000 | 37 | 18,000 | 18000 |
| F_MB_119 | 0.693 | 58 | 127.7 | 13,000 | 31 | 16,000 | 16000 |
| F_MB_12 | 0.693 | 60 | 127.8 | 13,000 | 45 | 24,000 | 24000 |
| F_MB_120 | 0.693 | 59 | 127.7 | 13,000 | 38 | 19,000 | 19000 |
| F_MB_121 | 0.693 | 59 | 127.7 | 13,000 | 43 | 23,000 | 23000 |
| F_MB_122 | 0.693 | 58 | 127.7 | 13,000 | 26 | 14,000 | 14000 |
| F_MB_123 | 0.693 | 58 | 127.7 | 13,000 | 34 | 17,000 | 17000 |
| F_MB_124 | 0.693 | 59 | 127.8 | 13,000 | 49 | 31,000 | 31000 |
| F_MB_125 | 0.297 | 59 | 128.1 | 13,000 | 44 | 23,000 | 23000 |
| F_MB_126 | 0.693 | 59 | 127.8 | 13,000 | 49 | 32,000 | 32000 |
| F_MB_128 | 0.297 | 60 | 128.1 | 13,000 | 42 | 21,000 | 21000 |
| F_MB_129 | 0.693 | 59 | 127.8 | 13,000 | 47 | 28,000 | 28000 |
| F_MB_13 | 0.693 | 59 | 127.8 | 13,000 | 49 | 31,000 | 31000 |
| F_MB_130 | 0.693 | 58 | 127.8 | 13,000 | 30 | 16,000 | 16000 |
| F_MB_131 | 0.297 | 58 | 128.1 | 13,000 | 17 | 12,000 | 12000 |
| F_MB_132 | 0.693 | 58 | 127.8 | 13,000 | 32 | 16,000 | 16000 |
| F_MB_135 | 0.297 | 60 | 128.1 | 13,000 | 2 | 11,000 | 11000 |
| F_MB_136 | 0.297 | 60 | 128.1 | 13,000 | 27 | 15,000 | 15000 |

**MXDY + FF**

**Table A-3: Available Flow at 20 psi During MXDY+FF Conditions**

| ID | Static Demand (L/s) | Static Pressure (psi) | Static Head (m) | Fire-Flow Demand (L/min) | Residual Pressure (psi) | Available Flow at Hydrant (L/min) | Available Flow Pressure (psi) |
|---|---|---|---|---|---|---|---|
| F_MB_137 | 0 | 58 | 128.1 | 13,000 | 53 | 23,000 | 47000 |
| F_MB_138 | 0.693 | 61 | 127.8 | 13,000 | 45 | 13,000 | 23000 |
| F_MB_139 | 0.693 | 60 | 127.8 | 13,000 | 21 | 33,000 | 13000 |
| F_MB_14 | 0.693 | 59 | 127.8 | 13,000 | 50 | 15,000 | 33000 |
| F_MB_140 | 0.693 | 60 | 127.8 | 13,000 | 30 | 13,000 | 15000 |
| F_MB_141 | 0.693 | 60 | 127.8 | 13,000 | 20 | 14,000 | 13000 |
| F_MB_142 | 0.693 | 60 | 127.8 | 13,000 | 25 | 22,000 | 14000 |
| F_MB_143 | 0.297 | 59 | 128.1 | 13,000 | 43 | 20,000 | 22000 |
| F_MB_144 | 0.693 | 59 | 127.7 | 13,000 | 40 | 26,000 | 20000 |
| F_MB_15 | 0.693 | 59 | 127.8 | 13,000 | 46 | 27,000 | 26000 |
| F_MB_16 | 0.693 | 59 | 127.8 | 13,000 | 47 | 22,000 | 27000 |
| F_MB_17 | 0.693 | 59 | 127.7 | 13,000 | 43 | 21,000 | 22000 |
| F_MB_18 | 0.693 | 59 | 127.8 | 13,000 | 41 | 16,000 | 21000 |
| F_MB_19 | 0.693 | 60 | 127.7 | 13,000 | 31 | 21,000 | 16000 |
| F_MB_190 | 0 | 60 | 127.9 | 13,000 | 51 | 24,000 | 32000 |
| F_MB_2 | 0.693 | 59 | 127.7 | 13,000 | 41 | 27,000 | 21000 |
| F_MB_20 | 0.693 | 57 | 127.7 | 13,000 | 44 | 25,000 | 24000 |
| F_MB_21 | 0.693 | 60 | 127.7 | 13,000 | 48 | 17,000 | 27000 |
| F_MB_22 | 0.693 | 59 | 127.7 | 13,000 | 45 | 17,000 | 25000 |
| F_MB_23 | 0.693 | 59 | 127.7 | 13,000 | 34 | 28,000 | 17000 |
| F_MB_24 | 0.693 | 59 | 127.7 | 13,000 | 35 | 22,000 | 17000 |
| F_MB_25 | 0.693 | 59 | 127.7 | 13,000 | 48 | 16,000 | 28000 |
| F_MB_26 | 0.693 | 59 | 127.8 | 13,000 | 42 | 26,000 | 22000 |
| F_MB_27 | 0.693 | 59 | 127.7 | 13,000 | 33 | 29,000 | 16000 |
| F_MB_28 | 0.693 | 60 | 127.8 | 13,000 | 46 | 30,000 | 26000 |
| F_MB_29 | 0.693 | 60 | 127.8 | 13,000 | 49 | 20,000 | 29000 |
| F_MB_3 | 0.693 | 60 | 127.7 | 13,000 | 49 | 31,000 | 30000 |
| F_MB_30 | 0.693 | 60 | 127.8 | 13,000 | 40 | 14,000 | 20000 |
| F_MB_31 | 0.693 | 60 | 127.8 | 13,000 | 50 | 15,000 | 31000 |
| F_MB_32 | 0.693 | 60 | 127.8 | 13,000 | 26 | 14,000 | 14000 |
| F_MB_33 | 0.693 | 60 | 127.8 | 13,000 | 28 | 16,000 | 15000 |
| F_MB_34 | 0.693 | 60 | 127.8 | 13,000 | 24 | 17,000 | 14000 |
| F_MB_35 | 0.693 | 60 | 127.8 | 13,000 | 32 | 26,000 | 16000 |
| F_MB_36 | 0.693 | 60 | 127.8 | 13,000 | 34 | 17,000 | 17000 |
| F_MB_37 | 0.693 | 61 | 127.8 | 13,000 | 48 | 16,000 | 26000 |
| F_MB_38 | 0.693 | 61 | 127.8 | 13,000 | 36 | 17,000 | 17000 |
| F_MB_39 | 0.693 | 61 | 127.8 | 13,000 | 31 | 21,000 | 16000 |
| F_MB_4 | 0.693 | 58 | 127.7 | 13,000 | 34 | 14,000 | 17000 |
| F_MB_40 | 0.693 | 61 | 127.8 | 13,000 | 42 | 18,000 | 21000 |

**MXDY + FF**

**Table A-3: Available Flow at 20 psi During MXDY+FF Conditions**

| ID | Static Demand (L/s) | Static Pressure (psi) | Static Head (m) | Fire-Flow Demand (L/min) | Residual Pressure (psi) | Available Flow at Hydrant (L/min) | Available Flow Pressure (psi) |
|---|---|---|---|---|---|---|---|
| F_MB_41 | 0.693 | 60 | 127.8 | 13,000 | 23 | 15,000 | 14000 |
| F_MB_42 | 0.693 | 60 | 127.8 | 13,000 | 38 | 14,000 | 18000 |
| F_MB_44 | 0.693 | 60 | 127.8 | 13,000 | 28 | 28,000 | 15000 |
| F_MB_45 | 0.693 | 61 | 127.8 | 13,000 | 27 | 18,000 | 14000 |
| F_MB_46 | 0.693 | 59 | 127.8 | 13,000 | 48 | 22,000 | 28000 |
| F_MB_47 | 0.693 | 59 | 127.8 | 13,000 | 36 | 13,000 | 18000 |
| F_MB_48 | 0.693 | 60 | 127.8 | 13,000 | 43 | 22,000 | 22000 |
| F_MB_49 | 0.693 | 60 | 127.8 | 13,000 | 21 | 22,000 | 13000 |
| F_MB_5 | 0.693 | 59 | 127.7 | 13,000 | 43 | 23,000 | 22000 |
| F_MB_50 | 0.693 | 60 | 127.8 | 13,000 | 43 | 28,000 | 22000 |
| F_MB_51 | 0.693 | 59 | 127.8 | 13,000 | 44 | 22,000 | 23000 |
| F_MB_52 | 0.693 | 59 | 127.8 | 13,000 | 47 | 20,000 | 28000 |
| F_MB_53 | 0.297 | 59 | 128.1 | 13,000 | 43 | 32,000 | 22000 |
| F_MB_54 | 0.693 | 59 | 127.8 | 13,000 | 40 | 34,000 | 20000 |
| F_MB_55 | 0.693 | 59 | 127.8 | 13,000 | 49 | 32,000 | 32000 |
| F_MB_56 | 0.693 | 58 | 127.8 | 13,000 | 50 | 25,000 | 34000 |
| F_MB_57 | 0.693 | 58 | 127.8 | 13,000 | 49 | 13,000 | 32000 |
| F_MB_58 | 0.297 | 59 | 128.1 | 13,000 | 46 | 24,000 | 25000 |
| F_MB_59 | 0.297 | 59 | 128.1 | 13,000 | 22 | 25,000 | 13000 |
| F_MB_6 | 0.693 | 59 | 127.7 | 13,000 | 44 | 19,000 | 24000 |
| F_MB_60 | 0.693 | 58 | 127.8 | 13,000 | 45 | 18,000 | 25000 |
| F_MB_61 | 0.693 | 58 | 127.8 | 13,000 | 39 | 20,000 | 19000 |
| F_MB_62 | 0.693 | 58 | 127.8 | 13,000 | 36 | 21,000 | 18000 |
| F_MB_63 | 0.693 | 58 | 127.8 | 13,000 | 40 | 32,000 | 20000 |
| F_MB_64 | 0.693 | 58 | 127.8 | 13,000 | 42 | 14,000 | 21000 |
| F_MB_65 | 0.693 | 59 | 127.8 | 13,000 | 49 | 18,000 | 32000 |
| F_MB_66 | 0.693 | 58 | 127.7 | 13,000 | 25 | 13,000 | 14000 |
| F_MB_67 | 0.693 | 58 | 127.8 | 13,000 | 36 | 15,000 | 18000 |
| F_MB_68 | 0.693 | 58 | 127.7 | 13,000 | 20 | 31,000 | 13000 |
| F_MB_69 | 0.693 | 58 | 127.8 | 13,000 | 27 | 15,000 | 15000 |
| F_MB_7 | 0.693 | 59 | 127.7 | 13,000 | 49 | 17,000 | 31000 |
| F_MB_70 | 0.693 | 58 | 127.8 | 13,000 | 28 | 22,000 | 15000 |
| F_MB_71 | 0.297 | 59 | 128.1 | 13,000 | 35 | 18,000 | 17000 |
| F_MB_72 | 0.693 | 60 | 127.8 | 13,000 | 43 | 17,000 | 22000 |
| F_MB_73 | 0.693 | 58 | 127.8 | 13,000 | 35 | 28,000 | 18000 |
| F_MB_74 | 0.693 | 58 | 127.8 | 13,000 | 34 | 27,000 | 17000 |
| F_MB_75 | 0.297 | 58 | 128.1 | 13,000 | 48 | 25,000 | 28000 |
| F_MB_76 | 0.297 | 59 | 128.1 | 13,000 | 47 | 23,000 | 27000 |
| F_MB_77 | 0.297 | 59 | 128.1 | 13,000 | 46 | 15,000 | 25000 |

**MXDY + FF**

**Table A-3: Available Flow at 20 psi During MXDY+FF Conditions**

| ID | Static Demand (L/s) | Static Pressure (psi) | Static Head (m) | Fire-Flow Demand (L/min) | Residual Pressure (psi) | Available Flow at Hydrant (L/min) | Available Flow Pressure (psi) |
|---|---|---|---|---|---|---|---|
| F_MB_78 | 0.297 | 59 | 128.1 | 13,000 | 45 | 33,000 | 23000 |
| F_MB_79 | 0.297 | 59 | 128.1 | 13,000 | 29 | 15,000 | 15000 |
| F_MB_8 | 0.693 | 59 | 127.8 | 13,000 | 50 | 11,000 | 33000 |
| F_MB_80 | 0.297 | 59 | 128.1 | 13,000 | 28 | 14,000 | 15000 |
| F_MB_81 | 0.297 | 59 | 128.1 | 13,000 | 9 | 17,000 | 11000 |
| F_MB_82 | 0.297 | 59 | 128.1 | 13,000 | 23 | 15,000 | 14000 |
| F_MB_83 | 0.297 | 59 | 128.1 | 13,000 | 35 | 26,000 | 17000 |
| F_MB_84 | 0.297 | 59 | 128.1 | 13,000 | 28 | 21,000 | 15000 |
| F_MB_85 | 0.297 | 59 | 128.1 | 13,000 | 47 | 24,000 | 26000 |
| F_MB_87 | 0.693 | 59 | 127.7 | 13,000 | 41 | 22,000 | 21000 |
| F_MB_88 | 0.297 | 59 | 128.1 | 13,000 | 45 | 21,000 | 24000 |
| F_MB_89 | 0.693 | 60 | 127.8 | 13,000 | 43 | 22,000 | 22000 |
| F_MB_9 | 0.693 | 59 | 127.7 | 13,000 | 41 | 15,000 | 21000 |
| F_MB_90 | 0.693 | 59 | 127.7 | 13,000 | 43 | 20,000 | 22000 |
| F_MB_91 | 0.693 | 60 | 127.7 | 13,000 | 28 | 14,000 | 15000 |
| F_MB_92 | 0.693 | 60 | 127.8 | 13,000 | 40 | 23,000 | 20000 |
| F_MB_93 | 0.693 | 58 | 127.8 | 13,000 | 23 | 24,000 | 14000 |
| F_MB_97 | 0.693 | 57 | 127.7 | 13,000 | 43 | 23,000 | 23000 |
| F_MB_98 | 0.693 | 59 | 127.7 | 13,000 | 45 | 23,000 | 24000 |
| F_MB_99 | 0.693 | 59 | 127.7 | 13,000 | 44 | 24,000 | 23000 |

Dead-end locations

Locations with available flow less than 13,000 L/min (at 20 psi)

**Available flow at hydrant is rounded to the nearest thousand

**Mer Bleue 406mm dia. W/M Break**

**Table A-4: Available Flow at 20 psi During BSDY+FF Conditions**

| ID | Static Demand (L/s) | Static Pressure (psi) | Static Head (m) | Fire-Flow Demand (L/min) | Residual Pressure (psi) | Available Flow at Hydrant (L/min) | Available Flow Pressure (psi) |
|---|---|---|---|---|---|---|---|
| F_MB_1 | 0.385 | 62 | 129.0 | 13,000 | 53 | 32,000 | 20 |
| F_MB_10 | 0.385 | 61 | 129.0 | 13,000 | 50 | 29,000 | 20 |
| F_MB_100 | 0.385 | 61 | 129.0 | 13,000 | 52 | 32,000 | 20 |
| F_MB_101 | 0.385 | 61 | 129.0 | 13,000 | 48 | 25,000 | 20 |
| F_MB_102 | 0.385 | 60 | 129.1 | 13,000 | 25 | 14,000 | 20 |
| F_MB_103 | 0.14 | 60 | 129.2 | 13,000 | 4 | 11,000 | 20 |
| F_MB_104 | 0.385 | 62 | 129.0 | 13,000 | 35 | 17,000 | 20 |
| F_MB_105 | 0.383 | 63 | 129.1 | 13,000 | 31 | 40,000 | 20 |
| F_MB_106 | 0.385 | 60 | 129.0 | 13,000 | 49 | 15,000 | 20 |
| F_MB_107 | 0.385 | 61 | 129.0 | 13,000 | 30 | 27,000 | 20 |
| F_MB_108 | 0.14 | 61 | 129.2 | 13,000 | 37 | 15,000 | 20 |
| F_MB_109 | 0.385 | 61 | 129.0 | 13,000 | 55 | 18,000 | 20 |
| F_MB_11 | 0.385 | 62 | 129.0 | 13,000 | 7 | 37,000 | 20 |
| F_MB_110 | 0.385 | 60 | 129.0 | 13,000 | 48 | 11,000 | 20 |
| F_MB_111 | 0.385 | 61 | 129.0 | 13,000 | 48 | 26,000 | 20 |
| F_MB_112 | 0.385 | 60 | 129.0 | 13,000 | 25 | 27,000 | 20 |
| F_MB_113 | 0.385 | 58 | 129.0 | 13,000 | 37 | 14,000 | 20 |
| F_MB_114 | 0.385 | 60 | 129.1 | 13,000 | 31 | 17,000 | 20 |
| F_MB_115 | 0.385 | 60 | 129.0 | 13,000 | 32 | 15,000 | 20 |
| F_MB_116 | 0.385 | 60 | 129.0 | 13,000 | 35 | 15,000 | 20 |
| F_MB_117 | 0.385 | 60 | 129.0 | 13,000 | 42 | 16,000 | 20 |
| F_MB_118 | 0.385 | 60 | 129.0 | 13,000 | 38 | 19,000 | 20 |
| F_MB_119 | 0.385 | 60 | 129.0 | 13,000 | 48 | 17,000 | 20 |
| F_MB_12 | 0.385 | 62 | 129.0 | 13,000 | 44 | 25,000 | 20 |
| F_MB_120 | 0.385 | 60 | 129.0 | 13,000 | 46 | 20,000 | 20 |
| F_MB_121 | 0.385 | 60 | 129.0 | 13,000 | 33 | 23,000 | 20 |
| F_MB_122 | 0.385 | 60 | 129.0 | 13,000 | 43 | 15,000 | 20 |
| F_MB_123 | 0.385 | 60 | 129.0 | 13,000 | 52 | 18,000 | 20 |
| F_MB_124 | 0.385 | 61 | 129.0 | 13,000 | 49 | 32,000 | 20 |
| F_MB_125 | 0.14 | 61 | 129.2 | 13,000 | 52 | 24,000 | 20 |
| F_MB_126 | 0.385 | 61 | 129.0 | 13,000 | 39 | 34,000 | 20 |
| F_MB_128 | 0.14 | 61 | 129.2 | 13,000 | 46 | 22,000 | 20 |
| F_MB_129 | 0.385 | 61 | 129.0 | 13,000 | 50 | 29,000 | 20 |
| F_MB_13 | 0.385 | 61 | 129.0 | 13,000 | 51 | 32,000 | 20 |
| F_MB_130 | 0.385 | 60 | 129.1 | 13,000 | 34 | 16,000 | 20 |
| F_MB_131 | 0.14 | 60 | 129.2 | 13,000 | 8 | 13,000 | 20 |
| F_MB_132 | 0.385 | 60 | 129.1 | 13,000 | 35 | 17,000 | 20 |
| F_MB_135 | 0.14 | 61 | 129.2 | 13,000 | 5 | 11,000 | 20 |
| F_MB_136 | 0.14 | 61 | 129.2 | 13,000 | 27 | 15,000 | 20 |

**Mer Bleue 406mm dia. W/M Break**

**Table A-4: Available Flow at 20 psi During BSDY+FF Conditions**

| ID | Static Demand (L/s) | Static Pressure (psi) | Static Head (m) | Fire-Flow Demand (L/min) | Residual Pressure (psi) | Available Flow at Hydrant (L/min) | Available Flow Pressure (psi) |
|---|---|---|---|---|---|---|---|
| F_MB_137 | 0.385 | 60 | 129.1 | 13,000 | 48 | 51,000 | 20 |
| F_MB_138 | 0.385 | 62 | 129.1 | 13,000 | 24 | 24,000 | 20 |
| F_MB_139 | 0.385 | 62 | 129.0 | 13,000 | 52 | 14,000 | 20 |
| F_MB_14 | 0.385 | 60 | 129.1 | 13,000 | 33 | 34,000 | 20 |
| F_MB_140 | 0.385 | 62 | 129.0 | 13,000 | 23 | 16,000 | 20 |
| F_MB_141 | 0.385 | 62 | 129.0 | 13,000 | 28 | 14,000 | 20 |
| F_MB_142 | 0.385 | 62 | 129.0 | 13,000 | 49 | 15,000 | 20 |
| F_MB_143 | 0.14 | 60 | 129.2 | 13,000 | 43 | 24,000 | 20 |
| F_MB_144 | 0.385 | 61 | 129.0 | 13,000 | 49 | 21,000 | 20 |
| F_MB_15 | 0.385 | 61 | 129.0 | 13,000 | 50 | 27,000 | 20 |
| F_MB_16 | 0.385 | 61 | 129.0 | 13,000 | 45 | 28,000 | 20 |
| F_MB_17 | 0.385 | 61 | 129.0 | 13,000 | 44 | 23,000 | 20 |
| F_MB_18 | 0.385 | 61 | 129.0 | 13,000 | 34 | 22,000 | 20 |
| F_MB_19 | 0.385 | 62 | 129.0 | 13,000 | 44 | 16,000 | 20 |
| F_MB_190 | 0 | 62 | 129.1 | 13,000 | 46 | 34,000 | 20 |
| F_MB_2 | 0.385 | 61 | 129.0 | 13,000 | 50 | 22,000 | 20 |
| F_MB_20 | 0.385 | 59 | 129.0 | 13,000 | 48 | 25,000 | 20 |
| F_MB_21 | 0.385 | 62 | 129.0 | 13,000 | 36 | 29,000 | 20 |
| F_MB_22 | 0.385 | 61 | 129.0 | 13,000 | 37 | 26,000 | 20 |
| F_MB_23 | 0.385 | 61 | 129.0 | 13,000 | 50 | 18,000 | 20 |
| F_MB_24 | 0.385 | 61 | 129.0 | 13,000 | 45 | 18,000 | 20 |
| F_MB_25 | 0.385 | 61 | 129.0 | 13,000 | 35 | 28,000 | 20 |
| F_MB_26 | 0.385 | 61 | 129.0 | 13,000 | 49 | 22,000 | 20 |
| F_MB_27 | 0.385 | 61 | 129.0 | 13,000 | 52 | 17,000 | 20 |
| F_MB_28 | 0.385 | 61 | 129.0 | 13,000 | 52 | 26,000 | 20 |
| F_MB_29 | 0.385 | 62 | 129.0 | 13,000 | 43 | 30,000 | 20 |
| F_MB_3 | 0.385 | 62 | 129.0 | 13,000 | 53 | 31,000 | 20 |
| F_MB_30 | 0.385 | 62 | 129.0 | 13,000 | 29 | 20,000 | 20 |
| F_MB_31 | 0.385 | 62 | 129.0 | 13,000 | 31 | 32,000 | 20 |
| F_MB_32 | 0.385 | 62 | 129.0 | 13,000 | 27 | 15,000 | 20 |
| F_MB_33 | 0.385 | 62 | 129.0 | 13,000 | 35 | 16,000 | 20 |
| F_MB_34 | 0.385 | 61 | 129.0 | 13,000 | 37 | 15,000 | 20 |
| F_MB_35 | 0.385 | 62 | 129.0 | 13,000 | 51 | 17,000 | 20 |
| F_MB_36 | 0.385 | 61 | 129.0 | 13,000 | 39 | 18,000 | 20 |
| F_MB_37 | 0.385 | 62 | 129.0 | 13,000 | 34 | 27,000 | 20 |
| F_MB_38 | 0.385 | 62 | 129.1 | 13,000 | 37 | 18,000 | 20 |
| F_MB_39 | 0.385 | 63 | 129.0 | 13,000 | 45 | 16,000 | 20 |
| F_MB_4 | 0.385 | 60 | 129.0 | 13,000 | 27 | 18,000 | 20 |
| F_MB_40 | 0.385 | 62 | 129.0 | 13,000 | 41 | 22,000 | 20 |

**Mer Bleue 406mm dia. W/M Break**

**Table A-4: Available Flow at 20 psi During BSDY+FF Conditions**

| ID | Static Demand (L/s) | Static Pressure (psi) | Static Head (m) | Fire-Flow Demand (L/min) | Residual Pressure (psi) | Available Flow at Hydrant (L/min) | Available Flow Pressure (psi) |
|---|---|---|---|---|---|---|---|
| F_MB_41 | 0.385 | 62 | 129.0 | 13,000 | 32 | 14,000 | 20 |
| F_MB_42 | 0.385 | 62 | 129.0 | 13,000 | 30 | 19,000 | 20 |
| F_MB_44 | 0.385 | 62 | 129.0 | 13,000 | 50 | 16,000 | 20 |
| F_MB_45 | 0.385 | 63 | 129.0 | 13,000 | 39 | 15,000 | 20 |
| F_MB_46 | 0.385 | 61 | 129.0 | 13,000 | 45 | 29,000 | 20 |
| F_MB_47 | 0.385 | 61 | 129.0 | 13,000 | 23 | 18,000 | 20 |
| F_MB_48 | 0.385 | 61 | 129.0 | 13,000 | 46 | 22,000 | 20 |
| F_MB_49 | 0.385 | 62 | 129.0 | 13,000 | 45 | 14,000 | 20 |
| F_MB_5 | 0.385 | 61 | 129.0 | 13,000 | 47 | 23,000 | 20 |
| F_MB_50 | 0.385 | 62 | 129.0 | 13,000 | 50 | 22,000 | 20 |
| F_MB_51 | 0.385 | 61 | 129.0 | 13,000 | 48 | 24,000 | 20 |
| F_MB_52 | 0.385 | 61 | 129.0 | 13,000 | 43 | 29,000 | 20 |
| F_MB_53 | 0.14 | 60 | 129.2 | 13,000 | 52 | 23,000 | 20 |
| F_MB_54 | 0.385 | 61 | 129.0 | 13,000 | 52 | 21,000 | 20 |
| F_MB_55 | 0.385 | 60 | 129.0 | 13,000 | 52 | 34,000 | 20 |
| F_MB_56 | 0.385 | 60 | 129.1 | 13,000 | 52 | 36,000 | 20 |
| F_MB_57 | 0.385 | 60 | 129.1 | 13,000 | 26 | 34,000 | 20 |
| F_MB_58 | 0.14 | 60 | 129.2 | 13,000 | 47 | 27,000 | 20 |
| F_MB_59 | 0.14 | 60 | 129.2 | 13,000 | 48 | 14,000 | 20 |
| F_MB_6 | 0.385 | 61 | 129.0 | 13,000 | 42 | 25,000 | 20 |
| F_MB_60 | 0.385 | 60 | 129.1 | 13,000 | 39 | 26,000 | 20 |
| F_MB_61 | 0.385 | 60 | 129.1 | 13,000 | 43 | 20,000 | 20 |
| F_MB_62 | 0.385 | 60 | 129.1 | 13,000 | 44 | 19,000 | 20 |
| F_MB_63 | 0.385 | 60 | 129.1 | 13,000 | 52 | 21,000 | 20 |
| F_MB_64 | 0.385 | 60 | 129.1 | 13,000 | 30 | 23,000 | 20 |
| F_MB_65 | 0.385 | 60 | 129.1 | 13,000 | 42 | 34,000 | 20 |
| F_MB_66 | 0.385 | 60 | 129.0 | 13,000 | 26 | 15,000 | 20 |
| F_MB_67 | 0.385 | 60 | 129.1 | 13,000 | 31 | 19,000 | 20 |
| F_MB_68 | 0.385 | 60 | 129.0 | 13,000 | 52 | 14,000 | 20 |
| F_MB_69 | 0.385 | 60 | 129.1 | 13,000 | 32 | 15,000 | 20 |
| F_MB_7 | 0.385 | 61 | 129.0 | 13,000 | 40 | 32,000 | 20 |
| F_MB_70 | 0.385 | 60 | 129.1 | 13,000 | 46 | 16,000 | 20 |
| F_MB_71 | 0.14 | 60 | 129.2 | 13,000 | 38 | 18,000 | 20 |
| F_MB_72 | 0.385 | 62 | 129.0 | 13,000 | 41 | 23,000 | 20 |
| F_MB_73 | 0.385 | 60 | 129.1 | 13,000 | 54 | 18,000 | 20 |
| F_MB_74 | 0.385 | 60 | 129.1 | 13,000 | 53 | 18,000 | 20 |
| F_MB_75 | 0.14 | 60 | 129.2 | 13,000 | 51 | 30,000 | 20 |
| F_MB_76 | 0.14 | 60 | 129.2 | 13,000 | 49 | 28,000 | 20 |
| F_MB_77 | 0.14 | 60 | 129.2 | 13,000 | 33 | 26,000 | 20 |

**Mer Bleue 406mm dia. W/M Break**

**Table A-4: Available Flow at 20 psi During BSDY+FF Conditions**

| ID | Static Demand (L/s) | Static Pressure (psi) | Static Head (m) | Fire-Flow Demand (L/min) | Residual Pressure (psi) | Available Flow at Hydrant (L/min) | Available Flow Pressure (psi) |
|---|---|---|---|---|---|---|---|
| F_MB_78 | 0.14 | 61 | 129.2 | 13,000 | 52 | 25,000 | 20 |
| F_MB_79 | 0.14 | 61 | 129.2 | 13,000 | 33 | 16,000 | 20 |
| F_MB_8 | 0.385 | 61 | 129.0 | 13,000 | 12 | 33,000 | 20 |
| F_MB_80 | 0.14 | 60 | 129.2 | 13,000 | 28 | 16,000 | 20 |
| F_MB_81 | 0.14 | 60 | 129.2 | 13,000 | 40 | 12,000 | 20 |
| F_MB_82 | 0.14 | 60 | 129.2 | 13,000 | 33 | 14,000 | 20 |
| F_MB_83 | 0.14 | 60 | 129.2 | 13,000 | 52 | 18,000 | 20 |
| F_MB_84 | 0.14 | 60 | 129.2 | 13,000 | 50 | 16,000 | 20 |
| F_MB_85 | 0.14 | 60 | 129.2 | 13,000 | 46 | 27,000 | 20 |
| F_MB_87 | 0.385 | 61 | 129.0 | 13,000 | 46 | 22,000 | 20 |
| F_MB_88 | 0.14 | 60 | 129.2 | 13,000 | 44 | 25,000 | 20 |
| F_MB_89 | 0.385 | 62 | 129.0 | 13,000 | 46 | 23,000 | 20 |
| F_MB_9 | 0.385 | 60 | 129.0 | 13,000 | 31 | 22,000 | 20 |
| F_MB_90 | 0.385 | 61 | 129.0 | 13,000 | 43 | 23,000 | 20 |
| F_MB_91 | 0.385 | 61 | 129.0 | 13,000 | 27 | 16,000 | 20 |
| F_MB_92 | 0.385 | 62 | 129.1 | 13,000 | 45 | 21,000 | 20 |
| F_MB_93 | 0.385 | 60 | 129.1 | 13,000 | 48 | 14,000 | 20 |
| F_MB_97 | 0.385 | 59 | 129.0 | 13,000 | 47 | 24,000 | 20 |
| F_MB_98 | 0.385 | 61 | 129.0 | 13,000 | 48 | 25,000 | 20 |
| F_MB_99 | 0.385 | 61 | 129.0 | 13,000 | 47 | 24,000 | 20 |

Dead-end locations

Locations with available flow less than 13,000 L/min (at 20 psi)

**Available flow at hydrant is rounded to the nearest thousand

**Tenth Line 406mm dia. W/M Break**

**Table A-5: Available Flow at 20 psi During BSDY+FF Conditions**

| ID | Static Demand (L/s) | Static Pressure (psi) | Static Head (m) | Fire-Flow Demand (L/min) | Residual Pressure (psi) | Available Flow at Hydrant (L/min) | Available Flow Pressure (psi) |
|---|---|---|---|---|---|---|---|
| F_MB_1 | 0.385 | 62 | 129.1 | 13,000 | 54 | 35,000 | 20 |
| F_MB_10 | 0.385 | 61 | 129.1 | 13,000 | 52 | 31,000 | 20 |
| F_MB_100 | 0.385 | 61 | 129.1 | 13,000 | 53 | 33,000 | 20 |
| F_MB_101 | 0.385 | 61 | 129.1 | 13,000 | 49 | 26,000 | 20 |
| F_MB_102 | 0.385 | 60 | 129.1 | 13,000 | 26 | 14,000 | 20 |
| F_MB_103 | 0.14 | 60 | 129.2 | 13,000 | 2 | 11,000 | 20 |
| F_MB_104 | 0.385 | 62 | 129.1 | 13,000 | 36 | 17,000 | 20 |
| F_MB_105 | 0.383 | 63 | 129.1 | 13,000 | 57 | 40,000 | 20 |
| F_MB_106 | 0.385 | 61 | 129.1 | 13,000 | 31 | 16,000 | 20 |
| F_MB_107 | 0.385 | 61 | 129.1 | 13,000 | 50 | 28,000 | 20 |
| F_MB_108 | 0.14 | 61 | 129.2 | 13,000 | 29 | 15,000 | 20 |
| F_MB_109 | 0.385 | 61 | 129.1 | 13,000 | 38 | 18,000 | 20 |
| F_MB_11 | 0.385 | 62 | 129.1 | 13,000 | 55 | 39,000 | 20 |
| F_MB_110 | 0.385 | 60 | 129.1 | 13,000 | 8 | 11,000 | 20 |
| F_MB_111 | 0.385 | 61 | 129.1 | 13,000 | 49 | 27,000 | 20 |
| F_MB_112 | 0.385 | 60 | 129.1 | 13,000 | 49 | 28,000 | 20 |
| F_MB_113 | 0.385 | 58 | 129.1 | 13,000 | 23 | 14,000 | 20 |
| F_MB_114 | 0.385 | 60 | 129.1 | 13,000 | 36 | 17,000 | 20 |
| F_MB_115 | 0.385 | 60 | 129.1 | 13,000 | 29 | 15,000 | 20 |
| F_MB_116 | 0.385 | 60 | 129.1 | 13,000 | 30 | 15,000 | 20 |
| F_MB_117 | 0.385 | 60 | 129.1 | 13,000 | 34 | 17,000 | 20 |
| F_MB_118 | 0.385 | 60 | 129.1 | 13,000 | 41 | 20,000 | 20 |
| F_MB_119 | 0.385 | 60 | 129.1 | 13,000 | 35 | 17,000 | 20 |
| F_MB_12 | 0.385 | 62 | 129.1 | 13,000 | 49 | 25,000 | 20 |
| F_MB_120 | 0.385 | 61 | 129.1 | 13,000 | 42 | 20,000 | 20 |
| F_MB_121 | 0.385 | 60 | 129.1 | 13,000 | 47 | 24,000 | 20 |
| F_MB_122 | 0.385 | 60 | 129.1 | 13,000 | 30 | 15,000 | 20 |
| F_MB_123 | 0.385 | 60 | 129.1 | 13,000 | 38 | 18,000 | 20 |
| F_MB_124 | 0.385 | 61 | 129.1 | 13,000 | 53 | 34,000 | 20 |
| F_MB_125 | 0.14 | 61 | 129.2 | 13,000 | 47 | 24,000 | 20 |
| F_MB_126 | 0.385 | 61 | 129.1 | 13,000 | 53 | 35,000 | 20 |
| F_MB_128 | 0.14 | 61 | 129.2 | 13,000 | 45 | 22,000 | 20 |
| F_MB_129 | 0.385 | 61 | 129.1 | 13,000 | 51 | 30,000 | 20 |
| F_MB_13 | 0.385 | 61 | 129.1 | 13,000 | 53 | 34,000 | 20 |
| F_MB_130 | 0.385 | 60 | 129.1 | 13,000 | 34 | 17,000 | 20 |
| F_MB_131 | 0.14 | 60 | 129.2 | 13,000 | 19 | 13,000 | 20 |
| F_MB_132 | 0.385 | 60 | 129.1 | 13,000 | 36 | 17,000 | 20 |
| F_MB_135 | 0.14 | 61 | 129.2 | 13,000 | 5 | 11,000 | 20 |
| F_MB_136 | 0.14 | 61 | 129.2 | 13,000 | 30 | 15,000 | 20 |
| F_MB_137 | 0.385 | 60 | 129.2 | 13,000 | 56 | 24,000 | 20 |

**Tenth Line 406mm dia. W/M Break**

**Table A-5: Available Flow at 20 psi During BSDY+FF Conditions**

| ID | Static Demand (L/s) | Static Pressure (psi) | Static Head (m) | Fire-Flow Demand (L/min) | Residual Pressure (psi) | Available Flow at Hydrant (L/min) | Available Flow Pressure (psi) |
|---|---|---|---|---|---|---|---|
| F_MB_138 | 0.385 | 62 | 129.1 | 13,000 | 48 | 14,000 | 20 |
| F_MB_139 | 0.385 | 62 | 129.1 | 13,000 | 25 | 36,000 | 20 |
| F_MB_14 | 0.385 | 60 | 129.1 | 13,000 | 53 | 16,000 | 20 |
| F_MB_140 | 0.385 | 62 | 129.1 | 13,000 | 34 | 14,000 | 20 |
| F_MB_141 | 0.385 | 62 | 129.1 | 13,000 | 24 | 15,000 | 20 |
| F_MB_142 | 0.385 | 62 | 129.1 | 13,000 | 29 | 24,000 | 20 |
| F_MB_143 | 0.14 | 60 | 129.2 | 13,000 | 46 | 21,000 | 20 |
| F_MB_144 | 0.385 | 61 | 129.1 | 13,000 | 44 | 28,000 | 20 |
| F_MB_15 | 0.385 | 61 | 129.1 | 13,000 | 50 | 29,000 | 20 |
| F_MB_16 | 0.385 | 61 | 129.1 | 13,000 | 51 | 23,000 | 20 |
| F_MB_17 | 0.385 | 61 | 129.1 | 13,000 | 47 | 22,000 | 20 |
| F_MB_18 | 0.385 | 61 | 129.1 | 13,000 | 45 | 17,000 | 20 |
| F_MB_19 | 0.385 | 62 | 129.1 | 13,000 | 35 | 34,000 | 20 |
| F_MB_190 | 0 | 62 | 129.1 | 13,000 | 54 | 23,000 | 20 |
| F_MB_2 | 0.385 | 61 | 129.1 | 13,000 | 45 | 26,000 | 20 |
| F_MB_20 | 0.385 | 59 | 129.1 | 13,000 | 47 | 30,000 | 20 |
| F_MB_21 | 0.385 | 62 | 129.1 | 13,000 | 52 | 27,000 | 20 |
| F_MB_22 | 0.385 | 61 | 129.1 | 13,000 | 49 | 18,000 | 20 |
| F_MB_23 | 0.385 | 61 | 129.1 | 13,000 | 38 | 18,000 | 20 |
| F_MB_24 | 0.385 | 61 | 129.1 | 13,000 | 39 | 30,000 | 20 |
| F_MB_25 | 0.385 | 61 | 129.1 | 13,000 | 52 | 23,000 | 20 |
| F_MB_26 | 0.385 | 61 | 129.1 | 13,000 | 46 | 17,000 | 20 |
| F_MB_27 | 0.385 | 61 | 129.1 | 13,000 | 37 | 28,000 | 20 |
| F_MB_28 | 0.385 | 61 | 129.1 | 13,000 | 50 | 31,000 | 20 |
| F_MB_29 | 0.385 | 62 | 129.1 | 13,000 | 53 | 33,000 | 20 |
| F_MB_3 | 0.385 | 62 | 129.1 | 13,000 | 53 | 21,000 | 20 |
| F_MB_30 | 0.385 | 62 | 129.1 | 13,000 | 44 | 34,000 | 20 |
| F_MB_31 | 0.385 | 62 | 129.1 | 13,000 | 54 | 15,000 | 20 |
| F_MB_32 | 0.385 | 62 | 129.1 | 13,000 | 30 | 16,000 | 20 |
| F_MB_33 | 0.385 | 62 | 129.1 | 13,000 | 32 | 15,000 | 20 |
| F_MB_34 | 0.385 | 61 | 129.1 | 13,000 | 28 | 17,000 | 20 |
| F_MB_35 | 0.385 | 62 | 129.1 | 13,000 | 36 | 18,000 | 20 |
| F_MB_36 | 0.385 | 61 | 129.1 | 13,000 | 38 | 28,000 | 20 |
| F_MB_37 | 0.385 | 63 | 129.1 | 13,000 | 51 | 18,000 | 20 |
| F_MB_38 | 0.385 | 63 | 129.1 | 13,000 | 40 | 16,000 | 20 |
| F_MB_39 | 0.385 | 63 | 129.1 | 13,000 | 35 | 18,000 | 20 |
| F_MB_4 | 0.385 | 60 | 129.1 | 13,000 | 38 | 22,000 | 20 |
| F_MB_40 | 0.385 | 62 | 129.1 | 13,000 | 45 | 15,000 | 20 |
| F_MB_41 | 0.385 | 62 | 129.1 | 13,000 | 27 | 20,000 | 20 |
| F_MB_42 | 0.385 | 62 | 129.1 | 13,000 | 42 | 16,000 | 20 |

**Tenth Line 406mm dia. W/M Break**

**Table A-5: Available Flow at 20 psi During BSDY+FF Conditions**

| ID | Static Demand (L/s) | Static Pressure (psi) | Static Head (m) | Fire-Flow Demand (L/min) | Residual Pressure (psi) | Available Flow at Hydrant (L/min) | Available Flow Pressure (psi) |
|---|---|---|---|---|---|---|---|
| F_MB_44 | 0.385 | 62 | 129.1 | 13,000 | 32 | 15,000 | 20 |
| F_MB_45 | 0.385 | 63 | 129.1 | 13,000 | 30 | 31,000 | 20 |
| F_MB_46 | 0.385 | 61 | 129.1 | 13,000 | 52 | 19,000 | 20 |
| F_MB_47 | 0.385 | 61 | 129.1 | 13,000 | 40 | 14,000 | 20 |
| F_MB_48 | 0.385 | 62 | 129.1 | 13,000 | 46 | 23,000 | 20 |
| F_MB_49 | 0.385 | 62 | 129.1 | 13,000 | 25 | 14,000 | 20 |
| F_MB_5 | 0.385 | 61 | 129.1 | 13,000 | 47 | 24,000 | 20 |
| F_MB_50 | 0.385 | 62 | 129.1 | 13,000 | 47 | 23,000 | 20 |
| F_MB_51 | 0.385 | 61 | 129.1 | 13,000 | 48 | 25,000 | 20 |
| F_MB_52 | 0.385 | 61 | 129.1 | 13,000 | 51 | 31,000 | 20 |
| F_MB_53 | 0.14 | 60 | 129.2 | 13,000 | 45 | 23,000 | 20 |
| F_MB_54 | 0.385 | 61 | 129.1 | 13,000 | 44 | 22,000 | 20 |
| F_MB_55 | 0.385 | 60 | 129.1 | 13,000 | 53 | 35,000 | 20 |
| F_MB_56 | 0.385 | 60 | 129.1 | 13,000 | 53 | 37,000 | 20 |
| F_MB_57 | 0.385 | 60 | 129.1 | 13,000 | 53 | 35,000 | 20 |
| F_MB_58 | 0.14 | 60 | 129.2 | 13,000 | 49 | 27,000 | 20 |
| F_MB_59 | 0.14 | 60 | 129.2 | 13,000 | 25 | 14,000 | 20 |
| F_MB_6 | 0.385 | 61 | 129.1 | 13,000 | 48 | 26,000 | 20 |
| F_MB_60 | 0.385 | 60 | 129.1 | 13,000 | 49 | 27,000 | 20 |
| F_MB_61 | 0.385 | 60 | 129.1 | 13,000 | 43 | 21,000 | 20 |
| F_MB_62 | 0.385 | 60 | 129.1 | 13,000 | 39 | 19,000 | 20 |
| F_MB_63 | 0.385 | 60 | 129.1 | 13,000 | 44 | 21,000 | 20 |
| F_MB_64 | 0.385 | 60 | 129.1 | 13,000 | 46 | 23,000 | 20 |
| F_MB_65 | 0.385 | 60 | 129.1 | 13,000 | 53 | 35,000 | 20 |
| F_MB_66 | 0.385 | 60 | 129.1 | 13,000 | 29 | 15,000 | 20 |
| F_MB_67 | 0.385 | 60 | 129.1 | 13,000 | 40 | 19,000 | 20 |
| F_MB_68 | 0.385 | 60 | 129.1 | 13,000 | 24 | 14,000 | 20 |
| F_MB_69 | 0.385 | 60 | 129.1 | 13,000 | 31 | 16,000 | 20 |
| F_MB_7 | 0.385 | 61 | 129.1 | 13,000 | 53 | 34,000 | 20 |
| F_MB_70 | 0.385 | 60 | 129.1 | 13,000 | 32 | 16,000 | 20 |
| F_MB_71 | 0.14 | 60 | 129.2 | 13,000 | 38 | 18,000 | 20 |
| F_MB_72 | 0.385 | 62 | 129.1 | 13,000 | 47 | 23,000 | 20 |
| F_MB_73 | 0.385 | 60 | 129.1 | 13,000 | 39 | 19,000 | 20 |
| F_MB_74 | 0.385 | 60 | 129.1 | 13,000 | 38 | 18,000 | 20 |
| F_MB_75 | 0.14 | 60 | 129.2 | 13,000 | 51 | 30,000 | 20 |
| F_MB_76 | 0.14 | 60 | 129.2 | 13,000 | 50 | 28,000 | 20 |
| F_MB_77 | 0.14 | 60 | 129.2 | 13,000 | 49 | 26,000 | 20 |
| F_MB_78 | 0.14 | 61 | 129.2 | 13,000 | 48 | 25,000 | 20 |
| F_MB_79 | 0.14 | 61 | 129.2 | 13,000 | 32 | 16,000 | 20 |
| F_MB_8 | 0.385 | 61 | 129.1 | 13,000 | 53 | 36,000 | 20 |

**Tenth Line 406mm dia. W/M Break**

**Table A-5: Available Flow at 20 psi During BSDY+FF Conditions**

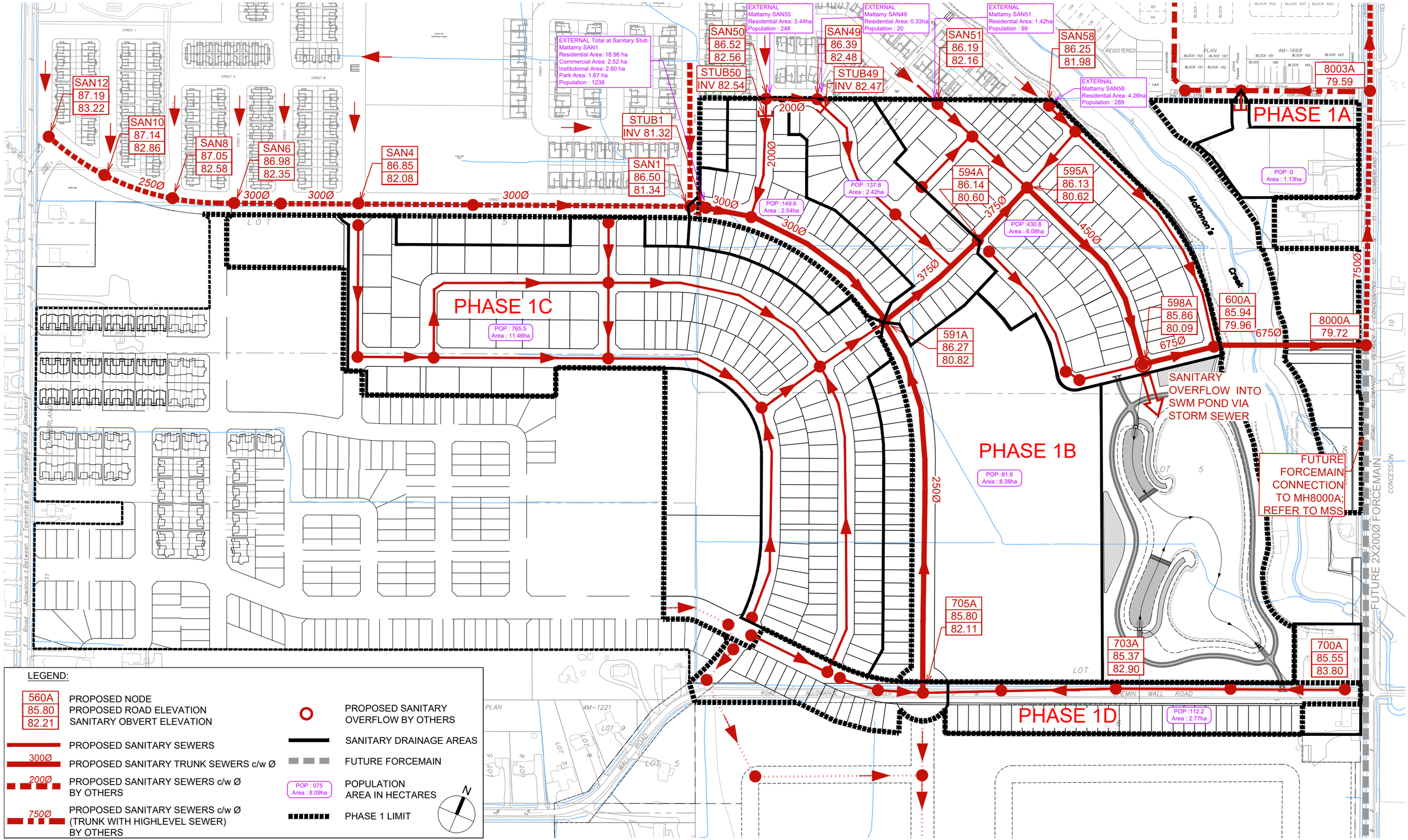
| ID | Static Demand (L/s) | Static Pressure (psi) | Static Head (m) | Fire-Flow Demand (L/min) | Residual Pressure (psi) | Available Flow at Hydrant (L/min) | Available Flow Pressure (psi) |
|---|---|---|---|---|---|---|---|
| F_MB_80 | 0.14 | 60 | 129.2 | 13,000 | 31 | 16,000 | 20 |
| F_MB_81 | 0.14 | 60 | 129.2 | 13,000 | 11 | 12,000 | 20 |
| F_MB_82 | 0.14 | 60 | 129.2 | 13,000 | 26 | 14,000 | 20 |
| F_MB_83 | 0.14 | 60 | 129.2 | 13,000 | 37 | 18,000 | 20 |
| F_MB_84 | 0.14 | 60 | 129.2 | 13,000 | 31 | 16,000 | 20 |
| F_MB_85 | 0.14 | 60 | 129.2 | 13,000 | 49 | 27,000 | 20 |
| F_MB_87 | 0.385 | 61 | 129.1 | 13,000 | 45 | 22,000 | 20 |
| F_MB_88 | 0.14 | 60 | 129.2 | 13,000 | 48 | 25,000 | 20 |
| F_MB_89 | 0.385 | 62 | 129.1 | 13,000 | 47 | 24,000 | 20 |
| F_MB_9 | 0.385 | 60 | 129.1 | 13,000 | 45 | 23,000 | 20 |
| F_MB_90 | 0.385 | 61 | 129.1 | 13,000 | 47 | 24,000 | 20 |
| F_MB_91 | 0.385 | 61 | 129.1 | 13,000 | 32 | 16,000 | 20 |
| F_MB_92 | 0.385 | 62 | 129.1 | 13,000 | 44 | 21,000 | 20 |
| F_MB_93 | 0.385 | 60 | 129.1 | 13,000 | 27 | 15,000 | 20 |
| F_MB_97 | 0.385 | 59 | 129.1 | 13,000 | 47 | 25,000 | 20 |
| F_MB_98 | 0.385 | 61 | 129.1 | 13,000 | 49 | 26,000 | 20 |
| F_MB_99 | 0.385 | 61 | 129.1 | 13,000 | 48 | 25,000 | 20 |

Dead-end locations

Locations with available flow less than 13,000 L/min (at 20 psi)

# Appendix C

- **Figure 3.1 Conceptual Sanitary Sewer System**
- **Figure 3.2 Conceptual Sanitary Sewer Tributary Area**
- **Sanitary Sewer Design Sheet**
- **MSS Figure 4 Wastewater Collection Infrastructure**
- **MSS Figure 8.2A Recommended Wastewater System**
- **External Sanitary Drainage Plan – Stantec**
- **External Sanitary Sewer Design Sheet – Stantec**




Project Title

MER BLEUE
PHASE 1

Drawing Title

CONCEPTUAL SANITARY SEWER TRIBUTARY AREA

Sheet No.

FIGURE 3.2
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ARCADIS

J:\116761_MerBleuPh1\5.0 Drawings\5.9civil\current\Adequacy\Report\Layout\FIGURE 3.1 CONCEPTUAL SANITARY SEWER SYSTEM.dwg Plotted At: 12/5/2025 Last Saved By: herrie6006 Last Saved At: Dec. 5, 25

ARCADIS IBI GROUP
500-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
ibigroup.com

# SANITARY SEWER DESIGN SHEET

Mer Bleue Phase 1
Claridge Homes
City of Ottawa

| LOCATION | | | | RESIDENTIAL | | | | | | | | | | ICI AREAS | | | | | | | | INFILTRATION ALLOWANCE | | | FIXED FLOW (L/s) | | TOTAL FLOW | PROPOSED SEWER DESIGN | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AREA | UNIT TYPES | | | | AREA | POPULATION | | RES | PEAK | AREA (Ha) | | | | | | ICI | PEAK | AREA (Ha) | | FLOW | | | | CAPACITY | LENGTH | DIA | SLOPE | VELOCITY | AVAILABLE CAPACITY | |
| STREET | AREA ID | FROM MH | TO MH | w/ Units (Ha) | SF | TH/SD | 1 Bed APT | 2 Bed APT | w/o Units (Ha) | IND | CUM | PEAK FACTOR | FLOW (L/s) | INSTITUTIONAL IND | INSTITUTIONAL CUM | COMMERCIAL IND | COMMERCIAL CUM | INDUSTRIAL IND | INDUSTRIAL CUM | FACTOR | FLOW (L/s) | IND | CUM | (L/s) | IND | CUM | (L/s) | (L/s) | (m) | (mm) | (%) | (full) (m/s) | L/s | (%) |
| BY OTHERS | External SAN1 | SAN1 | MH590A | 18.96 | | | | | | 1238.0 | 1238.0 | 3.19 | 12.80 | 2.60 | 2.60 | 2.52 | 2.52 | 0.00 | 0.00 | 1.50 | 2.49 | 24.08 | 24.1 | 7.95 | 0.00 | 0.0 | 23.24 | 59.68 | 74.50 | 300 | 0.35 | 0.818 | 36.45 | 61.07% |
| BY OTHERS | External SAN50 | SAN50 | MH590A | 3.44 | | | | | | 248.0 | 248.0 | 3.49 | 2.80 | 0.00 | 2.60 | 0.00 | 2.52 | 0.00 | 0.00 | 1.00 | 1.66 | 3.44 | 27.5 | 9.08 | 0.00 | 0.0 | 13.55 | 16.76 | 267.11 | 200 | 0.24 | 0.517 | 3.22 | 19.19% |
| | External SAN49 | SAN49 | MH591A | 0.33 | | | | | | 20.0 | 20.0 | 3.70 | 0.24 | 0.00 | 2.60 | 0.00 | 2.52 | 0.00 | 0.00 | 1.00 | 1.66 | 0.33 | 27.9 | 9.19 | 0.00 | 0.0 | 11.09 | 14.91 | 365.16 | 200 | 0.19 | 0.460 | 3.82 | 25.64% |
| | MH590A | MH590A | MH591A | 2.54 | 44 | | | | | 149.6 | 1635.6 | 3.12 | 16.55 | 0.00 | 2.60 | 0.00 | 2.52 | 0.00 | 0.00 | 1.00 | 1.66 | 2.54 | 30.4 | 10.03 | 0.00 | 0.0 | 28.23 | 43.97 | 224.33 | 300 | 0.19 | 0.603 | 15.74 | 35.79% |
| | MH700A | MH700A | MH705A | 2.77 | 33 | | | | | 112.2 | 112.2 | 3.58 | 1.30 | 0.00 | 2.60 | 0.00 | 2.52 | 0.00 | 0.00 | 1.00 | 1.66 | 2.77 | 33.2 | 10.94 | 0.00 | 0.0 | 13.91 | 16.76 | 444.12 | 200 | 0.24 | 0.517 | 2.86 | 17.05% |
| | MH705A | MH705A | MH591A | 8.38 | 24 | | | | | 81.6 | 193.8 | 3.52 | 2.21 | 0.00 | 2.60 | 0.00 | 2.52 | 0.00 | 0.00 | 1.00 | 1.66 | 8.38 | 41.5 | 13.71 | 0.00 | 0.0 | 17.58 | 30.39 | 388.99 | 250 | 0.24 | 0.600 | 12.81 | 42.16% |
| | MH591A | MH591A | MH594A | 11.46 | 110 | 145 | | | | 765.5 | 2614.9 | 2.99 | 25.37 | 0.00 | 2.60 | 0.00 | 2.52 | 0.00 | 0.00 | 1.00 | 1.66 | 11.46 | 53.0 | 17.49 | 0.00 | 0.0 | 44.52 | 68.44 | 135.03 | 375 | 0.14 | 0.600 | 23.92 | 34.95% |
| | External SAN51 | SAN1 | MH595A | 1.42 | | | | | | 99.0 | 99.0 | 3.60 | 1.15 | 2.60 | 2.60 | 2.52 | 2.52 | 0.00 | 0.00 | 1.50 | 2.49 | 6.54 | 6.5 | 2.16 | 0.00 | 0.0 | 5.80 | 59.68 | 74.50 | 300 | 0.35 | 0.818 | 53.88 | 90.28% |
| | External SAN58 | SAN50 | MH595A | 4.26 | | | | | | 289.0 | 289.0 | 3.47 | 3.25 | 0.00 | 2.60 | 0.00 | 2.52 | 0.00 | 0.00 | 1.50 | 2.49 | 4.26 | 10.8 | 3.56 | 0.00 | 0.0 | 9.30 | 16.76 | 267.11 | 200 | 0.24 | 0.517 | 7.46 | 44.51% |
| | MH594A | MH594A | MH595A | 2.42 | 31 | 12 | | | | 137.8 | 3140.7 | 2.94 | 29.93 | 0.00 | 2.60 | 0.00 | 2.52 | 0.00 | 0.00 | 1.00 | 1.66 | 2.42 | 55.4 | 18.29 | 1.00 | 1.0 | 50.88 | 68.44 | 79.47 | 375 | 0.14 | 0.600 | 17.56 | 25.66% |
| | MH595A | MH595A | MH598A | 6.08 | 60 | 84 | | | | 430.8 | 3571.5 | 2.90 | 33.58 | 0.00 | 2.60 | 0.00 | 2.52 | 0.00 | 0.00 | 1.00 | 1.66 | 6.08 | 61.5 | 20.30 | 2.00 | 3.0 | 58.54 | 98.65 | 228.37 | 450 | 0.11 | 0.601 | 40.11 | 40.66% |
| | | | | | 302 | 241 | | | | 3571.5 | TRUE | 3.78 | 0.01 | | | | | | | | | | | | | | | | | | | | | |

**Design Parameters:**

| Residential | | | ICI Areas | | | |
|---|---|---|---|---|---|---|
| SF | 3.4 | p/p/u | INST | 28,000 | L/Ha/day | |
| TH/SD | 2.7 | p/p/u | COM | 28,000 | L/Ha/day | |
| 1 Bed | 1.4 | p/p/u | IND | 35,000 | L/Ha/day | MOE Chart |
| 2 Bed | 2.1 | p/p/u | | 17000 | L/Ha/day | |
| Other | 60 | p/p/Ha | | | | |

**Notes:**

1. Mannings coefficient (n) = 0.013
2. Demand (per capita): 280 L/day 200 L/day
3. Infiltration allowance: 0.33 L/s/Ha
4. Residential Peaking Factor:
   Harmon Formula = 1+(14/(4+(P/1000)^0.5))0.8
   where K = 0.8 Correction Factor
5. Commercial and Institutional Peak Factors based on total area, 1.5 if greater than 20%, otherwise 1.0

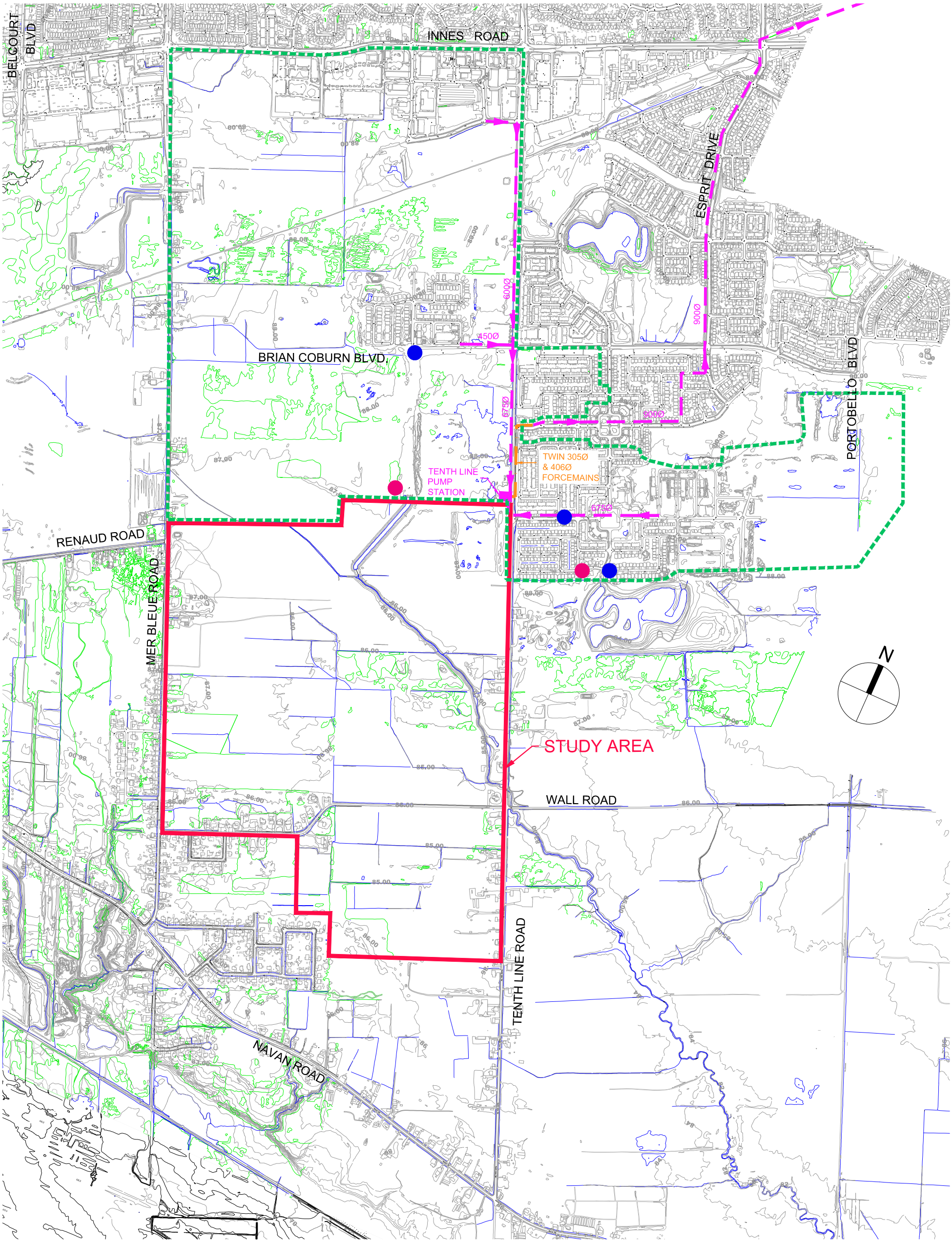
**Designed:** WZ

**Checked:** RM
DGY

**Dwg. Reference:** 116761-400

| No. | Revision | Date |
|---|---|---|
| 1 | Adequacy of Public Services - Submission No. 1 | 2021-11-15 |
| 2 | Adequacy of Public Services - Submission No. 2 | 2025-02-07 |
| 3 | Adequacy of Public Services - Submission No. 3 | 2015-05-16 |

**File Reference:** 116761-6.04.04
**Date:** 2021-11-15
**Sheet No:** 1 of 1




LEGEND:

- 305Ø — EXISTING SANITARY FORCEMAIN
- 900Ø — EXISTING TRUNK SANITARY SEWER
- EXISTING PUMP STATION CATCHMENT BOUNDARIES
- INTERIM SANITARY OVERFLOW
- ULTIMATE SANITARY OVERFLOW

J:\34739-CumbServReport\5.9 Drawings\59civil\current\Mer Bleue Expansion Study Area Report\Figure3-4-6.dwg Layout Name: Figure 4 Plot Style: ---- Plot Scale: 1:8.704 Plotted At: 2/19/2014 1:31 PM Last Saved By: mmilne Last Saved At: Feb. 19, 14

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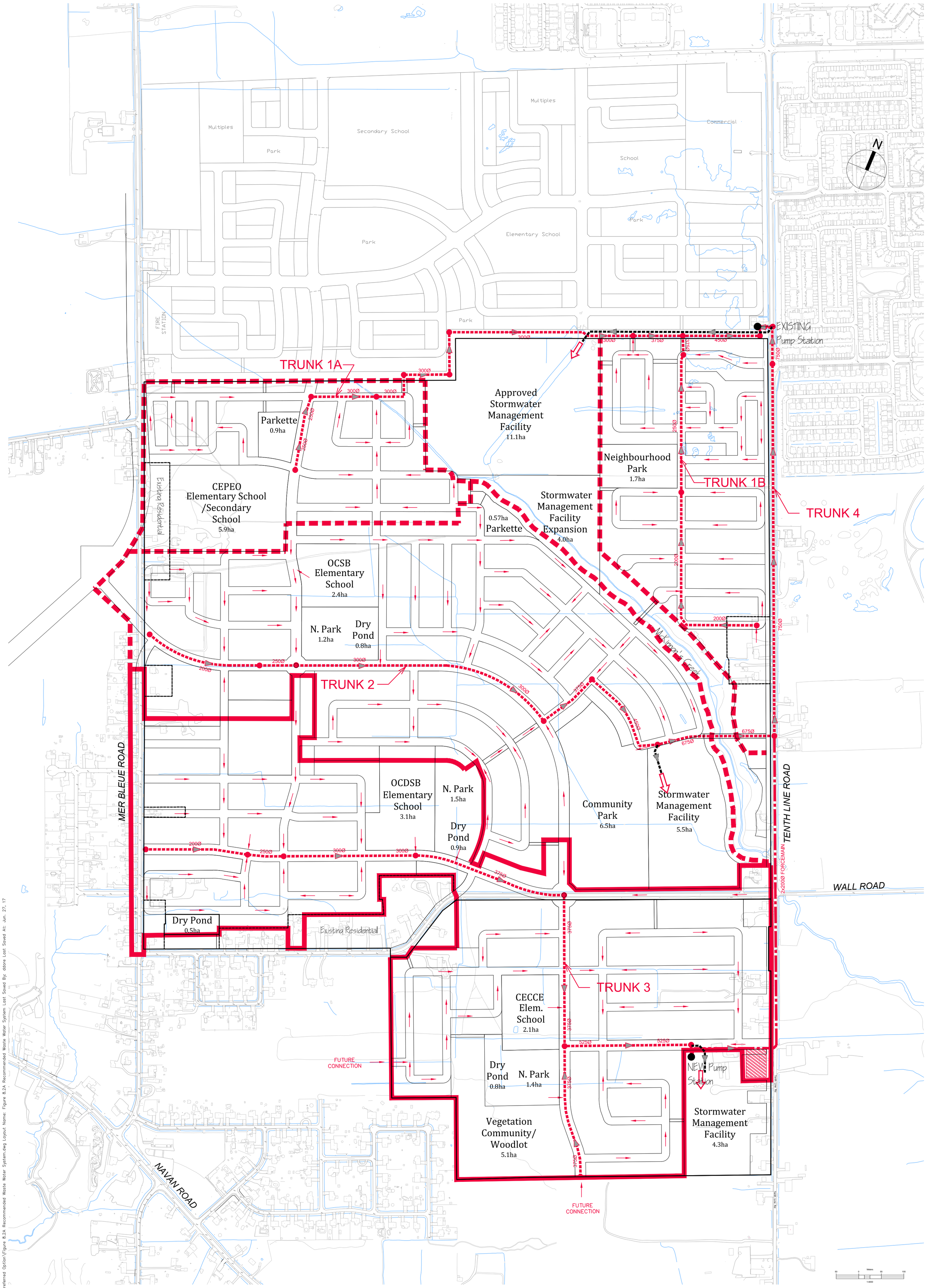
Scale: 1:15000

Project Title: MER BLEUE EXPANSION STUDY AREA

Drawing Title: WASTEWATER COLLECTION INFRASTRUCTURE

Sheet No.: FIGURE 4

FEBRUARY 2014




LEGEND:

- PROPOSED TRUNK SANITARY SEWER
- PROPOSED FORCEMAIN
- PROPOSED LOCAL SANITARY SEWER
- TRIBUTARY AREA TO NEW PUMP STATION
- TRIBUTARY AREA TO EXISTING PUMP STATION
- SANITARY OVERFLOW
- STORM SEWER USED FOR SANITARY OVERFLOW
- 450Ø APPROXIMATE SEWER DIAMETER

J:\34739-CumbServ\Report\5.9 Drawings\59civil\layouts\MSS-Apr2017\Preferred Option\Figure 8.2A Recommended Waste Water System.dwg Layout Name: Figure 8.2A Recommended Waste Water System Last Saved By: ddore Last Saved At: Jun. 27, 17

Sheet No.

FIGURE 8.2A
JUNE 2017

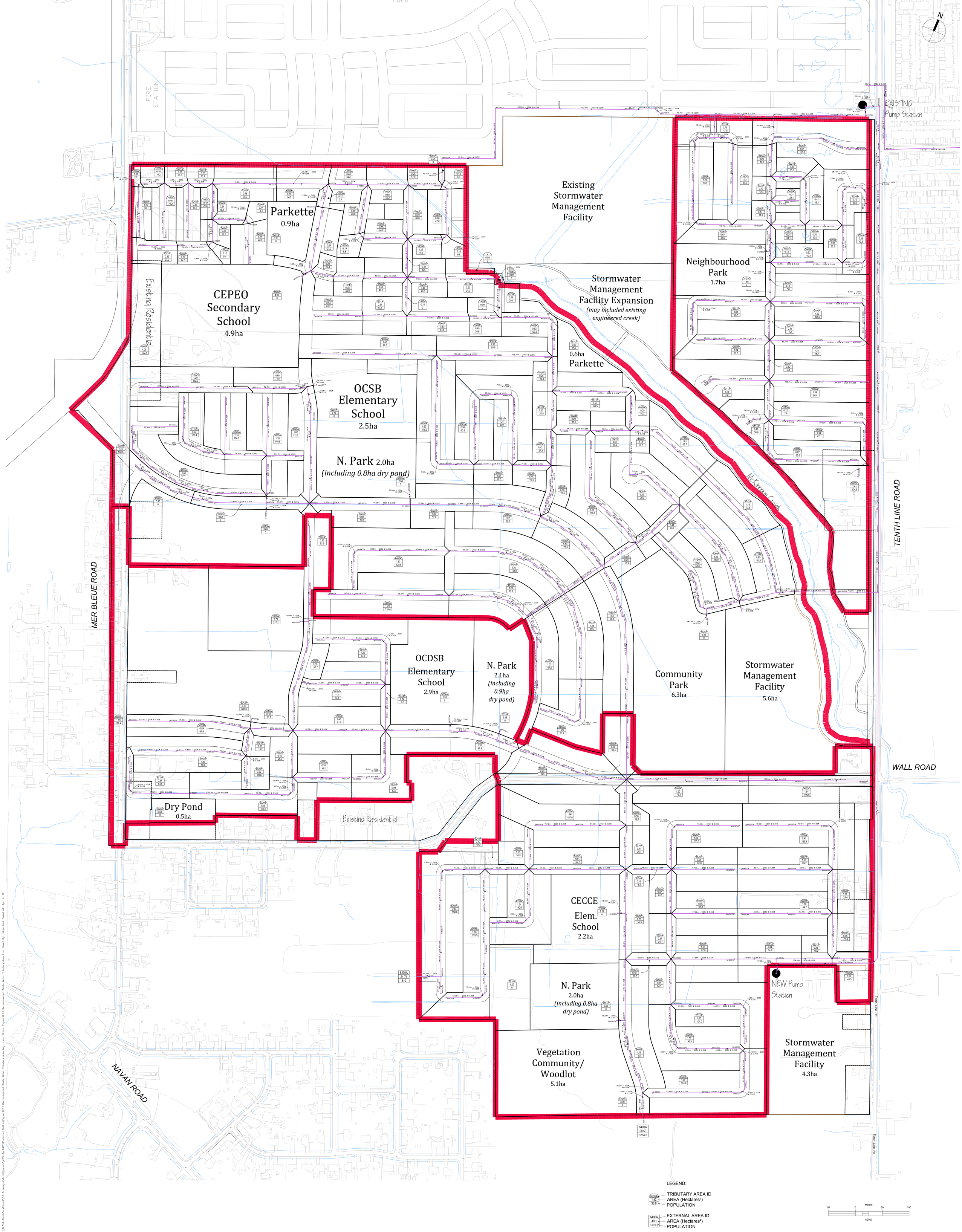
Drawing Title

RECOMMENDED WASTE WATER SYSTEM FOR UPDATED DEMONSTRATION PLAN

Project Title

MER BLEUE MASTER SERVICING STUDY

IBI




Sheet No.

FIGURE 8.2.1
APR 2017

Drawing Title

RECOMMENDED WASTE WATER TRIBUTARY AREA

Project Title

MER BLEUE
MASTER SERVICING STUDY

IBI

J:\147391-CumSer-Report\3.0 Drawings\08civil\Layout\MSS--Apr2017\Preferred Option\Figure 8.2.1 Recommended Waste Water Tributary Area.dwg Layout: Name: Figure 8.2.1 Recommended Waste Water Tributary Area Last Saved By: ddore Last Saved At: Apr. 4, 17

**IBI GROUP**
400-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

**SANITARY SEWER DESIGN SHEET**
**MER BLEUE Urban Expansion Area**
MSS Preferred Concept
CITY OF OTTAWA
Owners Group

| LOCATION | | | | RESIDENTIAL | | | | | | | | ICI AREAS | | | | | | | INFILTRATION ALLOWANCE | | | FIXED FLOW | TOTAL FLOW | PROPOSED SEWER DESIGN | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AREA (Ha) | AREA w/o units (pp/Ha) | | | POPULATION | | PEAK FACTOR | PEAK FLOW (L/s) | AREA (Ha) | | | | | | PEAK FLOW (L/s) | AREA (Ha) | | FLOW (L/s) | | | CAPACITY (L/s) | LENGTH (m) | DIA (mm) | SLOPE (%) | VELOCITY (full) (m/s) | AVAILABLE CAPACITY | |
| STREET | AREA ID | FROM MH | TO MH | | LOW 65 | MED 110 | HIGH 85 | IND | CUM | | | INSTITUTIONAL IND | INSTITUTIONAL CUM | COMMERCIAL IND | COMMERCIAL CUM | INDUSTRIAL IND | INDUSTRIAL CUM | | IND | CUM | | | | | | | | L/s | (%) |
| Northern Outlet - Bisson North-West, and lands North-East of McKinnon's Creek - To Existing Pump Station | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1002A | MH1002A | MH1003A | 0.39 | | | | 27.0 | 27.0 | 4.00 | 0.44 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.39 | 0.39 | 0.11 | 0.00 | 0.55 | 27.59 | 72.47 | 200 | 0.65 | 0.851 | 27.04 | 98.02% |
| | 1003A | MH1003A | MH1004A | 0.29 | | | | 24.3 | 51.3 | 4.00 | 0.83 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.29 | 0.68 | 0.19 | 0.00 | 1.02 | 20.24 | 56.87 | 200 | 0.35 | 0.624 | 19.22 | 94.95% |
| | 1004A | MH1004A | MH1005A | 0.10 | | | | 5.4 | 56.7 | 4.00 | 0.92 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.10 | 0.78 | 0.22 | 0.00 | 1.14 | 20.24 | 10.98 | 200 | 0.35 | 0.624 | 19.11 | 94.38% |
| | 1005A | MH1005A | MH1050A | 0.23 | | | | 27.0 | 83.7 | 4.00 | 1.36 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.23 | 1.01 | 0.28 | 0.00 | 1.64 | 20.24 | 41.48 | 200 | 0.35 | 0.624 | 18.60 | 91.90% |
| | 1205A | MH1205A | MH1206A | 0.55 | | | | 48.6 | 48.6 | 4.00 | 0.79 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.55 | 0.55 | 0.15 | 0.00 | 0.94 | 27.59 | 74.65 | 200 | 0.65 | 0.851 | 26.64 | 96.59% |
| | 1206A | MH1206A | MH1006A | 0.14 | | | | 8.1 | 56.7 | 4.00 | 0.92 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.14 | 0.69 | 0.19 | 0.00 | 1.11 | 20.24 | 10.04 | 200 | 0.35 | 0.624 | 19.13 | 94.51% |
| | 1006A | MH1006A | MH1050A | 0.24 | | | | 18.9 | 75.6 | 4.00 | 1.23 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.24 | 0.93 | 0.26 | 0.00 | 1.49 | 20.24 | 60.93 | 200 | 0.35 | 0.624 | 18.76 | 92.66% |
| | 1050A | MH1050A | MH1202A | 0.19 | | | | 21.6 | 180.9 | 4.00 | 2.93 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.19 | 2.13 | 0.60 | 0.00 | 3.53 | 20.24 | 67.60 | 200 | 0.35 | 0.624 | 16.72 | 82.57% |
| | 1001A | MH1001A | MH1000A | 0.37 | | | | 35.1 | 35.1 | 4.00 | 0.57 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.37 | 0.37 | 0.10 | 0.00 | 0.67 | 27.59 | 95.08 | 200 | 0.65 | 0.851 | 26.91 | 97.56% |
| | 1000A | MH1000A | MH1200A | 0.07 | | | | 2.7 | 37.8 | 4.00 | 0.61 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.07 | 0.44 | 0.12 | 0.00 | 0.74 | 20.24 | 8.89 | 200 | 0.35 | 0.624 | 19.51 | 96.37% |
| | 1200A | MH1200A | MH1201A | 0.18 | | | | 16.2 | 54.0 | 4.00 | 0.88 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.18 | 0.62 | 0.17 | 0.00 | 1.05 | 20.24 | 44.00 | 200 | 0.35 | 0.624 | 19.19 | 94.82% |
| | 1030A | MH1030A | MH1201A | 0.46 | | | | 70.2 | 70.2 | 4.00 | 1.14 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.46 | 0.46 | 0.13 | 0.00 | 1.27 | 27.59 | 101.95 | 200 | 0.65 | 0.851 | 26.32 | 95.41% |
| | 1201A | MH1201A | MH1201B | 0.17 | | | | 13.5 | 137.7 | 4.00 | 2.23 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.17 | 1.25 | 0.35 | 0.00 | 2.58 | 20.24 | 45.00 | 200 | 0.35 | 0.624 | 17.66 | 87.25% |
| | 1040A | MH1040A | MH1201B | 0.46 | | | | 70.2 | 70.2 | 4.00 | 1.14 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.46 | 0.46 | 0.13 | 0.00 | 1.27 | 27.59 | 101.94 | 200 | 0.65 | 0.851 | 26.32 | 95.41% |
| | 1201B | MH1201B | MH1202A | 0.20 | | | | 18.9 | 226.8 | 4.00 | 3.68 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.20 | 1.91 | 0.53 | 0.00 | 4.21 | 20.24 | 45.00 | 200 | 0.35 | 0.624 | 16.03 | 79.20% |
| | 1202A | MH1202A | MH1203A | 0.78 | | | | 78.3 | 486.0 | 3.98 | 7.84 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.78 | 4.82 | 1.35 | 0.00 | 9.19 | 20.24 | 119.64 | 200 | 0.35 | 0.624 | 11.06 | 54.62% |
| | 1203A | MH1203A | MH1070A | 0.62 | | | | 56.7 | 542.7 | 3.96 | 8.70 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.62 | 5.44 | 1.52 | 0.00 | 10.22 | 20.24 | 95.78 | 200 | 0.35 | 0.624 | 10.02 | 49.52% |
| | 1101A | MH1101A | MH1060A | 0.29 | | | | 20.4 | 20.4 | 4.00 | 0.33 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.29 | 0.29 | 0.08 | 0.00 | 0.41 | 36.69 | 42.63 | 200 | 1.15 | 1.131 | 36.28 | 98.88% |
| SCHOOL | 1100A | MH1100A | MH1060A | | | | | 0.0 | 0.0 | 4.00 | 0.00 | 5.24 | 5.24 | | 0.00 | | 0.00 | 4.55 | 5.24 | 5.24 | 1.47 | 0.00 | 6.02 | 24.19 | 19.50 | 200 | 0.50 | 0.746 | 18.18 | 75.14% |
| | 1060A | MH1060A | MH1020A | 0.64 | | | | 27.2 | 47.6 | 4.00 | 0.77 | | 5.24 | | 0.00 | | 0.00 | 4.55 | 0.64 | 6.17 | 1.73 | 0.00 | 7.05 | 20.24 | 120.00 | 200 | 0.35 | 0.624 | 13.20 | 65.19% |
| PARK | 1207A | MH1207A | MH1020A | 0.86 | | | | 0.0 | 0.0 | 4.00 | 0.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.86 | 0.86 | 0.24 | 0.00 | 0.24 | 34.22 | 13.88 | 200 | 1.00 | 1.055 | 33.98 | 99.30% |
| | 1020A | MH1020A | MH1070A | 0.12 | | | | 3.4 | 51.0 | 4.00 | 0.83 | | 5.24 | | 0.00 | | 0.00 | 4.55 | 0.12 | 7.15 | 2.00 | 0.00 | 7.38 | 20.24 | 44.87 | 200 | 0.35 | 0.624 | 12.87 | 63.56% |
| | 1070A | MH1070A | MH1080A | 0.46 | | | | 34.0 | 627.7 | 3.92 | 9.97 | | 5.24 | | 0.00 | | 0.00 | 4.55 | 0.46 | 13.05 | 3.65 | 0.00 | 18.17 | 45.12 | 73.81 | 300 | 0.20 | 0.618 | 26.94 | 59.72% |
| | 1800A | MH1800A | MH1081A | 0.19 | | | | 6.8 | 6.8 | 4.00 | 0.11 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.19 | 0.19 | 0.05 | 0.00 | 0.16 | 27.59 | 11.60 | 200 | 0.65 | 0.851 | 27.42 | 99.41% |
| | 1801A | MH1801A | MH1080A | 0.40 | | | | 23.8 | 30.6 | 4.00 | 0.50 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.40 | 0.59 | 0.17 | 0.00 | 0.66 | 20.24 | 92.15 | 200 | 0.35 | 0.624 | 19.58 | 96.73% |
| | 1080A | MH1080A | MH1090A | 0.50 | | | | 44.2 | 702.5 | 3.89 | 11.08 | | 5.24 | | 0.00 | | 0.00 | 4.55 | 0.50 | 14.14 | 3.96 | 0.00 | 19.59 | 45.12 | 75.20 | 300 | 0.20 | 0.618 | 25.53 | 56.58% |
| | 1930A | MH1930A | MH1090A | 0.49 | | | | 30.6 | 30.6 | 4.00 | 0.50 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.49 | 0.49 | 0.14 | 0.00 | 0.63 | 27.59 | 100.61 | 200 | 0.65 | 0.851 | 26.95 | 97.71% |
| | 1090A | MH1090A | MH1091A | 0.26 | | | | 17.0 | 750.1 | 3.88 | 11.78 | | 5.24 | | 0.00 | | 0.00 | 4.55 | 0.26 | 14.89 | 4.17 | 0.00 | 20.50 | 45.12 | 62.83 | 300 | 0.20 | 0.618 | 24.62 | 54.56% |
| | 1900A | MH1900A | MH1901A | 0.94 | | | | 61.2 | 61.2 | 4.00 | 0.99 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.94 | 0.94 | 0.26 | 0.00 | 1.25 | 27.59 | 90.84 | 200 | 0.65 | 0.851 | 26.33 | 95.45% |
| | 1901A | MH1901A | MH1910A | 0.57 | | | | 47.6 | 108.8 | 4.00 | 1.76 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.57 | 1.51 | 0.42 | 0.00 | 2.19 | 20.24 | 81.75 | 200 | 0.35 | 0.624 | 18.06 | 89.20% |
| | 1903A | MH1903A | MH1904A | 0.40 | | | | 30.6 | 30.6 | 4.00 | 0.50 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.40 | 0.40 | 0.11 | 0.00 | 0.61 | 27.59 | 55.56 | 200 | 0.65 | 0.851 | 26.98 | 97.80% |
| | 1904A | MH1904A | MH1910A | 0.80 | | | | 64.6 | 95.2 | 4.00 | 1.54 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.80 | 1.20 | 0.34 | 0.00 | 1.88 | 20.24 | 115.79 | 200 | 0.35 | 0.624 | 18.36 | 90.72% |
| | 1910A | MH19010A | MH1920A | 0.11 | | | | 0.0 | 204.0 | 4.00 | 3.31 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.11 | 2.82 | 0.79 | 0.00 | 4.10 | 20.24 | 72.00 | 200 | 0.35 | 0.624 | 16.15 | 79.77% |
| | 1101B | MH1101A | MH1102A | 0.38 | | | | 34.0 | 34.0 | 4.00 | 0.55 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.38 | 0.38 | 0.11 | 0.00 | 0.66 | 28.63 | 57.79 | 200 | 0.70 | 0.883 | 27.97 | 97.70% |
| | 1102A | MH1102A | MH1920A | 0.53 | | | | 47.6 | 81.6 | 4.00 | 1.32 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.53 | 0.91 | 0.25 | 0.00 | 1.58 | 28.63 | 80.89 | 200 | 0.70 | 0.883 | 27.05 | 94.49% |
| | 1923A/1903B | MH1903A | MH1924A | 0.27 | | | | 20.4 | 20.4 | 4.00 | 0.33 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.27 | 0.27 | 0.08 | 0.00 | 0.41 | 27.59 | 64.27 | 200 | 0.65 | 0.851 | 27.18 | 98.53% |
| | 1924A | MH1924A | MH1925A | 0.02 | | | | 0.0 | 20.4 | 4.00 | 0.33 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.02 | 0.29 | 0.08 | 0.00 | 0.41 | 20.24 | 10.96 | 200 | 0.35 | 0.624 | 19.83 | 97.97% |
| | 1925A | MH1925A | MH1926A | 0.50 | | | | 34.0 | 54.4 | 4.00 | 0.88 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.50 | 0.79 | 0.22 | 0.00 | 1.10 | 20.24 | 91.37 | 200 | 0.35 | 0.624 | 19.14 | 94.55% |
| | 1926A | MH1926A | MH1920A | 0.47 | | | | 40.8 | 95.2 | 4.00 | 1.54 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.47 | 1.26 | 0.35 | 0.00 | 1.90 | 20.24 | 71.89 | 200 | 0.35 | 0.624 | 18.35 | 90.64% |
| | 1920A | MH1920A | MH1930A | 0.11 | | | | 0.0 | 380.8 | 4.00 | 6.17 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.11 | 5.10 | 1.43 | 0.00 | 7.60 | 20.24 | 72.00 | 200 | 0.35 | 0.624 | 12.64 | 62.46% |
| | 1800B | MH1800A | MH1930A | 0.55 | | | | 44.2 | 44.2 | 4.00 | 0.72 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.55 | 0.55 | 0.15 | 0.00 | 0.87 | 43.95 | 82.09 | 200 | 1.65 | 1.355 | 43.08 | 98.02% |
| | 1930B | MH1930A | MH1932A | 0.25 | | | | 17.0 | 442.0 | 4.00 | 7.16 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.25 | 5.90 | 1.65 | 0.00 | 8.81 | 20.24 | 64.59 | 200 | 0.35 | 0.624 | 11.43 | 56.46% |
| | 1932A | MH1932A | MH1940A | 0.16 | | | | 6.8 | 448.8 | 4.00 | 7.27 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.16 | 6.06 | 1.70 | 0.00 | 8.97 | 20.24 | 11.54 | 200 | 0.35 | 0.624 | 11.28 | 55.71% |
| | 1940A | MH1940A | MH1941A | 0.66 | | | | 47.6 | 496.4 | 3.98 | 7.99 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.66 | 6.72 | 1.88 | 0.00 | 9.88 | 20.24 | 85.55 | 200 | 0.35 | 0.624 | 10.37 | 51.21% |
| | 1941A | MH1941A | MH1091A | 0.18 | | | | 6.8 | 503.2 | 3.97 | 8.10 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.18 | 6.90 | 1.93 | 0.00 | 10.03 | 20.24 | 11.70 | 200 | 0.35 | 0.624 | 10.21 | 50.45% |

**IBI GROUP**
400-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

**SANITARY SEWER DESIGN SHEET**
**MER BLEUE Urban Expansion Area**
MSS Preferred Concept
CITY OF OTTAWA
Owners Group

| LOCATION | | | | RESIDENTIAL | | | | | | | ICI AREAS | | | | | | | INFILTRATION ALLOWANCE | | | FIXED FLOW | TOTAL FLOW | PROPOSED SEWER DESIGN | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AREA (Ha) | AREA w/o units (pp/Ha) | | | POPULATION | | PEAK FACTOR | PEAK FLOW (L/s) | AREA (Ha) | | | | | | PEAK FLOW (L/s) | AREA (Ha) | | FLOW (L/s) | | | CAPACITY (L/s) | LENGTH (m) | DIA (mm) | SLOPE (%) | VELOCITY (full) (m/s) | AVAILABLE CAPACITY | |
| STREET | AREA ID | FROM MH | TO MH | | LOW 65 | MED 110 | HIGH 85 | IND | CUM | | | INSTITUTIONAL IND | INSTITUTIONAL CUM | COMMERCIAL IND | COMMERCIAL CUM | INDUSTRIAL IND | INDUSTRIAL CUM | | IND | CUM | | (L/s) | (L/s) | | | | | L/s | (%) |
| | 1091A | MH1091A | MH7000A | 0.04 | | | | 0.0 | 1253.3 | 3.73 | 18.96 | | 5.24 | | 0.00 | | 0.00 | 4.55 | 0.04 | 21.83 | 6.11 | 0.00 | 29.62 | 45.12 | 49.41 | 300 | 0.20 | 0.618 | 15.49 | 34.34% |
| | | MH7000A | MH7001A | | | | | 0.0 | 1253.3 | 3.73 | 18.96 | | 5.24 | | 0.00 | | 0.00 | 4.55 | 0.00 | 21.83 | 6.11 | 0.00 | 29.62 | 45.12 | 99.51 | 300 | 0.20 | 0.618 | 15.49 | 34.34% |
| | | MH7001A | MH7002A | | | | | 0.0 | 1253.3 | 3.73 | 18.96 | | 5.24 | | 0.00 | | 0.00 | 4.55 | 0.00 | 21.8 | 6.11 | 0.00 | 29.62 | 36.37 | 93.75 | 300 | 0.13 | 0.498 | 6.75 | 18.56% |
| | | MH7002A | MH7003A | | | | | 0.0 | 1253.3 | 3.73 | 18.96 | | 5.24 | | 0.00 | | 0.00 | 4.55 | 0.00 | 21.8 | 6.11 | 0.00 | 29.62 | 45.12 | 120.00 | 300 | 0.20 | 0.618 | 15.49 | 34.34% |
| | | MH7003A | MH7004A | | | | | 0.0 | 1253.3 | 3.73 | 18.96 | | 5.24 | | 0.00 | | 0.00 | 4.55 | 0.00 | 21.8 | 6.11 | 0.00 | 29.62 | 45.12 | 120.00 | 300 | 0.20 | 0.618 | 15.49 | 34.34% |
| | | MH7004A | MH7005A | | | | | 0.0 | 1253.3 | 3.73 | 18.96 | | 5.24 | | 0.00 | | 0.00 | 4.55 | 0.00 | 21.8 | 6.11 | 0.00 | 29.62 | 59.68 | 56.58 | 300 | 0.35 | 0.818 | 30.06 | 50.37% |
| | | MH7005A | MH7006A | | | | | 0.0 | 1253.3 | 3.73 | 18.96 | | 5.24 | | 0.00 | | 0.00 | 4.55 | 0.00 | 21.8 | 6.11 | 0.00 | 29.62 | 42.80 | 14.74 | 300 | 0.18 | 0.587 | 13.18 | 30.79% |
| | | MH7006A | MH7007A | | | | | 0.0 | 1253.3 | 3.73 | 18.96 | | 5.24 | | 0.00 | | 0.00 | 4.55 | 0.00 | 21.8 | 6.11 | 0.00 | 29.62 | 45.12 | 99.79 | 300 | 0.20 | 0.618 | 15.49 | 34.34% |
| | 3026A | MH3026A | MH3027A | | 0.67 | | | 43.6 | 43.6 | 4.00 | 0.71 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.67 | 0.7 | 0.19 | 0.00 | 0.89 | 20.24 | 119.73 | 200 | 0.35 | 0.624 | 19.35 | 95.59% |
| | | MH3027A | MH3023A | | | | | 0.0 | 43.6 | 4.00 | 0.71 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.7 | 0.19 | 0.00 | 0.89 | 20.24 | 13.12 | 200 | 0.35 | 0.624 | 19.35 | 95.59% |
| | 3023A | MH3023A | MH3024A | | 1.08 | | | 70.2 | 113.8 | 4.00 | 1.84 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.08 | 1.8 | 0.49 | 0.00 | 2.33 | 20.24 | 71.39 | 200 | 0.35 | 0.624 | 17.91 | 88.47% |
| | | MH3024A | MH3025A | | | | | 0.0 | 113.8 | 4.00 | 1.84 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.8 | 0.49 | 0.00 | 2.33 | 20.24 | 71.97 | 200 | 0.35 | 0.624 | 17.91 | 88.47% |
| | | MH3025A | MH3324A | | | | | 0.0 | 113.8 | 4.00 | 1.84 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.8 | 0.49 | 0.00 | 2.33 | 20.24 | 12.85 | 200 | 0.35 | 0.624 | 17.91 | 88.47% |
| | | MH3324A | MH3325A | | | | | 0.0 | 113.8 | 4.00 | 1.84 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.8 | 0.49 | 0.00 | 2.33 | 20.24 | 28.75 | 200 | 0.35 | 0.624 | 17.91 | 88.47% |
| | 3320A | MH3320A | MH3322A | | 1.03 | | | 67.0 | 67.0 | 4.00 | 1.08 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.03 | 1.0 | 0.29 | 0.00 | 1.37 | 20.24 | 113.47 | 200 | 0.35 | 0.624 | 18.87 | 93.22% |
| | | MH3322A | MH3323A | | | | | 0.0 | 67.0 | 4.00 | 1.08 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.0 | 0.29 | 0.00 | 1.37 | 20.24 | 12.88 | 200 | 0.35 | 0.624 | 18.87 | 93.22% |
| | | MH3323A | MH3325A | | | | | 0.0 | 67.0 | 4.00 | 1.08 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.0 | 0.29 | 0.00 | 1.37 | 20.24 | 25.74 | 200 | 0.35 | 0.624 | 18.87 | 93.22% |
| | 3325A | MH3325A | MH7007A | | 0.73 | | | 47.5 | 228.2 | 4.00 | 3.70 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.73 | 3.5 | 0.98 | 0.00 | 4.68 | 20.24 | 42.56 | 200 | 0.35 | 0.624 | 15.56 | 76.88% |
| | | MH7007A | MH7008A | | | | | 0.0 | 1481.5 | 3.68 | 22.11 | | 5.24 | | 0.00 | | 0.00 | 4.55 | 0.00 | 25.3 | 7.10 | 0.00 | 33.75 | 81.80 | 110.11 | 375 | 0.20 | 0.717 | 48.05 | 58.74% |
| | 2000A | MH2000A | MH2001A | | | | 2.41 | 204.9 | 204.9 | 4.00 | 3.32 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 2.41 | 2.4 | 0.67 | 0.00 | 3.99 | 20.24 | 29.67 | 200 | 0.35 | 0.624 | 16.25 | 80.27% |
| | 2001A | MH2001A | MH2002A | | 0.87 | | | 56.6 | 261.4 | 4.00 | 4.24 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.87 | 3.3 | 0.92 | 0.00 | 5.15 | 20.24 | 73.57 | 200 | 0.35 | 0.624 | 15.09 | 74.54% |
| | | MH2002A | MH2003A | | | | | 0.0 | 261.4 | 4.00 | 4.24 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 3.3 | 0.92 | 0.00 | 5.15 | 20.24 | 81.60 | 200 | 0.35 | 0.624 | 15.09 | 74.54% |
| | | MH2003A | MH2004A | | | | | 0.0 | 261.4 | 4.00 | 4.24 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 3.3 | 0.92 | 0.00 | 5.15 | 20.24 | 20.25 | 200 | 0.35 | 0.624 | 15.09 | 74.54% |
| | | MH2004A | MH2010A | | | | | 0.0 | 261.4 | 4.00 | 4.24 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 3.3 | 0.92 | 0.00 | 5.15 | 20.24 | 58.54 | 200 | 0.35 | 0.624 | 15.09 | 74.54% |
| | 2100A | MH2100A | MH2101A | | 1.34 | | | 87.1 | 87.1 | 4.00 | 1.41 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.34 | 1.3 | 0.38 | 0.00 | 1.79 | 20.24 | 56.95 | 200 | 0.35 | 0.624 | 18.46 | 91.17% |
| | | MH2101A | MH2102A | | | | | 0.0 | 87.1 | 4.00 | 1.41 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.3 | 0.38 | 0.00 | 1.79 | 20.24 | 8.41 | 200 | 0.35 | 0.624 | 18.46 | 91.17% |
| | | MH2102A | MH2103A | | | | | 0.0 | 87.1 | 4.00 | 1.41 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.3 | 0.38 | 0.00 | 1.79 | 20.24 | 120.00 | 200 | 0.35 | 0.624 | 18.46 | 91.17% |
| | | MH2103A | MH2010A | | | | | 0.0 | 87.1 | 4.00 | 1.41 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.3 | 0.38 | 0.00 | 1.79 | 20.24 | 53.73 | 200 | 0.35 | 0.624 | 18.46 | 91.17% |
| | 2111A | MH2111A | MH2112A | | 0.47 | | | 30.6 | 30.6 | 4.00 | 0.50 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.47 | 0.5 | 0.13 | 0.00 | 0.63 | 20.24 | 15.34 | 200 | 0.35 | 0.624 | 19.62 | 96.90% |
| | | MH2112A | MH2010A | | | | | 0.0 | 30.6 | 4.00 | 0.50 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.5 | 0.13 | 0.00 | 0.63 | 20.24 | 29.01 | 200 | 0.35 | 0.624 | 19.62 | 96.90% |
| | 2010A | MH2010A | MH2020A | | 0.12 | | | 7.8 | 386.9 | 4.00 | 6.27 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.12 | 5.2 | 1.46 | 0.00 | 7.73 | 20.24 | 72.03 | 200 | 0.35 | 0.624 | 12.52 | 61.83% |
| | 2200A | MH2200A | MH2201A | | 1.39 | | | 90.4 | 90.4 | 4.00 | 1.46 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.39 | 1.4 | 0.39 | 0.00 | 1.85 | 20.24 | 84.16 | 200 | 0.35 | 0.624 | 18.39 | 90.85% |
| | | MH2201A | MH2020A | | | | | 0.0 | 90.4 | 4.00 | 1.46 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.4 | 0.39 | 0.00 | 1.85 | 20.24 | 100.01 | 200 | 0.35 | 0.624 | 18.39 | 90.85% |
| | 2211A | MH2211A | MH2212A | | 1.14 | | | 74.1 | 74.1 | 4.00 | 1.20 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.14 | 1.1 | 0.32 | 0.00 | 1.52 | 20.24 | 16.38 | 200 | 0.35 | 0.624 | 18.72 | 92.49% |
| | | MH2212A | MH2020A | | | | | 0.0 | 74.1 | 4.00 | 1.20 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.1 | 0.32 | 0.00 | 1.52 | 20.24 | 106.82 | 200 | 0.35 | 0.624 | 18.72 | 92.49% |
| | 2020A | MH2020A | MH2030A | | 0.12 | | | 7.8 | 559.1 | 3.95 | 8.94 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.12 | 7.9 | 2.20 | 0.00 | 11.14 | 20.24 | 74.99 | 200 | 0.35 | 0.624 | 9.10 | 44.95% |
| | 2300A | MH2300A | MH2301A | | 1.21 | | | 78.7 | 78.7 | 4.00 | 1.27 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.21 | 1.2 | 0.34 | 0.00 | 1.61 | 20.24 | 84.80 | 200 | 0.35 | 0.624 | 18.63 | 92.03% |
| | | MH2301A | MH2030A | | | | | 0.0 | 78.7 | 4.00 | 1.27 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.2 | 0.34 | 0.00 | 1.61 | 20.24 | 85.21 | 200 | 0.35 | 0.624 | 18.63 | 92.03% |
| | 2502A | MH2502A | MH2501A | | 1.04 | | | 67.6 | 67.6 | 4.00 | 1.10 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.04 | 1.0 | 0.29 | 0.00 | 1.39 | 20.24 | 66.06 | 200 | 0.35 | 0.624 | 18.86 | 93.15% |
| | | MH2501A | MH2030A | | | | | 0.0 | 67.6 | 4.00 | 1.10 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.0 | 0.29 | 0.00 | 1.39 | 20.24 | 69.39 | 200 | 0.35 | 0.624 | 18.86 | 93.15% |
| | 2030A | MH2030A | MH2040A | | 0.11 | | | 7.2 | 712.5 | 3.89 | 11.23 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.11 | 10.2 | 2.86 | 0.00 | 14.09 | 20.24 | 72.02 | 200 | 0.35 | 0.624 | 6.15 | 30.40% |
| | 2400A | MH2400A | MH2401A | | 1.62 | | | 105.3 | 105.3 | 4.00 | 1.71 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.62 | 1.6 | 0.45 | 0.00 | 2.16 | 20.24 | 60.15 | 200 | 0.35 | 0.624 | 18.08 | 89.33% |
| | | MH2401A | MH2402A | | | | | 0.0 | 105.3 | 4.00 | 1.71 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.6 | 0.45 | 0.00 | 2.16 | 20.24 | 8.40 | 200 | 0.35 | 0.624 | 18.08 | 89.33% |
| | | MH2402A | MH2403A | | | | | 0.0 | 105.3 | 4.00 | 1.71 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.6 | 0.45 | 0.00 | 2.16 | 20.24 | 89.66 | 200 | 0.35 | 0.624 | 18.08 | 89.33% |
| | | MH2403A | MH2040A | | | | | 0.0 | 105.3 | 4.00 | 1.71 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.6 | 0.45 | 0.00 | 2.16 | 20.24 | 80.03 | 200 | 0.35 | 0.624 | 18.08 | 89.33% |
| | 2503A | MH2503A | MH2504A | | 1.01 | | | 65.7 | 65.7 | 4.00 | 1.06 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.01 | 1.0 | 0.28 | 0.00 | 1.35 | 20.24 | 56.43 | 200 | 0.35 | 0.624 | 18.90 | 93.35% |
| | | MH2504A | MH2042A | | | | | 0.0 | 65.7 | 4.00 | 1.06 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.0 | 0.28 | 0.00 | 1.35 | 20.24 | 9.22 | 200 | 0.35 | 0.624 | 18.90 | 93.35% |
| | | MH2042A | MH2041A | | | | | 0.0 | 65.7 | 4.00 | 1.06 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.0 | 0.28 | 0.00 | 1.35 | 20.24 | 68.83 | 200 | 0.35 | 0.624 | 18.90 | 93.35% |
| | | MH2041A | MH2040A | | | | | 0.0 | 65.7 | 4.00 | 1.06 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.0 | 0.28 | 0.00 | 1.35 | 20.24 | 68.79 | 200 | 0.35 | 0.624 | 18.90 | 93.35% |
| | 2040A | MH2040A | MH3100A | | 0.12 | | | 7.8 | 891.3 | 3.83 | 13.83 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.12 | 13.0 | 3.63 | 0.00 | 17.47 | 31.02 | 38.69 | 250 | 0.25 | 0.612 | 13.55 | 43.70% |
| | | MH3100A | MH3010A | | | | | 0.0 | 891.3 | 3.83 | 13.83 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 13.0 | 3.63 | 0.00 | 17.47 | 31.02 | 33.71 | 250 | 0.25 | 0.612 | 13.55 | 43.70% |

**IBI GROUP**
400-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

**SANITARY SEWER DESIGN SHEET**
**MER BLEUE Urban Expansion Area**
MSS Preferred Concept
CITY OF OTTAWA
Owners Group

| LOCATION | | | | RESIDENTIAL | | | | | | | | ICI AREAS | | | | | | | INFILTRATION ALLOWANCE | | | FIXED FLOW | TOTAL FLOW | PROPOSED SEWER DESIGN | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AREA (Ha) | AREA w/o units (pp/Ha) | | | POPULATION | | PEAK FACTOR | PEAK FLOW (L/s) | AREA (Ha) | | | | | | PEAK FLOW (L/s) | AREA (Ha) | | FLOW (L/s) | (L/s) | (L/s) | CAPACITY (L/s) | LENGTH (m) | DIA (mm) | SLOPE (%) | VELOCITY (full) (m/s) | AVAILABLE CAPACITY | |
| STREET | AREA ID | FROM MH | TO MH | | LOW 65 | MED 110 | HIGH 85 | IND | CUM | | | INSTITUTIONAL IND | INSTITUTIONAL CUM | COMMERCIAL IND | COMMERCIAL CUM | INDUSTRIAL IND | INDUSTRIAL CUM | | IND | CUM | | | | | | | | L/s | (%) |
| | 3004A | MH3004A | MH3000A | | | 0.39 | | 42.9 | 42.9 | 4.00 | 0.70 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.39 | 0.4 | 0.11 | 0.00 | 0.80 | 20.24 | 86.37 | 200 | 0.35 | 0.624 | 19.44 | 96.03% |
| | | MH3000A | MH3001A | | | | | 0.0 | 42.9 | 4.00 | 0.70 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.4 | 0.11 | 0.00 | 0.80 | 20.24 | 11.07 | 200 | 0.35 | 0.624 | 19.44 | 96.03% |
| | | MH3001A | MH3002A | | | | | 0.0 | 42.9 | 4.00 | 0.70 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.4 | 0.11 | 0.00 | 0.80 | 20.24 | 36.40 | 200 | 0.35 | 0.624 | 19.44 | 96.03% |
| | 3210B | MH3210A | MH3002A | | | 0.33 | | 36.3 | 36.3 | 4.00 | 0.59 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.33 | 0.3 | 0.09 | 0.00 | 0.68 | 20.24 | 70.50 | 200 | 0.35 | 0.624 | 19.56 | 96.64% |
| | 3002A | MH3002A | MH3003A | | 0.62 | | | 40.3 | 119.5 | 4.00 | 1.94 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.62 | 1.3 | 0.38 | 0.00 | 2.31 | 20.24 | 67.53 | 200 | 0.35 | 0.624 | 17.93 | 88.58% |
| | | MH3003A | MH3010A | | | | | 0.0 | 119.5 | 4.00 | 1.94 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.3 | 0.38 | 0.00 | 2.31 | 20.24 | 66.37 | 200 | 0.35 | 0.624 | 17.93 | 88.58% |
| | 3010A | MH3010A | MH3011A | | 0.11 | | | 7.2 | 1017.9 | 3.80 | 15.65 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.11 | 14.4 | 4.04 | 0.00 | 19.69 | 31.02 | 20.97 | 250 | 0.25 | 0.612 | 11.33 | 36.54% |
| PARK | 3101A | MH3101A | MH3011A | 1.66 | | | | 0.0 | 0.0 | 4.00 | 0.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.66 | 1.7 | 0.46 | 0.00 | 0.46 | 20.24 | 11.00 | 200 | 0.35 | 0.624 | 19.78 | 97.70% |
| | | MH3011A | MH3020A | | | | | 0.0 | 1017.9 | 3.80 | 15.65 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 16.1 | 4.50 | 0.00 | 20.15 | 31.02 | 49.53 | 250 | 0.25 | 0.612 | 10.87 | 35.04% |
| | 3004B | MH3004A | MH3201A | | | 0.79 | | 86.9 | 86.9 | 4.00 | 1.41 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.79 | 0.8 | 0.22 | 0.00 | 1.63 | 20.24 | 38.08 | 200 | 0.35 | 0.624 | 18.61 | 91.95% |
| | | MH3201A | MH3202A | | | | | 0.0 | 86.9 | 4.00 | 1.41 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.8 | 0.22 | 0.00 | 1.63 | 20.24 | 10.91 | 200 | 0.35 | 0.624 | 18.61 | 91.95% |
| | | MH3202A | MH3203A | | | | | 0.0 | 86.9 | 4.00 | 1.41 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.8 | 0.22 | 0.00 | 1.63 | 20.24 | 28.73 | 200 | 0.35 | 0.624 | 18.61 | 91.95% |
| | | MH3203A | MH3204A | | | | | 0.0 | 86.9 | 4.00 | 1.41 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.8 | 0.22 | 0.00 | 1.63 | 20.24 | 11.04 | 200 | 0.35 | 0.624 | 18.61 | 91.95% |
| | | MH3204A | MH3210A | | | | | 0.0 | 86.9 | 4.00 | 1.41 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.8 | 0.22 | 0.00 | 1.63 | 20.24 | 61.76 | 200 | 0.35 | 0.624 | 18.61 | 91.95% |
| | 3210A | MH3210A | MH3220A | | | 0.20 | | 22.0 | 108.9 | 4.00 | 1.76 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.20 | 1.0 | 0.28 | 0.00 | 2.04 | 20.24 | 69.00 | 200 | 0.35 | 0.624 | 18.20 | 89.91% |
| | 3221A | MH3221A | MH3220A | | | 0.41 | | 45.1 | 45.1 | 4.00 | 0.73 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.41 | 0.4 | 0.11 | 0.00 | 0.85 | 20.24 | 82.28 | 200 | 0.35 | 0.624 | 19.40 | 95.82% |
| | 3220A | MH3220A | MH3020A | | | 0.31 | | 34.1 | 188.1 | 4.00 | 3.05 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.31 | 1.7 | 0.48 | 0.00 | 3.53 | 20.24 | 64.23 | 200 | 0.35 | 0.624 | 16.72 | 82.58% |
| | 3020A | MH3020A | MH3022A | | 0.17 | | | 11.1 | 1217.1 | 3.74 | 18.46 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.17 | 18.0 | 5.03 | 0.00 | 23.48 | 31.02 | 45.00 | 250 | 0.25 | 0.612 | 7.54 | 24.29% |
| | 3021A | MH3021A | MH3022A | | | 0.21 | | 23.1 | 23.1 | 4.00 | 0.37 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.21 | 0.2 | 0.06 | 0.00 | 0.43 | 20.24 | 50.78 | 200 | 0.35 | 0.624 | 19.81 | 97.86% |
| | 3022A | MH3022A | MH3313A | | 0.19 | | | 12.4 | 1252.5 | 3.73 | 18.95 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.19 | 18.4 | 5.14 | 0.00 | 24.09 | 31.02 | 45.00 | 250 | 0.25 | 0.612 | 6.93 | 22.34% |
| | 3221B | MH3221A | MH3314A | | | 0.35 | | 38.5 | 38.5 | 4.00 | 0.62 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.35 | 0.4 | 0.10 | 0.00 | 0.72 | 20.24 | 10.93 | 200 | 0.35 | 0.624 | 19.52 | 96.43% |
| | | MH3314A | MH3313A | | | | | 0.0 | 38.5 | 4.00 | 0.62 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.4 | 0.10 | 0.00 | 0.72 | 20.24 | 55.68 | 200 | 0.35 | 0.624 | 19.52 | 96.43% |
| | 3313A | MH3313A | MH3315A | | 0.26 | | | 16.9 | 1307.9 | 3.72 | 19.72 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.26 | 19.0 | 5.31 | 0.00 | 25.03 | 31.02 | 61.31 | 250 | 0.25 | 0.612 | 5.99 | 19.31% |
| | | MH3315A | MH3303A | | | | | 0.0 | 1307.9 | 3.72 | 19.72 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 19.0 | 5.31 | 0.00 | 25.03 | 31.02 | 11.50 | 250 | 0.25 | 0.612 | 5.99 | 19.31% |
| | 3300A | MH3300A | MH3301A | | 1.67 | | | 108.6 | 108.6 | 4.00 | 1.76 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.67 | 1.7 | 0.47 | 0.00 | 2.23 | 27.59 | 34.76 | 200 | 0.65 | 0.851 | 25.36 | 91.93% |
| | | MH3301A | MH3302A | | | | | 0.0 | 108.6 | 4.00 | 1.76 | | 0.00 | | 0.00 | | 0.00 | 0.00 | | 1.7 | 0.47 | 0.00 | 2.23 | 21.64 | 53.37 | 200 | 0.40 | 0.667 | 19.41 | 89.71% |
| | | MH3302A | MH3303A | | | | | 0.0 | 108.6 | 4.00 | 1.76 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.7 | 0.47 | 0.00 | 2.23 | 26.50 | 85.36 | 200 | 0.60 | 0.817 | 24.28 | 91.60% |
| | | MH3303A | MH7008A | | | | | 0.0 | 1416.5 | 3.70 | 21.22 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 20.6 | 5.78 | 0.00 | 26.99 | 100.18 | 42.38 | 375 | 0.30 | 0.879 | 73.19 | 73.05% |
| | | MH7008A | MH7009A | | | | | 0.0 | 2897.9 | 3.46 | 40.56 | | 5.24 | | 0.00 | | 0.00 | 4.55 | 0.00 | 46.0 | 12.87 | 0.00 | 57.98 | 133.02 | 105.62 | 450 | 0.20 | 0.810 | 75.03 | 56.41% |
| | | MH7009A | MH7010A | | | | | 0.0 | 2897.9 | 3.46 | 40.56 | | 5.24 | | 0.00 | | 0.00 | 4.55 | 0.00 | 46.0 | 12.87 | 0.00 | 57.98 | 133.02 | 65.50 | 450 | 0.20 | 0.810 | 75.03 | 56.41% |
| | | MH7010A | MH8009A | | | | | 0.0 | 2897.9 | 3.46 | 40.56 | | 5.24 | | 0.00 | | 0.00 | 4.55 | 0.00 | 46.0 | 12.87 | 0.00 | 57.98 | 133.02 | 18.21 | 450 | 0.20 | 0.810 | 75.03 | 56.41% |
| | | | | 18.25 | 17.09 | 2.99 | 2.41 | 1644.6 | FALSE | | | 5.24 | TRUE | 0.00 | TRUE | 0.00 | TRUE | | 45.98 | TRUE | | | | | | | | | |
| | | | | | | | | 40.7 | | | | | | | | | | | 45.98 | TRUE | | | | | | | | | |

**IBI GROUP**
400-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

**SANITARY SEWER DESIGN SHEET**
**MER BLEUE Urban Expansion Area**
MSS Preferred Concept
CITY OF OTTAWA
Owners Group

| LOCATION | | | | RESIDENTIAL | | | | | | | | ICI AREAS | | | | | | | INFILTRATION ALLOWANCE | | | FIXED | TOTAL | PROPOSED SEWER DESIGN | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AREA | AREA w/o units (pp/Ha) | | | POPULATION | | PEAK | PEAK | AREA (Ha) | | | | | | PEAK | AREA (Ha) | | FLOW | FLOW | FLOW | CAPACITY | LENGTH | DIA | SLOPE | VELOCITY | AVAILABLE CAPACITY | |
| | | | | | | | | | | | | INSTITUTIONAL | | COMMERCIAL | | INDUSTRIAL | | | | | | | | | | | | | |
| STREET | AREA ID | FROM MH | TO MH | (Ha) | LOW 65 | MED 110 | HIGH 85 | IND | CUM | FACTOR | FLOW (L/s) | IND | CUM | IND | CUM | IND | CUM | FLOW (L/s) | IND | CUM | (L/s) | (L/s) | (L/s) | (L/s) | (m) | (mm) | (%) | (full) (m/s) | L/s | (%) |
| Central Outlet - Lands Immediately South-West of McKinnon's Creek (Gravity to Tenth Line) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4000A/B/C | MH4000A | MH4001A | 0.40 | | 2.57 | | 282.7 | 282.7 | 4.00 | 4.58 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 2.97 | 2.97 | 0.83 | 0.00 | 5.41 | 20.24 | 34.46 | 200 | 0.35 | 0.624 | 14.83 | 73.26% |
| | | MH4001A | MH4002A | | | | | 0.0 | 282.7 | 4.00 | 4.58 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 2.97 | 0.83 | 0.00 | 5.41 | 20.24 | 44.39 | 200 | 0.35 | 0.624 | 14.83 | 73.26% |
| | | MH4002A | MH4010A | | | | | 0.0 | 282.7 | 4.00 | 4.58 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 2.97 | 0.83 | 0.00 | 5.41 | 20.24 | 45.99 | 200 | 0.35 | 0.624 | 14.83 | 73.26% |
| | 4010A | MH4010A | MH4011A | 0.52 | | | | 0.0 | 282.7 | 4.00 | 4.58 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.52 | 3.49 | 0.98 | 0.00 | 5.56 | 20.24 | 42.82 | 200 | 0.35 | 0.624 | 14.68 | 72.54% |
| | | MH4011A | MH4012A | | | | | 0.0 | 282.7 | 4.00 | 4.58 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 3.49 | 0.98 | 0.00 | 5.56 | 20.24 | 93.46 | 200 | 0.35 | 0.624 | 14.68 | 72.54% |
| | 4107A | MH4107A | MH4101A | | | 1.61 | | 177.1 | 177.1 | 4.00 | 2.87 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.61 | 1.61 | 0.45 | 0.00 | 3.32 | 20.24 | 82.00 | 200 | 0.35 | 0.624 | 16.92 | 83.60% |
| | | MH4101A | MH4102A | | | | | 0.0 | 177.1 | 4.00 | 2.87 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.61 | 0.45 | 0.00 | 3.32 | 20.24 | 43.88 | 200 | 0.35 | 0.624 | 16.92 | 83.60% |
| | | MH4102A | MH4103A | | | | | 0.0 | 177.1 | 4.00 | 2.87 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.61 | 0.45 | 0.00 | 3.32 | 20.24 | 47.64 | 200 | 0.35 | 0.624 | 16.92 | 83.60% |
| | | MH4103A | MH4104A | | | | | 0.0 | 177.1 | 4.00 | 2.87 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.61 | 0.45 | 0.00 | 3.32 | 20.24 | 53.38 | 200 | 0.35 | 0.624 | 16.92 | 83.60% |
| | | MH4104A | MH4105A | | | | | 0.0 | 177.1 | 4.00 | 2.87 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.61 | 0.45 | 0.00 | 3.32 | 20.24 | 33.45 | 200 | 0.35 | 0.624 | 16.92 | 83.60% |
| | | MH4105A | MH4106A | | | | | 0.0 | 177.1 | 4.00 | 2.87 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.61 | 0.45 | 0.00 | 3.32 | 20.24 | 45.81 | 200 | 0.35 | 0.624 | 16.92 | 83.60% |
| | | MH4106A | MH4122A | | | | | 0.0 | 177.1 | 4.00 | 2.87 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.61 | 0.45 | 0.00 | 3.32 | 20.24 | 92.95 | 200 | 0.35 | 0.624 | 16.92 | 83.60% |
| | 4110A | MH4110A | MH4111A | | | 0.94 | | 103.4 | 103.4 | 4.00 | 1.68 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.94 | 0.94 | 0.26 | 0.00 | 1.94 | 20.24 | 79.93 | 200 | 0.35 | 0.624 | 18.30 | 90.42% |
| | | MH4111A | MH4112A | | | | | 0.0 | 103.4 | 4.00 | 1.68 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.94 | 0.26 | 0.00 | 1.94 | 20.24 | 5.53 | 200 | 0.35 | 0.624 | 18.30 | 90.42% |
| | | MH4112A | MH4113A | | | | | 0.0 | 103.4 | 4.00 | 1.68 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.94 | 0.26 | 0.00 | 1.94 | 20.24 | 37.11 | 200 | 0.35 | 0.624 | 18.30 | 90.42% |
| | | MH4113A | MH4121A | | | | | 0.0 | 103.4 | 4.00 | 1.68 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.94 | 0.26 | 0.00 | 1.94 | 20.24 | 42.35 | 200 | 0.35 | 0.624 | 18.30 | 90.42% |
| | 4120A | MH4120A | MH4121A | | | 1.15 | | 126.5 | 126.5 | 4.00 | 2.05 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.15 | 1.15 | 0.32 | 0.00 | 2.37 | 20.24 | 106.98 | 200 | 0.35 | 0.624 | 17.87 | 88.28% |
| | | MH4121A | MH4131A | | | | | 0.0 | 229.9 | 4.00 | 3.73 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 2.09 | 0.59 | 0.00 | 4.31 | 20.24 | 78.00 | 200 | 0.35 | 0.624 | 15.93 | 78.71% |
| | | MH4132A | MH4131A | | | | | 0.0 | 0.0 | 4.00 | 0.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 20.24 | 67.17 | 200 | 0.35 | 0.624 | 20.24 | 100.00% |
| | 4130A | MH4130A | MH4131A | | | 1.28 | | 140.8 | 140.8 | 4.00 | 2.28 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.28 | 1.28 | 0.36 | 0.00 | 2.64 | 20.24 | 107.13 | 200 | 0.35 | 0.624 | 17.60 | 86.96% |
| | | MH4131A | MH4122A | | | | | 0.0 | 370.7 | 4.00 | 6.01 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 3.37 | 0.94 | 0.00 | 6.95 | 20.24 | 72.00 | 200 | 0.35 | 0.624 | 13.29 | 65.67% |
| | | MH4122A | MH4012A | | | | | 0.0 | 547.8 | 3.95 | 8.77 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 4.98 | 1.39 | 0.00 | 10.17 | 20.24 | 17.08 | 200 | 0.35 | 0.624 | 10.08 | 49.77% |
| COMMERCIAL | 4013A | MH4013A | MH4012A | | | | | 0.0 | 0.0 | 4.00 | 0.00 | | 0.00 | 3.83 | 3.83 | | 0.00 | 3.32 | 3.83 | 3.83 | 1.07 | 2.00 | 6.40 | 31.02 | 15.00 | 250 | 0.25 | 0.612 | 24.62 | 79.38% |
| | | MH4012A | MH4020A | | | | | 0.0 | 830.5 | 3.85 | 12.95 | | 0.0 | | 3.8 | | 0.0 | 3.32 | 0.00 | 12.30 | 3.44 | 0.00 | 19.72 | 31.02 | 80.97 | 250 | 0.25 | 0.612 | 11.30 | 36.42% |
| | 4200A | MH4200A | MH4201A | | | 1.20 | | 132.0 | 132.0 | 4.00 | 2.14 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.20 | 1.20 | 0.34 | 0.00 | 2.47 | 20.24 | 105.31 | 200 | 0.35 | 0.624 | 17.77 | 87.77% |
| | | MH4201A | MH4202A | | | | | 0.0 | 132.0 | 4.00 | 2.14 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.20 | 0.34 | 0.00 | 2.47 | 20.24 | 104.56 | 200 | 0.35 | 0.624 | 17.77 | 87.77% |
| | 4202A | MH4202A | MH4204A | | | 0.68 | | 74.8 | 206.8 | 4.00 | 3.35 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.68 | 1.88 | 0.53 | 0.00 | 3.88 | 20.24 | 82.35 | 200 | 0.35 | 0.624 | 16.37 | 80.85% |
| | | MH4204A | MH4220A | | | | | 0.0 | 206.8 | 4.00 | 3.35 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.88 | 0.53 | 0.00 | 3.88 | 20.24 | 19.14 | 200 | 0.35 | 0.624 | 16.37 | 80.85% |
| SCHOOL | 4221A | MH4221A | MH4220A | | | | | 0.0 | 0.0 | 4.00 | 0.00 | 2.54 | 2.54 | | 0.00 | | 0.00 | 2.20 | 2.54 | 2.54 | 0.71 | 0.00 | 2.92 | 31.02 | 18.00 | 250 | 0.25 | 0.612 | 28.10 | 90.60% |
| | 4220A | MH4220A | MH4222A | | | 1.02 | | 112.2 | 319.0 | 4.00 | 5.17 | | 2.54 | | 0.00 | | 0.00 | 2.20 | 1.02 | 5.44 | 1.52 | 0.00 | 8.90 | 31.02 | 30.28 | 250 | 0.25 | 0.612 | 22.12 | 71.32% |
| | | MH4222A | MH4223A | | | | | 0.0 | 319.0 | 4.00 | 5.17 | | 2.54 | | 0.00 | | 0.00 | 2.20 | 0.00 | 5.44 | 1.52 | 0.00 | 8.90 | 31.02 | 8.09 | 250 | 0.25 | 0.612 | 22.12 | 71.32% |
| | | MH4223A | MH4224A | | | | | 0.0 | 319.0 | 4.00 | 5.17 | | 2.54 | | 0.00 | | 0.00 | 2.20 | 0.00 | 5.44 | 1.52 | 0.00 | 8.90 | 31.02 | 80.83 | 250 | 0.25 | 0.612 | 22.12 | 71.32% |
| | | MH4224A | MH4020A | | | | | 0.0 | 319.0 | 4.00 | 5.17 | | 2.54 | | 0.00 | | 0.00 | 2.20 | 0.00 | 5.44 | 1.52 | 0.00 | 8.90 | 31.02 | 89.00 | 250 | 0.25 | 0.612 | 22.12 | 71.32% |
| | 4020A | MH4020A | MH4021A | | 0.92 | | | 59.8 | 1209.3 | 3.75 | 18.35 | | 2.54 | | 3.83 | | 0.0 | 5.53 | 0.92 | 18.66 | 5.22 | 0.00 | 29.10 | 45.12 | 91.23 | 300 | 0.20 | 0.618 | 16.01 | 35.50% |
| | | MH4021A | MH4022A | | | | | 0.0 | 1209.3 | 3.75 | 18.35 | | 2.54 | | 3.83 | | 0.00 | 5.53 | 0.00 | 18.66 | 5.22 | 0.00 | 29.10 | 45.12 | 95.08 | 300 | 0.20 | 0.618 | 16.01 | 35.50% |
| PARK | 4023A | MH4023A | MH4022A | 2.04 | | | | 0.0 | 0.0 | 4.00 | 0.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 2.04 | 2.04 | 0.57 | 0.00 | 0.57 | 20.24 | 25.00 | 200 | 0.35 | 0.624 | 19.67 | 97.18% |
| | 4022A | MH4022A | MH4024A | | 0.89 | | | 57.9 | 1267.2 | 3.73 | 19.15 | | 2.54 | | 3.83 | | 0.00 | 5.53 | 0.89 | 21.59 | 6.05 | 0.00 | 30.73 | 45.12 | 71.34 | 300 | 0.20 | 0.618 | 14.39 | 31.89% |
| | | MH4024A | MH4025A | | | | | 0.0 | 1267.2 | 3.73 | 19.15 | | 2.54 | | 3.83 | | 0.00 | 5.53 | 0.00 | 21.59 | 6.05 | 0.00 | 30.73 | 45.12 | 74.44 | 300 | 0.20 | 0.618 | 14.39 | 31.89% |
| | 4025A | MH4025A | MH4026A | | 1.07 | | | 69.6 | 1336.7 | 3.72 | 20.12 | | 2.54 | | 3.83 | | 0.00 | 5.53 | 1.07 | 22.66 | 6.34 | 0.00 | 31.99 | 45.12 | 43.97 | 300 | 0.20 | 0.618 | 13.12 | 29.09% |
| | | MH4026A | MH4030A | | | | | 0.0 | 1336.7 | 3.72 | 20.12 | | 2.54 | | 3.83 | | 0.00 | 5.53 | 0.00 | 22.66 | 6.34 | 0.00 | 31.99 | 45.12 | 58.67 | 300 | 0.20 | 0.618 | 13.12 | 29.09% |
| | 4600A | MH4600A | MH4601A | | 1.40 | | | 91.0 | 91.0 | 4.00 | 1.47 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.40 | 1.40 | 0.39 | 0.00 | 1.87 | 20.24 | 115.00 | 200 | 0.35 | 0.624 | 18.38 | 90.78% |
| | | MH4601A | MH4602A | | | | | 0.0 | 91.0 | 4.00 | 1.47 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.40 | 0.39 | 0.00 | 1.87 | 20.24 | 115.00 | 200 | 0.35 | 0.624 | 18.38 | 90.78% |
| | 4602A | MH4602A | MH4603A | | 1.33 | | | 86.5 | 177.5 | 4.00 | 2.88 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.33 | 2.73 | 0.76 | 0.00 | 3.64 | 20.24 | 107.53 | 200 | 0.35 | 0.624 | 16.60 | 82.02% |
| | | MH4603A | MH4604A | | | | | 0.0 | 177.5 | 4.00 | 2.88 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 2.73 | 0.76 | 0.00 | 3.64 | 20.24 | 108.47 | 200 | 0.35 | 0.624 | 16.60 | 82.02% |
| | 4605A | MH4605A | MH4606A | | 0.62 | | | 40.3 | 40.3 | 4.00 | 0.65 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.62 | 0.62 | 0.17 | 2.00 | 2.83 | 20.24 | 85.60 | 200 | 0.35 | 0.624 | 17.42 | 86.04% |
| | | MH4606A | MH4607A | | | | | 0.0 | 40.3 | 4.00 | 0.65 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.62 | 0.17 | 3.00 | 3.83 | 20.24 | 11.40 | 200 | 0.35 | 0.624 | 16.42 | 81.10% |
| | | MH4607A | MH4604A | | | | | 0.0 | 40.3 | 4.00 | 0.65 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.62 | 0.17 | 4.00 | 4.83 | 20.24 | 63.11 | 200 | 0.35 | 0.624 | 15.42 | 76.16% |
| | 4604A | MH4604A | MH4610A | | 0.26 | | | 16.9 | 234.7 | 4.00 | 3.80 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.26 | 3.61 | 1.01 | 0.00 | 4.81 | 20.24 | 64.53 | 200 | 0.35 | 0.624 | 15.43 | 76.22% |
| | 4611A | MH4611A | MH4612A | | 0.93 | | | 60.5 | 60.5 | 4.00 | 0.98 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.93 | 0.93 | 0.26 | 0.00 | 1.24 | 20.24 | 68.77 | 200 | 0.35 | 0.624 | 19.00 | 93.87% |
| | | MH4612A | MH4610A | | | | | 0.0 | 60.5 | 4.00 | 0.98 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.93 | 0.26 | 0.00 | 1.24 | 20.24 | 70.00 | 200 | 0.35 | 0.624 | 19.00 | 93.87% |

**IBI GROUP**
400-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

**SANITARY SEWER DESIGN SHEET**
**MER BLEUE Urban Expansion Area**
MSS Preferred Concept
CITY OF OTTAWA
Owners Group

| LOCATION | | | | RESIDENTIAL | | | | | | | ICI AREAS | | | | | | | INFILTRATION ALLOWANCE | | | FIXED FLOW | TOTAL FLOW | PROPOSED SEWER DESIGN | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AREA (Ha) | AREA w/o units (pp/Ha) | | | POPULATION | | PEAK FACTOR | PEAK FLOW (L/s) | AREA (Ha) | | | | | | PEAK FLOW (L/s) | AREA (Ha) | | FLOW (L/s) | (L/s) | (L/s) | CAPACITY (L/s) | LENGTH (m) | DIA (mm) | SLOPE (%) | VELOCITY (full) (m/s) | AVAILABLE CAPACITY | |
| STREET | AREA ID | FROM MH | TO MH | | LOW 65 | MED 110 | HIGH 85 | IND | CUM | | | INSTITUTIONAL IND | INSTITUTIONAL CUM | COMMERCIAL IND | COMMERCIAL CUM | INDUSTRIAL IND | INDUSTRIAL CUM | | IND | CUM | | | | | | | | L/s | (%) |
| | 4610A | MH4610A | MH4620A | | 0.32 | | | 20.8 | 315.9 | 4.00 | 5.12 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.32 | 4.86 | 1.36 | 0.00 | 6.48 | 20.24 | 72.00 | 200 | 0.35 | 0.624 | 13.76 | 67.99% |
| | 4620A | MH4620A | MH4660A | | 0.42 | | | 27.3 | 343.2 | 4.00 | 5.56 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.42 | 5.28 | 1.48 | 0.00 | 7.04 | 20.24 | 66.50 | 200 | 0.35 | 0.624 | 13.20 | 65.22% |
| | 4630A | MH4630A | MH4631A | | 1.82 | | | 118.3 | 118.3 | 4.00 | 1.92 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.82 | 1.82 | 0.51 | 0.00 | 2.43 | 20.24 | 94.12 | 200 | 0.35 | 0.624 | 17.82 | 88.01% |
| | | MH4631A | MH4632A | | | | | 0.0 | 118.3 | 4.00 | 1.92 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.82 | 0.51 | 0.00 | 2.43 | 20.24 | 90.57 | 200 | 0.35 | 0.624 | 17.82 | 88.01% |
| | | MH4632A | MH4633A | | | | | 0.0 | 118.3 | 4.00 | 1.92 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.82 | 0.51 | 0.00 | 2.43 | 20.24 | 11.60 | 200 | 0.35 | 0.624 | 17.82 | 88.01% |
| | | MH4633A | MH4640A | | | | | 0.0 | 118.3 | 4.00 | 1.92 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.82 | 0.51 | 0.00 | 2.43 | 20.24 | 63.80 | 200 | 0.35 | 0.624 | 17.82 | 88.01% |
| | 4343A | MH4343A | MH4341A | | 0.93 | | | 60.5 | 60.5 | 4.00 | 0.98 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.93 | 0.93 | 0.26 | 0.00 | 1.24 | 20.24 | 61.38 | 200 | 0.35 | 0.624 | 19.00 | 93.87% |
| | | MH4341A | MH4640A | | | | | 0.0 | 60.5 | 4.00 | 0.98 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.93 | 0.26 | 0.00 | 1.24 | 20.24 | 58.82 | 200 | 0.35 | 0.624 | 19.00 | 93.87% |
| | 4640A | MH4640A | MH4650A | | 0.32 | | | 20.8 | 199.6 | 4.00 | 3.23 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.32 | 3.07 | 0.86 | 0.00 | 4.09 | 20.24 | 72.00 | 200 | 0.35 | 0.624 | 16.15 | 79.78% |
| | 4651A | MH4651A | MH4652A | | 1.37 | | | 89.1 | 89.1 | 4.00 | 1.44 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.37 | 1.37 | 0.38 | 0.00 | 1.83 | 20.24 | 55.86 | 200 | 0.35 | 0.624 | 18.42 | 90.98% |
| | | MH4652A | MH4653A | | | | | 0.0 | 89.1 | 4.00 | 1.44 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.37 | 0.38 | 0.00 | 1.83 | 20.24 | 7.10 | 200 | 0.35 | 0.624 | 18.42 | 90.98% |
| | | MH4653A | MH4654A | | | | | 0.0 | 89.1 | 4.00 | 1.44 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.37 | 0.38 | 0.00 | 1.83 | 20.24 | 63.45 | 200 | 0.35 | 0.624 | 18.42 | 90.98% |
| | | MH4654A | MH4650A | | | | | 0.0 | 89.1 | 4.00 | 1.44 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.37 | 0.38 | 0.00 | 1.83 | 20.24 | 62.73 | 200 | 0.35 | 0.624 | 18.42 | 90.98% |
| | 4650A | MH4650A | MH4660A | | 0.33 | | | 21.5 | 310.1 | 4.00 | 5.02 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.33 | 4.77 | 1.34 | 0.00 | 6.36 | 20.24 | 71.98 | 200 | 0.35 | 0.624 | 13.88 | 68.58% |
| | | MH4660A | MH4663A | | | | | 0.0 | 653.3 | 3.91 | 10.35 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 10.05 | 2.81 | 0.00 | 13.17 | 20.24 | 39.65 | 200 | 0.35 | 0.624 | 7.08 | 34.96% |
| | | MH4663A | MH4662A | | | | | 0.0 | 653.3 | 3.91 | 10.35 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 10.05 | 2.81 | 0.00 | 13.17 | 20.24 | 18.36 | 200 | 0.35 | 0.624 | 7.08 | 34.96% |
| | 4662A | MH4662A | MH4030A | | 0.36 | | | 23.4 | 676.7 | 3.90 | 10.70 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.36 | 10.41 | 2.91 | 0.00 | 13.61 | 20.24 | 39.58 | 200 | 0.35 | 0.624 | 6.63 | 32.75% |
| | 4030A | MH4030A | MH4031A | | 1.13 | | | 73.5 | 2086.8 | 3.57 | 30.19 | | 2.54 | | 3.83 | | 0.00 | 5.53 | 1.13 | 34.20 | 9.58 | 0.00 | 45.30 | 45.12 | 40.86 | 300 | 0.20 | 0.618 | -0.18 | -0.40% |
| | | MH4031A | MH4032A | | | | | 0.0 | 2086.8 | 3.57 | 30.19 | | 2.54 | | 3.83 | | 0.00 | 5.53 | 0.00 | 34.20 | 9.58 | 0.00 | 45.30 | 45.12 | 48.57 | 300 | 0.20 | 0.618 | -0.18 | -0.40% |
| | | MH4032A | MH4040A | | | | | 0.0 | 2086.8 | 3.57 | 30.19 | | 2.54 | | 3.83 | | 0.00 | 5.53 | 0.00 | 34.20 | 9.58 | 0.00 | 45.30 | 45.12 | 56.87 | 300 | 0.20 | 0.618 | -0.18 | -0.40% |
| | 4400A | MH4400A | MH4401A | | 1.93 | | | 125.5 | 125.5 | 4.00 | 2.03 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.93 | 1.93 | 0.54 | 0.00 | 2.57 | 20.24 | 64.93 | 200 | 0.35 | 0.624 | 17.67 | 87.29% |
| | | MH4401A | MH4402A | | | | | 0.0 | 125.5 | 4.00 | 2.03 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.93 | 0.54 | 0.00 | 2.57 | 20.24 | 10.75 | 200 | 0.35 | 0.624 | 17.67 | 87.29% |
| | | MH4402A | MH4403A | | | | | 0.0 | 125.5 | 4.00 | 2.03 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.93 | 0.54 | 0.00 | 2.57 | 20.24 | 85.88 | 200 | 0.35 | 0.624 | 17.67 | 87.29% |
| | 4404A | MH4404A | MH4405A | | 2.20 | | | 143.0 | 268.5 | 4.00 | 4.35 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 2.20 | 4.13 | 1.16 | 0.00 | 5.51 | 20.24 | 90.60 | 200 | 0.35 | 0.624 | 14.74 | 72.80% |
| | | MH4405A | MH4406A | | | | | 0.0 | 268.5 | 4.00 | 4.35 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 4.13 | 1.16 | 0.00 | 5.51 | 20.24 | 41.28 | 200 | 0.35 | 0.624 | 14.74 | 72.80% |
| | | MH4406A | MH4407A | | | | | 0.0 | 268.5 | 4.00 | 4.35 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 4.13 | 1.16 | 0.00 | 5.51 | 20.24 | 29.48 | 200 | 0.35 | 0.624 | 14.74 | 72.80% |
| | | MH4407A | MH4408A | | | | | 0.0 | 268.5 | 4.00 | 4.35 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 4.13 | 1.16 | 0.00 | 5.51 | 20.24 | 43.01 | 200 | 0.35 | 0.624 | 14.74 | 72.80% |
| | | MH4408A | MH4440A | | | | | 0.0 | 268.5 | 4.00 | 4.35 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 4.13 | 1.16 | 0.00 | 5.51 | 20.24 | 34.11 | 200 | 0.35 | 0.624 | 14.74 | 72.80% |
| | 4410A | MH4410A | MH4411A | | 1.79 | | | 116.4 | 116.4 | 4.00 | 1.89 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.79 | 1.79 | 0.50 | 0.00 | 2.39 | 20.24 | 100.87 | 200 | 0.35 | 0.624 | 17.86 | 88.21% |
| | | MH4411A | MH4412A | | | | | 0.0 | 116.4 | 4.00 | 1.89 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.79 | 0.50 | 0.00 | 2.39 | 20.24 | 98.47 | 200 | 0.35 | 0.624 | 17.86 | 88.21% |
| | 4412A | MH4412A | MH4413A | | 1.28 | | | 83.2 | 199.6 | 4.00 | 3.23 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.28 | 3.07 | 0.86 | 0.00 | 4.09 | 20.24 | 100.13 | 200 | 0.35 | 0.624 | 16.15 | 79.78% |
| | | MH4413A | MH4414A | | | | | 0.0 | 199.6 | 4.00 | 3.23 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 3.07 | 0.86 | 0.00 | 4.09 | 20.24 | 36.11 | 200 | 0.35 | 0.624 | 16.15 | 79.78% |
| | | MH4414A | MH4415A | | | | | 0.0 | 199.6 | 4.00 | 3.23 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 3.07 | 0.86 | 0.00 | 4.09 | 20.24 | 24.79 | 200 | 0.35 | 0.624 | 16.15 | 79.78% |
| | | MH4415A | MH4425A | | | | | 0.0 | 199.6 | 4.00 | 3.23 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 3.07 | 0.86 | 0.00 | 4.09 | 20.24 | 22.00 | 200 | 0.35 | 0.624 | 16.15 | 79.78% |
| | 4420A | MH4420A | MH4421A | | 1.03 | | | 67.0 | 67.0 | 4.00 | 1.08 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.03 | 1.03 | 0.29 | 0.00 | 1.37 | 20.24 | 42.02 | 200 | 0.35 | 0.624 | 18.87 | 93.22% |
| | | MH4421A | MH4422A | | | | | 0.0 | 67.0 | 4.00 | 1.08 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.03 | 0.29 | 0.00 | 1.37 | 20.24 | 75.67 | 200 | 0.35 | 0.624 | 18.87 | 93.22% |
| | | MH4422A | MH4423A | | | | | 0.0 | 67.0 | 4.00 | 1.08 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.03 | 0.29 | 0.00 | 1.37 | 20.24 | 12.07 | 200 | 0.35 | 0.624 | 18.87 | 93.22% |
| | | MH4423A | MH4425A | | | | | 0.0 | 67.0 | 4.00 | 1.08 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.03 | 0.29 | 0.00 | 1.37 | 20.24 | 35.65 | 200 | 0.35 | 0.624 | 18.87 | 93.22% |
| | | MH4425A | MH4440A | | | | | 0.0 | 266.5 | 4.00 | 4.32 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 4.10 | 1.15 | 0.00 | 5.47 | 20.24 | 82.28 | 200 | 0.35 | 0.624 | 14.78 | 73.00% |
| | 4430A | MH4430A | MH4431A | | 1.28 | | | 83.2 | 83.2 | 4.00 | 1.35 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.28 | 1.28 | 0.36 | 0.00 | 1.71 | 20.24 | 70.51 | 200 | 0.35 | 0.624 | 18.54 | 91.57% |
| | | MH4431A | MH4432A | | | | | 0.0 | 83.2 | 4.00 | 1.35 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.28 | 0.36 | 0.00 | 1.71 | 20.24 | 10.59 | 200 | 0.35 | 0.624 | 18.54 | 91.57% |
| | | MH4432A | MH4433A | | | | | 0.0 | 83.2 | 4.00 | 1.35 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.28 | 0.36 | 0.00 | 1.71 | 20.24 | 73.98 | 200 | 0.35 | 0.624 | 18.54 | 91.57% |
| | 4433A | MH4433A | MH4434A | | 1.38 | | | 89.7 | 172.9 | 4.00 | 2.80 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.38 | 2.66 | 0.74 | 0.00 | 3.55 | 20.24 | 80.18 | 200 | 0.35 | 0.624 | 16.70 | 82.48% |
| | | MH4434A | MH4435A | | | | | 0.0 | 172.9 | 4.00 | 2.80 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 2.66 | 0.74 | 0.00 | 3.55 | 20.24 | 54.23 | 200 | 0.35 | 0.624 | 16.70 | 82.48% |
| | | MH4435A | MH4440A | | | | | 0.0 | 172.9 | 4.00 | 2.80 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 2.66 | 0.74 | 0.00 | 3.55 | 20.24 | 34.77 | 200 | 0.35 | 0.624 | 16.70 | 82.48% |
| | | MH4440A | MH4040A | | | | | 0.0 | 707.9 | 3.89 | 11.16 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 10.89 | 3.05 | 0.00 | 14.21 | 20.24 | 85.99 | 200 | 0.35 | 0.624 | 6.03 | 29.81% |

**IBI GROUP**
400-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

**SANITARY SEWER DESIGN SHEET**
**MER BLEUE Urban Expansion Area**
MSS Preferred Concept
CITY OF OTTAWA
Owners Group

| LOCATION | | | | RESIDENTIAL | | | | | | | | ICI AREAS | | | | | | | INFILTRATION ALLOWANCE | | | FIXED | TOTAL | PROPOSED SEWER DESIGN | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AREA | AREA w/o units (pp/Ha) | | | POPULATION | | PEAK | PEAK | AREA (Ha) | | | | | | PEAK | AREA (Ha) | | FLOW | FLOW | FLOW | CAPACITY | LENGTH | DIA | SLOPE | VELOCITY | AVAILABLE | |
| STREET | AREA ID | FROM MH | TO MH | (Ha) | LOW | MED | HIGH | IND | CUM | FACTOR | FLOW (L/s) | INSTITUTIONAL | | COMMERCIAL | | INDUSTRIAL | | FLOW (L/s) | IND | CUM | (L/s) | (L/s) | (L/s) | (L/s) | (m) | (mm) | (%) | (full) (m/s) | CAPACITY | |
| | | | | | 65 | 110 | 85 | | | | | IND | CUM | IND | CUM | IND | CUM | | | | | | | | | | | | L/s | (%) |
| | 4450A | MH4450A | MH4451A | | 1.52 | | | 98.8 | 98.8 | 4.00 | 1.60 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.52 | 1.52 | 0.43 | 0.00 | 2.03 | 20.24 | 87.00 | 200 | 0.35 | 0.624 | 18.22 | 89.99% |
| | | MH4451A | MH4452A | | | | | 0.0 | 98.8 | 4.00 | 1.60 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.52 | 0.43 | 0.00 | 2.03 | 20.24 | 78.30 | 200 | 0.35 | 0.624 | 18.22 | 89.99% |
| | | MH4452A | MH4453A | | | | | 0.0 | 98.8 | 4.00 | 1.60 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.52 | 0.43 | 0.00 | 2.03 | 20.24 | 64.29 | 200 | 0.35 | 0.624 | 18.22 | 89.99% |
| | | MH4453A | MH4040A | | | | | 0.0 | 98.8 | 4.00 | 1.60 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.52 | 0.43 | 0.00 | 2.03 | 20.24 | 52.25 | 200 | 0.35 | 0.624 | 18.22 | 89.99% |
| | 4040A | MH4040A | MH4050A | | 0.29 | | | 18.9 | 2912.3 | 3.45 | 40.74 | | 2.54 | | 3.83 | | 0.00 | 5.53 | 0.29 | 46.90 | 13.13 | 0.00 | 59.40 | 68.44 | 75.01 | 375 | 0.14 | 0.600 | 9.04 | 13.20% |
| | 4500A | MH4500A | MH4501A | | 1.68 | | | 109.2 | 109.2 | 4.00 | 1.77 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.68 | 1.68 | 0.47 | 0.00 | 2.24 | 20.24 | 104.50 | 200 | 0.35 | 0.624 | 18.00 | 88.94% |
| | | MH4501A | MH4502A | | | | | 0.0 | 109.2 | 4.00 | 1.77 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.68 | 0.47 | 0.00 | 2.24 | 20.24 | 41.24 | 200 | 0.35 | 0.624 | 18.00 | 88.94% |
| | | MH4502A | MH4503A | | | | | 0.0 | 109.2 | 4.00 | 1.77 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.68 | 0.47 | 0.00 | 2.24 | 20.24 | 41.82 | 200 | 0.35 | 0.624 | 18.00 | 88.94% |
| | | MH4503A | MH4050A | | | | | 0.0 | 109.2 | 4.00 | 1.77 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.68 | 0.47 | 0.00 | 2.24 | 20.24 | 38.81 | 200 | 0.35 | 0.624 | 18.00 | 88.94% |
| | 4050A | MH4050A | MH4051A | | 0.41 | | | 26.7 | 3048.2 | 3.44 | 42.43 | | 2.540 | | 3.830 | | 0.000 | 5.53 | 0.41 | 48.99 | 13.72 | 0.00 | 61.68 | 68.44 | 36.42 | 375 | 0.14 | 0.600 | 6.76 | 9.88% |
| | | MH4070B | MH4724A | | | | | 0.0 | 0.0 | 4.00 | 0.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 20.24 | 57.50 | 200 | 0.35 | 0.624 | 20.24 | 100.00% |
| PARK | 4725A | MH4725A | MH4724A | 6.31 | | | | 0.0 | 0.0 | 4.00 | 0.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 6.31 | 6.31 | 1.77 | 0.00 | 1.77 | 20.24 | 18.47 | 200 | 0.35 | 0.624 | 18.48 | 91.27% |
| | 4724A | MH4724A | MH4723A | | 0.82 | | | 53.3 | 53.3 | 4.00 | 0.86 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.82 | 7.13 | 2.00 | 0.00 | 2.86 | 20.24 | 11.59 | 200 | 0.35 | 0.624 | 17.38 | 85.87% |
| | | MH4723A | MH4722A | | | | | 0.0 | 53.3 | 4.00 | 0.86 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 7.13 | 2.00 | 0.00 | 2.86 | 20.24 | 48.05 | 200 | 0.35 | 0.624 | 17.38 | 85.87% |
| | | MH4722A | MH4721A | | | | | 0.0 | 53.3 | 4.00 | 0.86 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 7.13 | 2.00 | 0.00 | 2.86 | 20.24 | 21.91 | 200 | 0.35 | 0.624 | 17.38 | 85.87% |
| | | MH4721A | MH4051A | | | | | 0.0 | 53.3 | 4.00 | 0.86 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 7.13 | 2.00 | 0.00 | 2.86 | 20.24 | 102.20 | 200 | 0.35 | 0.624 | 17.38 | 85.87% |
| | | MH4051A | MH4060A | | | | | 0.0 | 3101.5 | 3.43 | 43.09 | | 2.54 | | 3.830 | | 0.000 | 5.53 | 0.00 | 56.12 | 15.71 | 0.00 | 64.34 | 68.44 | 72.00 | 375 | 0.14 | 0.600 | 4.10 | 5.99% |
| | 4620B | MH4620B | MH4621A | | 0.29 | | | 18.9 | 18.9 | 4.00 | 0.31 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.29 | 0.29 | 0.08 | 0.00 | 0.39 | 20.24 | 64.31 | 200 | 0.35 | 0.624 | 19.86 | 98.09% |
| | 4621A | MH4621A | MH4622A | | 0.51 | | | 33.2 | 52.0 | 4.00 | 0.84 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.51 | 0.80 | 0.22 | 0.00 | 1.07 | 20.24 | 65.69 | 200 | 0.35 | 0.624 | 19.18 | 94.73% |
| | 4624A | MH4624A | MH4622A | | 0.25 | | | 16.3 | 16.3 | 4.00 | 0.26 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.25 | 0.25 | 0.07 | 0.00 | 0.33 | 20.24 | 64.78 | 200 | 0.35 | 0.624 | 19.91 | 98.35% |
| | | MH4710A | MH4622A | | | | | 0.0 | 0.0 | 4.00 | 0.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 19.66 | 41.58 | 200 | 0.33 | 0.606 | 19.66 | 100.00% |
| | 4622A | MH4622A | MH4625A | | 0.18 | | | 11.7 | 80.0 | 4.00 | 1.30 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.18 | 1.23 | 0.34 | 0.00 | 1.64 | 19.66 | 81.19 | 200 | 0.33 | 0.606 | 18.02 | 91.66% |
| | 4625A | MH4625A | MH4624A | | 1.22 | | | 79.3 | 159.3 | 4.00 | 2.58 | | 0.000 | | 0.000 | | 0.000 | 0.00 | 1.22 | 2.45 | 0.69 | 0.00 | 3.27 | 20.24 | 31.91 | 200 | 0.35 | 0.624 | 16.98 | 83.86% |
| | | MH4626A | MH4060A | | | | | 0.0 | 159.3 | 4.00 | 2.58 | | 0.000 | | 0.000 | | 0.000 | 0.00 | 0.00 | 2.45 | 0.69 | 0.00 | 3.27 | 20.24 | 81.69 | 200 | 0.35 | 0.624 | 16.98 | 83.86% |
| | 4060A | MH4060A | MH4061A | | 1.49 | | | 96.9 | 3357.6 | 3.40 | 46.25 | | 2.54 | | 3.83 | | 0.00 | 5.53 | 1.49 | 60.06 | 16.82 | 0.00 | 68.60 | 103.03 | 91.37 | 450 | 0.12 | 0.628 | 34.44 | 33.42% |
| | | MH4061A | MH4062A | | | | | 0.0 | 3357.6 | 3.40 | 46.25 | | 2.54 | | 3.83 | | 0.00 | 5.53 | 0.00 | 60.06 | 16.82 | 0.00 | 68.60 | 103.03 | 35.73 | 450 | 0.12 | 0.628 | 34.44 | 33.42% |
| | | MH4062A | MH4063A | | | | | 0.0 | 3357.6 | 3.40 | 46.25 | | 2.54 | | 3.83 | | 0.00 | 5.53 | 0.00 | 60.06 | 16.82 | 0.00 | 68.60 | 103.03 | 35.73 | 450 | 0.12 | 0.628 | 34.44 | 33.42% |
| | | MH4063A | MH4070A | | | | | 0.0 | 3357.6 | 3.40 | 46.25 | | 2.54 | | 3.83 | | 0.00 | 5.53 | 0.00 | 60.06 | 16.82 | 0.00 | 68.60 | 103.03 | 54.62 | 450 | 0.12 | 0.628 | 34.44 | 33.42% |
| OVERFLOW | | MH4070A | | | | | | 0.0 | 0.0 | 4.00 | 0.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 392.18 | 21.82 | 675 | 0.20 | 1.062 | 392.18 | 100.00% |
| | 4070A | MH4070A | MH4716A | | | | | 0.0 | 3357.6 | 3.40 | 46.25 | | 2.54 | | 3.83 | | 0.00 | 5.53 | 0.00 | 60.06 | 16.82 | 0.00 | 68.60 | 277.31 | 72.00 | 675 | 0.10 | 0.751 | 208.71 | 75.26% |
| | 4711A | MH4711A | MH4712A | | 1.01 | | | 65.7 | 65.7 | 4.00 | 1.06 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.01 | 1.01 | 0.28 | 0.00 | 1.35 | 19.66 | 110.54 | 200 | 0.33 | 0.606 | 18.31 | 93.15% |
| | 4712A | MH4712A | MH4713A | | 1.13 | | | 73.5 | 139.1 | 4.00 | 2.25 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.13 | 2.14 | 0.60 | 0.00 | 2.85 | 19.66 | 114.75 | 200 | 0.33 | 0.606 | 16.80 | 85.48% |
| | | MH4713A | MH4714A | | | | | 0.0 | 139.1 | 4.00 | 2.25 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 2.14 | 0.60 | 0.00 | 2.85 | 19.66 | 47.60 | 200 | 0.33 | 0.606 | 16.80 | 85.48% |
| | 4714A | MH4714A | MH4715A | | 0.95 | | | 61.8 | 200.9 | 4.00 | 3.25 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.95 | 3.09 | 0.87 | 0.00 | 4.12 | 19.66 | 43.38 | 200 | 0.33 | 0.606 | 15.54 | 79.04% |
| | | MH4715A | MH4716A | | | | | 0.0 | 200.9 | 4.00 | 3.25 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 3.09 | 0.87 | 0.00 | 4.12 | 19.66 | 66.78 | 200 | 0.33 | 0.606 | 15.54 | 79.04% |
| | | | | | | | | 0.0 | | | | | | | | | | | | | | | | | | | | | | |
| | | MH4716A | MH15001A | | | | | 0.0 | 3558.4 | 3.38 | 48.70 | | 2.54 | | 3.83 | | 0.00 | 5.53 | 0.00 | 63.15 | 17.68 | 0.00 | 71.91 | 277.31 | 25.87 | 675 | 0.10 | 0.751 | 205.40 | 74.07% |
| | | MH15001A | MH15002A | | | | | 0.0 | 3558.4 | 3.38 | 48.70 | | 2.54 | | 3.83 | | 0.00 | 5.53 | 0.00 | 63.15 | 17.68 | 0.00 | 71.91 | 277.31 | 88.19 | 675 | 0.10 | 0.751 | 205.40 | 74.07% |
| | | MH15002A | MH8000A | | | | | 0.0 | 3558.4 | 3.38 | 48.70 | | 2.54 | | 3.83 | | 0.00 | 5.53 | 0.00 | 63.15 | 17.68 | 0.00 | 71.91 | 277.31 | 75.00 | 675 | 0.10 | 0.751 | 205.40 | 74.07% |
| | | | | 9.27 | 37.06 | 10.45 | 0.00 | 3558.4 | TRUE | | | 2.54 | TRUE | 3.83 | TRUE | 0.00 | TRUE | | 63.15 | TRUE | | | | | | | | | | |
| | | | | | | | | 56.8 | | | | | | | | | | | 63.15 | TRUE | | | | | | | | | | |

**IBI GROUP**
400-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

**SANITARY SEWER DESIGN SHEET**
**MER BLEUE Urban Expansion Area**
MSS Preferred Concept
CITY OF OTTAWA
Owners Group

| LOCATION | | | | | RESIDENTIAL | | | | | | | ICI AREAS | | | | | | | INFILTRATION ALLOWANCE | | | FIXED FLOW | TOTAL FLOW | PROPOSED SEWER DESIGN | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AREA (Ha) | AREA w/o units (pp/Ha) | | | POPULATION | | PEAK FACTOR | PEAK FLOW (L/s) | AREA (Ha) | | | | | | PEAK FLOW (L/s) | AREA (Ha) | | FLOW (L/s) | | | CAPACITY (L/s) | LENGTH (m) | DIA (mm) | SLOPE (%) | VELOCITY (full) (m/s) | AVAILABLE CAPACITY | |
| STREET | AREA ID | FROM MH | TO MH | | LOW 65 | MED 110 | HIGH 85 | IND | CUM | | | INSTITUTIONAL IND | INSTITUTIONAL CUM | COMMERCIAL IND | COMMERCIAL CUM | INDUSTRIAL IND | INDUSTRIAL CUM | | IND | CUM | | | | | | | | L/s | (%) |
| **Southern Outlet - Lands on and South of Wall Road (Gravity to Pump Station)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 5000A/B | MH5000A | MH5001A | | 1.99 | 0.89 | | 227.3 | 227.3 | 4.00 | 3.68 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 2.88 | 2.88 | 0.81 | 0.00 | 4.49 | 20.24 | 76.00 | 200 | 0.35 | 0.624 | 15.75 | 77.83% |
| | | MH5001A | MH5002A | | | | | 0.0 | 227.3 | 4.00 | 3.68 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 2.88 | 0.81 | 0.00 | 4.49 | 20.24 | 75.89 | 200 | 0.35 | 0.624 | 15.75 | 77.83% |
| | | MH5002A | MH5010A | | | | | 0.0 | 227.3 | 4.00 | 3.68 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 2.88 | 0.81 | 0.00 | 4.49 | 20.24 | 74.86 | 200 | 0.35 | 0.624 | 15.75 | 77.83% |
| | 5110A | MH5110A | MH5111A | | 1.36 | | | 88.4 | 88.4 | 4.00 | 1.43 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.36 | 1.36 | 0.38 | 0.00 | 1.81 | 20.24 | 70.85 | 200 | 0.35 | 0.624 | 18.43 | 91.04% |
| | | MH5111A | MH5112A | | | | | 0.0 | 88.4 | 4.00 | 1.43 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.36 | 0.38 | 0.00 | 1.81 | 20.24 | 70.85 | 200 | 0.35 | 0.624 | 18.43 | 91.04% |
| | | MH5112A | MH5121A | | | | | 0.0 | 88.4 | 4.00 | 1.43 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.36 | 0.38 | 0.00 | 1.81 | 20.24 | 60.05 | 200 | 0.35 | 0.624 | 18.43 | 91.04% |
| | 5120A | MH5120A | MH5121A | | 0.32 | | | 20.8 | 20.8 | 4.00 | 0.34 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.32 | 0.32 | 0.09 | 0.00 | 0.43 | 20.24 | 57.51 | 200 | 0.35 | 0.624 | 19.82 | 97.89% |
| | 5121A | MH5121A | MH5122A | | 0.21 | | | 13.7 | 122.9 | 4.00 | 1.99 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.21 | 1.89 | 0.53 | 0.00 | 2.52 | 20.24 | 8.39 | 200 | 0.35 | 0.624 | 17.72 | 87.55% |
| | | MH5122A | MH5010A | | | | | 0.0 | 122.9 | 4.00 | 1.99 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.89 | 0.53 | 0.00 | 2.52 | 20.24 | 44.71 | 200 | 0.35 | 0.624 | 17.72 | 87.55% |
| MED RES | 5012A | MH5012A | MH5010A | | | 6.20 | | 682.0 | 682.0 | 3.90 | 10.78 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 6.20 | 6.20 | 1.74 | 0.00 | 12.51 | 31.02 | 17.00 | 250 | 0.25 | 0.612 | 18.51 | 59.66% |
| | 5010A | MH5010A | MH5020A | | 0.18 | | | 11.7 | 1043.8 | 3.79 | 16.02 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.18 | 11.15 | 3.12 | 0.00 | 19.14 | 31.02 | 80.09 | 250 | 0.25 | 0.612 | 11.88 | 38.30% |
| | 5210A | MH5210A | MH5211A | | 0.84 | | | 54.6 | 54.6 | 4.00 | 0.88 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.84 | 0.84 | 0.24 | 0.00 | 1.12 | 20.24 | 62.75 | 200 | 0.35 | 0.624 | 19.12 | 94.47% |
| | | MH5211A | MH5212A | | | | | 0.0 | 54.6 | 4.00 | 0.88 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.84 | 0.24 | 0.00 | 1.12 | 20.24 | 8.29 | 200 | 0.35 | 0.624 | 19.12 | 94.47% |
| | | MH5212A | MH5220A | | | | | 0.0 | 54.6 | 4.00 | 0.88 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.84 | 0.24 | 0.00 | 1.12 | 20.24 | 105.26 | 200 | 0.35 | 0.624 | 19.12 | 94.47% |
| | 5220A | MH5220A | MH5221A | 0.53 | 1.64 | | | 106.6 | 161.2 | 4.00 | 2.61 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 2.17 | 3.01 | 0.84 | 0.00 | 3.45 | 20.24 | 103.43 | 200 | 0.35 | 0.624 | 16.79 | 82.93% |
| | | MH5221A | MH5222A | | | | | 0.0 | 161.2 | 4.00 | 2.61 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 3.01 | 0.84 | 0.00 | 3.45 | 20.24 | 82.49 | 200 | 0.35 | 0.624 | 16.79 | 82.93% |
| | | MH5222A | MH5223A | | | | | 0.0 | 161.2 | 4.00 | 2.61 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 3.01 | 0.84 | 0.00 | 3.45 | 20.24 | 9.25 | 200 | 0.35 | 0.624 | 16.79 | 82.93% |
| | | MH5223A | MH5230A | | | | | 0.0 | 161.2 | 4.00 | 2.61 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 3.01 | 0.84 | 0.00 | 3.45 | 20.24 | 25.96 | 200 | 0.35 | 0.624 | 16.79 | 82.93% |
| | 5231A | MH5231A | MH5230A | | 0.74 | | | 48.1 | 48.1 | 4.00 | 0.78 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.74 | 0.74 | 0.21 | 0.00 | 0.99 | 20.24 | 106.08 | 200 | 0.35 | 0.624 | 19.26 | 95.13% |
| | 5230A | MH5230A | MH5020A | | 0.40 | | | 26.0 | 235.3 | 4.00 | 3.81 | | 0.0 | | 0.0 | | 0.0 | 0.00 | 0.40 | 4.2 | 1.16 | 0.00 | 4.97 | 20.24 | 87.16 | 200 | 0.35 | 0.624 | 15.27 | 75.42% |
| | 5261A | MH5261A | MH5263A | | | 0.85 | | 93.5 | 93.5 | 4.00 | 1.52 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.85 | 0.85 | 0.24 | 0.00 | 1.75 | 20.24 | 74.22 | 200 | 0.35 | 0.624 | 18.49 | 91.34% |
| | | MH5263A | MH5200A | | | | | 0.0 | 93.5 | 4.00 | 1.52 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.85 | 0.24 | 0.00 | 1.75 | 20.24 | 102.94 | 200 | 0.35 | 0.624 | 18.49 | 91.34% |
| HIGH RES | 5260A | MH5260A | MH5200A | | | | 2.79 | 237.2 | 237.2 | 4.00 | 3.84 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 2.79 | 2.79 | 0.78 | 0.00 | 4.62 | 31.02 | 15.00 | 250 | 0.25 | 0.612 | 26.40 | 85.09% |
| | 5200A | MH5200A | MH5201A | | 0.58 | | | 37.7 | 368.4 | 4.00 | 5.97 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.58 | 4.2 | 1.18 | 0.00 | 7.15 | 31.02 | 43.71 | 250 | 0.25 | 0.612 | 23.87 | 76.95% |
| | | MH5201A | MH5202A | | | | | 0.0 | 368.4 | 4.00 | 5.97 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 4.22 | 1.18 | 0.00 | 7.15 | 31.02 | 95.34 | 250 | 0.25 | 0.612 | 23.87 | 76.95% |
| | | MH5202A | MH5020A | | | | | 0.0 | 368.4 | 4.00 | 5.97 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 4.22 | 1.18 | 0.00 | 7.15 | 31.02 | 67.87 | 250 | 0.25 | 0.612 | 23.87 | 76.95% |
| | 5020A | MH5020A | MH5021A | | 1.40 | | | 91.0 | 1738.5 | 3.63 | 25.58 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.40 | 20.92 | 5.86 | 0.00 | 31.44 | 45.12 | 86.19 | 300 | 0.20 | 0.618 | 13.68 | 30.32% |
| | | MH5021A | MH5030A | | | | | 0.0 | 1738.5 | 3.63 | 25.58 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 20.92 | 5.86 | 0.00 | 31.44 | 45.12 | 86.19 | 300 | 0.20 | 0.618 | 13.68 | 30.32% |
| | 5310A | MH5310A | MH5311A | | 1.35 | | | 87.8 | 87.8 | 4.00 | 1.42 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.35 | 1.35 | 0.38 | 0.00 | 1.80 | 20.24 | 67.06 | 200 | 0.35 | 0.624 | 18.44 | 91.11% |
| | | MH5311A | MH5312A | | | | | 0.0 | 87.8 | 4.00 | 1.42 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.35 | 0.38 | 0.00 | 1.80 | 20.24 | 54.91 | 200 | 0.35 | 0.624 | 18.44 | 91.11% |
| | | MH5312A | MH5313A | | | | | 0.0 | 87.8 | 4.00 | 1.42 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.35 | 0.38 | 0.00 | 1.80 | 20.24 | 11.10 | 200 | 0.35 | 0.624 | 18.44 | 91.11% |
| | | MH5313A | MH5314A | | | | | 0.0 | 87.8 | 4.00 | 1.42 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.35 | 0.38 | 0.00 | 1.80 | 20.24 | 75.73 | 200 | 0.35 | 0.624 | 18.44 | 91.11% |
| | 5315A | MH5315A | MH5316A | | 1.13 | | | 73.5 | 73.5 | 4.00 | 1.19 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.13 | 1.13 | 0.32 | 0.00 | 1.51 | 20.24 | 13.67 | 200 | 0.35 | 0.624 | 18.74 | 92.56% |
| | | MH5316A | MH5317A | | | | | 0.0 | 73.5 | 4.00 | 1.19 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.13 | 0.32 | 0.00 | 1.51 | 20.24 | 72.66 | 200 | 0.35 | 0.624 | 18.74 | 92.56% |
| | | MH5317A | MH5314A | | | | | 0.0 | 73.5 | 4.00 | 1.19 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.13 | 0.32 | 0.00 | 1.51 | 20.24 | 69.08 | 200 | 0.35 | 0.624 | 18.74 | 92.56% |
| | 5314A | MH5314A | MH5030A | | 0.14 | | | 9.1 | 170.3 | 4.00 | 2.76 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.14 | 2.62 | 0.73 | 0.00 | 3.49 | 20.24 | 86.38 | 200 | 0.35 | 0.624 | 16.75 | 82.74% |
| | 5300A | MH5300A | MH5301A | | 0.98 | | | 63.7 | 63.7 | 4.00 | 1.03 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.98 | 0.98 | 0.27 | 0.00 | 1.31 | 20.24 | 53.88 | 200 | 0.35 | 0.624 | 18.94 | 93.55% |
| | | MH5301A | MH5302A | | | | | 0.0 | 63.7 | 4.00 | 1.03 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.98 | 0.27 | 0.00 | 1.31 | 20.24 | 9.26 | 200 | 0.35 | 0.624 | 18.94 | 93.55% |
| | | MH5302A | MH5030A | | | | | 0.0 | 63.7 | 4.00 | 1.03 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.98 | 0.27 | 0.00 | 1.31 | 20.24 | 81.73 | 200 | 0.35 | 0.624 | 18.94 | 93.55% |
| | 5030A | MH5030A | MH5031A | | 1.26 | | | 81.9 | 2054.4 | 3.58 | 29.77 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.26 | 25.78 | 7.22 | 0.00 | 36.98 | 45.12 | 120.00 | 300 | 0.20 | 0.618 | 8.13 | 18.02% |
| SCHOOL | 5034A | MH5034A | MH5031A | | | | | 0.0 | 0.0 | 4.00 | 0.00 | 2.92 | 2.92 | | 0.00 | | 0.00 | 2.53 | 2.92 | 2.92 | 0.82 | 0.00 | 3.35 | 31.02 | 15.00 | 250 | 0.25 | 0.612 | 27.67 | 89.19% |
| | | MH5031A | MH5032A | | | | | 0.0 | 2054.4 | 3.58 | 29.77 | | 2.92 | | 0.00 | | 0.00 | 2.53 | 0.00 | 28.70 | 8.04 | 0.00 | 40.34 | 70.84 | 45.59 | 375 | 0.15 | 0.621 | 30.51 | 43.06% |
| | | MH5032A | MH5033A | | | | | 0.0 | 2054.4 | 3.58 | 29.77 | | 2.92 | | 0.00 | | 0.00 | 2.53 | 0.00 | 28.70 | 8.04 | 0.00 | 40.34 | 70.84 | 44.24 | 375 | 0.15 | 0.621 | 30.51 | 43.06% |
| PARK | 5035A | MH5035A | MH5033A | 2.18 | | | | 0.0 | 0.0 | 4.00 | 0.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 2.18 | 2.18 | 0.61 | 0.00 | 0.61 | 20.24 | 20.00 | 200 | 0.35 | 0.624 | 19.63 | 96.98% |
| | | MH5033A | MH5040A | | | | | 0.0 | 2054.4 | 3.58 | 29.77 | | 2.92 | | 0.00 | | 0.00 | 2.53 | 0.00 | 30.88 | 8.65 | 0.00 | 40.95 | 70.84 | 43.69 | 375 | 0.15 | 0.621 | 29.89 | 42.20% |
| | 5040A | MH5040A | MH5041A | | 2.23 | | | 145.0 | 2199.3 | 3.55 | 31.66 | | 2.92 | | 0.00 | | 0.00 | 2.53 | 2.23 | 33.11 | 9.27 | 0.00 | 43.46 | 70.84 | 60.00 | 375 | 0.15 | 0.621 | 27.38 | 38.65% |
| | | MH5041A | MH5042A | | | | | 0.0 | 2199.3 | 3.55 | 31.66 | | 2.92 | | 0.00 | | 0.00 | 2.53 | 0.00 | 33.11 | 9.27 | 0.00 | 43.46 | 70.84 | 60.00 | 375 | 0.15 | 0.621 | 27.38 | 38.65% |
| | | MH5042A | MH5043A | | | | | 0.0 | 2199.3 | 3.55 | 31.66 | | 2.92 | | 0.00 | | 0.00 | 2.53 | 0.00 | 33.11 | 9.27 | 0.00 | 43.46 | 70.84 | 36.32 | 375 | 0.15 | 0.621 | 27.38 | 38.65% |
| | | MH5043A | MH5050A | | | | | 0.0 | 2199.3 | 3.55 | 31.66 | | 2.92 | | 0.00 | | 0.00 | 2.53 | 0.00 | 33.11 | 9.27 | 0.00 | 43.46 | 70.84 | 53.99 | 375 | 0.15 | 0.621 | 27.38 | 38.65% |
| | 5500A | MH5500A | MH5050A | | 0.59 | | | 38.4 | 38.4 | 4.00 | 0.62 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.59 | 0.59 | 0.17 | 0.00 | 0.79 | 20.24 | 120.00 | 200 | 0.35 | 0.624 | 19.46 | 96.11% |

**IBI GROUP**
400-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

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**MER BLEUE Urban Expansion Area**
MSS Preferred Concept
CITY OF OTTAWA
Owners Group

| LOCATION | | | | RESIDENTIAL | | | | | | | | ICI AREAS | | | | | | | INFILTRATION ALLOWANCE | | | FIXED FLOW | TOTAL FLOW | PROPOSED SEWER DESIGN | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AREA (Ha) | AREA w/o units (pp/Ha) | | | POPULATION | | PEAK FACTOR | PEAK FLOW (L/s) | AREA (Ha) | | | | | | PEAK FLOW (L/s) | AREA (Ha) | | FLOW (L/s) | (L/s) | (L/s) | CAPACITY (L/s) | LENGTH (m) | DIA (mm) | SLOPE (%) | VELOCITY (full) (m/s) | AVAILABLE CAPACITY | |
| STREET | AREA ID | FROM MH | TO MH | | LOW 65 | MED 110 | HIGH 85 | IND | CUM | | | INSTITUTIONAL IND | INSTITUTIONAL CUM | COMMERCIAL IND | COMMERCIAL CUM | INDUSTRIAL IND | INDUSTRIAL CUM | | IND | CUM | | | | | | | | L/s | (%) |
| | 5600A | MH5600A | MH5601A | | 1.64 | | | 106.6 | 106.6 | 4.00 | 1.73 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.64 | 1.64 | 0.46 | 0.00 | 2.19 | 20.24 | 120.00 | 200 | 0.35 | 0.624 | 18.06 | 89.20% |
| | | MH5601A | MH5052A | | | | | 0.0 | 106.6 | 4.00 | 1.73 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.64 | 0.46 | 0.00 | 2.19 | 20.24 | 104.00 | 200 | 0.35 | 0.624 | 18.06 | 89.20% |
| | 5052A | MH5052A | MH5051A | | 1.22 | | | 79.3 | 185.9 | 4.00 | 3.01 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.22 | 2.86 | 0.80 | 0.00 | 3.81 | 20.24 | 115.00 | 200 | 0.35 | 0.624 | 16.43 | 81.16% |
| | | MH5051A | MH5050A | | | | | 0.0 | 185.9 | 4.00 | 3.01 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 2.86 | 0.80 | 0.00 | 3.81 | 20.24 | 110.22 | 200 | 0.35 | 0.624 | 16.43 | 81.16% |
| | 5050A | MH5050A | MH6010A | | 0.30 | | | 19.5 | 2443.1 | 3.52 | 34.80 | | 2.92 | | 0.00 | | 0.00 | 2.53 | 0.30 | 36.86 | 10.32 | 0.00 | 47.66 | 70.84 | 84.63 | 375 | 0.15 | 0.621 | 23.18 | 32.73% |
| | 6100A | MH6100A | MH6101A | | 1.66 | | | 107.9 | 107.9 | 4.00 | 1.75 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.66 | 1.66 | 0.46 | 0.00 | 2.21 | 20.24 | 75.42 | 200 | 0.35 | 0.624 | 18.03 | 89.07% |
| | | MH6101A | MH6010A | | | | | 0.0 | 107.9 | 4.00 | 1.75 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.66 | 0.46 | 0.00 | 2.21 | 20.24 | 94.08 | 200 | 0.35 | 0.624 | 18.03 | 89.07% |
| | 6010A | MH6010A | MH6020A | | 0.41 | | | 26.7 | 2577.6 | 3.50 | 36.52 | | 2.92 | | 0.00 | | 0.00 | 2.53 | 0.41 | 38.93 | 10.90 | 0.00 | 49.96 | 70.84 | 82.00 | 375 | 0.15 | 0.621 | 20.89 | 29.48% |
| EXTERNAL | 6200A | MH6200A | MH6201A | | 24.74 | | | 510.0 | 510.0 | 3.97 | 8.20 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 24.74 | 24.74 | 6.93 | 0.00 | 15.13 | 20.24 | 40.96 | 200 | 0.35 | 0.624 | 5.11 | 25.26% |
| Approximate unit count of 150x3.4=510pp | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | MH6202A | MH6201A | | | | | 0.0 | 0.0 | 4.00 | 0.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 20.24 | 31.64 | 200 | 0.35 | 0.624 | 20.24 | 100.00% |
| | 6201A | MH6201A | MH6203A | | 2.44 | | | 158.6 | 668.6 | 3.91 | 10.58 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 2.44 | 27.18 | 7.61 | 0.00 | 18.19 | 20.24 | 94.07 | 200 | 0.35 | 0.624 | 2.05 | 10.14% |
| | | MH6203A | MH6204A | | | | | 0.0 | 668.6 | 3.91 | 10.58 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 27.18 | 7.61 | 0.00 | 18.19 | 20.24 | 98.76 | 200 | 0.35 | 0.624 | 2.05 | 10.14% |
| | | MH6204A | MH6205A | | | | | 0.0 | 668.6 | 3.91 | 10.58 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 27.18 | 7.61 | 0.00 | 18.19 | 20.24 | 9.97 | 200 | 0.35 | 0.624 | 2.05 | 10.14% |
| | | MH6205A | MH6210A | | | | | 0.0 | 668.6 | 3.91 | 10.58 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 27.18 | 7.61 | 0.00 | 18.19 | 20.24 | 74.95 | 200 | 0.35 | 0.624 | 2.05 | 10.14% |
| | 6211A | MH6211A | MH6212A | | 1.90 | | | 123.5 | 123.5 | 4.00 | 2.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.90 | 1.90 | 0.53 | 0.00 | 2.53 | 20.24 | 64.38 | 200 | 0.35 | 0.624 | 17.71 | 87.49% |
| | | MH6212A | MH6213A | | | | | 0.0 | 123.5 | 4.00 | 2.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.90 | 0.53 | 0.00 | 2.53 | 20.24 | 11.49 | 200 | 0.35 | 0.624 | 17.71 | 87.49% |
| | | MH6213A | MH6214A | | | | | 0.0 | 123.5 | 4.00 | 2.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.90 | 0.53 | 0.00 | 2.53 | 20.24 | 73.20 | 200 | 0.35 | 0.624 | 17.71 | 87.49% |
| Woodlot (infil only) | 6214A | MH6214A | MH6215A | 1.20 | | | | 0.0 | 123.5 | 4.00 | 2.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.20 | 3.10 | 0.87 | 0.00 | 2.87 | 20.24 | 78.55 | 200 | 0.35 | 0.624 | 17.37 | 85.83% |
| | | MH6215A | MH6210A | | | | | 0.0 | 123.5 | 4.00 | 2.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 3.10 | 0.87 | 0.00 | 2.87 | 20.24 | 78.21 | 200 | 0.35 | 0.624 | 17.37 | 85.83% |
| | 6210A | MH6210A | MH6220A | | 0.19 | | | 12.4 | 804.5 | 3.86 | 12.58 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.19 | 30.47 | 8.53 | 0.00 | 21.11 | 31.02 | 82.00 | 250 | 0.25 | 0.612 | 9.91 | 31.96% |
| | 6222A | MH6222A | MH6220A | | 0.53 | | | 34.5 | 34.5 | 4.00 | 0.56 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.53 | 0.53 | 0.15 | 0.00 | 0.71 | 20.24 | 75.45 | 200 | 0.35 | 0.624 | 19.54 | 96.51% |
| | 6223A | MH6223A | MH6224A | | 1.24 | | | 80.6 | 80.6 | 4.00 | 1.31 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.24 | 1.24 | 0.35 | 0.00 | 1.65 | 20.24 | 61.03 | 200 | 0.35 | 0.624 | 18.59 | 91.83% |
| | | MH6224A | MH6225A | | | | | 0.0 | 80.6 | 4.00 | 1.31 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.24 | 0.35 | 0.00 | 1.65 | 20.24 | 13.90 | 200 | 0.35 | 0.624 | 18.59 | 91.83% |
| | | MH6225A | MH6220A | | | | | 0.0 | 80.6 | 4.00 | 1.31 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.24 | 0.35 | 0.00 | 1.65 | 20.24 | 89.28 | 200 | 0.35 | 0.624 | 18.59 | 91.83% |
| | 6220A | MH6220A | MH6221A | | 0.81 | | | 52.7 | 972.2 | 3.81 | 15.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.81 | 33.05 | 9.25 | 0.00 | 24.25 | 31.02 | 81.86 | 250 | 0.25 | 0.612 | 6.77 | 21.82% |
| | | MH6221A | MH6020A | | | | | 0.0 | 972.2 | 3.81 | 15.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 33.05 | 9.25 | 0.00 | 24.25 | 31.02 | 98.37 | 250 | 0.25 | 0.612 | 6.77 | 21.82% |
| | 6020A | MH6020A | MH6030A | | 0.85 | | | 55.3 | 3605.0 | 3.37 | 49.26 | | 2.92 | | 0.00 | | 0.00 | 2.53 | 0.85 | 72.83 | 20.39 | 0.00 | 72.19 | 107.24 | 82.00 | 450 | 0.13 | 0.653 | 35.05 | 32.68% |
| | 6300A | MH6300A | MH6030A | | | | | 0.0 | 0.0 | 4.00 | 0.00 | 2.22 | 2.22 | | 0.00 | | 0.00 | 1.93 | 2.22 | 2.22 | 0.62 | 0.00 | 2.55 | 20.24 | 15.00 | 200 | 0.35 | 0.624 | 17.69 | 87.41% |
| | 6030A | MH6030A | MH6040A | | | | | 0.0 | 3605.0 | 3.37 | 49.26 | | 5.14 | | 0.00 | | 0.00 | 4.46 | 0.00 | 75.05 | 21.01 | 0.00 | 74.74 | 107.24 | 85.37 | 450 | 0.13 | 0.653 | 32.50 | 30.31% |
| EXT TO SOUTH | 6400A | MH6400A | MH6401A | | 50.53 | | | 3284.5 | 3284.5 | 3.41 | 45.35 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 50.53 | 50.53 | 14.15 | 0.00 | 59.50 | 70.84 | 27.46 | 375 | 0.15 | 0.621 | 11.34 | 16.01% |
| Woodlot (infil only) | 6401A | MH6401A | MH6402A | 3.98 | | | | 0.0 | 3284.5 | 3.41 | 45.35 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 3.98 | 54.51 | 15.26 | 0.00 | 60.62 | 70.84 | 13.59 | 375 | 0.15 | 0.621 | 10.23 | 14.43% |
| | 6400B | MH6402A | MH6403A | | 1.43 | | | 93.0 | 3377.4 | 3.40 | 46.49 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.43 | 55.94 | 15.66 | 0.00 | 62.16 | 70.84 | 23.25 | 375 | 0.15 | 0.621 | 8.69 | 12.26% |
| | | MH6403A | MH6404A | | | | | 0.0 | 3377.4 | 3.40 | 46.49 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 55.94 | 15.66 | 0.00 | 62.16 | 70.84 | 59.64 | 375 | 0.15 | 0.621 | 8.69 | 12.26% |
| | | MH6404A | MH6405A | | | | | 0.0 | 3377.4 | 3.40 | 46.49 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 55.94 | 15.66 | 0.00 | 62.16 | 70.84 | 27.32 | 375 | 0.15 | 0.621 | 8.69 | 12.26% |
| | | MH6405A | MH6406A | | | | | 0.0 | 3377.4 | 3.40 | 46.49 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 55.94 | 15.66 | 0.00 | 62.16 | 70.84 | 29.25 | 375 | 0.15 | 0.621 | 8.69 | 12.26% |
| PARK | 6407A | MH6407A | MH6406A | 2.03 | | | | 0.0 | 0.0 | 4.00 | 0.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 2.03 | 2.03 | 0.57 | 0.00 | 0.57 | 20.24 | 16.29 | 200 | 0.35 | 0.624 | 19.67 | 97.19% |
| | | MH6406A | MH6040A | | | | | 0.0 | 3377.4 | 3.40 | 46.49 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 57.97 | 16.23 | 0.00 | 62.72 | 70.84 | 114.04 | 375 | 0.15 | 0.621 | 8.12 | 11.46% |
| | 6040A | MH6040A | MH6050A | | 0.18 | | | 11.7 | 6994.1 | 3.11 | 88.03 | | 5.14 | | 0.00 | | 0.00 | 4.46 | 0.18 | 133.20 | 37.30 | 0.00 | 129.79 | 148.80 | 85.00 | 525 | 0.11 | 0.666 | 19.02 | 12.78% |
| | 6500A | MH6500A | MH6501A | | 1.92 | | | 124.8 | 124.8 | 4.00 | 2.02 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.92 | 1.92 | 0.54 | 0.00 | 2.56 | 20.24 | 92.49 | 200 | 0.35 | 0.624 | 17.68 | 87.35% |
| | | MH6501A | MH6502A | | | | | 0.0 | 124.8 | 4.00 | 2.02 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.92 | 0.54 | 0.00 | 2.56 | 20.24 | 72.40 | 200 | 0.35 | 0.624 | 17.68 | 87.35% |
| | | MH6502A | MH6503A | | | | | 0.0 | 124.8 | 4.00 | 2.02 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.92 | 0.54 | 0.00 | 2.56 | 20.24 | 9.76 | 200 | 0.35 | 0.624 | 17.68 | 87.35% |
| | | MH6503A | MH6504A | | | | | 0.0 | 124.8 | 4.00 | 2.02 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.92 | 0.54 | 0.00 | 2.56 | 20.24 | 67.50 | 200 | 0.35 | 0.624 | 17.68 | 87.35% |
| | | MH6504A | MH6505A | | | | | 0.0 | 124.8 | 4.00 | 2.02 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.92 | 0.54 | 0.00 | 2.56 | 20.24 | 10.79 | 200 | 0.35 | 0.624 | 17.68 | 87.35% |
| | 6505A | MH6505A | MH6506A | | 1.52 | | | 98.8 | 223.6 | 4.00 | 3.62 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.52 | 3.44 | 0.96 | 0.00 | 4.59 | 20.24 | 53.66 | 200 | 0.35 | 0.624 | 15.66 | 77.34% |
| | | MH6506A | MH6507A | | | | | 0.0 | 223.6 | 4.00 | 3.62 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 3.44 | 0.96 | 0.00 | 4.59 | 20.24 | 61.34 | 200 | 0.35 | 0.624 | 15.66 | 77.34% |
| | | MH6507A | MH6508A | | | | | 0.0 | 223.6 | 4.00 | 3.62 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 3.44 | 0.96 | 0.00 | 4.59 | 20.24 | 8.00 | 200 | 0.35 | 0.624 | 15.66 | 77.34% |
| | | MH6508A | MH6509A | | | | | 0.0 | 223.6 | 4.00 | 3.62 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 3.44 | 0.96 | 0.00 | 4.59 | 20.24 | 29.46 | 200 | 0.35 | 0.624 | 15.66 | 77.34% |
| | | MH6509A | MH6510A | | | | | 0.0 | 223.6 | 4.00 | 3.62 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 3.44 | 0.96 | 0.00 | 4.59 | 20.24 | 48.43 | 200 | 0.35 | 0.624 | 15.66 | 77.34% |
| | 6511A | MH6511A | MH6512A | | 1.60 | | | 104.0 | 104.0 | 4.00 | 1.69 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.60 | 1.60 | 0.45 | 0.00 | 2.13 | 20.24 | 64.85 | 200 | 0.35 | 0.624 | 18.11 | 89.46% |
| | | MH6512A | MH6513A | | | | | 0.0 | 104.0 | 4.00 | 1.69 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.60 | 0.45 | 0.00 | 2.13 | 20.24 | 9.89 | 200 | 0.35 | 0.624 | 18.11 | 89.46% |
| | | MH6513A | MH6514A | | | | | 0.0 | 104.0 | 4.00 | 1.69 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.60 | 0.45 | 0.00 | 2.13 | 20.24 | 63.44 | 200 | 0.35 | 0.624 | 18.11 | 89.46% |
| | | MH6514A | MH6510A | | | | | 0.0 | 104.0 | 4.00 | 1.69 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.60 | 0.45 | 0.00 | 2.13 | 20.24 | 67.62 | 200 | 0.35 | 0.624 | 18.11 | 89.46% |
| | 6510A | MH6510A | MH6050A | | 0.37 | | | 24.1 | 351.7 | 4.00 | 5.70 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.37 | 5.41 | 1.51 | 0.00 | 7.21 | 20.24 | 85.00 | 200 | 0.35 | 0.624 | 13.03 | 64.37% |

**IBI GROUP**
400-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

**SANITARY SEWER DESIGN SHEET**
**MER BLEUE Urban Expansion Area**
MSS Preferred Concept
CITY OF OTTAWA
Owners Group

| LOCATION | | | | RESIDENTIAL | | | | | | | | ICI AREAS | | | | | | | INFILTRATION ALLOWANCE | | | FIXED FLOW | TOTAL FLOW | PROPOSED SEWER DESIGN | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AREA (Ha) | AREA w/o units (pp/Ha) | | | POPULATION | | PEAK FACTOR | PEAK FLOW (L/s) | AREA (Ha) | | | | | | PEAK FLOW (L/s) | AREA (Ha) | | FLOW (L/s) | (L/s) | (L/s) | CAPACITY (L/s) | LENGTH (m) | DIA (mm) | SLOPE (%) | VELOCITY (full) (m/s) | AVAILABLE CAPACITY | |
| STREET | AREA ID | FROM MH | TO MH | | LOW 65 | MED 110 | HIGH 85 | IND | CUM | | | INSTITUTIONAL IND | INSTITUTIONAL CUM | COMMERCIAL IND | COMMERCIAL CUM | INDUSTRIAL IND | INDUSTRIAL CUM | | IND | CUM | | | | | | | | L/s | (%) |
| | 6520A | MH6520A | MH6521A | | 1.62 | | | 105.3 | 105.3 | 4.00 | 1.71 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.62 | 1.62 | 0.45 | 0.00 | 2.16 | 20.24 | 117.52 | 200 | 0.35 | 0.624 | 18.08 | 89.33% |
| | | MH6521A | MH6522A | | | | | 0.0 | 105.3 | 4.00 | 1.71 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.62 | 0.45 | 0.00 | 2.16 | 20.24 | 11.41 | 200 | 0.35 | 0.624 | 18.08 | 89.33% |
| | | MH6522A | MH6523A | | | | | 0.0 | 105.3 | 4.00 | 1.71 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.62 | 0.45 | 0.00 | 2.16 | 20.24 | 73.71 | 200 | 0.35 | 0.624 | 18.08 | 89.33% |
| | 6524A | MH6524A | MH6523A | | 0.13 | | | 8.5 | 8.5 | 4.00 | 0.14 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.13 | 0.13 | 0.04 | 0.00 | 0.17 | 20.24 | 70.20 | 200 | 0.35 | 0.624 | 20.07 | 99.14% |
| | 6525A | MH6525A | MH6523A | | 0.95 | | | 61.8 | 61.8 | 4.00 | 1.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.95 | 0.95 | 0.27 | 0.00 | 1.27 | 20.24 | 117.33 | 200 | 0.35 | 0.624 | 18.98 | 93.74% |
| | 6523A | MH6523A | MH6526A | | 0.37 | | | 24.1 | 199.6 | 4.00 | 3.23 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.37 | 3.07 | 0.86 | 0.00 | 4.09 | 20.24 | 82.28 | 200 | 0.35 | 0.624 | 16.15 | 79.78% |
| | 6527A | MH6527A | MH6526A | | 0.95 | | | 61.8 | 61.8 | 4.00 | 1.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.95 | 0.95 | 0.27 | 0.00 | 1.27 | 20.24 | 117.29 | 200 | 0.35 | 0.624 | 18.98 | 93.74% |
| | 6526A | MH6526A | MH6050A | | 0.37 | | | 24.1 | 285.4 | 4.00 | 4.62 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.37 | 4.39 | 1.23 | 0.00 | 5.85 | 20.24 | 84.97 | 200 | 0.35 | 0.624 | 14.39 | 71.09% |
| | 6050A | MH6050A | MH6051A | | 1.03 | | | 67.0 | 7698.1 | 3.07 | 95.63 | | 5.14 | | 0.00 | | 0.00 | 4.46 | 1.03 | 144.03 | 40.33 | 0.00 | 140.42 | 148.80 | 117.54 | 525 | 0.11 | 0.666 | 8.38 | 5.63% |
| | 6051A | MH6051A | MH6053A | | 0.84 | | | 54.6 | 7752.7 | 3.06 | 96.21 | | 5.14 | | 0.00 | | 0.00 | 4.46 | 0.84 | 144.87 | 40.56 | 0.00 | 141.24 | 148.80 | 78.08 | 525 | 0.11 | 0.666 | 7.56 | 5.08% |
| | 6600A | MH6600A | MH6601A | | 1.90 | | | 123.5 | 123.5 | 4.00 | 2.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.90 | 1.90 | 0.53 | 0.00 | 2.53 | 20.24 | 78.62 | 200 | 0.35 | 0.624 | 17.71 | 87.49% |
| | | MH6601A | MH6602A | | | | | 0.0 | 123.5 | 4.00 | 2.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.90 | 0.53 | 0.00 | 2.53 | 20.24 | 75.79 | 200 | 0.35 | 0.624 | 17.71 | 87.49% |
| | | MH6602A | MH6603A | | | | | 0.0 | 123.5 | 4.00 | 2.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.90 | 0.53 | 0.00 | 2.53 | 20.24 | 11.56 | 200 | 0.35 | 0.624 | 17.71 | 87.49% |
| | | MH6603A | MH6604A | | | | | 0.0 | 123.5 | 4.00 | 2.00 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.90 | 0.53 | 0.00 | 2.53 | 20.24 | 73.95 | 200 | 0.35 | 0.624 | 17.71 | 87.49% |
| | 6607A | MH6607A | MH6606A | | 1.38 | | | 89.7 | 89.7 | 4.00 | 1.45 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.38 | 1.38 | 0.39 | 0.00 | 1.84 | 20.24 | 86.81 | 200 | 0.35 | 0.624 | 18.40 | 90.91% |
| | | MH6606A | MH6604A | | | | | 0.0 | 89.7 | 4.00 | 1.45 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.38 | 0.39 | 0.00 | 1.84 | 20.24 | 83.70 | 200 | 0.35 | 0.624 | 18.40 | 90.91% |
| | 6604A | MH6604A | MH6605A | | 0.39 | | | 25.4 | 238.6 | 4.00 | 3.87 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.39 | 3.67 | 1.03 | 0.00 | 4.89 | 20.24 | 81.84 | 200 | 0.35 | 0.624 | 15.35 | 75.83% |
| | 6608A | MH6608A | MH6609A | | 1.38 | | | 89.7 | 89.7 | 4.00 | 1.45 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 1.38 | 1.38 | 0.39 | 0.00 | 1.84 | 20.24 | 86.33 | 200 | 0.35 | 0.624 | 18.40 | 90.91% |
| | | MH6609A | MH6605A | | | | | 0.0 | 89.7 | 4.00 | 1.45 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.00 | 1.38 | 0.39 | 0.00 | 1.84 | 20.24 | 83.70 | 200 | 0.35 | 0.624 | 18.40 | 90.91% |
| | 6605A | MH6605A | MH6621A | | 0.36 | | | 23.4 | 351.7 | 4.00 | 5.70 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.36 | 5.41 | 1.51 | 0.00 | 7.21 | 20.24 | 85.00 | 200 | 0.35 | 0.624 | 13.03 | 64.37% |
| | 6620A | MH6620A | MH6621A | | 0.62 | | | 40.3 | 40.3 | 4.00 | 0.65 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.62 | 0.62 | 0.17 | 0.00 | 0.83 | 20.24 | 71.07 | 200 | 0.35 | 0.624 | 19.42 | 95.92% |
| | 6621A | MH6621A | MH6053A | | 0.28 | | | 18.2 | 410.2 | 4.00 | 6.65 | | 0.00 | | 0.00 | | 0.00 | 0.00 | 0.28 | 6.31 | 1.77 | 0.00 | 8.41 | 148.80 | 104.05 | 525 | 0.11 | 0.666 | 140.39 | 94.35% |
| | | MH6053A | P.S. | | | | | 0.0 | 8162.8 | 3.04 | 100.58 | | 5.14 | | 0.00 | | 0.00 | 4.46 | 0.00 | 151.18 | 42.33 | 0.00 | 147.37 | 212.45 | 27.40 | 600 | 0.11 | 0.728 | 65.08 | 30.63% |
| | | | | 9.92 | 125.39 | 7.94 | 2.79 | 8162.8 | TRUE | | | 5.14 | TRUE | 0.00 | TRUE | 0.00 | TRUE | | 151.18 | TRUE | | | | | | | | | | |
| | | | | | | | | 146.0 | | | | | | | | | | | 151.18 | TRUE | | | | | | | | | | |

**IBI GROUP**
400-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

# SANITARY SEWER DESIGN SHEET

**MER BLEUE Urban Expansion Area**
MSS Preferred Concept
CITY OF OTTAWA
Owners Group

| LOCATION | | | | RESIDENTIAL | | | | | | | | ICI AREAS | | | | | | | INFILTRATION ALLOWANCE | | | FIXED FLOW | TOTAL FLOW | PROPOSED SEWER DESIGN | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AREA (Ha) | AREA w/o units (pp/Ha) | | | POPULATION | | PEAK FACTOR | PEAK FLOW (L/s) | AREA (Ha) | | | | | | PEAK FLOW (L/s) | AREA (Ha) | | FLOW (L/s) | | | CAPACITY (L/s) | LENGTH (m) | DIA (mm) | SLOPE (%) | VELOCITY (full) (m/s) | AVAILABLE CAPACITY | |
| STREET | AREA ID | FROM MH | TO MH | | LOW 65 | MED 110 | HIGH 85 | IND | CUM | | | INSTITUTIONAL IND | INSTITUTIONAL CUM | COMMERCIAL IND | COMMERCIAL CUM | INDUSTRIAL IND | INDUSTRIAL CUM | | IND | CUM | | | | | | | | L/s | (%) |
| **Tenth Line Road Forcemain** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tenth Line Rd | | P.S. | BEND | | | | | | | | | | | | | | | | | | | 147.37 | 147.37 | | 8.68 | 200 | 0.01 | | |
| Tenth Line Rd | | BEND | BEND | | | | | | | | | | | | | | | | | | | 147.37 | 147.37 | | 5.23 | 200 | 0.01 | | |
| Tenth Line Rd | | BEND | BEND | | | | | | | | | | | | | | | | | | | 147.37 | 147.37 | | 176.48 | 200 | 0.01 | | |
| Tenth Line Rd | | BEND | MH8000A | | | | | | | | | | | | | | | | | | | 147.37 | 147.37 | | 685.42 | 200 | 0.01 | | |
| **Tenth Line Road Gravity Trunk Sewer** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tenth Line Rd | | MH8000A | MH8001A | | | | | 0.0 | 3558.4 | 3.38 | 48.70 | | 2.54 | 0.00 | 3.83 | | 0.0 | 5.53 | 0.00 | 63.2 | 17.68 | 147.37 | 219.28 | 367.27 | 111.50 | 750 | 0.10 | 0.805 | 147.99 | 40.29% |
| Tenth Line Rd | | MH8001A | MH8002A | | | | | 0.0 | 3558.4 | 3.38 | 48.70 | | 2.54 | 0.00 | 3.83 | | 0.00 | 5.53 | 0.00 | 63.15 | 17.68 | 147.37 | 219.28 | 367.27 | 111.50 | 750 | 0.10 | 0.805 | 147.99 | 40.29% |
| Tenth Line Rd | | MH8002A | MH8003A | | | | | 0.0 | 3558.4 | 3.38 | 48.70 | | 2.54 | 0.00 | 3.83 | | 0.00 | 5.53 | 0.00 | 63.15 | 17.68 | 147.37 | 219.28 | 367.27 | 111.50 | 750 | 0.10 | 0.805 | 147.99 | 40.29% |
| Tenth Line Rd | | MH8003A | MH8004A | | | | | 0.0 | 3558.4 | 3.38 | 48.70 | | 2.54 | 0.00 | 3.83 | | 0.00 | 5.53 | 0.00 | 63.15 | 17.68 | 147.37 | 219.28 | 367.27 | 111.50 | 750 | 0.10 | 0.805 | 147.99 | 40.29% |
| Tenth Line Rd | | MH8004A | MH8005A | | | | | 0.0 | 3558.4 | 3.38 | 48.70 | | 2.54 | 0.00 | 3.83 | | 0.00 | 5.53 | 0.00 | 63.15 | 17.68 | 147.37 | 219.28 | 367.27 | 111.50 | 750 | 0.10 | 0.805 | 147.99 | 40.29% |
| Tenth Line Rd | | MH8005A | MH8006A | | | | | 0.0 | 3558.4 | 3.38 | 48.70 | | 2.54 | 0.00 | 3.83 | | 0.00 | 5.53 | 0.00 | 63.15 | 17.68 | 147.37 | 219.28 | 367.27 | 111.50 | 750 | 0.10 | 0.805 | 147.99 | 40.29% |
| Tenth Line Rd | | MH8006A | MH8007A | | | | | 0.0 | 3558.4 | 3.38 | 48.70 | | 2.54 | 0.00 | 3.83 | | 0.00 | 5.53 | 0.00 | 63.15 | 17.68 | 147.37 | 219.28 | 367.27 | 117.98 | 750 | 0.10 | 0.805 | 147.99 | 40.29% |
| Tenth Line Rd | | MH8007A | MH514A | | | | | 0.0 | 3558.4 | 3.38 | 48.70 | | 2.54 | 0.00 | 3.83 | | 0.00 | 5.53 | 0.00 | 63.15 | 17.68 | 147.37 | 219.28 | 367.27 | 37.07 | 750 | 0.10 | 0.805 | 147.99 | 40.29% |
| | | Mh514A | MH8008A | | | | | 0.0 | 3558.4 | 3.38 | 48.70 | | 2.54 | 0.00 | 3.83 | | 0.00 | 5.53 | 0.00 | 63.15 | 17.68 | 147.37 | 219.28 | 367.27 | 81.06 | 750 | 0.10 | 0.805 | 147.99 | 40.29% |
| | | EX MH | MH8008A | | | | | 0.0 | 0.0 | 4.00 | 0.00 | | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 277.31 | 5.00 | 675 | 0.10 | 0.751 | 277.31 | 100.00% |
| | | MH80008A | MH8009A | | | | | 0.0 | 3558.4 | 3.38 | 48.70 | | 2.54 | 0.00 | 3.83 | | 0.00 | 5.53 | 0.00 | 63.15 | 17.68 | 147.37 | 219.28 | 277.31 | 26.45 | 675 | 0.10 | 0.751 | 58.03 | 20.93% |

**Design Parameters:**

Residential

| | | |
|---|---|---|
| LOW | 65 | p/p/ha |
| MED | 110 | p/p/ha |
| HIGH | 85 | p/p/ha |

ICI Areas

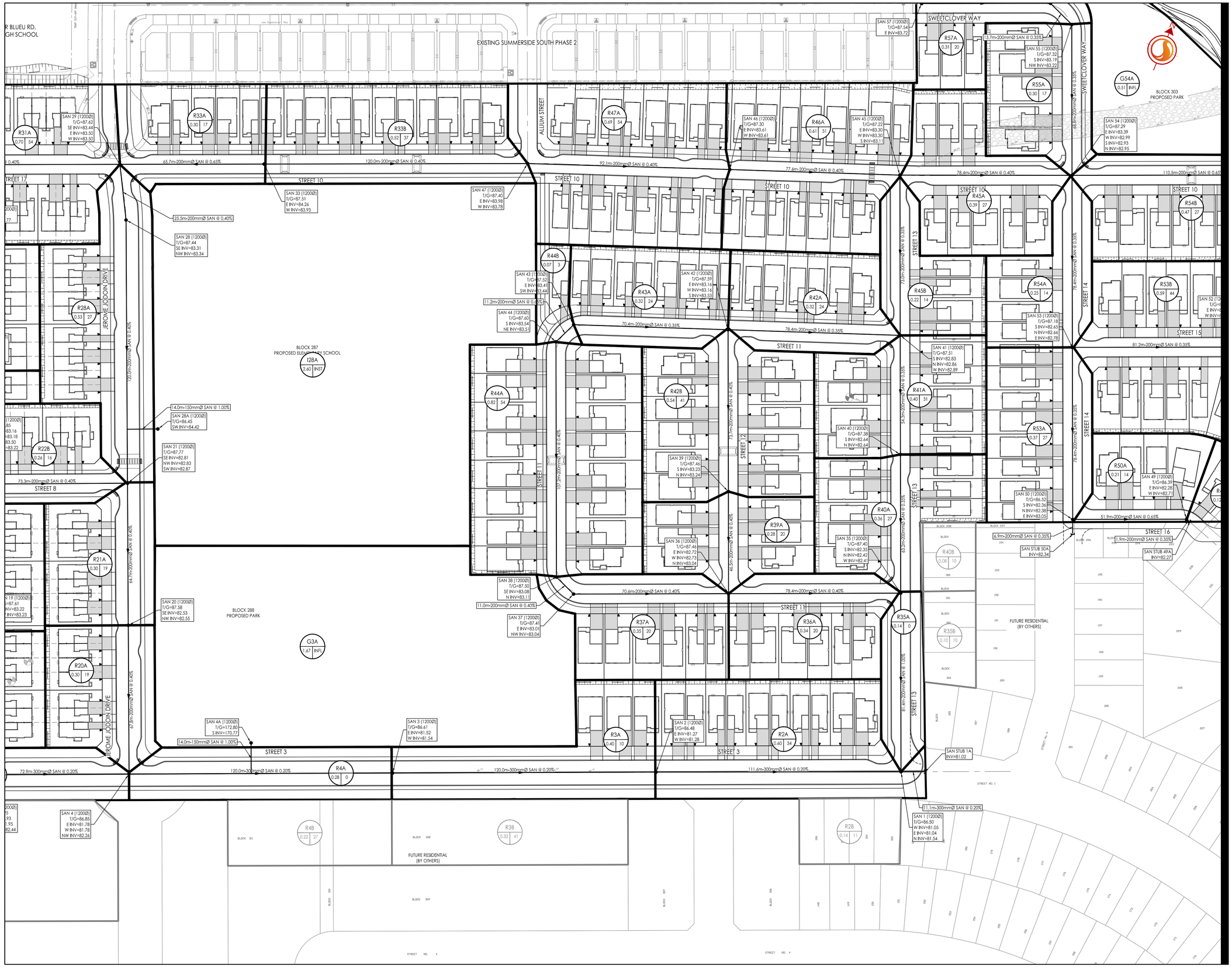
| | | | Peak Factor |
|---|---|---|---|
| INST | 50,000 | L/Ha/day | 1.5 |
| COM | 50,000 | L/Ha/day | 1.5 |
| IND | 35,000 | L/Ha/day | MOE Chart |
| | 17000 | L/Ha/day | |

**Notes:**
1. Mannings coefficient (n) = 0.013
2. Demand (per capita): 350 L/day
3. Infiltration allowance: 0.28 L/s/Ha
4. Residential Peaking Factor:
Harmon Formula = 1+(14/(4+P^0.5))
where P = population in thousands

**Designed:** RM
**Checked:** DY
**Dwg. Reference:** 34739-8.2.1

| No. | Revision | Date |
|---|---|---|
| 1. | MSS - 3rd Submission | 2017-04 |

**File Reference:** 34739.5.7.1
**Date:** 2017-03-02
**Sheet No:** 1 of 1




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Legend

- PROPOSED SANITARY SEWER
- R200A / 0.38 / 14 — SANITARY DRAINAGE AREA ID# / POPULATION / SANITARY DRAINAGE AREA ha.
- SANITARY DRAINAGE AREA ha.
- TYPICAL SERVICE LATERAL LOCATION
- TYPICAL SERVICE LATERAL LOCATION (EXTERNAL/FUTURE)
- EXISTING/FUTURE SANITARY SEWER
- R200A / 0.38 / 14 — EXTERNAL/FUTURE/EXISTING SANITARY DRAINAGE AREA ID# / EXTERNAL/FUTURE POPULATION
- EXTERNAL/FUTURE/EXISTING SANITARY DRAINAGE AREA ha.
- EXTERNAL/FUTURE/EXISTING SANITARY DRAINAGE AREA ha.
- INST — INSTITUTIONAL FLOW RATE APPLIED (28,000 L/ha/day)
- INFL — GREEN SPACE – INFILTRATION FLOW ONLY (0.33 L/s/Ha)

Notes

| | | | | |
|---|---|---|---|---|
| 2 | REVISED PROFILE AND SURFACE GRADING | JP | SGG | 23.07.24 |
| 1 | ISSUED FOR FIRST SUBMISSION | JP | SGG | 23.01.12 |
| Revision | | By | Appd. | YY.MM.DD |
| File Name: 160401737 SA.dwg | | JP | DT | 22.10.26 |
| | | Dwn. | Chkd. | Dsgn. | YY.MM.DD |

Permit-Seal

LICENSED PROFESSIONAL ENGINEER
D. C. THIFFAULT
100186107
2024-04-12
PROVINCE OF ONTARIO

Client/Project

MATTAMY (MER BLEUE 2) LTD
50 HINES ROAD, SUITE 100
OTTAWA ON K2K 2M5

SUMMERSIDE SOUTH PHASE 2/3 SUBDIVISION
OTTAWA, ON, CANADA

Title

SANITARY DRAINAGE PLAN

| Project No. | Scale | | | | |
|---|---|---|---|---|---|
| 160401737 | 1:750 | 0 | 7.5 | 22.5 | 37.5m |
| Drawing No. | Sheet | | Revision | | |
| SA-2 | 52 of 62 | | 2 | | |

DWG# XXXXX

DXXXXXX

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- SANITARY DRAINAGE AREA ha.
- TYPICAL SERVICE LATERAL LOCATION
- TYPICAL SERVICE LATERAL LOCATION (EXTERNAL/FUTURE)
- EXISTING/FUTURE SANITARY SEWER
- R200A / 0.38 | 14 — EXTERNAL/FUTURE/EXISTING SANITARY DRAINAGE AREA ID# / EXTERNAL/FUTURE POPULATION / EXTERNAL/FUTURE/EXISTING SANITARY DRAINAGE AREA ha.
- EXTERNAL/FUTURE/EXISTING SANITARY DRAINAGE AREA ha.
- INST — INSTITUTIONAL FLOW RATE APPLIED (28,000 L/ha/day)
- INFL — GREEN SPACE – INFILTRATION FLOW ONLY (0.33 L/s/Ha)

Notes

| | | | | |
|---|---|---|---|---|
| 2 | REVISED PROFILE AND SURFACE GRADING | JP | SGG | 23.07.24 |
| 1 | ISSUED FOR FIRST SUBMISSION | JP | SGG | 23.01.12 |
| Revision | | By | Appd. | YY.MM.DD |
| File Name: 160401737 SA.dwg | | JP | DT | 22.10.26 |
| | | Dwn. | Chkd. | YY.MM.DD |

Permit-Seal

LICENSED PROFESSIONAL ENGINEER
D. C. THIFFAULT
100186107
2024-04-12
PROVINCE OF ONTARIO

Client/Project

MATTAMY (MER BLEUE 2) LTD
50 HINES ROAD, SUITE 100
OTTAWA ON K2K 2M5

SUMMERSIDE SOUTH PHASE 2/3 SUBDIVISION
OTTAWA, ON, CANADA

Title

SANITARY DRAINAGE PLAN

| Project No. | Scale | | | | |
|---|---|---|---|---|---|
| 160401737 | 1:750 | 0 | 7.5 | 22.5 | 37.5m |
| Drawing No. | Sheet | | Revision | | |
| SA-3 | 53 of 62 | | 2 | | |

DWG# XXXXX

DXXXXXX

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2023/08/15 8:09 PM By: Podargo Junzier

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- R200A / 0.38 / 14 — EXTERNAL/FUTURE/EXISTING SANITARY DRAINAGE AREA ID# / EXTERNAL/FUTURE POPULATION / EXTERNAL/FUTURE/EXISTING SANITARY DRAINAGE AREA ha.
- EXTERNAL/FUTURE/EXISTING SANITARY DRAINAGE AREA ha.
- INST — INSTITUTIONAL FLOW RATE APPLIED (28,000 L/ha/day)
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Notes

| | | | | |
|---|---|---|---|---|
| 2 | REVISED PROFILE AND SURFACE GRADING | JP | SGG | 23.07.24 |
| 1 | ISSUED FOR FIRST SUBMISSION | JP | SGG | 23.01.12 |
| Revision | | By | Appd. | YY.MM.DD |
| File Name: 160401737 SA.dwg | | JP | DT | JP 22.10.26 |
| | | Dwn. | Chkd. | Dsgn. YY.MM.DD |

Permit-Seal

LICENSED PROFESSIONAL ENGINEER
D. C. THIFFAULT
100186107
2024-04-12
PROVINCE OF ONTARIO

Client/Project

MATTAMY (MER BLEUE 2) LTD
50 HINES ROAD, SUITE 100
OTTAWA ON K2K 2M5

SUMMERSIDE SOUTH PHASE 2/3 SUBDIVISION
OTTAWA, ON, CANADA

Title

SANITARY DRAINAGE PLAN

| Project No. | Scale | |
|---|---|---|
| 160401737 | 1:750 | 0 7.5 22.5 37.5m |
| Drawing No. | Sheet | Revision |
| SA-1 | 51 of 62 | 2 |

DWG# XXXXX

DXXXXXX

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SUBDIVISION: **Summerside PH2/3**

DATE: 1/19/2023
REVISION: 1
DESIGNED BY: JP
CHECKED BY: MS

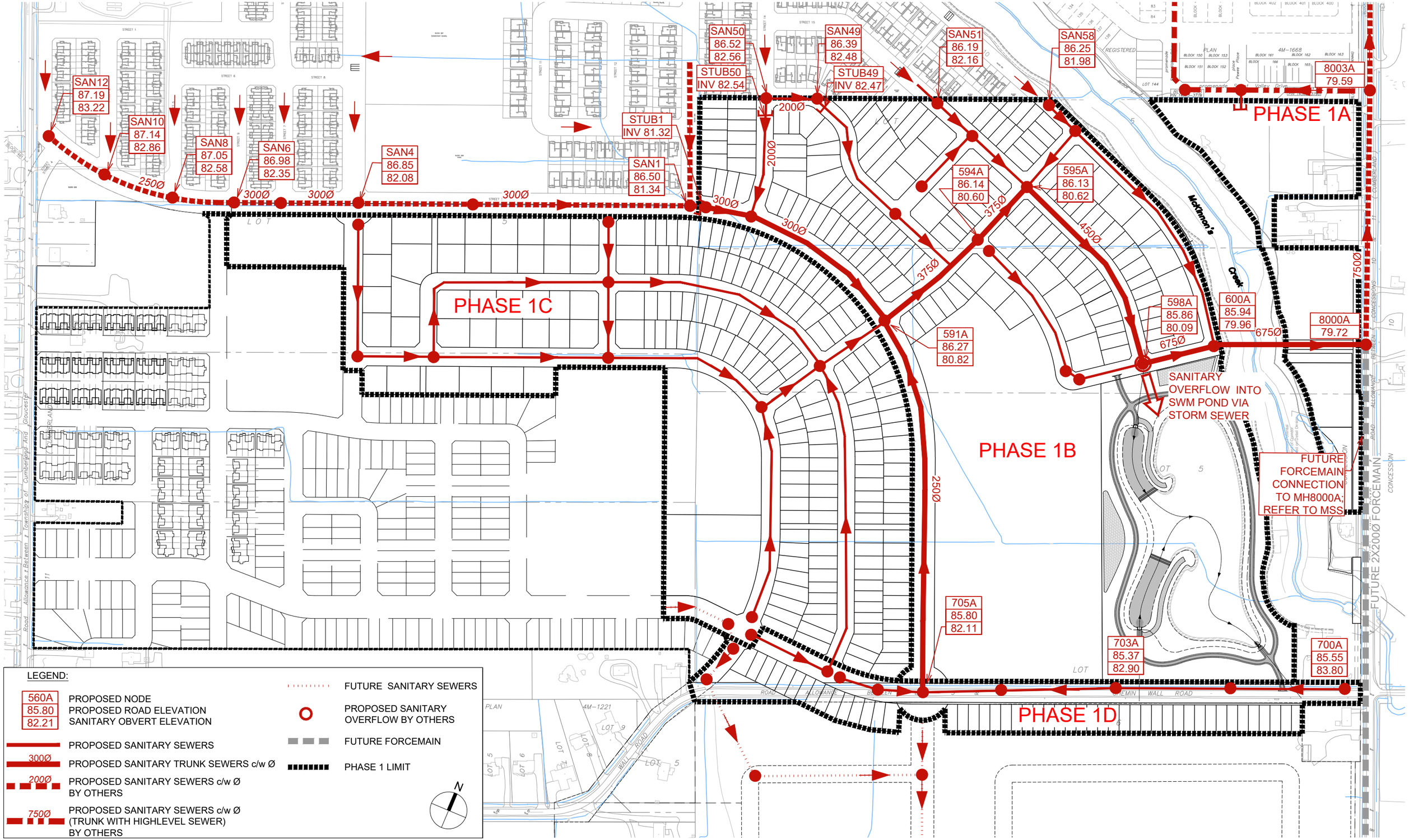
# SANITARY SEWER DESIGN SHEET
(City of Ottawa)

**FILE NUMBER:** 160401737

**DESIGN PARAMETERS**

| | | | | | |
|---|---|---|---|---|---|
| MAX PEAK FACTOR (RES.)= | 4.0 | AVG. DAILY FLOW / PERSON | 280 l/p/day | MINIMUM VELOCITY | 0.60 m/s |
| MIN PEAK FACTOR (RES.)= | 2.0 | COMMERCIAL | 28,000 l/ha/day | MAXIMUM VELOCITY | 3.00 m/s |
| PEAKING FACTOR (INDUSTRIAL): | 2.4 | INDUSTRIAL (HEAVY) | 55,000 l/ha/day | MANNINGS n | 0.013 |
| PEAKING FACTOR (ICI >20%): | 1.5 | INDUSTRIAL (LIGHT) | 35,000 l/ha/day | BEDDING CLASS | B |
| PERSONS / SINGLE | 3.4 | INSTITUTIONAL | 28,000 l/ha/day | MINIMUM COVER | 2.50 m |
| PERSONS / TOWNHOME | 2.7 | INFILTRATION | 0.33 l/s/Ha | HARMON CORRECTION FACTOR | 0.8 |
| PERSONS / APARTMENT | 1.8 | | | | |

| LOCATION | | | RESIDENTIAL AREA AND POPULATION | | | | | | | | COMMERCIAL | | INDUSTRIAL (L) | | INDUSTRIAL (H) | | INSTITUTIONAL | | GREEN / UNUSED | | C+I+I | INFILTRATION | | | TOTAL | PIPE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AREA ID NUMBER | FROM M.H. | TO M.H. | AREA | UNITS SINGLE | TOWN | APT | POP. | CUMULATIVE AREA | CUMULATIVE POP. | PEAK FACT. | PEAK FLOW | AREA | ACCU. AREA | AREA | ACCU. AREA | AREA | ACCU. AREA | AREA | ACCU. AREA | AREA | ACCU. AREA | PEAK FLOW | TOTAL AREA | ACCU. AREA | INFILT. FLOW | FLOW | LENGTH | DIA | MATERIAL | CLASS | SLOPE | CAP. (FULL) | CAP. V PEAK FLOW | VEL. (FULL) | VEL. (ACT.) |
| | | | (ha) | | | | | (ha) | | | (l/s) | (ha) | (ha) | (ha) | (ha) | (ha) | (ha) | (ha) | (ha) | (ha) | (ha) | (l/s) | (ha) | (ha) | (l/s) | (l/s) | (m) | (mm) | | | (%) | (l/s) | (%) | (m/s) | (m/s) |
| R33B | 33 | 47 | 0.52 | 11 | 0 | 0 | 37 | 0.52 | 37 | 3.67 | 0.4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.52 | 0.52 | 0.2 | 0.6 | 120.0 | 200 | PVC | SDR 35 | 0.40 | 21.1 | **2.91%** | 0.67 | 0.25 |
| R47A | 47 | 46 | 0.69 | 16 | 0 | 0 | 54 | 1.20 | 92 | 3.60 | 1.1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.69 | 1.20 | 0.4 | 1.5 | 92.1 | 200 | PVC | SDR 35 | 0.35 | 19.8 | **7.42%** | 0.62 | 0.30 |
| R46A | 46 | 45 | 0.61 | 15 | 0 | 0 | 51 | 1.81 | 143 | 3.56 | 1.6 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.61 | 1.81 | 0.6 | 2.2 | 77.6 | 200 | PVC | SDR 35 | 0.35 | 19.8 | **11.35%** | 0.62 | 0.34 |
| R45A | 45 | 54 | 0.39 | 8 | 0 | 0 | 27 | 2.21 | 170 | 3.54 | 1.9 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.39 | 2.21 | 0.7 | 2.7 | 78.4 | 200 | PVC | SDR 35 | 0.65 | 27.0 | **9.93%** | 0.85 | 0.45 |
| R57A | 57 | 56 | 0.31 | 6 | 0 | 0 | 20 | 0.31 | 20 | 3.70 | 0.2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.31 | 0.31 | 0.1 | 0.3 | 58.7 | 200 | PVC | SDR 35 | 0.65 | 27.0 | **1.29%** | 0.85 | 0.24 |
| | 56 | 55 | 0.00 | 0 | 0 | 0 | 0 | 0.31 | 20 | 3.70 | 0.2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.00 | 0.31 | 0.1 | 0.3 | 13.7 | 200 | PVC | SDR 35 | 0.35 | 19.8 | **1.75%** | 0.62 | 0.20 |
| R55A | 55 | 54 | 0.30 | 5 | 0 | 0 | 17 | 0.61 | 37 | 3.67 | 0.4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.30 | 0.61 | 0.2 | 0.6 | 68.8 | 200 | PVC | SDR 35 | 0.35 | 19.8 | **3.27%** | 0.62 | 0.24 |
| G54A, R54B | 54 | 60 | 0.47 | 8 | 0 | 0 | 27 | 3.29 | 235 | 3.50 | 2.7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.51 | 0.51 | 0.0 | 0.98 | 3.80 | 1.3 | 3.9 | 110.5 | 200 | PVC | SDR 35 | 0.65 | 27.0 | **14.52%** | 0.85 | 0.50 |
| R60A | 60 | 59 | 0.51 | 9 | 0 | 0 | 31 | 3.80 | 265 | 3.48 | 3.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.51 | 0.0 | 0.51 | 4.32 | 1.4 | 4.4 | 119.9 | 200 | PVC | SDR 35 | 0.35 | 19.8 | **22.32%** | 0.62 | 0.42 |
| R59A | 59 | 58 | 0.46 | 7 | 0 | 0 | 24 | 4.26 | 289 | 3.47 | 3.2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.51 | 0.0 | 0.46 | 4.77 | 1.6 | 4.8 | 120.0 | 200 | PVC | SDR 35 | 0.35 | 19.8 | **24.38%** | 0.62 | 0.43 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | 200 | | | | | | | |
| R53B | 53 | 52 | 0.59 | 13 | 0 | 0 | 44 | 0.59 | 44 | 3.66 | 0.5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.59 | 0.59 | 0.2 | 0.7 | 81.2 | 200 | PVC | SDR 35 | 0.35 | 19.8 | **3.64%** | 0.62 | 0.25 |
| R52A | 52 | 51 | 0.83 | 16 | 0 | 0 | 54 | 1.42 | 99 | 3.60 | 1.1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.83 | 1.42 | 0.5 | 1.6 | 120.0 | 200 | PVC | SDR 35 | 0.35 | 19.8 | **8.18%** | 0.62 | 0.31 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | 200 | | | | | | | |
| R54A | 54 | 53 | 0.25 | 4 | 0 | 0 | 14 | 3.07 | 221 | 3.51 | 2.5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.25 | 3.07 | 1.0 | 3.5 | 78.4 | 200 | PVC | SDR 35 | 0.35 | 19.8 | **17.81%** | 0.62 | 0.39 |
| R53A | 53 | 50 | 0.37 | 8 | 0 | 0 | 27 | 3.44 | 248 | 3.49 | 2.8 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.37 | 3.44 | 1.1 | 3.9 | 78.4 | 200 | PVC | SDR 35 | 0.35 | 19.8 | **19.93%** | 0.62 | 0.40 |
| | 50 | 50A | 0.00 | 0 | 0 | 0 | 0 | 3.44 | 248 | 3.49 | 2.8 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.00 | 3.44 | 1.1 | 3.9 | 6.9 | 200 | PVC | SDR 35 | 0.35 | 19.8 | **19.93%** | 0.62 | 0.40 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | 200 | | | | | | | |
| R50A | 50 | 49 | 0.21 | 4 | 0 | 0 | 14 | 0.21 | 14 | 3.72 | 0.2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.21 | 0.21 | 0.1 | 0.2 | 51.9 | 200 | PVC | SDR 35 | 0.65 | 27.0 | **0.86%** | 0.85 | 0.23 |
| R49A | 49 | 49A | 0.12 | 2 | 0 | 0 | 7 | 0.33 | 20 | 3.70 | 0.2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.12 | 0.33 | 0.1 | 0.4 | 1.9 | 200 | PVC | SDR 35 | 0.35 | 19.8 | **1.79%** | 0.62 | 0.20 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | 200 | | | | | | | |
| R13A | 13 | 12 | 0.46 | 0 | 12 | 0 | 32 | 0.46 | 32 | 3.68 | 0.4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.46 | 0.46 | 0.2 | 0.5 | 98.4 | 200 | PVC | SDR 35 | 0.40 | 21.1 | **2.54%** | 0.67 | 0.24 |
| C12A, R12C, R12B | 12 | 11 | 2.02 | 0 | 0 | 0 | 0 | 2.48 | 32 | 3.68 | 0.4 | 0.20 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.1 | 2.22 | 2.68 | 0.9 | 1.3 | 53.7 | 250 | PVC | SDR 35 | 0.40 | 38.3 | **3.48%** | 0.77 | 0.31 |
| | 11 | 10 | 0.00 | 0 | 0 | 0 | 0 | 2.48 | 32 | 3.68 | 0.4 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.1 | 0.00 | 2.68 | 0.9 | 1.3 | 29.7 | 250 | PVC | SDR 35 | 0.30 | 33.2 | **4.02%** | 0.67 | 0.27 |
| R15A | 15 | 14 | 0.59 | 0 | 18 | 0 | 49 | 0.59 | 49 | 3.65 | 0.6 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.59 | 0.59 | 0.2 | 0.8 | 62.3 | 200 | PVC | SDR 35 | 0.40 | 21.1 | **3.64%** | 0.67 | 0.26 |
| R14A | 14 | 10 | 0.43 | 0 | 15 | 0 | 41 | 1.02 | 89 | 3.61 | 1.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.43 | 1.02 | 0.3 | 1.4 | 76.2 | 200 | PVC | SDR 35 | 0.40 | 21.1 | **6.51%** | 0.67 | 0.31 |
| R10A | 10 | 9 | 0.31 | 0 | 0 | 0 | 0 | 3.81 | 122 | 3.58 | 1.4 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.1 | 0.31 | 4.01 | 1.3 | 2.8 | 32.6 | 250 | PVC | SDR 35 | 0.30 | 33.2 | **8.41%** | 0.67 | 0.34 |
| | 9 | 8 | 0.00 | 0 | 0 | 0 | 0 | 3.81 | 122 | 3.58 | 1.4 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.1 | 0.00 | 4.01 | 1.3 | 2.8 | 39.2 | 250 | PVC | SDR 35 | 0.30 | 33.2 | **8.41%** | 0.67 | 0.34 |
| R23B | 23 | 17 | 0.20 | 0 | 8 | 0 | 22 | 0.20 | 22 | 3.70 | 0.3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.20 | 0.20 | 0.1 | 0.3 | 68.0 | 200 | PVC | SDR 35 | 0.65 | 27.0 | **1.20%** | 0.85 | 0.24 |
| R27A | 27 | 26 | 0.89 | 0 | 0 | 0 | 54 | 0.89 | 54 | 3.65 | 0.6 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.89 | 0.89 | 0.3 | 0.9 | 120.0 | 200 | PVC | SDR 35 | 0.40 | 21.2 | **4.41%** | 0.67 | 0.28 |
| R26A | 26 | 17 | 0.23 | 0 | 5 | 0 | 14 | 1.12 | 68 | 3.63 | 0.8 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.23 | 1.12 | 0.4 | 1.2 | 48.4 | 200 | PVC | SDR 35 | 0.40 | 21.1 | **5.50%** | 0.67 | 0.29 |
| R17A | 17 | 16 | 0.44 | 0 | 17 | 0 | 46 | 1.75 | 135 | 3.56 | 1.6 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.44 | 1.75 | 0.6 | 2.1 | 68.0 | 200 | PVC | SDR 35 | 0.40 | 21.1 | **10.11%** | 0.67 | 0.36 |
| R16A | 16 | 8 | 0.34 | 0 | 11 | 0 | 30 | 2.09 | 165 | 3.54 | 1.9 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.34 | 2.09 | 0.7 | 2.6 | 60.2 | 200 | PVC | SDR 35 | 0.70 | 27.9 | **9.24%** | 0.88 | 0.46 |
| C8A | 8 | 7 | 0.00 | 0 | 0 | 0 | 0 | 5.90 | 286 | 3.47 | 3.2 | 1.52 | 1.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.8 | 1.52 | 7.62 | 2.5 | 6.6 | 34.9 | 250 | PVC | SDR 35 | 0.30 | 33.2 | **19.78%** | 0.67 | 0.43 |
| | 7 | 6 | 0.00 | 0 | 0 | 0 | 0 | 5.90 | 286 | 3.47 | 3.2 | 0.00 | 1.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.8 | 0.00 | 7.62 | 2.5 | 6.6 | 33.4 | 250 | PVC | SDR 35 | 0.30 | 33.2 | **19.78%** | 0.67 | 0.43 |
| R23A | 23 | 18 | 0.35 | 0 | 15 | 0 | 41 | 0.35 | 41 | 3.67 | 0.5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.35 | 0.35 | 0.1 | 0.6 | 66.9 | 200 | PVC | SDR 35 | 0.40 | 21.1 | **2.82%** | 0.67 | 0.24 |
| R18A | 18 | 6 | 0.32 | 0 | 14 | 0 | 38 | 0.67 | 78 | 3.62 | 0.9 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.32 | 0.67 | 0.2 | 1.1 | 65.3 | 200 | PVC | SDR 35 | 1.15 | 35.9 | **3.18%** | 1.13 | 0.43 |
| R6A | 6 | 5 | 0.26 | 0 | 0 | 0 | 0 | 6.83 | 365 | 3.43 | 4.1 | 0.00 | 1.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.8 | 0.26 | 8.55 | 2.8 | 7.7 | 48.4 | 300 | PVC | SDR 35 | 0.20 | 42.9 | **17.97%** | 0.61 | 0.38 |
| R22A | 22 | 19 | 0.35 | 0 | 15 | 0 | 41 | 1.39 | 115 | 3.58 | 1.3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.35 | 1.39 | 0.5 | 1.8 | 67.2 | 200 | PVC | SDR 35 | 0.40 | 21.1 | **8.49%** | 0.67 | 0.34 |
| R19A | 19 | 5 | 0.33 | 0 | 14 | 0 | 38 | 1.72 | 153 | 3.55 | 1.8 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.33 | 1.72 | 0.6 | 2.3 | 65.1 | 200 | PVC | SDR 35 | 1.20 | 36.6 | **6.36%** | 1.15 | 0.54 |
| C5A | 5 | 4 | 0.00 | 0 | 0 | 0 | 0 | 8.55 | 518 | 3.37 | 5.7 | 0.80 | 2.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.2 | 0.80 | 11.07 | 3.7 | 10.5 | 72.9 | 300 | PVC | SDR 35 | 0.20 | 42.9 | **24.53%** | 0.61 | 0.42 |
| R33A | 33 | 29 | 0.30 | 5 | 0 | 0 | 17 | 0.30 | 17 | 3.71 | 0.2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.30 | 0.30 | 0.1 | 0.3 | 65.7 | 200 | PVC | SDR 35 | 0.65 | 27.0 | **1.13%** | 0.85 | 0.24 |
| R32B | 32 | 31 | 0.07 | 0 | 2 | 0 | 5 | 0.07 | 5 | 3.75 | 0.1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.07 | 0.07 | 0.0 | 0.1 | 12.2 | 200 | PVC | SDR 35 | 0.65 | 27.0 | **0.33%** | 0.85 | 0.16 |
| R31A | 31 | 29 | 0.70 | 0 | 20 | 0 | 54 | 0.77 | 59 | 3.64 | 0.7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.70 | 0.77 | 0.3 | 1.0 | 118.7 | 200 | PVC | SDR 35 | 0.40 | 21.1 | **4.51%** | 0.67 | 0.28 |
| | 29 | 28 | 0.00 | 0 | 0 | 0 | 0 | 1.07 | 76 | 3.62 | 0.9 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.00 | 1.07 | 0.4 | 1.2 | 25.5 | 200 | PVC | SDR 35 | 0.40 | 21.1 | **5.91%** | 0.67 | 0.30 |
| R28A, I28A | 28 | 21 | 0.53 | 0 | 10 | 0 | 27 | 1.60 | 103 | 3.59 | 1.2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.60 | 2.60 | 0.00 | 0.00 | 1.3 | 3.13 | 4.20 | 1.4 | 3.9 | 120.0 | 200 | PVC | SDR 35 | 0.40 | 21.1 | **18.23%** | 0.67 | 0.42 |
| R23C | 23 | 22 | 0.13 | 0 | 4 | 0 | 11 | 0.13 | 11 | 3.73 | 0.1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.13 | 0.13 | 0.0 | 0.2 | 48.0 | 200 | PVC | SDR 35 | 0.65 | 27.0 | **0.64%** | 0.85 | 0.21 |
| R26C, R26B | 26 | 25 | 0.50 | 0 | 6 | 0 | 36 | 0.50 | 36 | 3.67 | 0.4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.50 | 0.50 | 0.2 | 0.6 | 59.3 | 200 | PVC | SDR 35 | 0.65 | 27.0 | **2.21%** | 0.85 | 0.29 |
| R32A | 32 | 25 | 0.30 | 0 | 10 | 0 | 27 | 0.30 | 27 | 3.69 | 0.3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.30 | 0.30 | 0.1 | 0.4 | 88.7 | 200 | PVC | SDR 35 | 0.40 | 21.1 | **1.99%** | 0.67 | 0.22 |
| R25B | 25 | 24 | 0.16 | 0 | 5 | 0 | 14 | 0.95 | 77 | 3.62 | 0.9 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.16 | 0.95 | 0.3 | 1.2 | 54.0 | 200 | PVC | SDR 35 | 0.40 | 21.1 | **5.73%** | 0.67 | 0.30 |
| R30A | 30 | 24 | 0.45 | 0 | 18 | 0 | 49 | 0.45 | 49 | 3.65 | 0.6 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.45 | 0.45 | 0.1 | 0.7 | 83.9 | 200 | PVC | SDR 35 | 0.40 | 21.1 | **3.42%** | 0.67 | 0.26 |
| R24A | 24 | 22 | 0.11 | 0 | 2 | 0 | 5 | 1.51 | 131 | 3.57 | 1.5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.11 | 1.51 | 0.5 | 2.0 | 48.5 | 200 | PVC | SDR 35 | 0.40 | 21.1 | **9.50%** | 0.67 | 0.35 |
| R22B | 22 | 21 | 0.26 | 0 | 6 | 0 | 16 | 1.90 | 158 | 3.55 | 1.8 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.26 | 1.90 | 0.6 | 2.4 | 73.3 | 200 | PVC | SDR 35 | 0.40 | 21.1 | **11.54%** | 0.67 | 0.37 |
| R21A | 21 | 20 | 0.30 | 0 | 7 | 0 | 19 | 3.80 | 280 | 3.47 | 3.2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.60 | 0.00 | 0.00 | 1.3 | 0.30 | 6.40 | 2.1 | 6.5 | 64.7 | 200 | PVC | SDR 35 | 0.40 | 21.1 | **30.86%** | 0.67 | 0.49 |
| R20A | 20 | 4 | 0.30 | 0 | 7 | 0 | 19 | 4.09 | 299 | 3.46 | 3.4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.60 | 0.00 | 0.00 | 1.3 | 0.30 | 6.69 | 2.2 | 6.8 | 67.8 | 200 | PVC | SDR 35 | 0.40 | 21.1 | **32.29%** | 0.67 | 0.50 |
| R4B, R4A | 4 | 3 | 0.50 | 0 | 10 | 0 | 27 | 13.14 | 844 | 3.28 | 9.0 | 0.00 | 2.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.60 | 0.00 | 0.00 | 2.5 | 0.50 | 18.26 | 6.0 | 17.5 | 120.0 | 300 | PVC | SDR 35 | 0.20 | 42.9 | **40.69%** | 0.61 | 0.49 |
| G3A, R3A, R3B | 3 | 2 | 0.72 | 3 | 15 | 0 | 51 | 13.86 | 894 | 3.26 | 9.5 | 0.00 | 2.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.60 | 1.67 | 1.67 | 2.5 | 2.39 | 20.65 | 6.8 | 18.8 | 120.0 | 300 | PVC | SDR 35 | 0.20 | 42.9 | **43.70%** | 0.61 | 0.50 |
| R2B, R2A | 2 | 1 | 0.74 | 10 | 4 | 0 | 45 | 14.60 | 939 | 3.25 | 9.9 | 0.00 | 2.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.60 | 0.00 | 1.67 | 2.5 | 0.74 | 21.39 | 7.1 | 19.4 | 111.6 | 300 | PVC | SDR 35 | 0.20 | 42.9 | **45.29%** | 0.61 | 0.51 |
| R45B | 45 | 41 | 0.22 | 4 | 0 | 0 | 14 | 0.22 | 14 | 3.72 | 0.2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.22 | 0.22 | 0.1 | 0.2 | 73.0 | 200 | PVC | SDR 35 | 0.35 | 19.8 | **1.20%** | 0.62 | 0.18 |
| R44B | 44 | 43 | 0.07 | 1 | 0 | 0 | 3 | 0.07 | 3 | 3.76 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.07 | 0.07 | 0.0 | 0.1 | 11.2 | 200 | PVC | SDR 35 | 0.65 | 27.0 | **0.24%** | 0.85 | 0.13 |
| R43A | 43 | 42 | 0.32 | 7 | 0 | 0 | 24 | 0.39 | 27 | 3.69 | 0.3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.32 | 0.39 | 0.1 | 0.5 | 70.4 | 200 | PVC | SDR 35 | 0.35 | 19.8 | **2.30%** | 0.62 | 0.21 |
| R42A | 42 | 41 | 0.32 | 7 | 0 | 0 | 24 | 0.71 | 51 | 3.65 | 0.6 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.32 | 0.71 | 0.2 | 0.8 | 78.4 | 200 | PVC | SDR 35 | 0.35 | 19.8 | **4.23%** | 0.62 | 0.26 |
| R41A | 41 | 40 | 0.40 | 9 | 0 | 0 | 31 | 1.34 | 95 | 3.60 | 1.1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.40 | 1.34 | 0.4 | 1.6 | 54.3 | 200 | PVC | SDR 35 | 0.35 | 19.8 | **7.84%** | 0.62 | 0.31 |
| R40A, R40B | 40 | 35 | 0.44 | 11 | 0 | 0 | 37 | 1.78 | 133 | 3.57 | 1.5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.44 | 1.78 | 0.6 | 2.1 | 63.2 | 200 | PVC | SDR 35 | 0.35 | 19.8 | **10.71%** | 0.62 | 0.34 |
| R44A | 44 | 38 | 0.82 | 16 | 0 | 0 | 54 | 0.82 | 54 | 3.65 | 0.6 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.82 | 0.82 | 0.3 | 0.9 | 107.2 | 200 | PVC | SDR 35 | 0.40 | 21.1 | **4.32%** | 0.67 | 0.27 |
| | 38 | 37 | 0.00 | 0 | 0 | 0 | 0 | 0.82 | 54 | 3.65 | 0.6 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.00 | 0.82 | 0.3 | 0.9 | 11.0 | 200 | PVC | SDR 35 | 0.40 | 21.1 | **4.32%** | 0.67 | 0.27 |
| R37A | 37 | 36 | 0.35 | 6 | 0 | 0 | 20 | 1.18 | 75 | 3.62 | 0.9 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.35 | 1.18 | 0.4 | 1.3 | 70.6 | 200 | PVC | SDR 35 | 0.40 | 21.1 | **5.99%** | 0.67 | 0.30 |
| R42B | 42 | 39 | 0.54 | 12 | 0 | 0 | 41 | 0.54 | 41 | 3.67 | 0.5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.54 | 0.54 | 0.2 | 0.7 | 73.7 | 200 | PVC | SDR 35 | 0.40 | 21.1 | **3.14%** | 0.67 | 0.25 |
| R39A | 39 | 36 | 0.28 | 6 | 0 | 0 | 20 | 0.82 | 61 | 3.64 | 0.7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.28 | 0.82 | 0.3 | 1.0 | 46.5 | 200 | PVC | SDR 35 | 0.40 | 21.1 | **4.70%** | 0.67 | 0.28 |
| R36A | 36 | 35 | 0.34 | 6 | 0 | 0 | 20 | 2.34 | 156 | 3.55 | 1.8 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.34 | 2.34 | 0.8 | 2.6 | 78.4 | 200 | PVC | SDR 35 | 0.40 | 21.1 | **12.15%** | 0.67 | 0.37 |
| R35B, R35A | 35 | 1 | 0.24 | 3 | 0 | 0 | 10 | 4.36 | 299 | 3.46 | 3.4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0 | 0.24 | 4.36 | 1.4 | 4.8 | 81.4 | 200 | PVC | SDR 35 | 0.50 | 23.6 | **20.29%** | 0.74 | 0.48 |
| | 1 | 1A | 0.00 | 0 | 0 | 0 | 0 | 18.96 | 1238 | 3.19 | 12.8 | 0.00 | 2.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.60 | 0.00 | 1.67 | 1.7 | 0.00 | 25.75 | 8.5 | 23.0 | 11.1 | 300 | PVC | SDR 35 | 0.20 | 42.9 | **53.47%** | 0.61 | 0.53 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | 300 | | | | | | | |




Project Title

MER BLEUE
PHASE 1

Drawing Title

CONCEPTUAL SANITARY SEWER SYSTEM

Sheet No.

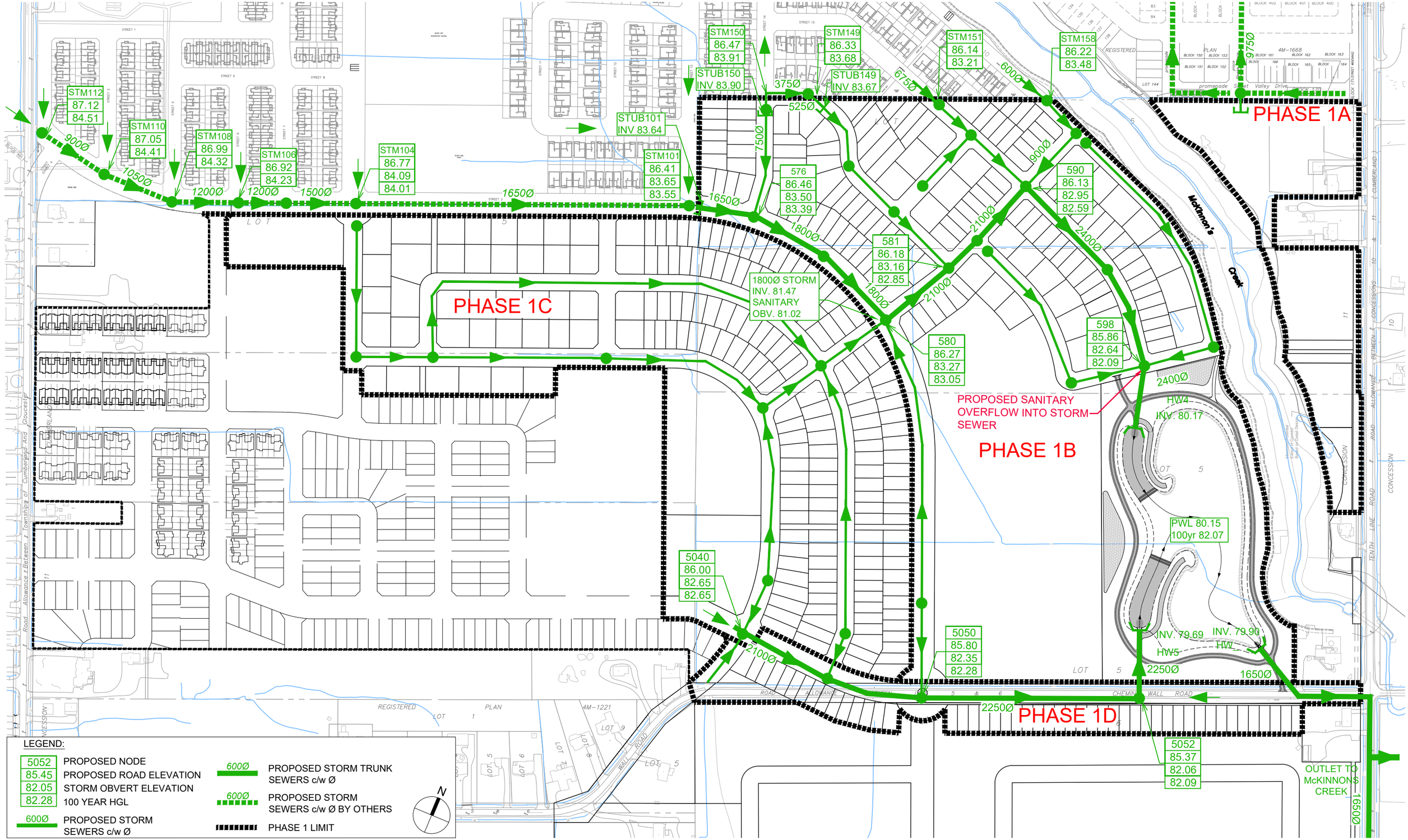
FIGURE 3.1
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ARCADIS

J:\116761_MerBleuPh1\5.0 Drawings\59civil\current\Adequacy\Report\Layout\FIGURE 3.1 CONCEPTUAL SANITARY SEWER SYSTEM.dwg Plotted At: 12/5/2025 Last Saved By: henrie6006 Last Saved At: Dec. 5, 25

# Appendix D

- **Figure 4.3 Conceptual Storm Sewer System**
- **Figure 4.4 Conceptual Storm Sewer Tributary Area**
- **Storm Sewer Design Sheet**
- **MSS Figure 5 Stormwater Infrastructure**
- **MSS Figure 8.3A Recommended Storm Trunk Servicing**
- **External Storm Drainage Plan – Stantec**
- **External Storm Sewer Design Sheet – Stantec**
- **CDP Figure 4.4 – Topographical & As-built Floodplain Mapping**
- **Figure 12 – McKinnon's Creek Upper Reach Enhancement Cross-Section**




LEGEND:

| | |
|---|---|
| 5052 | PROPOSED NODE |
| 85.45 | PROPOSED ROAD ELEVATION |
| 82.05 | STORM OBVERT ELEVATION |
| 82.28 | 100 YEAR HGL |
| 600Ø | PROPOSED STORM SEWERS c/w Ø |
| 600Ø | PROPOSED STORM TRUNK SEWERS c/w Ø |
| 600Ø | PROPOSED STORM SEWERS c/w Ø BY OTHERS |
| | PHASE 1 LIMIT |

J:\116761_MerBleuPh1\5.0 Drawings\5.9civil\current\Adequacy\Report\Layout\FIGURE 4.3 CONCEPTUAL STORM SEWER SYSTEM.dwg Plotted At: 12/5/2025 Last Saved By: herrie6006 Last Saved At: May. 16, 25

Project Title

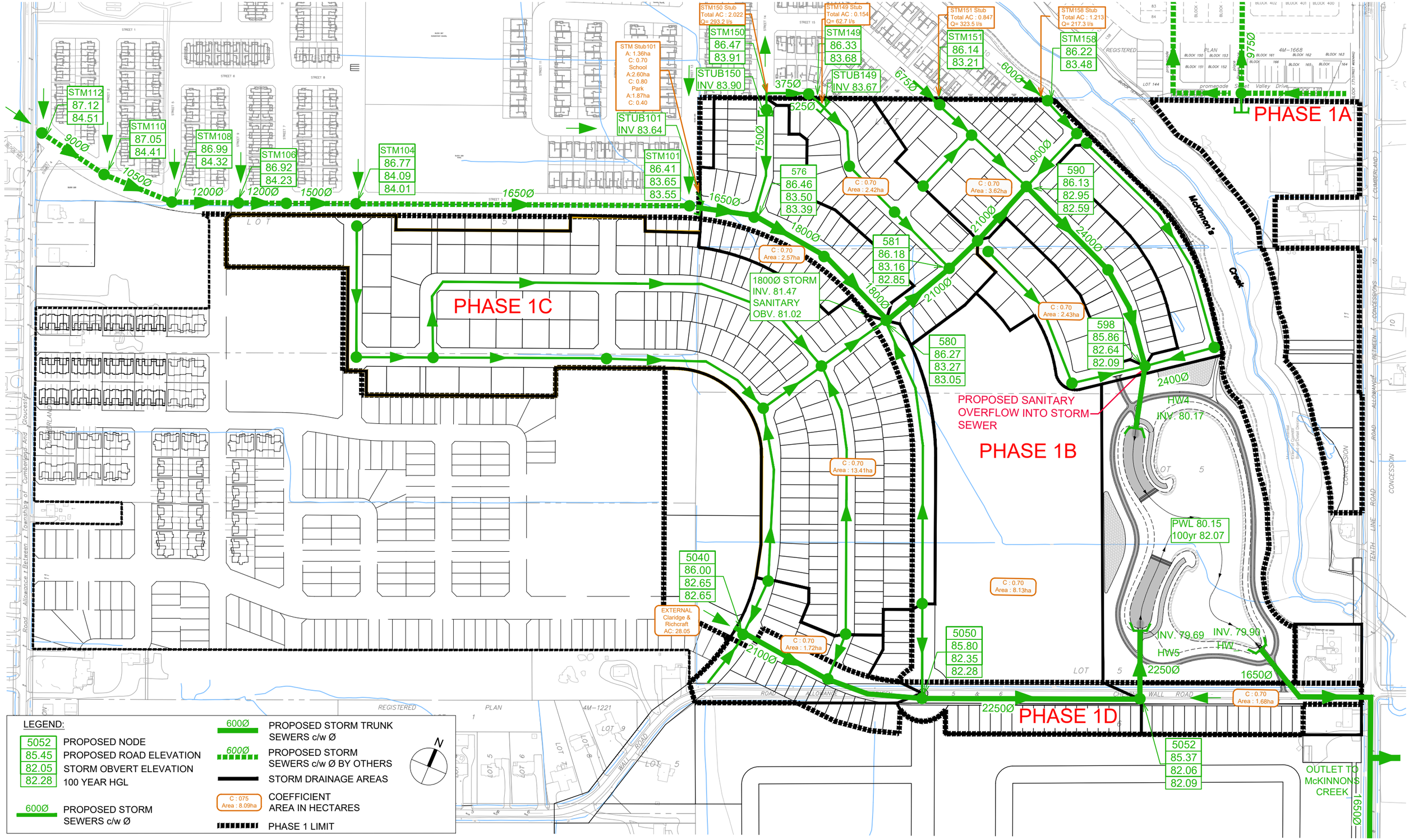
MER BLEUE
PHASE 1

Drawing Title

CONCEPTUAL STORM SEWER SYSTEM

Sheet No.

FIGURE 4.3
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Project Title

MER BLEUE
PHASE 1

Drawing Title

CONCEPTUAL STORM SEWER TRIBUTARY AREAS

Sheet No.

FIGURE 4.4
---

J:\116761_MerBleuPh1\5.9 Drawings\59civil\current\Adequacy\Report\Layout\FIGURE 4.3 CONCEPTUAL STORM SEWER SYSTEM.dwg Plotted At: 12/5/2025 Last Saved By: herrie6006 Last Saved At: May. 16, 25

ARCADIS ARCADIS IBI GROUP
500-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
IBI GROUP ibigroup.com

# STORM SEWER DESIGN SHEET

Mer Bleue Phase 1
Claridge Homes
City of Ottawa

| LOCATION | | | | AREA (Ha) | | | | | | | | | | RATIONAL DESIGN FLOW | | | | | | | | | | | | | | SEWER DATA | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STREET | AREA ID | FROM | TO | External AC | C= 0.10 | C= 0.20 | C= 0.40 | C= 0.65 | C= 0.67 | C= 0.70 | C= 0.72 | C= 0.80 | C= 0.85 | IND 2.78AC | CUM 2.78AC | INLET (min) | TIME IN PIPE | TOTAL (min) | i (2) (mm/hr) | i (5) (mm/hr) | i (10) (mm/hr) | i (100) (mm/hr) | 2yr PEAK FLOW (L/s) | 5yr PEAK FLOW (L/s) | 10yr PEAK FLOW (L/s) | 100yr PEAK FLOW (L/s) | FIXED FLOW IND | FIXED FLOW CUM | DESIGN FLOW (L/s) | CAPACITY (L/s) | LENGTH (m) | PIPE SIZE (mm) DIA | PIPE SIZE (mm) W | PIPE SIZE (mm) H | SLOPE (%) | VELOCITY (m/s) | AVAIL CAP (2yr) (L/s) | AVAIL CAP (2yr) (%) |
| **OUTLET #4: New Central SWM Pond (North)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BY OTHERS | External STM100 | STM101 | MH576 | 3.114 | | | | | | | | | | 0.00 | 0.00 | 19.55 | 0.56 | 20.11 | 52.77 | 71.25 | 83.39 | 121.68 | 0.00 | 0.00 | 0.00 | 0.00 | 2,770.00 | 2,770.00 | 2,770.00 | 3,153.62 | 48.00 | 1650 | | | 0.11 | 1.429 | 383.62 | 12.16% |
| | External STM150A | STM150 | MH576 | 2.022 | | | | | | | | | | 0.00 | 0.00 | 19.89 | 1.44 | 21.33 | 52.21 | 70.49 | 82.50 | 120.37 | 0.00 | 0.00 | 0.00 | 0.00 | 293.20 | 293.20 | 293.20 | 385.20 | 73.04 | 750 | | | 0.11 | 0.845 | 92.00 | 23.88% |
| | | MH576 | MH580 | | | | | | | 2.57 | | | | 5.00 | 5.00 | 21.33 | 2.71 | 24.04 | 49.98 | 67.46 | 78.93 | 115.14 | 249.98 | 337.37 | 394.75 | 575.84 | 0.00 | 3,063.20 | 3,313.18 | 3,977.22 | 246.16 | 1800 | | | 0.11 | 1.514 | 664.04 | 16.70% |
| | | MH580 | MH581 | | | | | | | 13.41 | | | | 26.10 | 31.10 | 24.04 | 0.89 | 24.93 | 46.32 | 62.47 | 73.07 | 106.56 | 1,440.54 | 1,942.67 | 2,272.36 | 3,313.61 | 0.00 | 3,063.20 | 4,503.74 | 5,999.35 | 89.75 | 2100 | | | 0.11 | 1.678 | 1495.61 | 24.93% |
| | External STM149A | MH581 | MH590 | 0.154 | | | | | | 2.42 | | | | 4.71 | 35.81 | 24.93 | 1.16 | 26.10 | 45.25 | 61.00 | 71.35 | 104.03 | 1,620.11 | 2,184.34 | 2,554.82 | 3,725.06 | 62.70 | 3,125.90 | 4,746.01 | 5,999.35 | 117.26 | 2100 | | | 0.11 | 1.678 | 1253.34 | 20.89% |
| | External STM151, 158 | MH590 | MH598 | 2.060 | | | | | | 3.62 | | | | 7.04 | 42.85 | 26.10 | 2.07 | 28.17 | 43.92 | 59.20 | 69.23 | 100.93 | 1,882.02 | 2,536.74 | 2,966.65 | 4,324.89 | 540.80 | 3,666.70 | 5,548.72 | 8,565.43 | 227.86 | 2400 | | | 0.11 | 1.834 | 3016.71 | 35.22% |
| | | MH598 | HW4 | | | | | | | 2.43 | | | | 4.73 | 47.58 | 28.17 | 0.60 | 28.77 | 41.76 | 56.27 | 65.79 | 95.89 | 1,987.13 | 2,677.16 | 3,130.29 | 4,562.31 | 0.00 | 3,666.70 | 5,653.83 | 8,565.43 | 65.95 | 2400 | | | 0.11 | 1.834 | 2911.60 | 33.99% |
| | | | | | | | | | | 24.45 | | | | 47.58 | TRUE | | | | | | | | | | | | | | | | | 2400 | | | | | | |
| **OUTLET #5: New Central SWM Pond (South)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | MH5040 | MH5050 | 28.05 | | | | | | 1.72 | | | | 81.33 | 81.33 | 22.68 | 2.11 | 24.79 | 48.08 | 64.87 | 75.89 | 110.68 | 3,910.56 | 5,275.63 | 6,171.83 | 9,001.57 | 0.00 | 0.00 | 3,910.56 | 5,999.35 | 212.38 | 2100 | | | 0.11 | 1.678 | 2088.79 | 34.82% |
| | | MH5050 | MH5052 | | | | | | | 8.13 | | | | 15.82 | 97.15 | 24.79 | 2.16 | 26.95 | 45.42 | 61.23 | 71.62 | 104.43 | 4,412.02 | 5,948.79 | 6,957.82 | 10,145.05 | 0.00 | 0.00 | 4,412.02 | 7,211.18 | 227.89 | 2250 | | | 0.11 | 1.757 | 2799.16 | 38.82% |
| | | MH5052 | HW5 | | | | | | | 1.68 | | | | 3.27 | 100.42 | 26.95 | 0.68 | 27.63 | 43.00 | 57.95 | 67.76 | 98.78 | 4,318.07 | 5,819.09 | 6,804.74 | 9,919.16 | 0.00 | 0.00 | 4,318.07 | 7,211.18 | 71.69 | 2250 | | | 0.11 | 1.757 | 2893.10 | 40.12% |
| | | | | 28.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 11.53 | 0.00 | 0.00 | 0.00 | 100.42 | TRUE | | | | | | | | | | | | | | | | | | | | | | | |

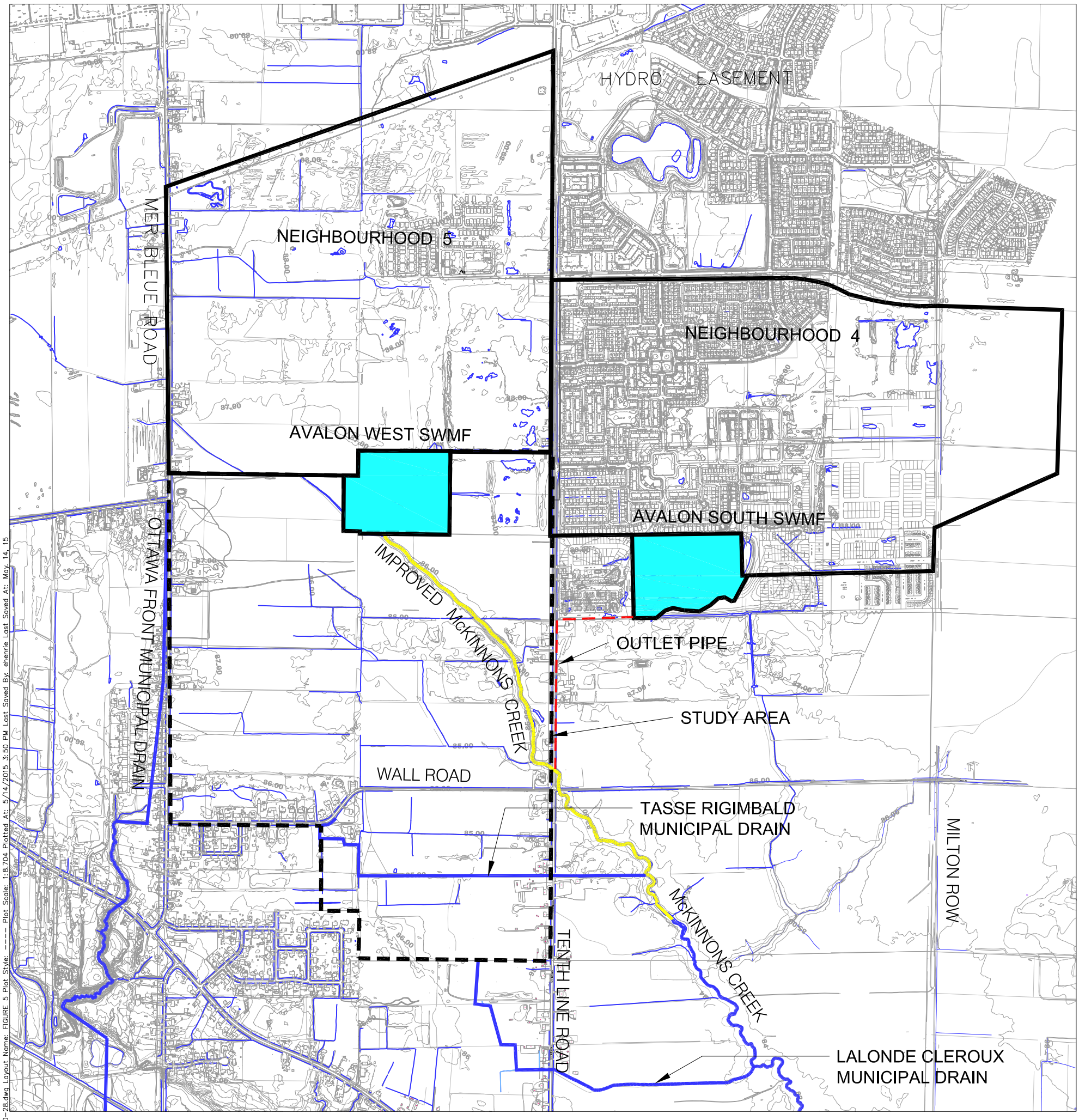
**Definitions:**
Q = 2.78CiA, where:
Q = Peak Flow in Litres per Second (L/s)
A = Area in Hectares (Ha)
I = Rainfall intensity in millimeters per hour (mm/hr)
[i = 732.951 / (TC+6.199)^0.810] 2 YEAR
[i = 998.071 / (TC+6.053)^0.814] 5 YEAR
[i = 1174.184 / (TC+6.014)^0.816] 10 YEAR
[i = 1735.688 / (TC+6.014)^0.820] 100 YEAR

**Notes:**
1. Mannings coefficient (n) = 0.013

**Designed:** WZ
**Checked:** RM, DGY
**Dwg. Reference:** 116761-500

| No. | Revision | Date |
|---|---|---|
| 1 | Adequacy of Public Services - Submission No. 1 | 2021-11-15 |
| 2 | Adequacy of Public Services - Submission No. 2 | 2025-02-07 |
| 3 | Adequacy of Public Services - Submission No. 3 | 2025-05-16 |

**File Reference:** 116761-6.04.04
**Date:** 2021-11-15
**Sheet No:** 1 of 1




J:\34739-CumbServReport\5.9 Drawings\59swm\current\EMP FIGURES\34739-emp_figures-2014-10-28.dwg Layout Name: FIGURE 5 Plot Style: ---- Plot Scale: 1:8.704 Plotted At: 5/14/2015 3:50 PM Last Saved By: ehenrie Last Saved At: May. 14, 15

IBI GROUP

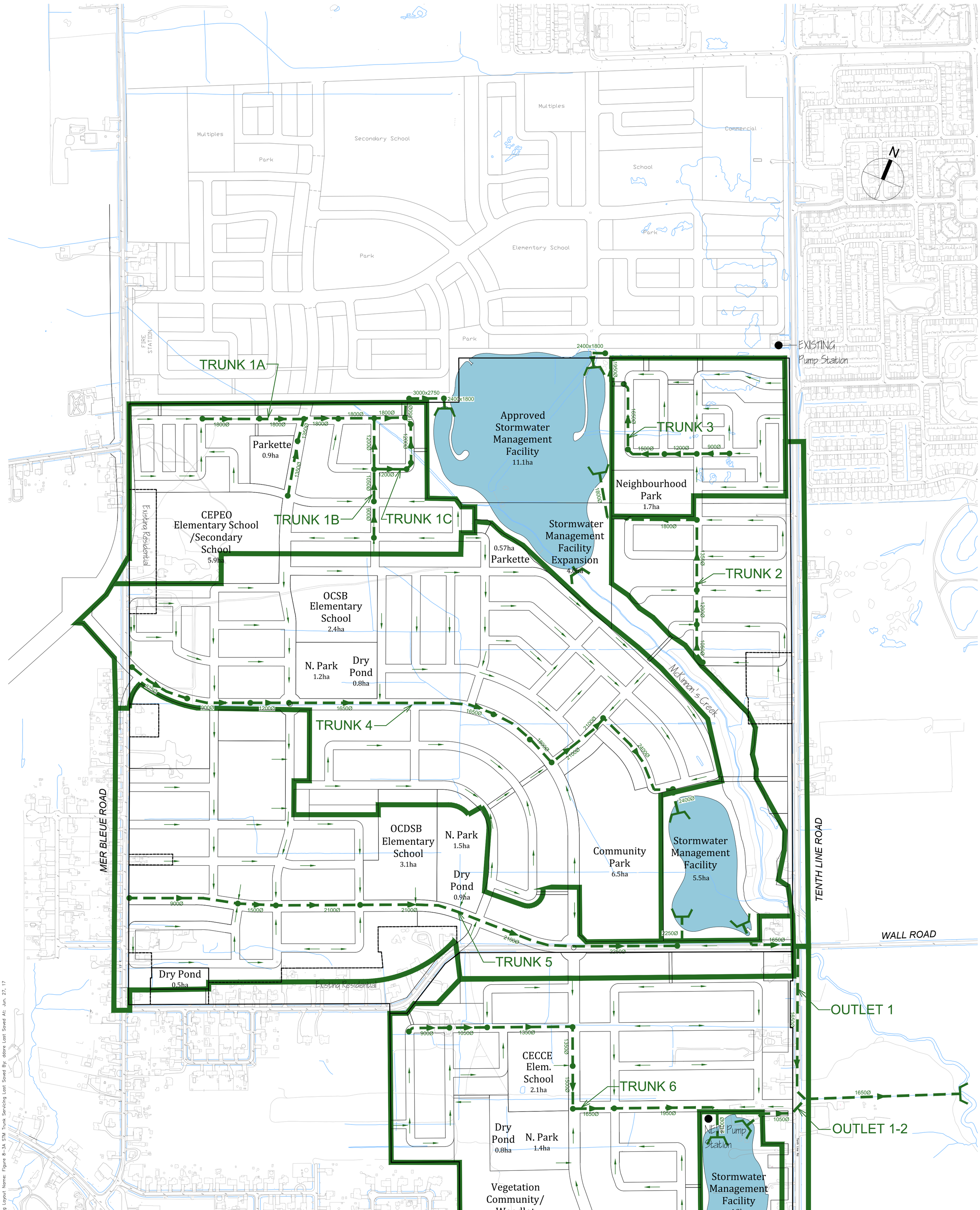
Scale: 1:15000

Project Title: MER BLEUE EXPANSION STUDY AREA

Drawing Title: STORMWATER INFRASTRUCTURE

Sheet No.: FIGURE 5

MAY 2015




LEGEND:

| | | | |
|---|---|---|---|
| | PROPOSED TRUNK STORM SEWER | 450Ø | APPROXIMATE SEWER DIAMETER |
| | PROPOSED LOCAL STORM SEWER | | |
| | PROPOSED STORM OUTLET | | |
| | DRAINAGE SPLIT | | |
| MH4000 | MANHOLE NODE | | |
| MH3220 (12) | MANHOLE NODE (DSL MH ID) | | |

J:\34739-CumbServ\Report\5.9 Drawings\59civil\layouts\MSS-Apr2017\Preferred Option\Figure 8.3A Recommended Storm Trunk Servicing.dwg Layout Name: Figure 8-3A STM Trunk Servicing Last Saved By: ddore Last Saved At: Jun. 27, 17

Sheet No.

FIGURE 8.3A
JUNE 2017

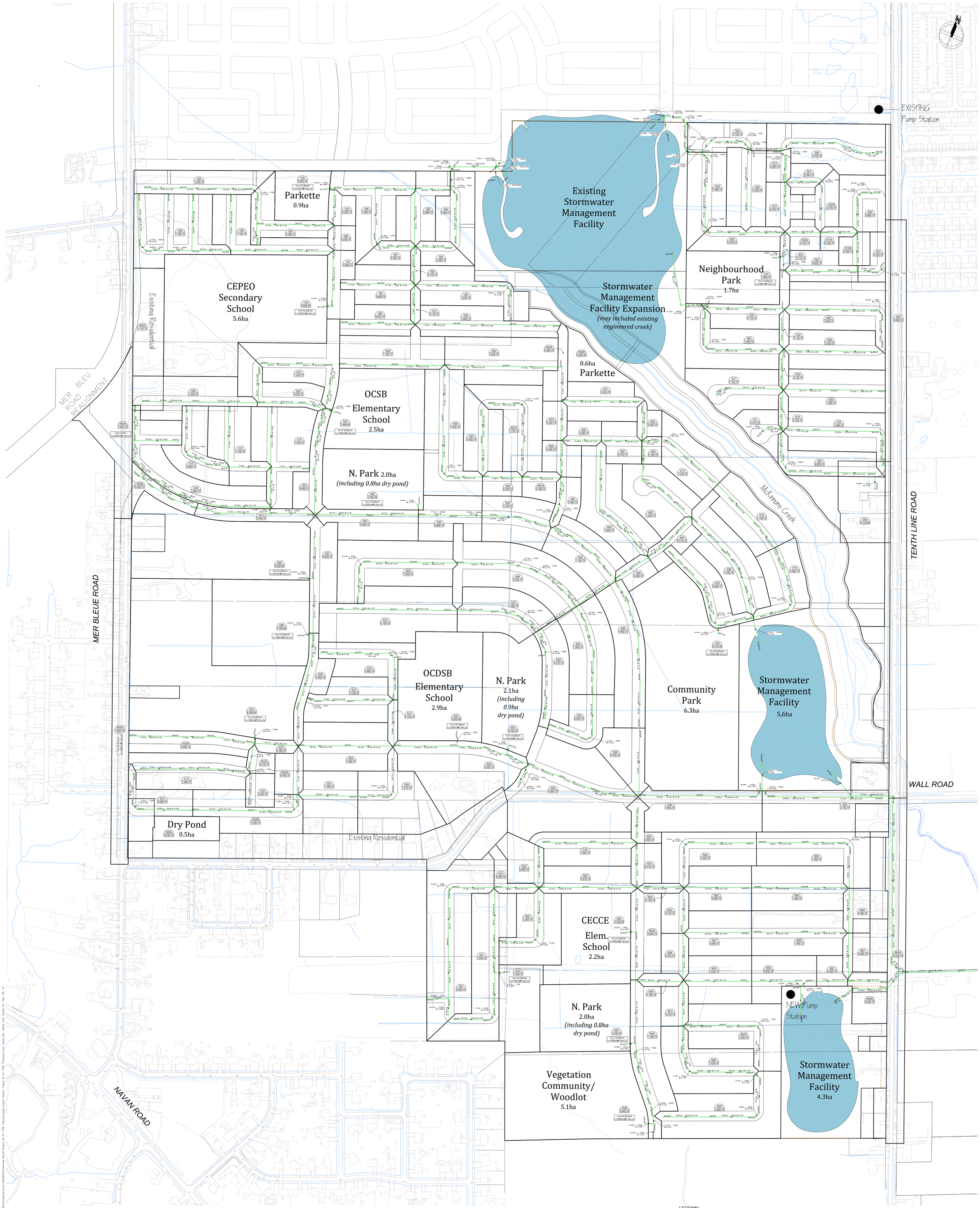
Drawing Title

RECOMMENDED STORM TRUNK SERVICING FOR UPDATED DEMONSTRATION PLAN

Project Title

MER BLEUE
MASTER SERVICING STUDY

IBI




Sheet No.

FIGURE 8-4.1

Drawing Title

PREFERRED STORM
TRIBUTARY

Project Title

MER BLEUE
MASTER SERVICING STUDY

IBI

**IBI GROUP**
400-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

**STORM SEWER DESIGN SHEET**
**MER BLEUE Urban Expansion Area**
MSS Preferred Concept
CITY OF OTTAWA
Owners Group

| LOCATION | | | | AREA (Ha) | | | | | | | | | | | | RATIONAL DESIGN FLOW | | | | | | | | | | | | SEWER DATA | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STREET | AREA ID | FROM | TO | C= 0.20 | C= 0.30 | C= 0.40 | C= 0.54 | C= 0.57 | C= 0.70 | C= 0.71 | C= 0.73 | C= 0.74 | C= 0.70 | C= 0.76 | C= 0.80 | IND 2.78AC | CUM 2.78AC | INLET (min) | TIME IN PIPE | TOTAL (min) | i (2) (mm/hr) | i (5) (mm/hr) | i (100) (mm/hr) | 2yr PEAK FLOW (L/s) | 5yr PEAK FLOW (L/s) | 100yr PEAK FLOW (L/s) | FIXED FLOW (L/s) | DESIGN FLOW (L/s) | CAPACITY (L/s) | LENGTH (m) | PIPE SIZE (mm) DIA | W | H | SLOPE (%) | VELOCITY (m/s) | AVAIL CAP (2yr) (L/s) | (%) |
| **OUTLET #1: AVALON POND 5 (West)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1002AB | 1002 | 1003 | | | | | | | | 0.28 | 0.10 | | | | 0.77 | 0.77 | 10.00 | 1.28 | 11.28 | 76.81 | 104.19 | 178.56 | 59.44 | | | | 59.44 | 148.72 | 69.52 | 450 | | | 0.25 | 0.906 | 89.27 | 60.03% |
| | 1003ABC | 1003 | 1004 | | | | | 0.16 | | | 0.24 | 0.13 | | | | 1.01 | 1.78 | 11.28 | 1.01 | 12.29 | 72.22 | 97.89 | 167.65 | 128.69 | | | | 128.69 | 286.47 | 59.51 | 600 | | | 0.20 | 0.982 | 157.77 | 55.08% |
| | | 1004 | 1005 | | | | | | | | | | | | | 0.00 | 1.78 | 12.29 | 0.20 | 12.49 | 69.01 | 93.48 | 160.03 | 122.97 | | | | 122.97 | 286.47 | 11.69 | 600 | | | 0.20 | 0.982 | 163.50 | 57.07% |
| | 1005AB | 1005 | 1006 | | | | | | | | 0.12 | 0.16 | | | | 0.57 | 2.35 | 12.49 | 0.76 | 13.25 | 68.41 | 92.66 | 158.62 | 161.08 | | | | 161.08 | 286.47 | 44.98 | 600 | | | 0.20 | 0.982 | 125.38 | 43.77% |
| | 1007AB | 1007 | 1008 | | | | | | | | | 0.42 | | | | 0.86 | 0.86 | 10.00 | 1.40 | 11.40 | 76.81 | 104.19 | 178.56 | 66.36 | | | | 66.36 | 148.72 | 75.90 | 450 | | | 0.25 | 0.906 | 82.36 | 55.38% |
| | 1008 | 1008 | 1009 | | | | | 0.15 | | | | | | | | 0.24 | 1.10 | 11.40 | 0.20 | 11.60 | 71.83 | 97.35 | 166.73 | 79.14 | | | | 79.14 | 148.72 | 11.07 | 450 | | | 0.25 | 0.906 | 69.58 | 46.79% |
| | 1009AB | 1009 | 1006 | | | | | 0.27 | | | | 0.15 | | | | 0.74 | 1.84 | 11.60 | 0.84 | 12.44 | 71.16 | 96.44 | 165.14 | 130.81 | | | | 130.81 | 265.43 | 60.18 | 525 | | | 0.35 | 1.188 | 134.62 | 50.72% |
| | 1006A-C | 1006 | 1202 | | | | | 0.22 | | | 0.15 | 0.06 | | | | 0.78 | 4.97 | 13.25 | 1.08 | 14.33 | 66.23 | 89.67 | 153.44 | 329.10 | | | | 329.10 | 579.98 | 68.00 | 825 | | | 0.15 | 1.051 | 250.88 | 43.26% |
| | 1200A-F | 1200 | 1201 | | | | | 0.20 | | | 0.57 | 0.06 | | | | 1.60 | 1.60 | 10.00 | 0.95 | 10.95 | 76.81 | 104.19 | 178.56 | 122.67 | | | | 122.67 | 224.33 | 56.94 | 525 | | | 0.25 | 1.004 | 101.66 | 45.32% |
| | 1201A-C | 1201 | 1202 | | | | | | | | 0.32 | 0.18 | | | | 1.02 | 2.62 | 10.95 | 1.55 | 12.49 | 73.36 | 99.45 | 170.36 | 191.96 | | | | 191.96 | 339.63 | 85.26 | 675 | | | 0.15 | 0.919 | 147.67 | 43.48% |
| | 1202A-H | 1202 | 1203 | | | | | 0.23 | | | | 0.64 | | | | 1.68 | 9.27 | 14.33 | 1.26 | 15.59 | 63.39 | 85.79 | 146.74 | 587.49 | | | | 587.49 | 4,154.07 | 120.00 | 1800 | | | 0.12 | 1.581 | 3566.58 | 85.86% |
| | 1203 | 1203 | 1070 | | | | | | | | | 0.24 | | | | 0.49 | 9.76 | 15.59 | 0.95 | 16.55 | 60.40 | 81.68 | 139.66 | 589.54 | | | | 589.54 | 4,154.07 | 90.56 | 1800 | | | 0.12 | 1.581 | 3564.53 | 85.81% |
| | 1207A-C | 1207 | 1070 | | | | 0.15 | 0.09 | | 0.11 | | | | | | 0.58 | 0.58 | 10.00 | 0.32 | 10.32 | 76.81 | 104.19 | 178.56 | 44.92 | | | | 44.92 | 112.79 | 29.61 | 300 | | | 1.25 | 1.546 | 67.87 | 60.17% |
| | 1100AB | 1100 | 1101 | | | | 0.15 | | | 0.08 | | | | | | 0.38 | 0.38 | 10.00 | 0.31 | 10.31 | 76.81 | 104.19 | 178.56 | 29.42 | | | | 29.42 | 131.53 | 33.61 | 300 | | | 1.70 | 1.803 | 102.11 | 77.63% |
| | 1901A | 1901 | 1101 | | | | | | | 0.50 | | | | | | 0.99 | 0.99 | 10.00 | 1.93 | 11.93 | 76.81 | 104.19 | 178.56 | 75.80 | | | | 75.80 | 148.72 | 105.07 | 450 | | | 0.25 | 0.906 | 72.92 | 49.03% |
| | 1101AB | 1101 | 1060 | | | | 0.19 | | | 0.19 | | | | | | 0.66 | 2.03 | 11.93 | 1.32 | 13.25 | 70.10 | 94.98 | 162.63 | 142.32 | | | | 142.32 | 245.74 | 87.14 | 525 | | | 0.30 | 1.100 | 103.42 | 42.08% |
| | 1921A | 1921 | 1060 | | | | | | | 0.14 | | | | | | 0.28 | 0.28 | 10.00 | 0.72 | 10.72 | 76.81 | 104.19 | 178.56 | 21.22 | | | | 21.22 | 320.28 | 47.25 | 600 | | | 0.25 | 1.097 | 299.06 | 93.37% |
| **Future School** | 1060A | 1208 | 1060 | | | | | | 5.24 | | | | | | | 10.20 | 10.20 | 10.00 | 0.21 | 10.21 | 76.81 | 104.19 | 178.56 | 783.18 | | | | 783.18 | 1,575.26 | 16.60 | 1200 | | | 0.15 | 1.349 | 792.08 | 50.28% |
| | 1060AB | 1060 | 1020 | | | | | | | 0.42 | | | | | | 0.83 | 13.33 | 13.25 | 1.54 | 14.79 | 66.22 | 89.66 | 153.43 | 882.91 | | | | 882.91 | 1,928.87 | 120.61 | 1350 | | | 0.12 | 1.305 | 1045.97 | 54.23% |
| **Park** | 1020A | | 1020 | | | 0.86 | | | | | | | | | | 0.96 | 0.96 | 10.00 | 0.16 | 10.16 | 76.81 | 104.19 | 178.56 | 73.45 | | | | 73.45 | 129.34 | 11.00 | 375 | | | 0.50 | 1.134 | 55.89 | 43.21% |
| | 1020BC | 1020 | 1070 | | | | | 0.07 | | 0.24 | | | | | | 0.58 | 14.87 | 14.79 | 0.50 | 15.29 | 62.26 | 84.23 | 144.06 | 926.01 | | | | 926.01 | 2,156.55 | 43.75 | 1350 | | | 0.15 | 1.460 | 1230.54 | 57.06% |
| | 1070 | 1070 | 1080 | | | | | | | 0.25 | | | | | | 0.49 | 25.71 | 16.55 | 0.79 | 17.34 | 58.34 | 78.86 | 134.80 | 1,500.02 | | | | 1,500.02 | 4,154.07 | 74.58 | 1800 | | | 0.12 | 1.581 | 2654.05 | 63.89% |
| | | 1800 | 1801 | | | | | | | | | | | | | 0.00 | 0.00 | 10.00 | 0.26 | 10.26 | 76.81 | 104.19 | 178.56 | 0.00 | | | | 0.00 | 63.80 | 13.65 | 300 | | | 0.40 | 0.874 | 63.80 | 100.00% |
| | 1801AB | 1801 | 1080 | | | | 0.45 | | | 0.43 | | | | | | 1.52 | 1.52 | 10.26 | 1.76 | 12.02 | 75.82 | 102.84 | 176.21 | 115.57 | | | | 115.57 | 200.65 | 94.93 | 525 | | | 0.20 | 0.898 | 85.07 | 42.40% |
| | 1080 | 1080 | 1090 | | | | | | | 0.25 | | | | | | 0.49 | 27.73 | 17.34 | 0.79 | 18.12 | 56.75 | 76.70 | 131.07 | 1,573.82 | | | | 1,573.82 | 4,154.07 | 74.81 | 1800 | | | 0.12 | 1.581 | 2580.25 | 62.11% |
| | 1901B | 1901 | 1910 | | | | | | | 0.22 | | | | | | 0.43 | 0.43 | 10.00 | 1.54 | 11.54 | 76.81 | 104.19 | 178.56 | 33.35 | | | | 33.35 | 100.18 | 81.06 | 375 | | | 0.30 | 0.879 | 66.83 | 66.71% |
| | 1911A-C | 1911 | 1910 | | | | 0.18 | | | 0.07 | | | | | | 0.41 | 0.41 | 10.00 | 0.56 | 10.56 | 76.81 | 104.19 | 178.56 | 31.37 | | | | 31.37 | 71.33 | 33.00 | 300 | | | 0.50 | 0.978 | 39.97 | 56.03% |
| | 1903AB | 1903 | 1904 | | | | 0.15 | | | 0.19 | | | | | | 0.60 | 0.60 | 10.00 | 1.04 | 11.04 | 76.81 | 104.19 | 178.56 | 46.10 | | | | 46.10 | 148.72 | 56.43 | 450 | | | 0.25 | 0.906 | 102.62 | 69.00% |
| | 1904 | 1904 | 1910 | | | | | | | 0.50 | | | | | | 0.99 | 1.59 | 11.04 | 2.21 | 13.25 | 73.04 | 99.01 | 169.59 | 115.92 | | | | 115.92 | 200.65 | 119.13 | 525 | | | 0.20 | 0.898 | 84.73 | 42.23% |
| | 1910A-C | 1910 | 1920 | | | | 0.69 | | | 0.13 | | | | | | 1.29 | 3.72 | 13.25 | 1.27 | 14.52 | 66.23 | 89.68 | 153.46 | 246.53 | | | | 246.53 | 654.22 | 76.00 | 900 | | | 0.12 | 0.996 | 407.69 | 62.32% |
| | 1921B | 1921 | 1922 | | | | | | | 0.35 | | | | | | 0.69 | 0.69 | 10.00 | 1.09 | 11.09 | 76.81 | 104.19 | 178.56 | 53.06 | | | | 53.06 | 100.18 | 57.56 | 375 | | | 0.30 | 0.879 | 47.13 | 47.04% |
| | 1922 | 1922 | 1920 | | | | | | | 0.22 | | | | | | 0.43 | 1.13 | 11.09 | 1.43 | 12.52 | 72.85 | 98.76 | 169.16 | 81.96 | | | | 81.96 | 148.72 | 77.78 | 450 | | | 0.25 | 0.906 | 66.75 | 44.89% |
| | 1903B-D | 1930 | 1924 | | | | 0.04 | | | 0.11 | | | | | | 0.28 | 0.28 | 10.00 | 1.38 | 11.38 | 76.81 | 104.19 | 178.56 | 21.29 | | | | 21.29 | 59.68 | 67.81 | 300 | | | 0.35 | 0.818 | 38.39 | 64.33% |
| | 1924AB | 1924 | 1925 | | | | | | | 0.21 | | | | | | 0.41 | 0.69 | 11.38 | 0.22 | 11.60 | 71.88 | 97.42 | 166.84 | 49.72 | | | | 49.72 | 100.18 | 11.61 | 375 | | | 0.30 | 0.879 | 50.47 | 50.38% |
| | 1925 | 1925 | 1926 | | | | | | | 0.27 | | | | | | 0.53 | 1.22 | 11.60 | 1.68 | 13.28 | 71.16 | 96.43 | 165.13 | 87.14 | | | | 87.14 | 148.72 | 91.40 | 450 | | | 0.25 | 0.906 | 61.58 | 41.41% |
| | 1926 | 1926 | 1920 | | | | | | | 0.23 | | | | | | 0.45 | 1.68 | 13.28 | 1.48 | 14.77 | 66.14 | 89.55 | 153.24 | 111.02 | | | | 111.02 | 248.09 | 75.59 | 600 | | | 0.15 | 0.850 | 137.07 | 55.25% |
| | 1920A-C | 1920 | 1930 | | | | 0.59 | | | 0.13 | | | | | | 1.14 | 7.67 | 14.77 | 1.02 | 15.79 | 62.33 | 84.32 | 144.21 | 477.92 | | | | 477.92 | 986.85 | 67.75 | 1050 | | | 0.12 | 1.104 | 508.93 | 51.57% |
| | 1800 | 1800 | 1930 | | | | | | | 0.28 | | | | | | 0.55 | 0.55 | 10.00 | 1.49 | 11.49 | 76.81 | 104.19 | 178.56 | 42.45 | | | | 42.45 | 148.72 | 81.19 | 450 | | | 0.25 | 0.906 | 106.27 | 71.46% |
| | | | | | | | | | | | | | | | | | 4.11 | =50% of flow to MH1090/DSELMH36 and MH1932/DSELMH31 | | | | | | | | | | | | | | | | | | |
| | 1930AB | 1930 | 1090 | | | | 0.21 | | | 0.36 | | | | | | 1.03 | 5.14 | 15.79 | 1.46 | 17.24 | 59.97 | 81.09 | 138.64 | 308.00 | | | | 308.00 | 1,408.95 | 105.44 | 1200 | | | 0.12 | 1.207 | 1100.95 | 78.14% |
| | 1090AB | 1090 | 1092 | | | | 0.24 | | | 0.18 | | | | | | 0.72 | 33.58 | 18.12 | 0.57 | 18.70 | 55.26 | 74.66 | 127.54 | 1,855.73 | | | | 1,855.73 | 4,154.07 | 54.28 | 1800 | | | 0.12 | 1.581 | 2298.34 | 55.33% |
| | | 1092 | 1091 | | | | | | | | | | | | | 0.00 | 33.58 | 18.70 | 0.12 | 18.82 | 54.23 | 73.25 | 125.12 | 1,821.12 | | | | 1,821.12 | 4,154.07 | 11.66 | 1800 | | | 0.12 | 1.581 | 2332.95 | 56.16% |
| | 1930C | 1930 | 1932 | | | | | | | 0.27 | | | | | | 0.53 | 4.64 | 14.77 | 0.95 | 15.71 | 62.33 | 84.32 | 144.21 | 289.40 | | | | 289.40 | 1,408.95 | 68.46 | 1200 | | | 0.12 | 1.207 | 1119.56 | 79.46% |
| | | 1932 | 1940 | | | | | | | | | | | | | 0.00 | 4.64 | 15.71 | 0.17 | 15.88 | 60.14 | 81.33 | 139.05 | 279.24 | | | | 279.24 | 1,408.95 | 12.39 | 1200 | | | 0.12 | 1.207 | 1129.71 | 80.18% |
| | 1940 | 1940 | 1941 | | | | | | | 0.45 | | | | | | 0.89 | 5.53 | 15.88 | 1.23 | 17.11 | 59.76 | 80.81 | 138.16 | 330.57 | | | | 330.57 | 1,408.95 | 88.88 | 1200 | | | 0.12 | 1.207 | 1078.39 | 76.54% |
| | | 1941 | 1091 | | | | | | | | | | | | | 0.00 | 5.53 | 17.11 | 0.31 | 17.42 | 57.20 | 77.31 | 132.11 | 316.39 | | | | 316.39 | 1,408.95 | 22.56 | 1200 | | | 0.12 | 1.207 | 1092.56 | 77.54% |

**IBI GROUP**
400-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
**ibigroup.com**

**STORM SEWER DESIGN SHEET**
**MER BLEUE Urban Expansion Area**
MSS Preferred Concept
CITY OF OTTAWA
Owners Group

| LOCATION | | | | AREA (Ha) | | | | | | | | | | | | RATIONAL DESIGN FLOW | | | | | | | | | | | | SEWER DATA | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STREET | AREA ID | FROM | TO | C= 0.20 | C= 0.30 | C= 0.40 | C= 0.54 | C= 0.57 | C= 0.70 | C= 0.71 | C= 0.73 | C= 0.74 | C= 0.70 | C= 0.76 | C= 0.80 | IND 2.78AC | CUM 2.78AC | INLET (min) | TIME IN PIPE | TOTAL (min) | i (2) (mm/hr) | i (5) (mm/hr) | i (100) (mm/hr) | 2yr PEAK FLOW (L/s) | 5yr PEAK FLOW (L/s) | 100yr PEAK FLOW (L/s) | FIXED FLOW (L/s) | DESIGN FLOW (L/s) | CAPACITY (L/s) | LENGTH (m) | PIPE SIZE (mm) DIA | W | H | SLOPE (%) | VELOCITY (m/s) | AVAIL CAP (2yr) (L/s) | (%) |
| | 1091AB | 1091 | RAD | | | | 0.16 | | | | | | | | | 0.24 | 39.35 | 18.82 | 0.10 | 18.92 | 54.01 | 72.96 | 124.61 | 2,125.61 | | | | 2,125.61 | 5,142.48 | 10.31 | 1950 | | | 0.12 | 1.668 | 3016.87 | 58.67% |
| | | RAD | RAD | | | | | | | | | | | | | 0.00 | 39.35 | 18.92 | 0.20 | 19.13 | 53.83 | 72.71 | 124.19 | 2,118.55 | | | | 2,118.55 | 5,142.48 | 20.39 | 1950 | | | 0.12 | 1.668 | 3023.93 | 58.80% |
| | | RAD | 10001 | | | | | | | | | | | | | 0.00 | 39.35 | 19.13 | 0.06 | 19.19 | 53.48 | 72.23 | 123.36 | 2,104.74 | | | | 2,104.74 | 5,142.48 | 6.17 | 1950 | | | 0.12 | 1.668 | 3037.75 | 59.07% |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | EXT | MH10001 | | | | | | | | | | | | | 0.00 | 0.00 | 25.00 | 0.13 | 25.13 | 45.17 | 60.90 | 103.85 | 0.00 | | | | 0.00 | 10,068.39 | 15.00 | 2550 | | | 0.11 | 1.910 | 10068.39 | 100.00% |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | MH10001 | MH10008 | | | | | | | | | | | | | 0.00 | 39.35 | 25.13 | 0.25 | 25.38 | 45.01 | 60.69 | 103.49 | 1,771.48 | | | | 1,771.48 | 15,688.99 | 28.57 | | 3000 | 2700 | 0.10 | 1.937 | 13917.51 | 88.71% |
| | | MH10008 | MH10002 | | | | | | | | | | | | | 0.00 | 39.35 | 25.38 | 0.39 | 25.77 | 44.73 | 60.30 | 102.82 | 1,760.30 | | | | 1,760.30 | 15,688.99 | 45.79 | | 3000 | 2700 | 0.10 | 1.937 | 13928.69 | 88.78% |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | EXT | MH10004 | | | | | | | | | | | | | 0.00 | 0.00 | 25.00 | 0.17 | 25.17 | 45.17 | 60.90 | 103.85 | 0.00 | | | | 0.00 | 3,792.13 | 15.00 | 1800 | | | 0.10 | 1.444 | 3792.13 | 100.00% |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | MH10002 | MH10003 | | | | | | | | | | | | | 0.00 | 39.35 | 25.38 | 0.24 | 25.62 | 44.73 | 60.30 | 102.82 | 1,760.30 | | | | 1,760.30 | 6,745.44 | 22.78 | | 2400 | 1800 | 0.10 | 1.561 | 4985.13 | 73.90% |
| | | | | 0.00 | 0.00 | 0.86 | 3.20 | 1.39 | 5.24 | 6.78 | 1.68 | 2.14 | 0.00 | 0.00 | 0.00 | 39.35 | TRUE | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 21.29 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**IBI GROUP**
400-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
**ibigroup.com**

**STORM SEWER DESIGN SHEET**
**MER BLEUE Urban Expansion Area**
MSS Preferred Concept
CITY OF OTTAWA
Owners Group

| LOCATION | | | | AREA (Ha) | | | | | | | | | | | | RATIONAL DESIGN FLOW | | | | | | | | | | | | SEWER DATA | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STREET | AREA ID | FROM | TO | C= 0.20 | C= 0.30 | C= 0.40 | C= 0.54 | C= 0.57 | C= 0.70 | C= 0.71 | C= 0.73 | C= 0.74 | C= 0.70 | C= 0.76 | C= 0.80 | IND 2.78AC | CUM 2.78AC | INLET (min) | TIME IN PIPE | TOTAL (min) | i (2) (mm/hr) | i (5) (mm/hr) | i (100) (mm/hr) | 2yr PEAK FLOW (L/s) | 5yr PEAK FLOW (L/s) | 100yr PEAK FLOW (L/s) | FIXED FLOW (L/s) | DESIGN FLOW (L/s) | CAPACITY (L/s) | LENGTH (m) | PIPE SIZE (mm) DIA | W | H | SLOPE (%) | VELOCITY (m/s) | AVAIL CAP (2yr) (L/s) | (%) |
| **OUTLET #2: AVALON POND 5 (South-East)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2000 | MH2000 | MH2001 | | | | | | | | | | | | 2.41 | 5.36 | 5.36 | 10.00 | 0.49 | 10.49 | 76.81 | 104.19 | 178.56 | 411.66 | | | | 411.66 | 775.41 | 29.82 | 975 | | | 0.11 | 1.006 | 363.75 | 46.91% |
| | 2001 | MH2001 | MH2002 | | | | | | | | | | 0.87 | | | 1.69 | 7.05 | 10.49 | 1.25 | 11.74 | 74.96 | 101.65 | 174.17 | 528.67 | | | | 528.67 | 944.84 | 79.07 | 1050 | | | 0.11 | 1.057 | 416.17 | 44.05% |
| | | MH2002 | MH2003 | | | | | | | | | | | | | 0.00 | 7.05 | 11.74 | 1.25 | 12.99 | 70.71 | 95.82 | 164.07 | 498.71 | | | | 498.71 | 944.84 | 79.07 | 1050 | | | 0.11 | 1.057 | 446.13 | 47.22% |
| | | MH2003 | MH2004 | | | | | | | | | | | | | 0.00 | 7.05 | 12.99 | 0.35 | 13.33 | 66.97 | 90.68 | 155.19 | 472.30 | | | | 472.30 | 944.84 | 21.98 | 1050 | | | 0.11 | 1.057 | 472.54 | 50.01% |
| | | MH2004 | MH2010 | | | | | | | | | | | | | 0.00 | 7.05 | 13.33 | 0.97 | 14.30 | | | 152.91 | 0.00 | | | | 0.00 | 944.84 | 61.35 | 1050 | | | 0.11 | 1.057 | 944.84 | 100.00% |
| | 2111 | MH2111 | MH2112 | | | | | | | | | | 0.47 | | | 0.91 | 0.91 | 10.00 | 0.32 | 10.32 | 76.81 | 104.19 | 178.56 | 70.25 | | | | 70.25 | 136.30 | 15.97 | 450 | | | 0.21 | 0.830 | 66.05 | 48.46% |
| | | MH2112 | MH2010 | | | | | | | | | | | | | 0.00 | 0.91 | 10.32 | 0.56 | 10.88 | 75.60 | 102.53 | 175.68 | 69.14 | | | | 69.14 | 136.30 | 27.65 | 450 | | | 0.21 | 0.830 | 67.16 | 49.27% |
| | 2100 | MH2100 | MH2101 | | | | | | | | | | 1.34 | | | 2.61 | 2.61 | 10.00 | 1.13 | 11.13 | 76.81 | 104.19 | 178.56 | 200.28 | | | | 200.28 | 303.78 | 55.64 | 675 | | | 0.12 | 0.822 | 103.50 | 34.07% |
| | | MH2101 | MH2102 | | | | | | | | | | | | | 0.00 | 2.61 | 11.13 | 0.20 | 11.33 | 72.73 | 98.59 | 168.87 | 189.65 | | | | 189.65 | 303.78 | 10.05 | 675 | | | 0.12 | 0.822 | 114.12 | 37.57% |
| | | MH2102 | MH2103 | | | | | | | | | | | | | 0.00 | 2.61 | 11.33 | 2.43 | 13.76 | 72.05 | 97.65 | 167.24 | 187.87 | | | | 187.87 | 303.78 | 120.00 | 675 | | | 0.12 | 0.822 | 115.91 | 38.16% |
| | | MH2103 | MH2010 | | | | | | | | | | | | | 0.00 | 2.61 | 13.76 | 1.15 | 14.91 | 64.85 | 87.78 | 150.18 | 169.10 | | | | 169.10 | 303.78 | 56.57 | 675 | | | 0.12 | 0.822 | 134.68 | 44.33% |
| | 2010 | MH2010 | MH2020 | | | | | | | | | | 0.12 | | | 0.23 | 10.81 | 14.30 | 1.04 | 15.34 | 63.47 | 85.89 | 146.91 | 686.00 | | | | 686.00 | 1,348.97 | 71.80 | 1200 | | | 0.11 | 1.155 | 662.97 | 49.15% |
| | 2211 | MH2211 | MH2212 | | | | | | | | | | 1.14 | | | 2.22 | 2.22 | 10.00 | 0.34 | 10.34 | 76.81 | 104.19 | 178.56 | 170.39 | | | | 170.39 | 303.78 | 16.97 | 675 | | | 0.12 | 0.822 | 133.39 | 43.91% |
| | | MH2212 | MH2020 | | | | | | | | | | | | | 0.00 | 2.22 | 10.34 | 2.14 | 12.48 | 75.51 | 102.41 | 175.48 | 167.51 | | | | 167.51 | 303.78 | 105.41 | 675 | | | 0.12 | 0.822 | 136.27 | 44.86% |
| | 2200 | MH2200 | MH2201 | | | | | | | | | | 1.39 | | | 2.70 | 2.70 | 10.00 | 1.72 | 11.72 | 76.81 | 104.19 | 178.56 | 207.75 | | | | 207.75 | 385.20 | 87.03 | 750 | | | 0.11 | 0.845 | 177.44 | 46.07% |
| | | MH2201 | MH2020 | | | | | | | | | | | | | 0.00 | 2.70 | 11.72 | 1.99 | 13.70 | 70.79 | 95.92 | 164.25 | 191.47 | | | | 191.47 | 385.20 | 100.71 | 750 | | | 0.11 | 0.845 | 193.73 | 50.29% |
| | 2020 | MH2020 | MH2030 | | | | | | | | | | 0.12 | | | 0.23 | 15.97 | 13.70 | 0.95 | 14.65 | 65.00 | 87.99 | 150.55 | 1,037.83 | | | | 1,037.83 | 1,846.76 | 70.98 | 1350 | | | 0.11 | 1.250 | 808.92 | 43.80% |
| | 2300 | MH2300 | MH2301 | | | | | | | | | | 1.21 | | | 2.35 | 2.35 | 10.00 | 1.70 | 11.70 | 76.81 | 104.19 | 178.56 | 180.85 | | | | 180.85 | 303.78 | 83.91 | 675 | | | 0.12 | 0.822 | 122.93 | 40.47% |
| | | MH2301 | MH2030 | | | | | | | | | | | | | 0.00 | 2.35 | 11.70 | 1.80 | 13.50 | 70.84 | 95.99 | 164.38 | 166.80 | | | | 166.80 | 303.78 | 88.90 | 675 | | | 0.12 | 0.822 | 136.98 | 45.09% |
| | 2030 | MH2030 | MH2040 | | | | | | | | | | 0.11 | | | 0.21 | 18.53 | 14.65 | 1.01 | 15.66 | 62.60 | 84.70 | 144.87 | 1,160.32 | | | | 1,160.32 | 1,846.76 | 76.03 | 1350 | | | 0.11 | 1.250 | 686.44 | 37.17% |
| | | | | | | | | | | | | | | | | | | | | | 167.22 | 230.48 | | | | | | | | | | | | | | |
| | 2400 | MH2400 | MH2401 | | | | | | | | | | 1.62 | | | 3.15 | 3.15 | 10.00 | 1.22 | 11.22 | 76.81 | 104.19 | 178.56 | 242.13 | | | | 242.13 | 385.20 | 61.83 | 750 | | | 0.11 | 0.845 | 143.07 | 37.14% |
| | | MH2401 | MH2402 | | | | | | | | | | | | | 0.00 | 3.15 | 11.22 | 0.20 | 11.42 | 72.42 | 98.16 | 168.13 | 228.30 | | | | 228.30 | 385.20 | 10.04 | 750 | | | 0.11 | 0.845 | 156.90 | 40.73% |
| TENTH LINE ROAD | | MH2402 | MH2403 | | | | | | | | | | | 4.50 | | 9.51 | 12.66 | 11.42 | 1.18 | 12.60 | 71.76 | 97.25 | 166.56 | 908.45 | | | | 908.45 | 1,846.76 | 88.84 | 1350 | | | 0.11 | 1.250 | 938.30 | 50.81% |
| | | MH2403 | MH2040 | | | | | | | | | | | | | 0.00 | 12.66 | 12.60 | 1.12 | 13.72 | 68.07 | 92.20 | 157.81 | 861.81 | | | | 861.81 | 1,846.76 | 83.68 | 1350 | | | 0.11 | 1.250 | 984.95 | 53.33% |
| | 2040 | MH2040 | MH2041 | | | | | | | | | | 0.71 | | | 1.38 | 32.58 | 15.66 | 0.75 | 16.42 | 60.24 | 81.47 | 139.29 | 1,962.44 | | | | 1,962.44 | 3,977.22 | 68.16 | 1800 | | | 0.11 | 1.514 | 2014.78 | 50.66% |
| | | MH2041 | MH2042 | | | | | | | | | | | | | 0.00 | 32.58 | 16.42 | 0.76 | 17.17 | 58.62 | 79.25 | 135.46 | 1,909.53 | | | | 1,909.53 | 3,977.22 | 68.79 | 1800 | | | 0.11 | 1.514 | 2067.69 | 51.99% |
| | | MH2042 | MH2050 | | | | | | | | | | | | | 0.00 | 32.58 | 17.17 | 0.11 | 17.28 | 57.07 | 77.14 | 131.82 | 1,859.26 | | | | 1,859.26 | 3,977.22 | 10.07 | 1800 | | | 0.11 | 1.514 | 2117.96 | 53.25% |
| | 2500 | MH2500 | MH2501 | | | | | | | | | | 1.45 | | | 2.82 | 2.82 | 10.00 | 1.18 | 11.18 | 76.81 | 104.19 | 178.56 | 216.72 | | | | 216.72 | 303.78 | 58.26 | 675 | | | 0.12 | 0.822 | 87.06 | 28.66% |
| | | MH2501 | MH2502 | | | | | | | | | | | | | 0.00 | 2.82 | 11.18 | 1.39 | 12.57 | 72.55 | 98.34 | 168.44 | 204.72 | | | | 204.72 | 303.78 | 68.41 | 675 | | | 0.12 | 0.822 | 99.06 | 32.61% |
| | | MH2502 | MH2503 | | | | | | | | | | | | | 0.00 | 2.82 | 12.57 | 0.21 | 12.77 | 68.18 | 92.34 | 158.06 | 192.38 | | | | 192.38 | 303.78 | 10.19 | 675 | | | 0.12 | 0.822 | 111.40 | 36.67% |
| | | MH2503 | MH2504 | | | | | | | | | | | | | 0.00 | 2.82 | 12.77 | 1.26 | 14.03 | 67.58 | 91.52 | 156.64 | 190.68 | | | | 190.68 | 303.78 | 62.02 | 675 | | | 0.12 | 0.822 | 113.10 | 37.23% |
| | | MH2504 | MH2050 | | | | | | | | | | | | | 0.00 | 2.82 | 14.03 | 0.24 | 14.27 | 64.15 | 86.83 | 148.54 | 181.03 | | | | 181.03 | 303.78 | 11.61 | 675 | | | 0.12 | 0.822 | 122.75 | 40.41% |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | MH2050 | MH2051 | | | | | | | | | | | | | 0.00 | 35.40 | 17.28 | 0.45 | 17.74 | 56.86 | 76.84 | 131.31 | 2,012.58 | | | | 2,012.58 | 3,977.22 | 41.23 | 1800 | | | 0.11 | 1.514 | 1964.64 | 49.40% |
| | | MH2051 | HW2 | | | | | | | | | | | | | 0.00 | 35.40 | 17.74 | 1.06 | 18.79 | 55.98 | 75.64 | 129.24 | 1,981.62 | | | | 1,981.62 | 3,977.22 | 95.90 | 1800 | | | 0.11 | 1.514 | 1995.60 | 50.18% |
| | | | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | 10.55 | 4.50 | 2.41 | 35.40 | TRUE | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 17.46 | | | | | | | | | | | | | | | | | | | | | |

**IBI GROUP**
400-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

**STORM SEWER DESIGN SHEET**
**MER BLEUE Urban Expansion Area**
MSS Preferred Concept
CITY OF OTTAWA
Owners Group

| LOCATION | | | | AREA (Ha) | | | | | | | | | | | | RATIONAL DESIGN FLOW | | | | | | | | | | | | SEWER DATA | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STREET | AREA ID | FROM | TO | C= 0.20 | C= 0.30 | C= 0.40 | C= 0.54 | C= 0.57 | C= 0.70 | C= 0.71 | C= 0.73 | C= 0.74 | C= 0.70 | C= 0.76 | C= 0.80 | IND 2.78AC | CUM 2.78AC | INLET (min) | TIME IN PIPE | TOTAL (min) | i (2) (mm/hr) | i (5) (mm/hr) | i (100) (mm/hr) | 2yr PEAK FLOW (L/s) | 5yr PEAK FLOW (L/s) | 100yr PEAK FLOW (L/s) | FIXED FLOW (L/s) | DESIGN FLOW (L/s) | CAPACITY (L/s) | LENGTH (m) | PIPE SIZE (mm) DIA | W | H | SLOPE (%) | VELOCITY (m/s) | AVAIL CAP (2yr) (L/s) | (%) |
| **OUTLET #3: AVALON POND 5 (North)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MANDALEY | 3001 | MH3001 | MH3002 | | | | | | | | | | 0.32 | | | 0.62 | 0.62 | 10.00 | 0.22 | 10.22 | 76.81 | 104.19 | 178.56 | 47.83 | | | | 47.83 | 100.18 | 11.73 | 375 | | | 0.30 | 0.879 | 52.36 | 52.26% |
| MANDALEY | | MH3002 | MH3003 | | | | | | | | | | | | | 0.00 | 0.62 | 10.22 | 0.73 | 10.96 | 75.96 | 103.03 | 176.55 | 47.30 | | | | 47.30 | 148.72 | 39.93 | 450 | | | 0.25 | 0.906 | 101.41 | 68.19% |
| SWEETFERN | 3210B | MH3210 | MH3003 | | | | | | | | | | 0.32 | | | 0.62 | 0.62 | 0.00 | 1.34 | 1.34 | 167.22 | 230.48 | 398.62 | 104.13 | | | | 104.13 | 100.18 | 70.50 | 375 | | | 0.30 | 0.879 | -3.95 | -3.94% |
| MANDALEY | 3003 | MH3003 | MH3004 | | | | | | | | | | 0.62 | | | 1.21 | 2.45 | 10.96 | 1.21 | 12.17 | 73.32 | 99.39 | 170.26 | 179.77 | | | | 179.77 | 339.63 | 66.87 | 675 | | | 0.15 | 0.919 | 159.87 | 47.07% |
| MANDALEY | | MH3004 | MH3010 | | | | | | | | | | | | | 0.00 | 2.45 | 10.96 | 1.14 | 12.09 | 73.32 | 99.39 | 170.26 | 179.77 | | | | 179.77 | 449.81 | 67.25 | 750 | | | 0.15 | 0.986 | 270.05 | 60.04% |
| SWEETVALLEY | 3010 | MH3010 | MH3011 | | | | | | | | | | 0.11 | | | 0.21 | 2.67 | 12.09 | 0.41 | 12.51 | 69.60 | 94.30 | 161.45 | 185.57 | | | | 185.57 | 579.98 | 25.97 | 825 | | | 0.15 | 1.051 | 394.41 | 68.00% |
| PARK | 3101 | MH3101 | MH3011 | | 1.66 | | | | | | | | | | | 1.38 | 1.38 | 13.00 | 0.18 | 13.18 | 66.93 | 90.63 | 155.11 | 92.66 | | | | 92.66 | 184.99 | 8.80 | 525 | | | 0.17 | 0.828 | 92.33 | 49.91% |
| SWEETVALLEY | | MH3011 | MH3020 | | | | | | | | | | | | | 0.00 | 4.05 | 12.51 | 0.70 | 13.20 | 68.36 | 92.59 | 158.50 | 276.89 | | | | 276.89 | 579.98 | 44.03 | 825 | | | 0.15 | 1.051 | 303.09 | 52.26% |
| SWEETFERN | 3202 | MH3202 | MH3203 | | | | | | | | | | 0.86 | | | 1.67 | 1.67 | 10.00 | 0.57 | 10.57 | 76.81 | 104.19 | 178.56 | 128.54 | | | | 128.54 | 162.91 | 34.18 | 450 | | | 0.30 | 0.992 | 34.37 | 21.10% |
| SWEETFERN | | MH3203 | MH3204 | | | | | | | | | | | | | 0.00 | 1.67 | 10.57 | 0.21 | 10.78 | 74.67 | 101.26 | 173.48 | 124.96 | | | | 124.96 | 200.65 | 11.30 | 525 | | | 0.20 | 0.898 | 75.68 | 37.72% |
| SWEETFERN | | MH3204 | MH3210 | | | | | | | | | | | | | 0.00 | 1.67 | 10.78 | 0.99 | 11.78 | 73.92 | 100.23 | 171.70 | 123.71 | | | | 123.71 | 320.28 | 65.29 | 600 | | | 0.25 | 1.097 | 196.57 | 61.37% |
| ASTERVALE | 3210B | MH3210 | MH3220 | | | | | | | | | | 0.20 | | | 0.39 | 2.06 | 11.78 | 1.03 | 12.81 | 70.60 | 95.67 | 163.81 | 145.63 | | | | 145.63 | 579.98 | 65.00 | 825 | | | 0.15 | 1.051 | 434.35 | 74.89% |
| BROADLEAF | 3221B | MH3221 | MH3220 | | | | | | | | | | 0.51 | | | 0.99 | 0.99 | 10.00 | 1.73 | 11.73 | 76.81 | 104.19 | 178.56 | 76.23 | | | | 76.23 | 184.99 | 85.82 | 525 | | | 0.17 | 0.828 | 108.76 | 58.79% |
| ASTERVALE | 3220A | MH3220 | MH3020 | | | | | | | | | | 0.31 | | | 0.60 | 3.66 | 12.81 | 0.89 | 13.69 | 67.48 | 91.39 | 156.42 | 246.88 | | | | 246.88 | 844.60 | 68.46 | 900 | | | 0.20 | 1.286 | 597.72 | 70.77% |
| CASA GRANDE | 3020 | MH3020 | MH3021 | | | | | | | | | | 0.67 | | | 1.30 | 9.01 | 12.51 | 0.83 | 13.34 | 68.36 | 92.59 | 158.50 | 616.11 | | | | 616.11 | 1,575.26 | 67.59 | 1200 | | | 0.15 | 1.349 | 959.15 | 60.89% |
| CASA GRANDE | | MH3021 | MH3022 | | | | | | | | | | | | | 0.00 | 9.01 | 13.34 | 0.71 | 14.05 | 65.98 | 89.33 | 152.87 | 594.70 | | | | 594.70 | 2,856.14 | 67.01 | 1500 | | | 0.15 | 1.566 | 2261.44 | 79.18% |
| CASA GRANDE | 3022 | MH3022 | MH3023 | | | | | | | | | | 1.08 | | | 2.10 | 11.11 | 14.05 | 0.14 | 14.20 | 64.10 | 86.74 | 148.40 | 712.38 | | | | 712.38 | 2,856.14 | 13.50 | 1500 | | | 0.15 | 1.566 | 2143.75 | 75.06% |
| CASA GRANDE | | MH3023 | MH3024 | | | | | | | | | | | | | 0.00 | 11.11 | 14.20 | 0.75 | 14.95 | 63.73 | 86.24 | 147.53 | 708.32 | | | | 708.32 | 3,682.64 | 75.25 | 1650 | | | 0.15 | 1.668 | 2974.32 | 80.77% |
| CASA GRANDE | | MH3024 | MH3025 | | | | | | | | | | | | | 0.00 | 11.11 | 14.95 | 0.53 | 15.48 | 61.89 | 83.72 | 143.18 | 687.85 | | | | 687.85 | 3,682.64 | 52.93 | 1650 | | | 0.15 | 1.668 | 2994.79 | 81.32% |
| CASA GRANDE | | MH3025 | MH3030 | | | | | | | | | | | | | 0.00 | 11.11 | 15.48 | 0.12 | 15.60 | 60.66 | 82.04 | 140.28 | 674.23 | | | | 674.23 | 3,682.64 | 12.32 | 1650 | | | 0.15 | 1.668 | 3008.41 | 81.69% |
| SWEETVALLEY | 3300 | MH3300 | MH3301 | | | | | | | | | | 1.67 | | | 3.25 | 3.25 | 10.00 | 0.68 | 10.68 | 76.81 | 104.19 | 178.56 | 249.60 | | | | 249.60 | 100.18 | 35.91 | 375 | | | 0.30 | 0.879 | -149.42 | -149.14% |
| SWEETVALLEY | | MH3301 | MH3302 | | | | | | | | | | | | | 0.00 | 3.25 | 10.68 | 0.98 | 11.66 | 74.29 | 100.73 | 172.56 | 241.41 | | | | 241.41 | 148.72 | 53.06 | 450 | | | 0.25 | 0.906 | -92.70 | -62.33% |
| SWEETVALLEY | | MH3302 | MH3303 | | | | | | | | | | | | | 0.00 | 3.25 | 11.66 | 0.93 | 12.59 | 70.98 | 96.18 | 164.71 | 230.67 | | | | 230.67 | 317.25 | 79.51 | 525 | | | 0.50 | 1.420 | 86.58 | 27.29% |
| SWEETVALLEY | | MH3303 | MH3310 | | | | | | | | | | | | | 0.00 | 3.25 | 12.59 | 0.31 | 12.90 | 68.11 | 92.25 | 157.90 | 221.34 | | | | 221.34 | 317.25 | 26.70 | 525 | | | 0.50 | 1.420 | 95.91 | 30.23% |
| SWEETVALLEY | 3312 | MH3312 | MH3313 | | | | | | | | | | 0.47 | | | 0.91 | 0.91 | 10.00 | 1.00 | 11.00 | 76.81 | 104.19 | 178.56 | 70.25 | | | | 70.25 | 63.80 | 52.58 | 300 | | | 0.40 | 0.874 | -6.44 | -10.10% |
| BROADLEAF | | MH3221 | MH3314 | | | | | | | | | | | | | 0.00 | 0.91 | 10.00 | 0.23 | 10.23 | 76.81 | 104.19 | 178.56 | 70.25 | | | | 70.25 | 136.30 | 11.58 | 450 | | | 0.21 | 0.830 | 66.05 | 48.46% |
| BROADLEAF | 3314 | MH3314 | MH3313 | | | | | | | | | | 0.35 | | | 0.68 | 0.68 | 10.23 | 1.19 | 11.42 | 75.92 | 102.98 | 176.46 | 51.71 | | | | 51.71 | 136.30 | 59.20 | 450 | | | 0.21 | 0.830 | 84.59 | 62.06% |
| SWEETVALLEY | 3313 | MH3313 | MH3315 | | | | | | | | | | 0.26 | | | 0.51 | 2.10 | 11.00 | 0.77 | 11.77 | 73.16 | 99.18 | 169.89 | 153.76 | | | | 153.76 | 224.33 | 46.42 | 525 | | | 0.25 | 1.004 | 70.57 | 31.46% |
| SWEETVALLEY | | MH3315 | MH3310 | | | | | | | | | | | | | 0.00 | 2.10 | 11.77 | 0.20 | 11.98 | 70.61 | 95.68 | 163.83 | 148.39 | | | | 148.39 | 224.33 | 12.24 | 525 | | | 0.25 | 1.004 | 75.93 | 33.85% |
| PATHWAY | | MH3310 | MH3311 | | | | | | | | | | | | | 0.00 | 5.35 | 12.90 | 0.51 | 13.42 | 67.20 | 91.00 | 155.75 | 359.63 | | | | 359.63 | 734.54 | 49.70 | 750 | | | 0.40 | 1.611 | 374.91 | 51.04% |
| PATHWAY | | MH3311 | MH3322 | | | | | | | | | | | | | 0.00 | 5.35 | 13.42 | 0.10 | 13.52 | 65.77 | 89.04 | 152.36 | 351.97 | | | | 351.97 | 899.63 | 12.16 | 750 | | | 0.60 | 1.973 | 547.65 | 60.88% |
| CASA GRANDE | 3320 | MH3320 | MH3322 | | | | | | | | | | 1.03 | | | 2.00 | 2.00 | 10.00 | 1.93 | 11.93 | 76.81 | 104.19 | 178.56 | 153.95 | | | | 153.95 | 224.33 | 116.20 | 525 | | | 0.25 | 1.004 | 70.38 | 31.37% |
| CASA GRANDE | | MH3322 | MH3323 | | | | | | | | | | 0.73 | | | 1.42 | 8.78 | 13.52 | 0.16 | 13.69 | 65.49 | 88.66 | 151.71 | 574.80 | | | | 574.80 | 1,045.56 | 13.43 | 975 | | | 0.20 | 1.357 | 470.76 | 45.02% |
| CASA GRANDE | 3323 | MH3323 | MH3324 | | | | | | | | | | | | | 0.00 | 8.78 | 13.69 | 0.55 | 14.24 | 65.05 | 88.06 | 150.66 | 570.94 | | | | 570.94 | 2,033.65 | 57.95 | 1200 | | | 0.25 | 1.742 | 1462.71 | 71.93% |
| CASA GRANDE | | MH3324 | MH3030 | | | | | | | | | | | | | 0.00 | 8.78 | 14.24 | 0.23 | 14.48 | 63.62 | 86.09 | 147.27 | 558.36 | | | | 558.36 | 2,227.75 | 26.86 | 1200 | | | 0.30 | 1.908 | 1669.40 | 74.94% |
| | | MH3030 | MH3031 | | | | | | | | | | | | | 0.00 | 19.89 | 15.60 | 0.18 | 15.78 | 60.39 | 81.67 | 139.63 | 1,201.11 | | | | 1,201.11 | 6,638.91 | 23.44 | 1950 | | | 0.20 | 2.154 | 5437.80 | 81.91% |
| | | MH3031 | MH3032 | | | | | | | | | | | | | 0.00 | 19.89 | 15.78 | 0.05 | 15.83 | 59.98 | 81.11 | 138.68 | 1,193.08 | | | | 1,193.08 | 6,638.91 | 6.57 | 1950 | | | 0.20 | 2.154 | 5445.84 | 82.03% |
| | | MH3032 | MH3033 | | | | | | | | | | | | | 0.00 | 19.89 | 15.83 | 0.43 | 16.27 | 59.87 | 80.96 | 138.41 | 1,190.85 | | | | 1,190.85 | 5,749.47 | 48.48 | 1950 | | | 0.15 | 1.865 | 4558.62 | 79.29% |
| | | MH3033 | EXMH1 | | | | | | | | | | | | | 0.00 | 19.89 | 16.27 | 0.14 | 16.41 | 58.93 | 79.68 | 136.20 | 1,172.21 | | | | 1,172.21 | 5,749.47 | 15.70 | 1950 | | | 0.15 | 1.865 | 4577.26 | 79.61% |
| | | EXMH1 | EXMH2 | | | | | | | | | | | | | 0.00 | 19.89 | 16.41 | 0.25 | 16.65 | 58.64 | 79.27 | 135.50 | 1,166.31 | | | | 1,166.31 | 8,261.44 | 28.32 | | 2400 | 1800 | 0.15 | 1.912 | 7095.13 | 85.88% |
| | | EXMH2 | HW3 | | | | | | | | | | | | | 0.00 | 19.89 | 16.41 | 0.34 | 16.75 | 58.64 | 79.27 | 135.50 | 1,166.31 | | | | 1,166.31 | 6,745.44 | 31.94 | | 2400 | 1800 | 0.10 | 1.561 | 5579.12 | 82.71% |
| | | | | 0.00 | 1.66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | 9.51 | 0.00 | 0.00 | 19.89 | TRUE | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 11.17 | | | | | | | | | | | | | | | | | | | | | |

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**STORM SEWER DESIGN SHEET**
**MER BLEUE Urban Expansion Area**
MSS Preferred Concept
CITY OF OTTAWA
Owners Group

| LOCATION | | | | AREA (Ha) | | | | | | | | | | | | RATIONAL DESIGN FLOW | | | | | | | | | | | | SEWER DATA | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STREET | AREA ID | FROM | TO | C= 0.20 | C= 0.30 | C= 0.40 | C= 0.54 | C= 0.57 | C= 0.70 | C= 0.71 | C= 0.73 | C= 0.74 | C= 0.70 | C= 0.76 | C= 0.80 | IND 2.78AC | CUM 2.78AC | INLET (min) | TIME IN PIPE | TOTAL (min) | i (2) (mm/hr) | i (5) (mm/hr) | i (100) (mm/hr) | 2yr PEAK FLOW (L/s) | 5yr PEAK FLOW (L/s) | 100yr PEAK FLOW (L/s) | FIXED FLOW (L/s) | DESIGN FLOW (L/s) | CAPACITY (L/s) | LENGTH (m) | PIPE SIZE (mm) DIA | W | H | SLOPE (%) | VELOCITY (m/s) | AVAIL CAP (2yr) (L/s) | (%) |
| **OUTLET #4: New Central SWM Pond (North)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MER BLEUE ROAD | 4000A/B | MH4000 | MH4001 | | | | | | | | | | 0.40 | 1.46 | | 3.86 | 3.86 | 13.67 | 0.78 | 14.45 | 65.10 | 88.12 | 150.76 | 251.47 | | | | 251.47 | 626.37 | 44.75 | 900 | | | 0.11 | 0.954 | 374.90 | 59.85% |
| | | MH4001 | MH4002 | | | | | | | | | | | | | 0.00 | 3.86 | 14.45 | 0.77 | 15.22 | 63.09 | 85.37 | 146.02 | 243.73 | | | | 243.73 | 626.37 | 43.86 | 900 | | | 0.11 | 0.954 | 382.64 | 61.09% |
| | | MH4002 | MH4010 | | | | | | | | | | | | | 0.00 | 3.86 | 15.22 | 0.79 | 16.01 | 61.26 | 82.86 | 141.69 | 236.64 | | | | 236.64 | 626.37 | 45.49 | 900 | | | 0.11 | 0.954 | 389.73 | 62.22% |
| | 4010 | MH4010 | MH4011 | | | | | | | | | | 0.52 | | | 1.01 | 4.88 | 16.01 | 0.70 | 16.71 | 59.47 | 80.42 | 137.48 | 289.94 | | | | 289.94 | 775.41 | 42.33 | 975 | | | 0.11 | 1.006 | 485.47 | 62.61% |
| | | MH4011 | MH4012 | | | | | | | | | | | | | 0.00 | 4.88 | 16.71 | 1.51 | 18.22 | 58.00 | 78.40 | 133.99 | 282.73 | | | | 282.73 | 775.41 | 91.15 | 975 | | | 0.11 | 1.006 | 492.68 | 63.54% |
| | 4110 | MH4110 | MH4111 | | | | | | | | | | 0.92 | | | 1.79 | 1.79 | 10.00 | 1.79 | 11.79 | 76.81 | 104.19 | 178.56 | 137.51 | | | | 137.51 | 239.68 | 88.06 | 600 | | | 0.14 | 0.821 | 102.17 | 42.63% |
| | | MH4111 | MH4112 | | | | | | | | | | | | | 0.00 | 1.79 | 11.79 | 0.14 | 11.93 | 70.56 | 95.61 | 163.72 | 126.33 | | | | 126.33 | 239.68 | 6.82 | 600 | | | 0.14 | 0.821 | 113.35 | 47.29% |
| | | MH4112 | MH4113 | | | | | | | | | | | | | 0.00 | 1.79 | 11.93 | 0.77 | 12.69 | 70.13 | 95.01 | 162.68 | 125.55 | | | | 125.55 | 239.68 | 37.74 | 600 | | | 0.14 | 0.821 | 114.13 | 47.62% |
| | | MH4113 | MH4121 | | | | | | | | | | | | | 0.00 | 1.79 | 12.69 | 0.84 | 13.53 | 67.81 | 91.84 | 157.20 | 121.41 | | | | 121.41 | 239.68 | 41.15 | 600 | | | 0.14 | 0.821 | 118.27 | 49.34% |
| | 4120 | MH4120 | MH4121 | | | | | | | | | | 0.79 | | | 1.54 | 1.54 | 10.00 | 2.39 | 12.39 | 76.81 | 104.19 | 178.56 | 118.08 | | | | 118.08 | 93.27 | 117.46 | 375 | | | 0.26 | 0.818 | -24.81 | -26.60% |
| | 4121 | MH4121 | MH4131 | | | | | | | | | | 0.31 | | | 0.60 | 3.93 | 13.53 | 1.44 | 14.97 | 65.48 | 88.64 | 151.67 | 257.39 | | | | 257.39 | 496.66 | 77.96 | 825 | | | 0.11 | 0.900 | 239.27 | 48.18% |
| | 4130 | MH4130 | MH4131 | | | | | | | | | | 0.78 | | | 1.52 | 1.52 | 10.00 | 2.40 | 12.40 | 76.81 | 104.19 | 178.56 | 116.58 | | | | 116.58 | 93.27 | 117.68 | 375 | | | 0.26 | 0.818 | -23.31 | -25.00% |
| | 4132 | MH4132 | MH4131 | | | | | | | | | | 0.12 | | | 0.23 | 0.23 | 10.00 | 1.45 | 11.45 | 76.81 | 104.19 | 178.56 | 17.94 | | | | 17.94 | 93.27 | 71.02 | 375 | | | 0.26 | 0.818 | 75.33 | 80.77% |
| | 4131 | MH4131 | MH4140 | | | | | | | | | | 0.33 | | | 0.64 | 6.32 | 14.97 | 1.19 | 16.16 | 61.84 | 83.65 | 143.06 | 391.09 | | | | 391.09 | 775.41 | 72.00 | 975 | | | 0.11 | 1.006 | 384.32 | 49.56% |
| | 4100 | MH4100 | MH4101 | | | | | | | | | | 0.10 | | | 0.19 | 0.19 | 10.00 | 1.19 | 11.19 | 76.81 | 104.19 | 178.56 | 14.95 | | | | 14.95 | 496.66 | 64.10 | 825 | | | 0.11 | 0.900 | 481.72 | 96.99% |
| | 4107 | MH4107 | MH4101 | | | | | | | | | | 0.40 | | | 0.78 | 0.78 | 10.00 | 1.67 | 11.67 | 76.81 | 104.19 | 178.56 | 59.79 | | | | 59.79 | 93.27 | 82.00 | 375 | | | 0.26 | 0.818 | 33.48 | 35.90% |
| | 4101 | MH4101 | MH4102 | | | | | | | | | | 1.16 | | | 2.26 | 3.23 | 11.67 | 0.80 | 12.47 | 70.94 | 96.13 | 164.61 | 229.15 | | | | 229.15 | 496.66 | 43.26 | 825 | | | 0.11 | 0.900 | 267.52 | 53.86% |
| | | MH4102 | MH4103 | | | | | | | | | | | | | 0.00 | 3.23 | 12.47 | 0.90 | 13.37 | 68.46 | 92.73 | 158.73 | 221.15 | | | | 221.15 | 496.66 | 48.72 | 825 | | | 0.11 | 0.900 | 275.51 | 55.47% |
| | | MH4103 | MH4104 | | | | | | | | | | | | | 0.00 | 3.23 | 13.37 | 0.99 | 14.37 | 65.89 | 89.21 | 152.65 | 212.86 | | | | 212.86 | 496.66 | 53.73 | 825 | | | 0.11 | 0.900 | 283.81 | 57.14% |
| | | MH4104 | MH4105 | | | | | | | | | | | | | 0.00 | 3.23 | 14.37 | 0.63 | 15.00 | 63.30 | 85.65 | 146.51 | 204.48 | | | | 204.48 | 496.66 | 33.89 | 825 | | | 0.11 | 0.900 | 292.19 | 58.83% |
| | | MH4105 | MH4106 | | | | | | | | | | | | | 0.00 | 3.23 | 15.00 | 0.86 | 15.85 | 61.78 | 83.57 | 142.91 | 199.56 | | | | 199.56 | 496.66 | 46.18 | 825 | | | 0.11 | 0.900 | 297.11 | 59.82% |
| | | MH4106 | MH4140 | | | | | | | | | | | | | 0.00 | 3.23 | 15.85 | 1.69 | 17.54 | 59.83 | 80.90 | 138.32 | 193.27 | | | | 193.27 | 496.66 | 91.06 | 825 | | | 0.11 | 0.900 | 303.40 | 61.09% |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | MH4140 | MH4012 | | | | | | | | | | | | | 0.00 | 9.55 | 17.54 | 0.19 | 17.73 | 56.36 | 76.16 | 130.14 | 538.53 | | | | 538.53 | 944.84 | 12.08 | 1050 | | | 0.11 | 1.057 | 406.31 | 43.00% |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | MH4012 | MH4020 | | | | | | | | | | | | | 0.00 | 14.43 | 17.73 | 1.08 | 18.81 | 56.00 | 75.67 | 129.28 | 808.05 | | | | 808.05 | 1,846.76 | 80.96 | 1350 | | | 0.11 | 1.250 | 1038.71 | 56.24% |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4200 | MH4200 | MH4201 | | | | | | | | | | 0.80 | | | 1.56 | 1.56 | 10.00 | 2.08 | 12.08 | 76.81 | 104.19 | 178.56 | 119.57 | | | | 119.57 | 385.20 | 105.31 | 750 | | | 0.11 | 0.845 | 265.63 | 68.96% |
| | 4201 | MH4201 | MH4202 | | | | | | | | | | 1.06 | | | 2.06 | 3.62 | 12.08 | 2.13 | 14.21 | 69.65 | 94.36 | 161.56 | 252.11 | | | | 252.11 | 385.20 | 107.95 | 750 | | | 0.11 | 0.845 | 133.09 | 34.55% |
| | | MH4202 | MH4204 | | | | | | | | | | | | | 0.00 | 3.62 | 14.21 | 1.44 | 15.64 | 63.70 | 86.21 | 147.47 | 230.57 | | | | 230.57 | 496.66 | 77.56 | 825 | | | 0.11 | 0.900 | 266.09 | 53.58% |
| | | MH4204 | MH4220 | | | | | | | | | | | | | 0.00 | 3.62 | 15.64 | 0.38 | 16.02 | 60.29 | 81.53 | 139.40 | 218.21 | | | | 218.21 | 496.66 | 20.27 | 825 | | | 0.11 | 0.900 | 278.45 | 56.06% |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4212 | MH4212 | MH4213 | | | | | | | | | | 0.99 | | | 1.93 | 1.93 | 10.00 | 0.73 | 10.73 | 76.81 | 104.19 | 178.56 | 147.97 | | | | 147.97 | 303.78 | 35.90 | 675 | | | 0.12 | 0.822 | 155.81 | 51.29% |
| | | MH4213 | MH4220 | | | | | | | | | | | | | 0.00 | 1.93 | 10.73 | 0.53 | 11.26 | 74.12 | 100.50 | 172.17 | 142.79 | | | | 142.79 | 303.78 | 26.26 | 675 | | | 0.12 | 0.822 | 160.98 | 52.99% |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SCHOOL | 4221 | MH4221 | MH4220 | | | | | | | | | | | | 2.54 | 5.65 | 5.65 | 13.00 | 0.35 | 13.35 | 66.93 | 90.63 | 155.11 | 378.08 | | | | 378.08 | 626.37 | 20.00 | 900 | | | 0.11 | 0.954 | 248.29 | 39.64% |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4220 | MH4220 | MH4222 | | | | | | | | | | 1.01 | | | 1.97 | 13.16 | 16.02 | 0.83 | 16.85 | 59.46 | 80.40 | 137.45 | 782.54 | | | | 782.54 | 1,348.97 | 57.40 | 1200 | | | 0.11 | 1.155 | 566.43 | 41.99% |
| | | MH4222 | MH4223 | | | | | | | | | | | | | 0.00 | 13.16 | 16.85 | 0.48 | 17.32 | 57.73 | 78.03 | 133.35 | 759.69 | | | | 759.69 | 1,348.97 | 32.99 | 1200 | | | 0.11 | 1.155 | 589.28 | 43.68% |
| | | MH4223 | MH4224 | | | | | | | | | | | | | 0.00 | 13.16 | 17.32 | 0.54 | 17.87 | 56.78 | 76.73 | 131.12 | 747.22 | | | | 747.22 | 1,348.97 | 37.75 | 1200 | | | 0.11 | 1.155 | 601.75 | 44.61% |
| | | MH4224 | MH4020 | | | | | | | | | | | | | 0.00 | 13.16 | 17.87 | 1.22 | 19.09 | 55.73 | 75.31 | 128.66 | 733.50 | | | | 733.50 | 1,348.97 | 84.51 | 1200 | | | 0.11 | 1.155 | 615.48 | 45.63% |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4020 | MH4020 | MH4021 | | | | | | | | | | 0.92 | | | 1.79 | 29.38 | 19.09 | 1.11 | 20.20 | 53.55 | 72.32 | 123.52 | 1,573.28 | | | | 1,573.28 | 3,153.62 | 95.11 | 1650 | | | 0.11 | 1.429 | 1580.34 | 50.11% |
| | | MH4021 | MH4022 | | | | | | | | | | | | | 0.00 | 29.38 | 20.20 | 1.11 | 21.31 | 51.72 | 69.82 | 119.21 | 1,519.50 | | | | 1,519.50 | 3,153.62 | 95.12 | 1650 | | | 0.11 | 1.429 | 1634.12 | 51.82% |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PARK | 4332 | MH4023 | MH4022 | | 2.04 | | | | | | | | | | | 1.70 | 1.70 | 13.33 | 0.38 | 13.71 | 66.01 | 89.37 | 152.93 | 112.31 | | | | 112.31 | 184.99 | 19.00 | 525 | | | 0.17 | 0.828 | 72.68 | 39.29% |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4022 | MH4022 | MH4024 | | | | | | | | | | 0.89 | | | 1.73 | 32.81 | 21.31 | 0.83 | 22.14 | 50.02 | 67.51 | 115.23 | 1,641.40 | | | | 1,641.40 | 3,153.62 | 71.11 | 1650 | | | 0.11 | 1.429 | 1512.23 | 47.95% |
| | | MH4024 | MH4025 | | | | | | | | | | | | | 0.00 | 32.81 | 22.14 | 0.85 | 22.99 | 48.83 | 65.89 | 112.44 | 1,602.37 | | | | 1,602.37 | 3,153.62 | 72.87 | 1650 | | | 0.11 | 1.429 | 1551.26 | 49.19% |
| | 4025 | MH4025 | MH4026 | | | | | | | | | | 1.07 | | | 2.08 | 34.90 | 22.99 | 0.52 | 23.50 | 47.68 | 64.31 | 109.73 | 1,663.73 | | | | 1,663.73 | 3,153.62 | 44.40 | 1650 | | | 0.11 | 1.429 | 1489.89 | 47.24% |
| | | MH4026 | MH4030 | | | | | | | | | | | | | 0.00 | 34.90 | 23.50 | 0.66 | 24.16 | 47.00 | 63.39 | 108.15 | 1,640.19 | | | | 1,640.19 | 3,153.62 | 56.54 | 1650 | | | 0.11 | 1.429 | 1513.43 | 47.99% |
| | 4030 | MH4030 | MH4031 | | | | | | | | | | 1.13 | | | 2.20 | 37.10 | 24.16 | 0.51 | 24.68 | 46.17 | 62.27 | 106.20 | 1,712.81 | | | | 1,712.81 | 3,153.62 | 44.06 | 1650 | | | 0.11 | 1.429 | 1440.82 | 45.69% |
| | | MH4031 | MH4032 | | | | | | | | | | | | | 0.00 | 37.10 | 24.68 | 0.57 | 25.25 | 45.55 | 61.42 | 104.74 | 1,689.67 | | | | 1,689.67 | 3,153.62 | 49.23 | 1650 | | | 0.11 | 1.429 | 1463.95 | 46.42% |
| | | MH4032 | MH4040 | | | | | | | | | | | | | 0.00 | 37.10 | 25.25 | 0.67 | 25.92 | 44.87 | 60.50 | 103.16 | 1,664.64 | | | | 1,664.64 | 3,977.22 | 60.53 | 1800 | | | 0.11 | 1.514 | 2312.58 | 58.15% |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4400 | MH4400 | MH4401 | | | | | | | | | | 1.93 | | | 3.76 | 3.76 | 10.00 | 1.24 | 11.24 | 76.81 | 104.19 | 178.56 | 288.46 | | | | 288.46 | 496.66 | 67.15 | 825 | | | 0.11 | 0.900 | 208.20 | 41.92% |
| | | MH4401 | MH4402 | | | | | | | | | | | | | 0.00 | 3.76 | 11.24 | 0.23 | 11.47 | 72.34 | 98.05 | 167.94 | 271.69 | | | | 271.69 | 496.66 | 12.40 | 825 | | | 0.11 | 0.900 | 224.98 | 45.30% |
| | | MH4402 | MH4403 | | | | | | | | | | | | | 0.00 | 3.76 | 11.47 | 1.58 | 13.05 | 71.58 | 97.01 | 166.13 | 268.83 | | | | 268.83 | 496.66 | 85.28 | 825 | | | 0.11 | 0.900 | 227.84 | 45.87% |
| | | MH4403 | MH4404 | | | | | | | | | | | | | 0.00 | 3.76 | 13.05 | 1.58 | 14.63 | 66.78 | 90.43 | 154.76 | 250.82 | | | | 250.82 | 496.66 | 85.28 | 825 | | | 0.11 | 0.900 | 245.84 | 49.50% |
| | 4404 | MH4404 | MH4405 | | | | | | | | | | 2.20 | | | 4.28 | 8.04 | 14.63 | 1.54 | 16.17 | 62.65 | 84.77 | 144.98 | 503.53 | | | | 503.53 | 775.41 | 92.82 | 975 | | | 0.11 | 1.006 | 271.88 | 35.06% |
| | | MH4405 | MH4406 | | | | | | | | | | | | | 0.00 | 8.04 | 16.17 | 0.69 | 16.86 | 59.14 | 79.96 | 136.69 | 475.30 | | | | 475.30 | 775.41 | 41.72 | 975 | | | 0.11 | 1.006 | 300.11 | 38.70% |
| | | MH4406 | MH4407 | | | | | | | | | | | | | 0.00 | 8.04 | 16.86 | 0.50 | 17.36 | 57.70 | 77.99 | 133.29 | 463.73 | | | | 463.73 | 775.41 | 29.92 | 975 | | | 0.11 | 1.006 | 311.68 | 40.20% |
| | | MH4407 | MH4408 | | | | | | | | | | | | | 0.00 | 8.04 | 17.36 | 0.72 | 18.08 | 56.71 | 76.65 | 130.97 | 455.81 | | | | 455.81 | 775.41 | 43.43 | 975 | | | 0.11 | 1.006 | 319.60 | 41.22% |
| | | MH4408 | MH4440 | | | | | | | | | | | | | 0.00 | 8.04 | 18.08 | 0.60 | 18.68 | 55.35 | 74.78 | 127.76 | 444.84 | | | | 444.84 | 775.41 | 36.52 | 975 | | | 0.11 | 1.006 | 330.57 | 42.63% |

**IBI GROUP**
400-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
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**STORM SEWER DESIGN SHEET**
**MER BLEUE Urban Expansion Area**
MSS Preferred Concept
CITY OF OTTAWA
Owners Group

| LOCATION | | | | AREA (Ha) | | | | | | | | | | | | RATIONAL DESIGN FLOW | | | | | | | | | | | | SEWER DATA | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STREET | AREA ID | FROM | TO | C= 0.20 | C= 0.30 | C= 0.40 | C= 0.54 | C= 0.57 | C= 0.70 | C= 0.71 | C= 0.73 | C= 0.74 | C= 0.70 | C= 0.76 | C= 0.80 | IND 2.78AC | CUM 2.78AC | INLET (min) | TIME IN PIPE | TOTAL (min) | i (2) (mm/hr) | i (5) (mm/hr) | i (100) (mm/hr) | 2yr PEAK FLOW (L/s) | 5yr PEAK FLOW (L/s) | 100yr PEAK FLOW (L/s) | FIXED FLOW (L/s) | DESIGN FLOW (L/s) | CAPACITY (L/s) | LENGTH (m) | PIPE SIZE (mm) DIA | W | H | SLOPE (%) | VELOCITY (m/s) | AVAIL CAP (2yr) (L/s) | (%) |
| | 4410 | MH4410 | MH4411 | | | | | | | | | | 2.15 | | | 4.18 | 4.18 | 10.00 | 1.82 | 11.82 | 76.81 | 104.19 | 178.56 | 321.34 | | | | 321.34 | 496.66 | 98.27 | 825 | | | 0.11 | 0.900 | 175.32 | 35.30% |
| | | MH4411 | MH4412 | | | | | | | | | | | | | 0.00 | 4.18 | 11.82 | 1.82 | 13.64 | 70.46 | 95.47 | 163.48 | 294.79 | | | | 294.79 | 496.66 | 98.27 | 825 | | | 0.11 | 0.900 | 201.87 | 40.65% |
| | 4412 | MH4412 | MH4413 | | | | | | | | | | 1.28 | | | 2.49 | 6.67 | 13.64 | 1.42 | 15.06 | 65.18 | 88.23 | 150.96 | 435.04 | | | | 435.04 | 1,348.97 | 98.27 | 1200 | | | 0.11 | 1.155 | 913.93 | 67.75% |
| | | MH4413 | MH4414 | | | | | | | | | | | | | 0.00 | 6.67 | 15.06 | 0.51 | 15.57 | 61.63 | 83.37 | 142.58 | 411.39 | | | | 411.39 | 1,348.97 | 35.55 | 1200 | | | 0.11 | 1.155 | 937.58 | 69.50% |
| | | MH4414 | MH4415 | | | | | | | | | | | | | 0.00 | 6.67 | 15.57 | 0.35 | 15.92 | 60.45 | 81.76 | 139.79 | 403.52 | | | | 403.52 | 1,348.97 | 24.20 | 1200 | | | 0.11 | 1.155 | 945.45 | 70.09% |
| | | MH4415 | MH4424 | | | | | | | | | | | | | 0.00 | 6.67 | 15.92 | 0.34 | 16.26 | 59.68 | 80.70 | 137.97 | 398.36 | | | | 398.36 | 1,348.97 | 23.36 | 1200 | | | 0.11 | 1.155 | 950.61 | 70.47% |
| | 4420 | MH4420 | MH4421 | | | | | | | | | | 0.91 | | | 1.77 | 1.77 | 10.00 | 0.84 | 10.84 | 76.81 | 104.19 | 178.56 | 136.01 | | | | 136.01 | 239.68 | 41.35 | 600 | | | 0.14 | 0.821 | 103.66 | 43.25% |
| | | MH4421 | MH4422 | | | | | | | | | | | | | 0.00 | 1.77 | 10.84 | 1.54 | 12.38 | 73.73 | 99.96 | 171.23 | 130.56 | | | | 130.56 | 239.68 | 76.12 | 600 | | | 0.14 | 0.821 | 109.12 | 45.53% |
| | | MH4422 | MH4423 | | | | | | | | | | | | | 0.00 | 1.77 | 12.38 | 0.24 | 12.62 | 68.72 | 93.09 | 159.35 | 121.69 | | | | 121.69 | 239.68 | 11.68 | 600 | | | 0.14 | 0.821 | 117.98 | 49.23% |
| | | MH4423 | MH4424 | | | | | | | | | | | | | 0.00 | 1.77 | 12.62 | 0.67 | 13.29 | 68.02 | 92.12 | 157.69 | 120.45 | | | | 120.45 | 239.68 | 32.89 | 600 | | | 0.14 | 0.821 | 119.22 | 49.74% |
| | | MH4424 | MH4440 | | | | | | | | | | | | | 0.00 | 8.45 | 16.26 | 1.25 | 17.50 | 58.95 | 79.71 | 136.25 | 497.91 | | | | 497.91 | 1,348.97 | 86.61 | 1200 | | | 0.11 | 1.155 | 851.06 | 63.09% |
| | 4430 | MH4430 | MH4431 | | | | | | | | | | 0.83 | | | 1.62 | 1.62 | 10.00 | 1.51 | 11.51 | 76.81 | 104.19 | 178.56 | 124.05 | | | | 124.05 | 239.68 | 74.43 | 600 | | | 0.14 | 0.821 | 115.62 | 48.24% |
| | | MH4431 | MH4432 | | | | | | | | | | | | | 0.00 | 1.62 | 11.51 | 0.23 | 11.74 | 71.45 | 96.84 | 165.84 | 115.41 | | | | 115.41 | 239.68 | 11.53 | 600 | | | 0.14 | 0.821 | 124.26 | 51.85% |
| | | MH4432 | MH4433 | | | | | | | | | | | | | 0.00 | 1.62 | 11.74 | 1.57 | 13.31 | 70.70 | 95.80 | 164.04 | 114.19 | | | | 114.19 | 239.68 | 77.32 | 600 | | | 0.14 | 0.821 | 125.49 | 52.36% |
| | 4433 | MH4433 | MH4434 | | | | | | | | | | 1.38 | | | 2.69 | 4.30 | 13.31 | 1.47 | 14.78 | 66.06 | 89.43 | 153.04 | 284.09 | | | | 284.09 | 496.66 | 79.15 | 825 | | | 0.11 | 0.900 | 212.58 | 42.80% |
| | | MH4434 | MH4435 | | | | | | | | | | | | | 0.00 | 4.30 | 14.78 | 1.01 | 15.79 | 62.29 | 84.28 | 144.14 | 267.90 | | | | 267.90 | 496.66 | 54.79 | 825 | | | 0.11 | 0.900 | 228.76 | 46.06% |
| | | MH4435 | MH4440 | | | | | | | | | | | | | 0.00 | 4.30 | 15.79 | 0.61 | 16.41 | 59.95 | 81.08 | 138.61 | 257.85 | | | | 257.85 | 496.66 | 33.15 | 825 | | | 0.11 | 0.900 | 238.82 | 48.08% |
| | | MH4440 | MH4040 | | | | | | | | | | | | | 0.00 | 20.78 | 17.50 | 1.16 | 18.66 | 56.43 | 76.25 | 130.29 | 1,172.70 | | | | 1,172.70 | 1,846.76 | 86.70 | 1350 | | | 0.11 | 1.250 | 674.06 | 36.50% |
| | | | | | | | | | | | | | | | | | | | | | 167.22 | 230.48 | | | | | | | | | | | | | | | |
| | 4450 | MH4450 | MH4451 | | | | | | | | | | 1.50 | | | 2.92 | 2.92 | 10.00 | 1.66 | 11.66 | 76.81 | 104.19 | 178.56 | 224.19 | | | | 224.19 | 385.20 | 84.22 | 750 | | | 0.11 | 0.845 | 161.00 | 41.80% |
| | | MH4451 | MH4452 | | | | | | | | | | | | | 0.00 | 2.92 | 11.66 | 1.55 | 13.21 | 70.96 | 96.16 | 164.67 | 207.14 | | | | 207.14 | 385.20 | 78.50 | 750 | | | 0.11 | 0.845 | 178.05 | 46.22% |
| | | MH4452 | MH4453 | | | | | | | | | | | | | 0.00 | 2.92 | 13.21 | 1.28 | 14.49 | 66.34 | 89.82 | 153.71 | 193.65 | | | | 193.65 | 385.20 | 64.76 | 750 | | | 0.11 | 0.845 | 191.55 | 49.73% |
| | | MH4453 | MH4040 | | | | | | | | | | | | | 0.00 | 2.92 | 14.49 | 0.98 | 15.47 | 63.00 | 85.25 | 145.81 | 183.90 | | | | 183.90 | 385.20 | 49.59 | 750 | | | 0.11 | 0.845 | 201.30 | 52.26% |
| | 4040 | MH4040 | MH4050 | | | | | | | | | | 0.29 | | | 0.56 | 61.36 | 25.92 | 0.70 | 26.62 | 44.12 | 59.47 | 101.39 | 2,707.24 | | | | 2,707.24 | 5,999.35 | 70.78 | 2100 | | | 0.11 | 1.678 | 3292.11 | 54.87% |
| | 4500 | MH4500 | MH4501 | | | | | | | | | | 1.68 | | | 3.27 | 3.27 | 10.00 | 2.12 | 12.12 | 76.81 | 104.19 | 178.56 | 251.10 | | | | 251.10 | 385.20 | 107.48 | 750 | | | 0.11 | 0.845 | 134.10 | 34.81% |
| | | MH4501 | MH4502 | | | | | | | | | | | | | 0.00 | 3.27 | 12.12 | 0.82 | 12.94 | 69.52 | 94.18 | 161.25 | 227.28 | | | | 227.28 | 385.20 | 41.59 | 750 | | | 0.11 | 0.845 | 157.92 | 41.00% |
| | | MH4502 | MH4503 | | | | | | | | | | | | | 0.00 | 3.27 | 12.94 | 0.82 | 13.76 | 67.10 | 90.86 | 155.50 | 219.35 | | | | 219.35 | 385.20 | 41.59 | 750 | | | 0.11 | 0.845 | 165.84 | 43.05% |
| | | MH4503 | MH4050 | | | | | | | | | | | | | 0.00 | 3.27 | 13.76 | 0.82 | 14.58 | 64.85 | 87.78 | 150.19 | 212.02 | | | | 212.02 | 385.20 | 41.59 | 750 | | | 0.11 | 0.845 | 173.18 | 44.96% |
| | 4050 | MH4050 | MH4051 | | | | | | | | | | 0.41 | | | 0.80 | 65.43 | 26.62 | 0.35 | 26.97 | 43.35 | 58.43 | 99.60 | 2,836.48 | | | | 2,836.48 | 5,999.35 | 35.44 | 2100 | | | 0.11 | 1.678 | 3162.87 | 52.72% |
| | | MH4051 | MH4060 | | | | | | | | | | | | | 0.00 | 65.43 | 26.97 | 0.73 | 27.70 | 42.98 | 57.92 | 98.73 | 2,812.08 | | | | 2,812.08 | 5,999.35 | 73.50 | 2100 | | | 0.11 | 1.678 | 3187.27 | 53.13% |
| | 4600 | MH4600 | MH4601 | | | | | | | | | | 1.29 | | | 2.51 | 2.51 | 10.00 | 2.34 | 12.34 | 76.81 | 104.19 | 178.56 | 192.81 | | | | 192.81 | 303.78 | 115.57 | 675 | | | 0.12 | 0.822 | 110.97 | 36.53% |
| | | MH4601 | MH4602 | | | | | | | | | | | | | 0.00 | 2.51 | 12.34 | 2.34 | 14.68 | 68.85 | 93.26 | 159.65 | 172.83 | | | | 172.83 | 303.78 | 115.57 | 675 | | | 0.12 | 0.822 | 130.95 | 43.11% |
| | 4602 | MH4602 | MH4603 | | | | | | | | | | 1.45 | | | 2.82 | 5.33 | 14.68 | 1.88 | 16.57 | 62.52 | 84.59 | 144.68 | 333.37 | | | | 333.37 | 626.37 | 107.75 | 900 | | | 0.11 | 0.954 | 293.00 | 46.78% |
| | | MH4603 | MH4604 | | | | | | | | | | | | | 0.00 | 5.33 | 16.57 | 1.88 | 18.45 | 58.30 | 78.81 | 134.71 | 310.86 | | | | 310.86 | 626.37 | 107.75 | 900 | | | 0.11 | 0.954 | 315.51 | 50.37% |
| | 4605 | MH4605 | MH4606 | | | | | | | | | | 0.46 | | | 0.90 | 0.90 | 10.00 | 1.69 | 11.69 | 76.81 | 104.19 | 178.56 | 68.75 | | | | 68.75 | 91.46 | 81.57 | 375 | | | 0.25 | 0.802 | 22.70 | 24.82% |
| | | MH4606 | MH4607 | | | | | | | | | | | | | 0.00 | 0.90 | 11.69 | 0.24 | 11.94 | 70.86 | 96.02 | 164.42 | 63.43 | | | | 63.43 | 91.46 | 11.63 | 375 | | | 0.25 | 0.802 | 28.03 | 30.65% |
| | 4607 | MH4607 | MH4604 | 0.60 | | | | | | | | | | | | 0.50 | 1.40 | 11.94 | 1.28 | 13.22 | 70.09 | 94.97 | 162.60 | 97.82 | | | | 97.82 | 184.99 | 63.78 | 525 | | | 0.17 | 0.828 | 87.17 | 47.12% |
| | 4604 | MH4604 | MH4610 | | | | | | | | | | 0.26 | | | 0.51 | 7.23 | 18.45 | 1.07 | 19.52 | 54.67 | 73.85 | 126.15 | 395.43 | | | | 395.43 | 626.37 | 61.03 | 900 | | | 0.11 | 0.954 | 230.94 | 36.87% |
| | 4611 | MH4611 | MH4612 | | | | | | | | | | 0.93 | | | 1.81 | 1.81 | 10.00 | 1.50 | 11.50 | 76.81 | 104.19 | 178.56 | 139.00 | | | | 139.00 | 290.85 | 71.05 | 675 | | | 0.11 | 0.787 | 151.85 | 52.21% |
| | | MH4612 | MH4610 | | | | | | | | | | | | | 0.00 | 1.81 | 11.50 | 1.40 | 12.91 | 71.48 | 96.87 | 165.89 | 129.35 | | | | 129.35 | 385.20 | 71.05 | 750 | | | 0.11 | 0.845 | 255.84 | 66.42% |
| | 4610 | MH4610 | MH4620 | | | | | | | | | | 0.32 | | | 0.62 | 9.67 | 19.52 | 1.14 | 20.65 | 52.82 | 71.33 | 121.81 | 510.59 | | | | 510.59 | 944.84 | 72.00 | 1050 | | | 0.11 | 1.057 | 434.25 | 45.96% |
| | 4630 | MH4630 | MH4631 | | | | | | | | | | 1.82 | | | 3.54 | 3.54 | 10.00 | 1.85 | 11.85 | 76.81 | 104.19 | 178.56 | 272.02 | | | | 272.02 | 385.20 | 93.78 | 750 | | | 0.11 | 0.845 | 113.18 | 29.38% |
| | | MH4631 | MH4632 | | | | | | | | | | | | | 0.00 | 3.54 | 11.85 | 1.85 | 13.70 | 70.36 | 95.34 | 163.25 | 249.20 | | | | 249.20 | 385.20 | 93.78 | 750 | | | 0.11 | 0.845 | 135.99 | 35.31% |
| | | MH4632 | MH4633 | | | | | | | | | | | | | 0.00 | 3.54 | 13.70 | 0.23 | 13.93 | 65.01 | 88.00 | 150.57 | 230.26 | | | | 230.26 | 385.20 | 11.83 | 750 | | | 0.11 | 0.845 | 154.94 | 40.22% |
| | | MH4633 | MH4640 | | | | | | | | | | | | | 0.00 | 3.54 | 13.93 | 1.26 | 15.19 | 64.40 | 87.17 | 149.12 | 228.10 | | | | 228.10 | 385.20 | 63.65 | 750 | | | 0.11 | 0.845 | 157.10 | 40.78% |
| | 4641 | MH4641 | MH4642 | | | | | | | | | | 0.93 | | | 1.81 | 1.81 | 10.00 | 1.42 | 11.42 | 76.81 | 104.19 | 178.56 | 139.00 | | | | 139.00 | 212.45 | 61.91 | 600 | | | 0.11 | 0.728 | 73.45 | 34.57% |
| | | MH4642 | MH4640 | | | | | | | | | | | | | 0.00 | 1.81 | 11.42 | 1.42 | 12.84 | 71.76 | 97.26 | 166.56 | 129.87 | | | | 129.87 | 212.45 | 61.91 | 600 | | | 0.11 | 0.728 | 82.58 | 38.87% |
| | 4640 | MH4640 | MH4650 | | | | | | | | | | 0.32 | | | 0.62 | 5.97 | 15.19 | 1.31 | 16.50 | 61.32 | 82.95 | 141.84 | 366.35 | | | | 366.35 | 626.37 | 74.98 | 900 | | | 0.11 | 0.954 | 260.02 | 41.51% |
| | 4651A | MH4651 | MH4652 | | | | | | | | | | 1.37 | | | 2.67 | 2.67 | 10.00 | 1.20 | 11.20 | 76.81 | 104.19 | 178.56 | 204.76 | | | | 204.76 | 303.78 | 59.31 | 675 | | | 0.12 | 0.822 | 99.01 | 32.59% |
| | | MH4652 | MH4653 | | | | | | | | | | | | | 0.00 | 2.67 | 11.20 | 0.15 | 11.35 | 72.48 | 98.25 | 168.27 | 193.23 | | | | 193.23 | 303.78 | 7.34 | 675 | | | 0.12 | 0.822 | 110.55 | 36.39% |
| | | MH4653 | MH4654 | | | | | | | | | | | | | 0.00 | 2.67 | 11.35 | 1.31 | 12.66 | 71.98 | 97.56 | 167.09 | 191.90 | | | | 191.90 | 303.78 | 64.51 | 675 | | | 0.12 | 0.822 | 111.88 | 36.83% |
| | | MH4654 | MH4650 | | | | | | | | | | | | | 0.00 | 2.67 | 12.66 | 1.31 | 13.97 | 67.91 | 91.98 | 157.43 | 181.05 | | | | 181.05 | 303.78 | 64.51 | 675 | | | 0.12 | 0.822 | 122.73 | 40.40% |
| | 4651B | MH4650 | MH4660 | | | | | | | | | | 0.33 | | | 0.64 | 9.28 | 16.50 | 1.08 | 17.58 | 58.44 | 79.00 | 135.04 | 542.45 | | | | 542.45 | 944.84 | 68.50 | 1050 | | | 0.11 | 1.057 | 402.38 | 42.59% |
| | | | | | | | | | | | | | | | | | | | | | 167.22 | 230.48 | | | | | | | | | | | | | | | |
| | 4661 | MH4661 | MH4662 | | | | | | | | | | 0.36 | | | 0.70 | 0.70 | 0.00 | 0.55 | 0.55 | 167.22 | 230.48 | 398.62 | 117.15 | | | | 117.15 | 184.99 | 27.35 | 525 | | | 0.17 | 0.828 | 67.84 | 36.67% |
| | | MH4662 | MH4663 | | | | | | | | | | | | | 0.00 | 0.70 | 0.55 | 0.36 | 0.91 | 156.09 | 214.71 | 370.99 | 109.35 | | | | 109.35 | 184.99 | 17.64 | 525 | | | 0.17 | 0.828 | 75.64 | 40.89% |
| | | MH4663 | MH4660 | | | | | | | | | | | | | 0.00 | 0.70 | 0.91 | 0.77 | 1.67 | 149.73 | 205.75 | 355.30 | 104.90 | | | | 104.90 | 184.99 | 38.15 | 525 | | | 0.17 | 0.828 | 80.09 | 43.29% |
| | 4660 | MH4660 | MH4620 | | | | | | | | | | 0.42 | | | 0.82 | 10.80 | 17.58 | 1.10 | 18.68 | 56.28 | 76.05 | 129.95 | 607.83 | | | | 607.83 | 944.84 | 69.50 | 1050 | | | 0.11 | 1.057 | 337.00 | 35.67% |

**IBI GROUP**
400-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
**ibigroup.com**

**STORM SEWER DESIGN SHEET**
**MER BLEUE Urban Expansion Area**
MSS Preferred Concept
CITY OF OTTAWA
Owners Group

| LOCATION | | | | AREA (Ha) | | | | | | | | | | | RATIONAL DESIGN FLOW | | | | | | | | | | | SEWER DATA | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STREET | AREA ID | FROM | TO | C= 0.20 | C= 0.30 | C= 0.40 | C= 0.54 | C= 0.57 | C= 0.70 | C= 0.71 | C= 0.73 | C= 0.74 | C= 0.70 | C= 0.76 | C= 0.80 | IND 2.78AC | CUM 2.78AC | INLET (min) | TIME IN PIPE | TOTAL (min) | i (2) (mm/hr) | i (5) (mm/hr) | i (100) (mm/hr) | 2yr PEAK FLOW (L/s) | 5yr PEAK FLOW (L/s) | 100yr PEAK FLOW (L/s) | FIXED FLOW (L/s) | DESIGN FLOW (L/s) | CAPACITY (L/s) | LENGTH (m) | PIPE SIZE (mm) DIA | W | H | SLOPE (%) | VELOCITY (m/s) | AVAIL CAP (2yr) (L/s) | (%) |
| | 4622 | MH4620 | MH4621 | | | | | | | | | | 0.29 | | | 0.56 | 21.03 | 20.65 | 1.22 | 21.87 | 51.01 | 68.85 | 117.54 | 1,072.69 | | | | 1,072.69 | 1,846.76 | 91.45 | 1350 | | | 0.11 | 1.250 | 774.06 | 41.91% |
| | 4621 | MH4621 | MH4622 | | | | | | | | | | 0.51 | | | 0.99 | 22.02 | 21.87 | 0.77 | 22.65 | 49.20 | 66.39 | 113.31 | 1,083.62 | | | | 1,083.62 | 1,846.76 | 58.10 | 1350 | | | 0.11 | 1.250 | 763.13 | 41.32% |
| | 4624 | MH4624 | MH4622 | | | | | | | | | | 0.25 | | | 0.49 | 0.49 | 0.00 | 1.32 | 1.32 | 167.22 | 230.48 | 398.62 | 81.35 | | | | 81.35 | 93.27 | 64.60 | 375 | | | 0.26 | 0.818 | 11.91 | 12.77% |
| | 4623 | MH4623 | MH4622 | | | | | | | | | | 0.18 | | | 0.35 | 0.35 | 0.00 | 0.59 | 0.59 | 167.22 | 230.48 | 398.62 | 58.57 | | | | 58.57 | 136.30 | 29.35 | 450 | | | 0.21 | 0.830 | 77.73 | 57.03% |
| | | MH4622 | MH4625 | | | | | | | | | | | | | 0.00 | 22.86 | 22.65 | 0.95 | 23.60 | 48.13 | 64.93 | 110.79 | 1,100.26 | | | | 1,100.26 | 1,846.76 | 71.19 | 1350 | | | 0.11 | 1.250 | 746.50 | 40.42% |
| | 4625 | MH4625 | MH4626 | | | | | | | | | | 1.22 | | | 2.37 | 25.23 | 23.60 | 0.44 | 24.04 | 46.88 | 63.23 | 107.87 | 1,183.08 | | | | 1,183.08 | 1,846.76 | 33.18 | 1350 | | | 0.11 | 1.250 | 663.67 | 35.94% |
| | | MH4626 | MH4060 | | | | | | | | | | | | | 0.00 | 25.23 | 24.04 | 1.10 | 25.14 | 46.33 | 62.48 | 106.57 | 1,169.04 | | | | 1,169.04 | 1,846.76 | 82.57 | 1350 | | | 0.11 | 1.250 | 677.72 | 36.70% |
| | 4060 | MH4060 | MH4061 | | | | | | | | | | 1.49 | | | 2.90 | 93.56 | 27.70 | 0.82 | 28.52 | 42.23 | 56.90 | 96.97 | 3,950.94 | | | | 3,950.94 | 8,565.43 | 89.77 | 2400 | | | 0.11 | 1.834 | 4614.49 | 53.87% |
| | | MH4061 | MH4062 | | | | | | | | | | | | | 0.00 | 93.56 | 28.52 | 0.32 | 28.84 | 41.42 | 55.80 | 95.09 | 3,875.58 | | | | 3,875.58 | 8,565.43 | 35.42 | 2400 | | | 0.11 | 1.834 | 4689.85 | 54.75% |
| | | MH4062 | MH4063 | | | | | | | | | | | | | 0.00 | 93.56 | 28.84 | 0.32 | 29.16 | 41.11 | 55.38 | 94.37 | 3,846.72 | | | | 3,846.72 | 8,565.43 | 35.42 | 2400 | | | 0.11 | 1.834 | 4718.72 | 55.09% |
| | | MH4063 | MH4070 | | | | | | | | | | | | | 0.00 | 93.56 | 29.16 | 0.52 | 29.68 | 40.81 | 54.97 | 93.66 | 3,818.33 | | | | 3,818.33 | 8,565.43 | 57.52 | 2400 | | | 0.11 | 1.834 | 4747.10 | 55.42% |
| | 4720 | MH4720 | MH4721 | | | | | | | | | | 0.82 | | | 1.60 | 1.60 | 10.00 | 1.75 | 11.75 | 76.81 | 104.19 | 178.56 | 122.56 | | | | 122.56 | 184.99 | 87.00 | 525 | | | 0.17 | 0.828 | 62.43 | 33.75% |
| | | MH4721 | MH4722 | | | | | | | | | | | | | 0.00 | 1.60 | 11.75 | 0.42 | 12.17 | 70.68 | 95.77 | 163.99 | 112.78 | | | | 112.78 | 184.99 | 20.83 | 525 | | | 0.17 | 0.828 | 72.21 | 39.03% |
| | | MH4722 | MH4723 | | | | | | | | | | | | | 0.00 | 1.60 | 12.17 | 0.96 | 13.13 | 69.37 | 93.97 | 160.88 | 110.69 | | | | 110.69 | 184.99 | 47.67 | 525 | | | 0.17 | 0.828 | 74.30 | 40.16% |
| | | MH4723 | MH4724 | | | | | | | | | | | | | 0.00 | 1.60 | 13.13 | 0.28 | 13.41 | 66.56 | 90.13 | 154.24 | 106.22 | | | | 106.22 | 184.99 | 13.70 | 525 | | | 0.17 | 0.828 | 78.77 | 42.58% |
| PARK | 4725 | MH4725 | MH4724 | | 6.31 | | | | | | | | | | | 5.26 | 5.26 | 15.00 | 0.28 | 15.28 | 61.77 | 83.56 | 142.89 | 325.05 | | | | 325.05 | 496.66 | 15.00 | 825 | | | 0.11 | 0.900 | 171.61 | 34.55% |
| | | MH4724 | MH4070 | | | | | | | | | | | | | 0.00 | 6.86 | 13.41 | 1.06 | 14.46 | 65.80 | 89.09 | 152.44 | 451.30 | | | | 451.30 | 775.41 | 63.81 | 975 | | | 0.11 | 1.006 | 324.11 | 41.80% |
| | 4710 | MH4710 | MH4711 | | | | | | | | | | 1.01 | | | 1.97 | 1.97 | 10.00 | 0.20 | 10.20 | 76.81 | 104.19 | 178.56 | 150.96 | | | | 150.96 | 239.68 | 9.81 | 600 | | | 0.14 | 0.821 | 88.72 | 37.02% |
| | | MH4711 | MH4712 | | | | | | | | | | | | | 0.00 | 1.97 | 10.20 | 2.25 | 12.44 | 76.05 | 103.15 | 176.76 | 149.47 | | | | 149.47 | 239.68 | 110.65 | 600 | | | 0.14 | 0.821 | 90.20 | 37.64% |
| | 4712 | MH4712 | MH4713 | | | | | | | | | | 1.13 | | | 2.20 | 4.16 | 12.44 | 2.13 | 14.58 | 68.54 | 92.84 | 158.92 | 285.43 | | | | 285.43 | 496.66 | 115.08 | 825 | | | 0.11 | 0.900 | 211.24 | 42.53% |
| | | MH4713 | MH4714 | | | | | | | | | | | | | 0.00 | 4.16 | 14.58 | 0.89 | 15.47 | 62.79 | 84.95 | 145.30 | 261.47 | | | | 261.47 | 496.66 | 48.16 | 825 | | | 0.11 | 0.900 | 235.19 | 47.35% |
| | 4714 | MH4714 | MH4715 | | | | | | | | | | 0.95 | | | 1.85 | 6.01 | 15.47 | 0.77 | 16.24 | 60.69 | 82.08 | 140.34 | 364.91 | | | | 364.91 | 626.37 | 43.97 | 900 | | | 0.11 | 0.954 | 261.46 | 41.74% |
| | | MH4715 | MH4716 | | | | | | | | | | | | | 0.00 | 6.01 | 16.24 | 1.05 | 17.29 | 59.00 | 79.77 | 136.35 | 354.76 | | | | 354.76 | 626.37 | 60.36 | 900 | | | 0.11 | 0.954 | 271.62 | 43.36% |
| | | MH4716 | MH4717 | | | | | | | | | | | | | 0.00 | 6.01 | 17.29 | 0.24 | 17.53 | 56.84 | 76.82 | 131.27 | 341.80 | | | | 341.80 | 626.37 | 13.70 | 900 | | | 0.11 | 0.954 | 284.58 | 45.43% |
| | | MH4717 | MH4070 | | | | | | | | | | | | | 0.00 | 6.01 | 17.53 | 1.17 | 18.70 | 56.38 | 76.18 | 130.18 | 339.00 | | | | 339.00 | 626.37 | 66.81 | 900 | | | 0.11 | 0.954 | 287.37 | 45.88% |
| | | MH4070 | HW4 | | | | | | | | | | | | | 0.00 | 106.43 | 29.68 | 0.43 | 30.12 | 40.33 | 54.31 | 92.53 | 4,292.31 | | | | 4,292.31 | 8,565.43 | 47.51 | 2400 | | | 0.11 | 1.834 | 4273.13 | 49.89% |
| | | | | 0.00 | 8.95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | 46.37 | 1.46 | 2.54 | 106.43 | TRUE | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 59.32 | | | | | | | | | | | | | | | | | | | | | |

**IBI GROUP**
400-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

**STORM SEWER DESIGN SHEET**
**MER BLEUE Urban Expansion Area**
MSS Preferred Concept
CITY OF OTTAWA
Owners Group

| LOCATION | | | | AREA (Ha) | | | | | | | | | | | | RATIONAL DESIGN FLOW | | | | | | | | | | | | SEWER DATA | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STREET | AREA ID | FROM | TO | C= 0.20 | C= 0.30 | C= 0.40 | C= 0.54 | C= 0.57 | C= 0.70 | C= 0.71 | C= 0.73 | C= 0.74 | C= 0.70 | C= 0.76 | C= 0.80 | IND 2.78AC | CUM 2.78AC | INLET (min) | TIME IN PIPE | TOTAL (min) | i (2) (mm/hr) | i (5) (mm/hr) | i (100) (mm/hr) | 2yr PEAK FLOW (L/s) | 5yr PEAK FLOW (L/s) | 100yr PEAK FLOW (L/s) | FIXED FLOW (L/s) | DESIGN FLOW (L/s) | CAPACITY (L/s) | LENGTH (m) | PIPE SIZE (mm) DIA | W | H | SLOPE (%) | VELOCITY (m/s) | AVAIL CAP (2yr) (L/s) | (%) |
| **OUTLET #5: New Central SWM Pond (South)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MER BLEUE ROAD | 5000A/B | MH5000 | MH5001 | | | | | | | | | | 0.89 | 1.99 | | 5.94 | 5.94 | 16.67 | 1.36 | 18.03 | 58.09 | 78.52 | 134.21 | 344.83 | | | | 344.83 | 626.37 | 77.55 | 900 | | | 0.11 | 0.954 | 281.54 | 44.95% |
| | | MH5001 | MH5002 | | | | | | | | | | | | | 0.00 | 5.94 | 18.03 | 1.36 | 19.38 | 55.44 | 74.91 | 127.97 | 329.12 | | | | 329.12 | 626.37 | 77.55 | 900 | | | 0.11 | 0.954 | 297.25 | 47.46% |
| | | MH5002 | MH5010 | | | | | | | | | | | | | 0.00 | 5.94 | 19.38 | 1.28 | 20.66 | 53.05 | 71.64 | 122.35 | 314.93 | | | | 314.93 | 626.37 | 73.01 | 900 | | | 0.11 | 0.954 | 311.44 | 49.72% |
| | 5110 | MH5110 | MH5111 | | | | | | | | | | 1.36 | | | 2.65 | 2.65 | 10.00 | 1.43 | 11.43 | 76.81 | 104.19 | 178.56 | 203.27 | | | | 203.27 | 303.78 | 70.81 | 675 | | | 0.12 | 0.822 | 100.51 | 33.09% |
| | | MH5111 | MH5112 | | | | | | | | | | | | | 0.00 | 2.65 | 11.43 | 1.43 | 12.87 | 71.70 | 97.18 | 166.43 | 189.76 | | | | 189.76 | 303.78 | 70.81 | 675 | | | 0.12 | 0.822 | 114.01 | 37.53% |
| | | MH5112 | MH5121 | | | | | | | | | | | | | 0.00 | 2.65 | 12.87 | 1.18 | 14.05 | 67.30 | 91.14 | 155.98 | 178.11 | | | | 178.11 | 303.78 | 58.19 | 675 | | | 0.12 | 0.822 | 125.67 | 41.37% |
| | 5120 | MH5120 | MH5121 | | | | | | | | | | 0.32 | | | 0.62 | 0.62 | 10.00 | 1.14 | 11.14 | 76.81 | 104.19 | 178.56 | 47.83 | | | | 47.83 | 93.27 | 55.81 | 375 | | | 0.26 | 0.818 | 45.44 | 48.72% |
| | S5122 | MH5121 | MH5122 | | | | | | | | | | 0.21 | | | 0.41 | 3.68 | 14.05 | 0.20 | 14.25 | 64.11 | 86.76 | 148.42 | 235.78 | | | | 235.78 | 385.20 | 10.26 | 750 | | | 0.11 | 0.845 | 149.42 | 38.79% |
| | | MH5122 | MH5010 | | | | | | | | | | | | | 0.00 | 3.68 | 14.25 | 0.92 | 15.18 | 63.59 | 86.06 | 147.21 | 233.89 | | | | 233.89 | 385.20 | 46.87 | 750 | | | 0.11 | 0.845 | 151.31 | 39.28% |
| HIGH RES | 5012 | MH5012 | MH5010 | | | | | | | | | | | | 6.20 | 13.79 | 13.79 | 15.83 | 0.22 | 16.05 | 59.88 | 80.97 | 138.43 | 825.61 | | | | 825.61 | 1,348.97 | 15.00 | 1200 | | | 0.11 | 1.155 | 523.36 | 38.80% |
| | 5010 | MH5010 | MH5020 | | | | | | | | | | 0.18 | | | 0.35 | 23.75 | 16.05 | 0.99 | 17.04 | 59.40 | 80.32 | 137.31 | 1,411.03 | | | | 1,411.03 | 2,445.85 | 79.77 | 1500 | | | 0.11 | 1.341 | 1034.81 | 42.31% |
| COMMERCIAL | 5262 | MH5262 | MH5263 | | | | | | | | | | | | 3.83 | 8.52 | 8.52 | 14.50 | 0.24 | 14.74 | 62.97 | 85.21 | 145.74 | 536.40 | | | | 536.40 | 809.89 | 15.00 | 975 | | | 0.12 | 1.051 | 273.49 | 33.77% |
| | 5261 | MH5261 | MH5263 | | | | | | | | | | 0.85 | | | 1.65 | 1.65 | 10.00 | 1.51 | 11.51 | 76.81 | 104.19 | 178.56 | 127.04 | | | | 127.04 | 239.68 | 74.23 | 600 | | | 0.14 | 0.821 | 112.63 | 46.99% |
| | | | | | | | | | | | | | | | | | | | | | 167.22 | 230.48 | | | | | | | | | | | | | | |
| | | MH5263 | MH5200 | | | | | | | | | | | | | 0.00 | 10.17 | 14.74 | 1.48 | 16.22 | 62.39 | 84.41 | 144.37 | 634.66 | | | | 634.66 | 1,348.97 | 102.73 | 1200 | | | 0.11 | 1.155 | 714.31 | 52.95% |
| HIGH RES | 5260 | MH5260 | MH5200 | | | | | | | | | | | | 2.79 | 6.20 | 6.20 | 13.00 | 0.25 | 13.25 | 66.93 | 90.63 | 155.11 | 415.30 | | | | 415.30 | 775.41 | 15.00 | 975 | | | 0.11 | 1.006 | 360.11 | 46.44% |
| | 5200 | MH5200 | MH5201 | | | | | | | | | | 0.58 | | | 1.13 | 17.51 | 16.22 | 0.62 | 16.83 | 59.03 | 79.81 | 136.43 | 1,033.38 | | | | 1,033.38 | 1,846.76 | 46.14 | 1350 | | | 0.11 | 1.250 | 813.38 | 44.04% |
| | | MH5201 | MH5202 | | | | | | | | | | | | | 0.00 | 17.51 | 16.83 | 1.25 | 18.09 | 57.75 | 78.06 | 133.41 | 1,010.96 | | | | 1,010.96 | 1,846.76 | 94.11 | 1350 | | | 0.11 | 1.250 | 835.79 | 45.26% |
| | | MH5202 | MH5020 | | | | | | | | | | | | | 0.00 | 17.51 | 18.09 | 0.88 | 18.97 | 55.32 | 74.74 | 127.69 | 968.44 | | | | 968.44 | 1,846.76 | 66.17 | 1350 | | | 0.11 | 1.250 | 878.31 | 47.56% |
| | 5210 | MH5210 | MH5211 | | | | | | | | | | 0.84 | | | 1.63 | 1.63 | 10.00 | 1.19 | 11.19 | 76.81 | 104.19 | 178.56 | 125.55 | | | | 125.55 | 239.68 | 58.40 | 600 | | | 0.14 | 0.821 | 114.13 | 47.62% |
| | | MH5211 | MH5212 | | | | | | | | | | | | | 0.00 | 1.63 | 11.19 | 0.24 | 11.42 | 72.54 | 98.32 | 168.40 | 118.57 | | | | 118.57 | 239.68 | 11.62 | 600 | | | 0.14 | 0.821 | 121.11 | 50.53% |
| | | MH5212 | MH5220 | | | | | | | | | | | | | 0.00 | 1.63 | 11.42 | 2.01 | 13.43 | 71.75 | 97.24 | 166.53 | 117.28 | | | | 117.28 | 239.68 | 98.89 | 600 | | | 0.14 | 0.821 | 122.39 | 51.07% |
| PARK | 5220A/B | MH5220 | MH5221 | | 0.53 | | | | | | | | 1.24 | | | 2.86 | 4.49 | 13.43 | 1.71 | 15.14 | 65.74 | 89.01 | 152.30 | 295.17 | | | | 295.17 | 775.41 | 103.16 | 975 | | | 0.11 | 1.006 | 480.24 | 61.93% |
| | | MH5221 | MH5222 | | | | | | | | | | | | | 0.00 | 4.49 | 15.14 | 1.34 | 16.48 | 61.45 | 83.12 | 142.13 | 275.87 | | | | 275.87 | 775.41 | 81.04 | 975 | | | 0.11 | 1.006 | 499.54 | 64.42% |
| | | MH5222 | MH5223 | | | | | | | | | | | | | 0.00 | 4.49 | 16.48 | 0.19 | 16.67 | 58.48 | 79.06 | 135.14 | 262.57 | | | | 262.57 | 775.41 | 11.66 | 975 | | | 0.11 | 1.006 | 512.84 | 66.14% |
| | | MH5223 | MH5230 | | | | | | | | | | | | | 0.00 | 4.49 | 16.67 | 0.34 | 17.01 | 58.08 | 78.52 | 134.20 | 260.77 | | | | 260.77 | 775.41 | 20.26 | 975 | | | 0.11 | 1.006 | 514.64 | 66.37% |
| | 5231 | MH5231 | MH5230 | | | | | | | | | | 1.16 | | | 2.26 | 2.26 | 10.00 | 2.19 | 12.19 | 76.81 | 104.19 | 178.56 | 173.38 | | | | 173.38 | 239.68 | 108.08 | 600 | | | 0.14 | 0.821 | 66.30 | 27.66% |
| | S5230 | MH5230 | MH5020 | | | | | | | | | | 0.40 | | | 0.78 | 7.53 | 17.01 | 1.44 | 18.45 | 57.40 | 77.58 | 132.59 | 431.97 | | | | 431.97 | 944.84 | 91.14 | 1050 | | | 0.11 | 1.057 | 512.87 | 54.28% |
| | 5020 | MH5020 | MH5021 | | | | | | | | | | 1.40 | | | 2.72 | 51.51 | 18.45 | 0.86 | 19.30 | 54.67 | 73.86 | 126.17 | 2,816.22 | | | | 2,816.22 | 5,999.35 | 86.18 | 2100 | | | 0.11 | 1.678 | 3183.13 | 53.06% |
| | | MH5021 | MH5030 | | | | | | | | | | | | | 0.00 | 51.51 | 19.30 | 0.90 | 20.20 | 53.18 | 71.82 | 122.66 | 2,739.40 | | | | 2,739.40 | 5,999.35 | 90.18 | 2100 | | | 0.11 | 1.678 | 3259.95 | 54.34% |
| | 5300 | MH5300 | MH5301 | | | | | | | | | | 1.61 | | | 3.13 | 3.13 | 10.00 | 1.11 | 11.11 | 76.81 | 104.19 | 178.56 | 240.63 | | | | 240.63 | 303.78 | 54.71 | 675 | | | 0.12 | 0.822 | 63.14 | 20.79% |
| | | MH5301 | MH5302 | | | | | | | | | | | | | 0.00 | 3.13 | 11.11 | 0.22 | 11.33 | 72.79 | 98.68 | 169.02 | 228.07 | | | | 228.07 | 303.78 | 10.92 | 675 | | | 0.12 | 0.822 | 75.71 | 24.92% |
| | | MH5302 | MH5030 | | | | | | | | | | | | | 0.00 | 3.13 | 11.33 | 1.71 | 13.04 | 72.05 | 97.66 | 167.25 | 225.74 | | | | 225.74 | 303.78 | 84.57 | 675 | | | 0.12 | 0.822 | 78.04 | 25.69% |
| | 5310 | MH5310 | MH5311 | | | | | | | | | | 0.99 | | | 1.93 | 1.93 | 10.00 | 1.27 | 11.27 | 76.81 | 104.19 | 178.56 | 147.97 | | | | 147.97 | 239.68 | 62.41 | 600 | | | 0.14 | 0.821 | 91.71 | 38.26% |
| | | MH5311 | MH5312 | | | | | | | | | | | | | 0.00 | 1.93 | 11.27 | 1.27 | 12.53 | 72.26 | 97.95 | 167.75 | 139.21 | | | | 139.21 | 239.68 | 62.41 | 600 | | | 0.14 | 0.821 | 100.46 | 41.92% |
| | | MH5312 | MH5313 | | | | | | | | | | | | | 0.00 | 1.93 | 12.53 | 0.24 | 12.78 | 68.28 | 92.48 | 158.30 | 131.54 | | | | 131.54 | 239.68 | 12.02 | 600 | | | 0.14 | 0.821 | 108.14 | 45.12% |
| | | MH5313 | MH5314 | | | | | | | | | | | | | 0.00 | 1.93 | 12.78 | 1.58 | 14.36 | 67.57 | 91.50 | 156.61 | 130.17 | | | | 130.17 | 239.68 | 78.09 | 600 | | | 0.14 | 0.821 | 109.51 | 45.69% |
| | 5315 | MH5315 | MH5316 | | | | | | | | | | 1.13 | | | 2.20 | 2.20 | 10.00 | 0.28 | 10.28 | 76.81 | 104.19 | 178.56 | 168.89 | | | | 168.89 | 303.78 | 13.90 | 675 | | | 0.12 | 0.822 | 134.89 | 44.40% |
| | | MH5316 | MH5317 | | | | | | | | | | | | | 0.00 | 2.20 | 10.28 | 1.47 | 11.75 | 75.74 | 102.73 | 176.02 | 166.55 | | | | 166.55 | 303.78 | 72.38 | 675 | | | 0.12 | 0.822 | 137.23 | 45.17% |
| | | MH5317 | MH5314 | | | | | | | | | | | | | 0.00 | 2.20 | 11.75 | 1.48 | 13.23 | 70.69 | 95.78 | 164.01 | 155.44 | | | | 155.44 | 303.78 | 72.88 | 675 | | | 0.12 | 0.822 | 148.34 | 48.83% |
| | 5314 | MH5314 | MH5030 | | | | | | | | | | 0.14 | | | 0.27 | 4.40 | 14.36 | 1.53 | 15.90 | 63.31 | 85.68 | 146.55 | 278.46 | | | | 278.46 | 496.66 | 82.88 | 825 | | | 0.11 | 0.900 | 218.21 | 43.93% |
| | 5030 | MH5030 | MH5031 | | | | | | | | | | 2.20 | | | 4.28 | 63.32 | 20.20 | 1.15 | 21.35 | 51.72 | 69.82 | 119.21 | 3,274.74 | | | | 3,274.74 | 5,999.35 | 116.00 | 2100 | | | 0.11 | 1.678 | 2724.61 | 45.42% |
| SCHOOL | 5034 | MH5034 | MH5031 | | | | | | | | | | | | 2.92 | 6.49 | 6.49 | 13.33 | 0.25 | 13.58 | 66.01 | 89.37 | 152.93 | 428.69 | | | | 428.69 | 775.41 | 15.00 | 975 | | | 0.11 | 1.006 | 346.72 | 44.71% |
| | | MH5031 | MH5032 | | | | | | | | | | | | | 0.00 | 69.82 | 21.35 | 0.48 | 21.83 | 49.96 | 67.42 | 115.08 | 3,487.78 | | | | 3,487.78 | 5,999.35 | 47.96 | 2100 | | | 0.11 | 1.678 | 2511.57 | 41.86% |
| | | MH5032 | MH5033 | | | | | | | | | | | | | 0.00 | 69.82 | 21.83 | 0.43 | 22.25 | 49.27 | 66.48 | 113.46 | 3,439.68 | | | | 3,439.68 | 5,999.35 | 43.21 | 2100 | | | 0.11 | 1.678 | 2559.67 | 42.67% |
| PARK | 5035 | MH5035 | MH5033 | | 2.18 | | | | | | | | | | | 1.82 | 1.82 | 13.50 | 0.36 | 13.86 | 65.55 | 88.74 | 151.84 | 119.18 | | | | 119.18 | 239.68 | 17.81 | 600 | | | 0.14 | 0.821 | 120.50 | 50.28% |
| | | MH5033 | MH5040 | | | | | | | | | | | | | 0.00 | 71.63 | 22.25 | 0.43 | 22.68 | 48.67 | 65.66 | 112.05 | 3,486.07 | | | | 3,486.07 | 5,999.35 | 43.11 | 2100 | | | 0.11 | 1.678 | 2513.28 | 41.89% |
| | | MH5440 | MH5441 | | | | | | | | | | | | | 0.00 | 0.00 | 10.00 | 0.38 | 10.38 | 76.81 | 104.19 | 178.56 | 0.00 | | | | 0.00 | 93.27 | 18.69 | 375 | | | 0.26 | 0.818 | 93.27 | 100.00% |
| | | MH5441 | MH5040 | | | | | | | | | | | | | 0.00 | 0.00 | 10.38 | 0.40 | 10.78 | 75.37 | 102.22 | 175.15 | 0.00 | | | | 0.00 | 93.27 | 19.82 | 375 | | | 0.26 | 0.818 | 93.27 | 100.00% |
| | 5040 | MH5040 | MH5041 | | | | | | | | | | 3.26 | | | 6.34 | 77.98 | 22.68 | 0.61 | 23.30 | 48.08 | 64.86 | 110.67 | 3,749.17 | | | | 3,749.17 | 5,999.35 | 61.73 | 2100 | | | 0.11 | 1.678 | 2250.18 | 37.51% |
| | | MH5041 | MH5042 | | | | | | | | | | | | | 0.00 | 77.98 | 23.30 | 0.61 | 23.91 | 47.27 | 63.76 | 108.77 | 3,685.91 | | | | 3,685.91 | 5,999.35 | 61.73 | 2100 | | | 0.11 | 1.678 | 2313.44 | 38.56% |
| | | MH5042 | MH5043 | | | | | | | | | | | | | 0.00 | 77.98 | 23.91 | 0.34 | 24.25 | 46.49 | 62.69 | 106.94 | 3,624.99 | | | | 3,624.99 | 5,999.35 | 34.46 | 2100 | | | 0.11 | 1.678 | 2374.36 | 39.58% |
| | | MH5043 | MH5050 | | | | | | | | | | | | | 0.00 | 77.98 | 24.25 | 0.55 | 24.80 | 46.06 | 62.12 | 105.95 | 3,591.96 | | | | 3,591.96 | 5,999.35 | 55.60 | 2100 | | | 0.11 | 1.678 | 2407.39 | 40.13% |

**IBI GROUP**
400-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
**ibigroup.com**

**STORM SEWER DESIGN SHEET**
**MER BLEUE Urban Expansion Area**
MSS Preferred Concept
CITY OF OTTAWA
Owners Group

| LOCATION | | | | AREA (Ha) | | | | | | | | | | | RATIONAL DESIGN FLOW | | | | | | | | | | | | SEWER DATA | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STREET | AREA ID | FROM | TO | C= 0.20 | C= 0.30 | C= 0.40 | C= 0.54 | C= 0.57 | C= 0.70 | C= 0.71 | C= 0.73 | C= 0.74 | C= 0.70 | C= 0.76 | C= 0.80 | IND 2.78AC | CUM 2.78AC | INLET (min) | TIME IN PIPE | TOTAL (min) | i (2) (mm/hr) | i (5) (mm/hr) | i (100) (mm/hr) | 2yr PEAK FLOW (L/s) | 5yr PEAK FLOW (L/s) | 100yr PEAK FLOW (L/s) | FIXED FLOW (L/s) | DESIGN FLOW (L/s) | CAPACITY (L/s) | LENGTH (m) | PIPE SIZE (mm) DIA | W | H | SLOPE (%) | VELOCITY (m/s) | AVAIL CAP (2yr) (L/s) | (%) |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 5500 | MH5500 | MH5050 | | | | | | | | | | 0.75 | | | 1.46 | 1.46 | 10.00 | 2.40 | 12.40 | 76.81 | 104.19 | 178.56 | 112.10 | | | | 112.10 | 184.99 | 119.28 | 525 | | | 0.17 | 0.828 | 72.89 | 39.40% |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 5050 | MH5050 | MH5051 | | | | | | | | | | 1.65 | | | 3.21 | 82.65 | 24.80 | 1.00 | 25.80 | 45.40 | 61.21 | 104.39 | 3,752.07 | | | | 3,752.07 | 7,211.18 | 104.95 | 2250 | | | 0.11 | 1.757 | 3459.11 | 47.97% |
| | | MH5051 | MH5052 | | | | | | | | | | | | | 0.00 | 82.65 | 25.80 | 1.04 | 26.84 | 44.25 | 59.65 | 101.70 | 3,657.24 | | | | 3,657.24 | 7,211.18 | 109.95 | 2250 | | | 0.11 | 1.757 | 3553.94 | 49.28% |
| | | MH5052 | MH5060 | | | | | | | | | | | | | 0.00 | 82.65 | 26.84 | 0.16 | 27.00 | 43.12 | 58.11 | 99.05 | 3,563.44 | | | | 3,563.44 | 7,211.18 | 16.98 | 2250 | | | 0.11 | 1.757 | 3647.73 | 50.58% |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 5600 | MH5600 | MH5601 | | | | | | | | | | 2.10 | | | 4.09 | 4.09 | 10.00 | 2.14 | 12.14 | 76.81 | 104.19 | 178.56 | 313.87 | | | | 313.87 | 496.66 | 115.31 | 825 | | | 0.11 | 0.900 | 182.79 | 36.80% |
| | | MH5601 | MH5602 | | | | | | | | | | | | | 0.00 | 4.09 | 12.14 | 1.76 | 13.89 | 69.48 | 94.12 | 161.14 | 283.92 | | | | 283.92 | 496.66 | 94.83 | 825 | | | 0.11 | 0.900 | 212.75 | 42.83% |
| | | MH5602 | MH5060 | | | | | | | | | | | | | 0.00 | 4.09 | 13.89 | 0.31 | 14.21 | 64.51 | 87.32 | 149.39 | 263.64 | | | | 263.64 | 496.66 | 16.95 | 825 | | | 0.11 | 0.900 | 233.02 | 46.92% |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | MH5060 | HW5 | | | | | | | | | | | | | 0.00 | 86.73 | 27.00 | 0.48 | 27.48 | 42.95 | 57.87 | 98.65 | 3,724.94 | | | | 3,724.94 | 7,211.18 | 50.69 | 2250 | | | 0.11 | 1.757 | 3486.24 | 48.34% |
| | | | | 0.00 | 2.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | 23.26 | 1.99 | 15.74 | 86.73 | TRUE | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 43.70 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**IBI GROUP**
400-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

**STORM SEWER DESIGN SHEET**
**MER BLEUE Urban Expansion Area**
MSS Preferred Concept
CITY OF OTTAWA
Owners Group

| LOCATION | | | | AREA (Ha) | | | | | | | | | | | | RATIONAL DESIGN FLOW | | | | | | | | | | | | SEWER DATA | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STREET | AREA ID | FROM | TO | C= 0.20 | C= 0.30 | C= 0.40 | C= 0.54 | C= 0.57 | C= 0.70 | C= 0.71 | C= 0.73 | C= 0.74 | C= 0.70 | C= 0.76 | C= 0.80 | IND 2.78AC | CUM 2.78AC | INLET (min) | TIME IN PIPE | TOTAL (min) | i (2) (mm/hr) | i (5) (mm/hr) | i (100) (mm/hr) | 2yr PEAK FLOW (L/s) | 5yr PEAK FLOW (L/s) | 100yr PEAK FLOW (L/s) | FIXED FLOW (L/s) | DESIGN FLOW (L/s) | CAPACITY (L/s) | LENGTH (m) | PIPE SIZE (mm) DIA | W | H | SLOPE (%) | VELOCITY (m/s) | AVAIL CAP (2yr) (L/s) | (%) |
| **OUTLET #6: New Southern SWM Pond** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 6000 | MH6000 | MH6010 | | | | | | | | | | 0.26 | | | 0.51 | 0.51 | 10.00 | 1.17 | 11.17 | 76.81 | 104.19 | 178.56 | 38.86 | | | | 38.86 | 93.27 | 57.40 | 375 | | | 0.26 | 0.818 | 54.41 | 58.33% |
| | 6100 | MH6100 | MH6101 | | | | | | | | | | 1.05 | | | 2.04 | 2.04 | 10.00 | 1.73 | 11.73 | 76.81 | 104.19 | 178.56 | 156.94 | | | | 156.94 | 303.78 | 85.16 | 675 | | | 0.12 | 0.822 | 146.84 | 48.34% |
| | | MH6101 | MH6010 | | | | | | | | | | | | | 0.00 | 2.04 | 11.73 | 1.73 | 13.45 | 70.76 | 95.88 | 164.18 | 144.58 | | | | 144.58 | 303.78 | 85.16 | 675 | | | 0.12 | 0.822 | 159.20 | 52.41% |
| | 6010 | MH6010 | MH6020 | | | | | | | | | | 0.41 | | | 0.80 | 3.35 | 13.45 | 1.63 | 15.08 | 65.68 | 88.92 | 152.15 | 219.84 | | | | 219.84 | 385.20 | 82.51 | 750 | | | 0.11 | 0.845 | 165.36 | 42.93% |
| | | MH6200 | MH6201 | | | | | | | | | | | | | 0.00 | 0.00 | 10.00 | 0.80 | 10.80 | 76.81 | 104.19 | 178.56 | 0.00 | | | | 0.00 | 93.27 | 39.46 | 375 | | | 0.26 | 0.818 | 93.27 | 100.00% |
| | | MH6202 | MH6201 | | | | | | | | | | | | | 0.00 | 0.00 | 10.00 | 0.62 | 10.62 | 76.81 | 104.19 | 178.56 | 0.00 | | | | 0.00 | 93.27 | 30.47 | 375 | | | 0.26 | 0.818 | 93.27 | 100.00% |
| | 6201 | MH6201 | MH6203 | | | | | | | | | | 2.62 | | | 5.10 | 5.10 | 10.80 | 1.71 | 12.52 | 73.85 | 100.13 | 171.53 | 376.53 | | | | 376.53 | 626.37 | 98.09 | 900 | | | 0.11 | 0.954 | 249.85 | 39.89% |
| | | MH6203 | MH6204 | | | | | | | | | | | | | 0.00 | 5.10 | 12.52 | 1.71 | 14.23 | 68.32 | 92.54 | 158.41 | 348.35 | | | | 348.35 | 626.37 | 98.07 | 900 | | | 0.11 | 0.954 | 278.03 | 44.39% |
| | | MH6204 | MH6205 | | | | | | | | | | | | | 0.00 | 5.10 | 14.23 | 0.18 | 14.41 | 63.64 | 86.13 | 147.33 | 324.48 | | | | 324.48 | 626.37 | 10.22 | 900 | | | 0.11 | 0.954 | 301.89 | 48.20% |
| | | MH6205 | MH6210 | | | | | | | | | | | | | 0.00 | 5.10 | 14.41 | 1.36 | 15.77 | 63.20 | 85.51 | 146.27 | 322.21 | | | | 322.21 | 626.37 | 77.78 | 900 | | | 0.11 | 0.954 | 304.17 | 48.56% |
| | 6211 | MH6211 | MH6212 | | | | | | | | | | 1.90 | | | 3.70 | 3.70 | 10.00 | 1.23 | 11.23 | 76.81 | 104.19 | 178.56 | 283.98 | | | | 283.98 | 496.66 | 66.55 | 825 | | | 0.11 | 0.900 | 212.69 | 42.82% |
| | | MH6212 | MH6213 | | | | | | | | | | | | | 0.00 | 3.70 | 11.23 | 0.22 | 11.45 | 72.38 | 98.10 | 168.03 | 267.60 | | | | 267.60 | 496.66 | 11.70 | 825 | | | 0.11 | 0.900 | 229.06 | 46.12% |
| | | MH6213 | MH6214 | | | | | | | | | | | | | 0.00 | 3.70 | 11.45 | 1.43 | 12.88 | 71.66 | 97.11 | 166.32 | 264.94 | | | | 264.94 | 496.66 | 77.05 | 825 | | | 0.11 | 0.900 | 231.73 | 46.66% |
| WOODLOT | 6219 | MH6219 | MH6214 | 1.20 | | | | | | | | | | | | 0.67 | 0.67 | 12.50 | 0.31 | 12.81 | 68.38 | 92.61 | 158.53 | 45.62 | | | | 45.62 | 93.27 | 15.00 | 375 | | | 0.26 | 0.818 | 47.65 | 51.09% |
| | | MH6214 | MH6215 | | | | | | | | | | | | | 0.00 | 4.36 | 12.88 | 1.06 | 13.93 | 67.28 | 91.11 | 155.94 | 293.66 | | | | 293.66 | 496.66 | 57.01 | 825 | | | 0.11 | 0.900 | 203.00 | 40.87% |
| | | MH6215 | MH6210 | | | | | | | | | | | | | 0.00 | 4.36 | 13.93 | 1.83 | 15.76 | 64.41 | 87.18 | 149.14 | 281.12 | | | | 281.12 | 496.66 | 98.72 | 825 | | | 0.11 | 0.900 | 215.54 | 43.40% |
| | 6210 | MH6210 | MH6220 | | | | | | | | | | 0.29 | | | 0.56 | 10.03 | 15.77 | 1.24 | 17.01 | 60.01 | 81.15 | 138.74 | 601.75 | | | | 601.75 | 944.84 | 78.96 | 1050 | | | 0.11 | 1.057 | 343.09 | 36.31% |
| | 6222 | MH6222 | MH6220 | | | | | | | | | | 0.59 | | | 1.15 | 1.15 | 10.00 | 1.51 | 11.51 | 76.81 | 104.19 | 178.56 | 88.18 | | | | 88.18 | 184.99 | 74.78 | 525 | | | 0.17 | 0.828 | 96.80 | 52.33% |
| | 6223 | MH6223 | MH6224 | | | | | | | | | | 1.24 | | | 2.41 | 2.41 | 10.00 | 1.25 | 11.25 | 76.81 | 104.19 | 178.56 | 185.33 | | | | 185.33 | 303.78 | 61.78 | 675 | | | 0.12 | 0.822 | 118.45 | 38.99% |
| | | MH6224 | MH6225 | | | | | | | | | | | | | 0.00 | 2.41 | 11.25 | 0.28 | 11.53 | 72.31 | 98.01 | 167.87 | 174.49 | | | | 174.49 | 303.78 | 13.65 | 675 | | | 0.12 | 0.822 | 129.29 | 42.56% |
| | | MH6225 | MH6220 | | | | | | | | | | | | | 0.00 | 2.41 | 11.53 | 1.81 | 13.34 | 71.40 | 96.76 | 165.70 | 172.28 | | | | 172.28 | 303.78 | 89.45 | 675 | | | 0.12 | 0.822 | 131.50 | 43.29% |
| | 6620 | MH6220 | MH6221 | | | | | | | | | | 0.81 | | | 1.58 | 15.16 | 17.01 | 1.09 | 18.10 | 57.39 | 77.57 | 132.56 | 870.31 | | | | 870.31 | 1,846.76 | 81.41 | 1350 | | | 0.11 | 1.250 | 976.45 | 52.87% |
| | | MH6221 | MH6020 | | | | | | | | | | | | | 0.00 | 15.16 | 18.10 | 1.30 | 19.40 | 55.30 | 74.72 | 127.65 | 838.68 | | | | 838.68 | 1,846.76 | 97.38 | 1350 | | | 0.11 | 1.250 | 1008.08 | 54.59% |
| | S6020 | MH6020 | MH6030 | | | | | | | | | | 0.85 | | | 1.65 | 20.17 | 19.40 | 1.09 | 20.48 | 53.02 | 71.60 | 122.28 | 1,069.21 | | | | 1,069.21 | 1,846.76 | 81.50 | 1350 | | | 0.11 | 1.250 | 777.54 | 42.10% |
| SCHOOL | 6300 | MH6300 | MH6030 | | | | | | | | | | | | 2.22 | 4.94 | 4.94 | 13.00 | 0.26 | 13.26 | 66.93 | 90.63 | 155.11 | 330.45 | | | | 330.45 | 626.37 | 15.00 | 900 | | | 0.11 | 0.954 | 295.92 | 47.24% |
| | | MH6030 | MH6040 | | | | | | | | | | | | | 0.00 | 25.10 | 20.48 | 1.12 | 21.61 | 51.26 | 69.20 | 118.15 | 1,286.91 | | | | 1,286.91 | 2,445.85 | 90.38 | 1500 | | | 0.11 | 1.341 | 1158.94 | 47.38% |
| | 6400 | MH6400 | MH6401 | | | | | | | | | | 1.43 | | | 2.78 | 2.78 | 10.00 | 0.54 | 10.54 | 76.81 | 104.19 | 178.56 | 213.73 | | | | 213.73 | 385.20 | 27.40 | 750 | | | 0.11 | 0.845 | 171.47 | 44.51% |
| WOODLOT | 6408 | MH6408 | MH6401 | 3.98 | | | | | | | | | | | | 2.21 | 2.21 | 14.67 | 0.30 | 14.97 | 62.56 | 84.64 | 144.76 | 138.43 | | | | 138.43 | 239.68 | 15.00 | 600 | | | 0.14 | 0.821 | 101.24 | 42.24% |
| | | MH6401 | MH6402 | | | | | | | | | | | | | 0.00 | 5.00 | 14.97 | 0.25 | 15.22 | 61.83 | 83.64 | 143.04 | 308.87 | | | | 308.87 | 496.66 | 13.37 | 825 | | | 0.11 | 0.900 | 187.79 | 37.81% |
| | | MH6402 | MH6403 | | | | | | | | | | | | | 0.00 | 5.00 | 15.22 | 0.43 | 15.65 | 61.25 | 82.85 | 141.67 | 305.98 | | | | 305.98 | 496.66 | 22.99 | 825 | | | 0.11 | 0.900 | 190.69 | 38.39% |
| | | MH6403 | MH6404 | | | | | | | | | | | | | 0.00 | 5.00 | 15.65 | 1.10 | 16.75 | 60.28 | 81.52 | 139.38 | 301.14 | | | | 301.14 | 496.66 | 59.66 | 825 | | | 0.11 | 0.900 | 195.53 | 39.37% |
| | | MH6404 | MH6405 | | | | | | | | | | | | | 0.00 | 5.00 | 16.75 | 0.51 | 17.26 | 57.92 | 78.29 | 133.81 | 289.34 | | | | 289.34 | 496.66 | 27.58 | 825 | | | 0.11 | 0.900 | 207.32 | 41.74% |
| | | MH6405 | MH6406 | | | | | | | | | | | | | 0.00 | 5.00 | 17.26 | 0.51 | 17.77 | 56.90 | 76.89 | 131.40 | 284.23 | | | | 284.23 | 496.66 | 27.53 | 825 | | | 0.11 | 0.900 | 212.43 | 42.77% |
| PARK | 6407 | MH6407 | MH6406 | | 2.03 | | | | | | | | | | | 1.69 | 1.69 | 13.00 | 0.30 | 13.30 | 66.93 | 90.63 | 155.11 | 113.31 | | | | 113.31 | 184.99 | 15.00 | 525 | | | 0.17 | 0.828 | 71.67 | 38.74% |
| | | MH6406 | MH6040 | | | | | | | | | | | | | 0.00 | 6.69 | 17.77 | 1.98 | 19.75 | 55.91 | 75.55 | 129.08 | 373.99 | | | | 373.99 | 626.37 | 113.03 | 900 | | | 0.11 | 0.954 | 252.38 | 40.29% |
| | 6040 | MH6040 | MH6050 | | | | | | | | | | 0.18 | | | 0.35 | 32.14 | 21.61 | 1.01 | 22.62 | 49.58 | 66.91 | 114.19 | 1,593.62 | | | | 1,593.62 | 3,153.62 | 86.50 | 1650 | | | 0.11 | 1.429 | 1560.00 | 49.47% |
| | 6500 | MH6500 | MH6501 | | | | | | | | | | 1.92 | | | 3.74 | 3.74 | 10.00 | 1.55 | 11.55 | 76.81 | 104.19 | 178.56 | 286.97 | | | | 286.97 | 496.66 | 83.83 | 825 | | | 0.11 | 0.900 | 209.70 | 42.22% |
| | | MH6501 | MH6502 | | | | | | | | | | | | | 0.00 | 3.74 | 11.55 | 1.55 | 13.10 | 71.32 | 96.65 | 165.51 | 266.47 | | | | 266.47 | 496.66 | 83.83 | 825 | | | 0.11 | 0.900 | 230.20 | 46.35% |
| | | MH6502 | MH6503 | | | | | | | | | | | | | 0.00 | 3.74 | 13.10 | 0.18 | 13.29 | 66.64 | 90.23 | 154.41 | 248.97 | | | | 248.97 | 496.66 | 9.98 | 825 | | | 0.11 | 0.900 | 247.69 | 49.87% |
| | | MH6503 | MH6504 | | | | | | | | | | | | | 0.00 | 3.74 | 13.29 | 1.19 | 14.48 | 66.12 | 89.52 | 153.20 | 247.06 | | | | 247.06 | 496.66 | 64.53 | 825 | | | 0.11 | 0.900 | 249.60 | 50.26% |
| | | MH6504 | MH6505 | | | | | | | | | | | | | 0.00 | 3.74 | 14.48 | 0.27 | 14.76 | 63.01 | 85.26 | 145.84 | 235.43 | | | | 235.43 | 496.66 | 14.76 | 825 | | | 0.11 | 0.900 | 261.23 | 52.60% |
| | 6505 | MH6505 | MH6506 | | | | | | | | | | 1.52 | | | 2.96 | 6.69 | 14.76 | 0.87 | 15.62 | 62.35 | 84.35 | 144.26 | 417.36 | | | | 417.36 | 775.41 | 52.33 | 975 | | | 0.11 | 1.006 | 358.05 | 46.18% |
| | | MH6506 | MH6507 | | | | | | | | | | | | | 0.00 | 6.69 | 15.62 | 1.04 | 16.66 | 60.33 | 81.59 | 139.50 | 403.88 | | | | 403.88 | 775.41 | 62.68 | 975 | | | 0.11 | 1.006 | 371.53 | 47.91% |
| | | MH6507 | MH6508 | | | | | | | | | | | | | 0.00 | 6.69 | 16.66 | 0.12 | 16.79 | 58.10 | 78.54 | 134.24 | 388.95 | | | | 388.95 | 775.41 | 7.44 | 975 | | | 0.11 | 1.006 | 386.46 | 49.84% |
| | | MH6508 | MH6509 | | | | | | | | | | | | | 0.00 | 6.69 | 16.79 | 0.52 | 17.30 | 57.85 | 78.20 | 133.65 | 387.26 | | | | 387.26 | 775.41 | 31.21 | 975 | | | 0.11 | 1.006 | 388.15 | 50.06% |
| | | MH6509 | MH6510 | | | | | | | | | | | | | 0.00 | 6.69 | 17.30 | 0.83 | 18.14 | 56.82 | 76.79 | 131.21 | 380.35 | | | | 380.35 | 775.41 | 50.27 | 975 | | | 0.11 | 1.006 | 395.06 | 50.95% |

**IBI GROUP**
400-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
**ibigroup.com**

# STORM SEWER DESIGN SHEET

**MER BLEUE Urban Expansion Area**
MSS Preferred Concept
CITY OF OTTAWA
Owners Group

| LOCATION | | | | AREA (Ha) | | | | | | | | | | | RATIONAL DESIGN FLOW | | | | | | | | | | | SEWER DATA | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STREET | AREA ID | FROM | TO | C= 0.20 | C= 0.30 | C= 0.40 | C= 0.54 | C= 0.57 | C= 0.70 | C= 0.71 | C= 0.73 | C= 0.74 | C= 0.70 | C= 0.76 | C= 0.80 | IND 2.78AC | CUM 2.78AC | INLET (min) | TIME IN PIPE | TOTAL (min) | i (2) (mm/hr) | i (5) (mm/hr) | i (100) (mm/hr) | 2yr PEAK FLOW (L/s) | 5yr PEAK FLOW (L/s) | 100yr PEAK FLOW (L/s) | FIXED FLOW (L/s) | DESIGN FLOW (L/s) | CAPACITY (L/s) | LENGTH (m) | PIPE SIZE (mm) DIA | W | H | SLOPE (%) | VELOCITY (m/s) | AVAIL CAP (2yr) (L/s) | (%) |
| | S6431 | MH6511 | MH6512 | | | | | | | | | | 1.60 | | | 3.11 | 3.11 | 10.00 | 1.33 | 11.33 | 76.81 | 104.19 | 178.56 | 239.14 | | | | 239.14 | 385.20 | 67.37 | 750 | | | 0.11 | 0.845 | 146.06 | 37.92% |
| | | MH6512 | MH6513 | | | | | | | | | | | | | 0.00 | 3.11 | 11.33 | 0.20 | 11.53 | 72.05 | 97.66 | 167.26 | 224.34 | | | | 224.34 | 385.20 | 10.15 | 750 | | | 0.11 | 0.845 | 160.86 | 41.76% |
| | | MH6513 | MH6514 | | | | | | | | | | | | | 0.00 | 3.11 | 11.53 | 1.32 | 12.85 | 71.39 | 96.75 | 165.69 | 222.29 | | | | 222.29 | 385.20 | 66.94 | 750 | | | 0.11 | 0.845 | 162.91 | 42.29% |
| | | MH6514 | MH6510 | | | | | | | | | | | | | 0.00 | 3.11 | 12.85 | 1.32 | 14.17 | 67.36 | 91.21 | 156.11 | 209.72 | | | | 209.72 | 385.20 | 66.94 | 750 | | | 0.11 | 0.845 | 175.48 | 45.56% |
| | 6510 | MH6510 | MH6050 | | | | | | | | | | 0.37 | | | 0.72 | 10.53 | 18.14 | 1.27 | 19.40 | 55.24 | 74.63 | 127.49 | 581.53 | | | | 581.53 | 944.84 | 80.41 | 1050 | | | 0.11 | 1.057 | 363.31 | 38.45% |
| | 6520 | MH6520 | MH6521 | | | | | | | | | | 1.24 | | | 2.41 | 2.41 | 10.00 | 2.43 | 12.43 | 76.81 | 104.19 | 178.56 | 185.33 | | | | 185.33 | 303.78 | 120.00 | 675 | | | 0.12 | 0.822 | 118.45 | 38.99% |
| | | MH6521 | MH6522 | | | | | | | | | | | | | 0.00 | 2.41 | 12.43 | 0.24 | 12.67 | 68.58 | 92.89 | 159.01 | 165.48 | | | | 165.48 | 303.78 | 11.64 | 675 | | | 0.12 | 0.822 | 138.30 | 45.53% |
| | | MH6522 | MH6523 | | | | | | | | | | | | | 0.00 | 2.41 | 12.67 | 1.49 | 14.16 | 67.88 | 91.94 | 157.37 | 163.80 | | | | 163.80 | 303.78 | 73.55 | 675 | | | 0.12 | 0.822 | 139.97 | 46.08% |
| | 6524 | MH6524 | MH6523 | | | | | | | | | | 0.13 | | | 0.25 | 0.25 | 10.00 | 1.46 | 11.46 | 76.81 | 104.19 | 178.56 | 19.43 | | | | 19.43 | 93.27 | 71.44 | 375 | | | 0.26 | 0.818 | 73.84 | 79.17% |
| | 6525 | MH6525 | MH6523 | | | | | | | | | | 0.95 | | | 1.85 | 1.85 | 10.00 | 2.44 | 12.44 | 76.81 | 104.19 | 178.56 | 141.99 | | | | 141.99 | 239.68 | 120.00 | 600 | | | 0.14 | 0.821 | 97.69 | 40.76% |
| | 6523 | MH6523 | MH6526 | | | | | | | | | | 0.37 | | | 0.72 | 5.23 | 14.16 | 1.44 | 15.60 | 63.83 | 86.38 | 147.76 | 334.12 | | | | 334.12 | 626.37 | 82.25 | 900 | | | 0.11 | 0.954 | 292.25 | 46.66% |
| | 6527 | MH6527 | MH6526 | | | | | | | | | | 0.95 | | | 1.85 | 1.85 | 10.00 | 2.44 | 12.44 | 76.81 | 104.19 | 178.56 | 141.99 | | | | 141.99 | 239.68 | 120.00 | 600 | | | 0.14 | 0.821 | 97.69 | 40.76% |
| | 6526 | MH6526 | MH6050 | | | | | | | | | | 0.37 | | | 0.72 | 7.80 | 15.60 | 1.41 | 17.01 | 60.40 | 81.68 | 139.66 | 471.30 | | | | 471.30 | 944.84 | 89.50 | 1050 | | | 0.11 | 1.057 | 473.54 | 50.12% |
| | 6050 | MH6050 | MH6051 | | | | | | | | | | 1.03 | | | 2.00 | 52.48 | 19.40 | 1.23 | 20.63 | 53.01 | 71.59 | 122.25 | 2,781.90 | | | | 2,781.90 | 4,923.55 | 117.54 | 1950 | | | 0.11 | 1.597 | 2141.65 | 43.50% |
| | | MH6051 | MH6052 | | | | | | | | | | | | | 0.00 | 52.48 | 20.63 | 0.92 | 21.55 | 51.04 | 68.90 | 117.62 | 2,678.43 | | | | 2,678.43 | 4,923.55 | 88.31 | 1950 | | | 0.11 | 1.597 | 2245.12 | 45.60% |
| | 6052 | MH6052 | MH6060 | | | | | | | | | | 0.84 | | | 1.63 | 54.11 | 21.55 | 0.15 | 21.70 | 49.66 | 67.02 | 114.38 | 2,687.33 | | | | 2,687.33 | 4,923.55 | 13.92 | 1950 | | | 0.11 | 1.597 | 2236.22 | 45.42% |
| | 6600 | MH6600 | MH6601 | | | | | | | | | | 1.48 | | | 2.88 | 2.88 | 10.00 | 1.59 | 11.59 | 76.81 | 104.19 | 178.56 | 221.20 | | | | 221.20 | 303.78 | 78.58 | 675 | | | 0.12 | 0.822 | 82.57 | 27.18% |
| | | MH6601 | MH6602 | | | | | | | | | | | | | 0.00 | 2.88 | 11.59 | 1.59 | 13.18 | 71.19 | 96.47 | 165.20 | 205.03 | | | | 205.03 | 303.78 | 78.58 | 675 | | | 0.12 | 0.822 | 98.75 | 32.51% |
| | | MH6602 | MH6603 | | | | | | | | | | | | | 0.00 | 2.88 | 13.18 | 0.24 | 13.42 | 66.41 | 89.92 | 153.88 | 191.27 | | | | 191.27 | 303.78 | 11.71 | 675 | | | 0.12 | 0.822 | 112.51 | 37.04% |
| | | MH6603 | MH6604 | | | | | | | | | | | | | 0.00 | 2.88 | 13.42 | 1.50 | 14.92 | 65.76 | 89.03 | 152.34 | 189.40 | | | | 189.40 | 303.78 | 73.85 | 675 | | | 0.12 | 0.822 | 114.38 | 37.65% |
| | 6605 | MH6605 | MH6606 | | | | | | | | | | 1.38 | | | 2.69 | 2.69 | 10.00 | 1.74 | 11.74 | 76.81 | 104.19 | 178.56 | 206.26 | | | | 206.26 | 303.78 | 85.86 | 675 | | | 0.12 | 0.822 | 97.52 | 32.10% |
| | | MH6606 | MH6604 | | | | | | | | | | | | | 0.00 | 2.69 | 11.74 | 1.77 | 13.51 | 70.71 | 95.82 | 164.08 | 189.90 | | | | 189.90 | 303.78 | 87.57 | 675 | | | 0.12 | 0.822 | 113.88 | 37.49% |
| | 6604 | MH6604 | MH6607 | | | | | | | | | | 0.39 | | | 0.76 | 6.32 | 14.92 | 1.43 | 16.35 | 61.96 | 83.82 | 143.35 | 391.86 | | | | 391.86 | 626.37 | 81.85 | 900 | | | 0.11 | 0.954 | 234.51 | 37.44% |
| | 6608 | MH6608 | MH6609 | | | | | | | | | | 1.38 | | | 2.69 | 2.69 | 10.00 | 1.75 | 11.75 | 76.81 | 104.19 | 178.56 | 206.26 | | | | 206.26 | 303.78 | 86.17 | 675 | | | 0.12 | 0.822 | 97.52 | 32.10% |
| | | MH6609 | MH6607 | | | | | | | | | | | | | 0.00 | 2.69 | 11.75 | 1.76 | 13.51 | 70.69 | 95.79 | 164.03 | 189.84 | | | | 189.84 | 303.78 | 86.98 | 675 | | | 0.12 | 0.822 | 113.93 | 37.51% |
| | 6607 | MH6607 | MH6621 | | | | | | | | | | 0.36 | | | 0.70 | 9.71 | 16.35 | 1.41 | 17.76 | 58.76 | 79.44 | 135.79 | 570.56 | | | | 570.56 | 944.84 | 89.49 | 1050 | | | 0.11 | 1.057 | 374.28 | 39.61% |
| TENTH LINE ROAD | 6620A/B | MH6620 | MH6621 | | | | | | | | | | 0.62 | 3.22 | | 8.01 | 8.01 | 15.67 | 1.11 | 16.78 | 60.23 | 81.45 | 139.26 | 482.43 | | | | 482.43 | 944.84 | 70.59 | 1050 | | | 0.11 | 1.057 | 462.41 | 48.94% |
| | 6621 | MH6621 | MH6622 | | | | | | | | | | 0.28 | | | 0.54 | 18.27 | 17.76 | 1.04 | 18.80 | 55.94 | 75.58 | 129.14 | 1,021.71 | | | | 1,021.71 | 1,846.76 | 77.62 | 1350 | | | 0.11 | 1.250 | 825.04 | 44.68% |
| | | MH6622 | MH6060 | | | | | | | | | | | | | 0.00 | 18.27 | 18.80 | 0.19 | 18.98 | 54.05 | 73.01 | 124.71 | 987.30 | | | | 987.30 | 1,846.76 | 13.91 | 1350 | | | 0.11 | 1.250 | 859.45 | 46.54% |
| | | MH6060 | HW6 | | | | | | | | | | | | | 0.00 | 72.38 | 21.70 | 0.53 | 22.22 | 49.45 | 66.73 | 113.89 | 3,579.24 | | | | 3,579.24 | 5,999.35 | 52.97 | 2100 | | | 0.11 | 1.678 | 2420.11 | 40.34% |
| | | | | 5.18 | 2.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | 28.81 | 3.22 | 2.22 | 72.38 | TRUE | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 41.46 | | | | | | | | | | | | | | | | | | | | |

**OVERALL SITE AREA**

| | A |
|---|---|
| Outlet #1 : EX Pond North - West | 21.29 |
| Outlet #2: EX Pond South - East | 17.46 |
| Outlet #3: EX Pond North - East | 11.17 |
| Outlet #4: New Central Pond North | 59.32 |
| Outlet #5: New Central Pond South | 43.70 |
| Outlet #6: New South Pond | 41.46 |
| | 194.40 |
| Measured Area (excl Ponds and McKinnon's Creek) | XXX |

**Definitions:**
Q = 2.78CiA, where:
Q = Peak Flow in Litres per Second (L/s)
A = Area in Hectares (Ha)
i = Rainfall intensity in millimeters per hour (mm/hr)
[i = 998.071 / (TC+6.053)^0.814] 5 YEAR
[i = 1174.184 / (TC+6.014)^0.816] 10 YEAR
[i = 1735.688 / (TC+6.014)^0.820] 100 YEAR

**Notes:**
1. Mannings coefficient (n) = 0.013

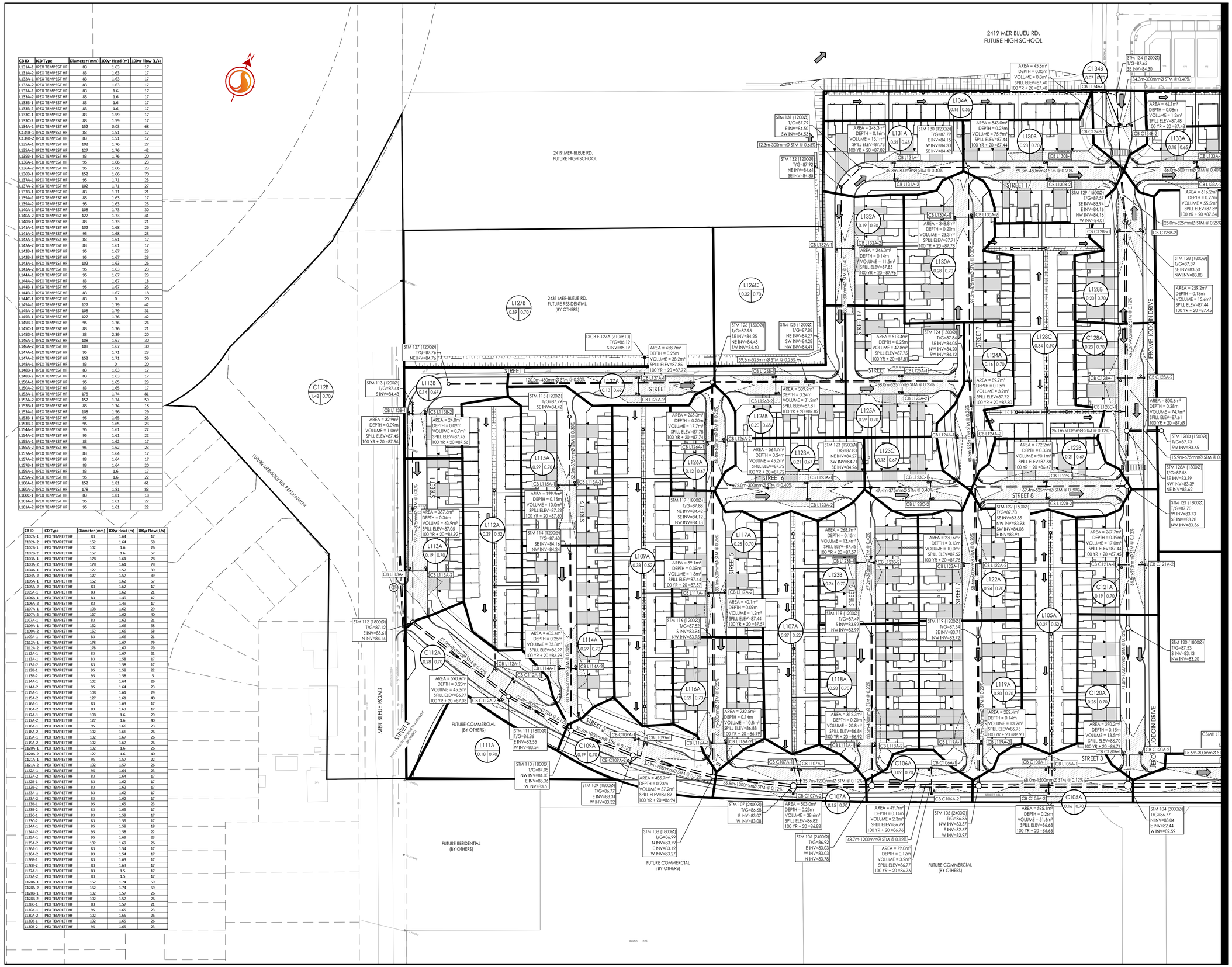
**Designed:** RM
**Checked:** DY
**Dwg. Reference:** 34739-8.3.1

| No. | Revision | Date |
|---|---|---|
| 1. | MSS - 1st Submission | 2016-03 |
| 2. | MSS - 3rd Submission | 2017-03 |

**File Reference:** 34739-5.7.1
**Date:** 3/15/2016
**Sheet No:** 1 of 1

| CB ID | ICD Type | Diameter (mm) | 100yr Head (m) | 100yr Flow (L/s) |
|---|---|---|---|---|
| L131A-1 | IPEX TEMPEST HF | 83 | 1.63 | 17 |
| L131A-2 | IPEX TEMPEST HF | 83 | 1.63 | 17 |
| L132A-1 | IPEX TEMPEST HF | 83 | 1.63 | 17 |
| L132A-2 | IPEX TEMPEST HF | 83 | 1.63 | 17 |
| L133A-1 | IPEX TEMPEST HF | 83 | 1.6 | 17 |
| L133A-2 | IPEX TEMPEST HF | 83 | 1.6 | 17 |
| L133B-1 | IPEX TEMPEST HF | 83 | 1.6 | 17 |
| L133B-2 | IPEX TEMPEST HF | 83 | 1.6 | 17 |
| L133C-1 | IPEX TEMPEST HF | 83 | 1.59 | 17 |
| L133C-2 | IPEX TEMPEST HF | 83 | 1.59 | 17 |
| L134A-1 | IPEX TEMPEST HF | 152 | 0.03 | 68 |
| C134B-1 | IPEX TEMPEST HF | 83 | 1.51 | 17 |
| C134B-2 | IPEX TEMPEST HF | 83 | 1.51 | 17 |
| L135A-1 | IPEX TEMPEST HF | 102 | 1.76 | 27 |
| L135A-2 | IPEX TEMPEST HF | 127 | 1.76 | 42 |
| L135B-1 | IPEX TEMPEST HF | 83 | 1.76 | 20 |
| L136A-1 | IPEX TEMPEST HF | 95 | 1.66 | 23 |
| L136A-2 | IPEX TEMPEST HF | 95 | 1.66 | 23 |
| L136B-1 | IPEX TEMPEST HF | 152 | 1.66 | 70 |
| L137A-1 | IPEX TEMPEST HF | 95 | 1.71 | 23 |
| L137A-2 | IPEX TEMPEST HF | 102 | 1.71 | 27 |
| L137B-1 | IPEX TEMPEST HF | 83 | 1.71 | 21 |
| L139A-1 | IPEX TEMPEST HF | 83 | 1.63 | 17 |
| L139A-2 | IPEX TEMPEST HF | 95 | 1.63 | 23 |
| L140A-1 | IPEX TEMPEST HF | 108 | 1.73 | 30 |
| L140A-2 | IPEX TEMPEST HF | 127 | 1.73 | 41 |
| L140B-1 | IPEX TEMPEST HF | 83 | 1.73 | 21 |
| L141A-1 | IPEX TEMPEST HF | 102 | 1.68 | 26 |
| L141A-2 | IPEX TEMPEST HF | 95 | 1.68 | 23 |
| L142A-1 | IPEX TEMPEST HF | 83 | 1.61 | 17 |
| L142A-2 | IPEX TEMPEST HF | 83 | 1.61 | 17 |
| L142B-1 | IPEX TEMPEST HF | 95 | 1.67 | 23 |
| L142B-2 | IPEX TEMPEST HF | 95 | 1.67 | 23 |
| L143A-1 | IPEX TEMPEST HF | 102 | 1.63 | 26 |
| L143A-2 | IPEX TEMPEST HF | 95 | 1.63 | 23 |
| L144A-1 | IPEX TEMPEST HF | 95 | 1.67 | 23 |
| L144A-2 | IPEX TEMPEST HF | 83 | 1.67 | 18 |
| L144B-1 | IPEX TEMPEST HF | 95 | 1.67 | 23 |
| L144B-2 | IPEX TEMPEST HF | 83 | 1.67 | 18 |
| L146C-1 | IPEX TEMPEST HF | 83 | 0 | 20 |
| L145A-1 | IPEX TEMPEST HF | 127 | 1.79 | 42 |
| L145A-2 | IPEX TEMPEST HF | 108 | 1.79 | 31 |
| L145B-1 | IPEX TEMPEST HF | 127 | 1.76 | 42 |
| L145B-2 | IPEX TEMPEST HF | 95 | 1.76 | 24 |
| L145C-1 | IPEX TEMPEST HF | 83 | 1.76 | 21 |
| L145D-1 | IPEX TEMPEST HF | 83 | 2.39 | 20 |
| L146A-1 | IPEX TEMPEST HF | 108 | 1.67 | 30 |
| L146A-2 | IPEX TEMPEST HF | 108 | 1.67 | 30 |
| L147A-1 | IPEX TEMPEST HF | 95 | 1.71 | 23 |
| L147A-2 | IPEX TEMPEST HF | 152 | 1.71 | 59 |
| L148A-1 | IPEX TEMPEST HF | 83 | 0 | 20 |
| L148B-1 | IPEX TEMPEST HF | 83 | 1.63 | 17 |
| L148B-2 | IPEX TEMPEST HF | 83 | 1.63 | 17 |
| L150A-1 | IPEX TEMPEST HF | 95 | 1.65 | 23 |
| L150A-2 | IPEX TEMPEST HF | 83 | 1.65 | 17 |
| L152A-1 | IPEX TEMPEST HF | 178 | 1.74 | 81 |
| L152A-2 | IPEX TEMPEST HF | 152 | 1.74 | 59 |
| L152B-1 | IPEX TEMPEST HF | 83 | 1.74 | 18 |
| L153A-1 | IPEX TEMPEST HF | 108 | 1.56 | 29 |
| L153B-1 | IPEX TEMPEST HF | 95 | 1.65 | 23 |
| L153B-2 | IPEX TEMPEST HF | 95 | 1.65 | 23 |
| L154A-1 | IPEX TEMPEST HF | 95 | 1.61 | 22 |
| L154A-2 | IPEX TEMPEST HF | 95 | 1.61 | 22 |
| L155A-1 | IPEX TEMPEST HF | 83 | 1.62 | 17 |
| L155A-2 | IPEX TEMPEST HF | 95 | 1.62 | 23 |
| L157A-1 | IPEX TEMPEST HF | 83 | 1.64 | 17 |
| L157A-2 | IPEX TEMPEST HF | 83 | 1.64 | 17 |
| L157B-1 | IPEX TEMPEST HF | 83 | 1.64 | 20 |
| L159A-1 | IPEX TEMPEST HF | 83 | 1.6 | 17 |
| L159A-2 | IPEX TEMPEST HF | 95 | 1.6 | 22 |
| L160A-1 | IPEX TEMPEST HF | 152 | 1.81 | 61 |
| L160A-2 | IPEX TEMPEST HF | 178 | 1.81 | 83 |
| L160C-1 | IPEX TEMPEST HF | 83 | 1.81 | 18 |
| L161A-1 | IPEX TEMPEST HF | 95 | 1.61 | 22 |
| L161A-2 | IPEX TEMPEST HF | 95 | 1.61 | 22 |

| CB ID | ICD Type | Diameter (mm) | 100yr Head (m) | 100yr Flow (L/s) |
|---|---|---|---|---|
| C102A-1 | IPEX TEMPEST HF | 83 | 1.64 | 17 |
| C102A-2 | IPEX TEMPEST HF | 152 | 1.64 | 58 |
| C102B-1 | IPEX TEMPEST HF | 102 | 1.6 | 26 |
| C102B-2 | IPEX TEMPEST HF | 152 | 1.6 | 57 |
| C103A-1 | IPEX TEMPEST HF | 178 | 1.61 | 78 |
| C103A-2 | IPEX TEMPEST HF | 178 | 1.61 | 78 |
| C104A-1 | IPEX TEMPEST HF | 127 | 1.57 | 39 |
| C104A-2 | IPEX TEMPEST HF | 127 | 1.57 | 39 |
| C105A-1 | IPEX TEMPEST HF | 152 | 1.62 | 57 |
| C105A-2 | IPEX TEMPEST HF | 83 | 1.62 | 17 |
| L105A-1 | IPEX TEMPEST HF | 83 | 1.62 | 21 |
| C106A-1 | IPEX TEMPEST HF | 83 | 1.49 | 17 |
| C106A-2 | IPEX TEMPEST HF | 83 | 1.49 | 17 |
| C107A-1 | IPEX TEMPEST HF | 108 | 1.62 | 29 |
| C107A-2 | IPEX TEMPEST HF | 127 | 1.62 | 40 |
| L107A-1 | IPEX TEMPEST HF | 83 | 1.62 | 21 |
| C109A-1 | IPEX TEMPEST HF | 152 | 1.66 | 58 |
| C109A-2 | IPEX TEMPEST HF | 152 | 1.66 | 58 |
| L109A-1 | IPEX TEMPEST HF | 83 | 1.66 | 21 |
| C112A-1 | IPEX TEMPEST HF | 178 | 1.67 | 79 |
| C112A-2 | IPEX TEMPEST HF | 178 | 1.67 | 79 |
| L112A-1 | IPEX TEMPEST HF | 83 | 1.67 | 21 |
| L113A-1 | IPEX TEMPEST HF | 83 | 1.58 | 17 |
| L113A-2 | IPEX TEMPEST HF | 83 | 1.58 | 17 |
| L113B-1 | IPEX TEMPEST HF | 95 | 1.58 | 22 |
| L113B-2 | IPEX TEMPEST HF | 95 | 1.58 | 5 |
| L114A-1 | IPEX TEMPEST HF | 102 | 1.64 | 26 |
| L114A-2 | IPEX TEMPEST HF | 95 | 1.64 | 23 |
| L115A-1 | IPEX TEMPEST HF | 108 | 1.61 | 29 |
| L115A-2 | IPEX TEMPEST HF | 127 | 1.61 | 40 |
| L116A-1 | IPEX TEMPEST HF | 83 | 1.63 | 17 |
| L116A-2 | IPEX TEMPEST HF | 83 | 1.63 | 17 |
| L117A-1 | IPEX TEMPEST HF | 108 | 1.6 | 29 |
| L117A-2 | IPEX TEMPEST HF | 127 | 1.6 | 40 |
| L118A-1 | IPEX TEMPEST HF | 95 | 1.66 | 23 |
| L118A-2 | IPEX TEMPEST HF | 102 | 1.66 | 26 |
| L119A-1 | IPEX TEMPEST HF | 102 | 1.67 | 26 |
| L119A-2 | IPEX TEMPEST HF | 102 | 1.67 | 26 |
| C120A-1 | IPEX TEMPEST HF | 102 | 1.6 | 26 |
| C120A-2 | IPEX TEMPEST HF | 127 | 1.6 | 40 |
| C121A-1 | IPEX TEMPEST HF | 95 | 1.57 | 22 |
| C121A-2 | IPEX TEMPEST HF | 102 | 1.57 | 26 |
| L122A-1 | IPEX TEMPEST HF | 95 | 1.64 | 23 |
| L122A-2 | IPEX TEMPEST HF | 83 | 1.64 | 17 |
| L122B-1 | IPEX TEMPEST HF | 83 | 1.62 | 17 |
| L122B-2 | IPEX TEMPEST HF | 83 | 1.62 | 17 |
| L123A-1 | IPEX TEMPEST HF | 83 | 1.62 | 17 |
| L123A-2 | IPEX TEMPEST HF | 83 | 1.62 | 17 |
| L123B-1 | IPEX TEMPEST HF | 95 | 1.65 | 23 |
| L123B-2 | IPEX TEMPEST HF | 83 | 1.65 | 17 |
| L123C-1 | IPEX TEMPEST HF | 83 | 1.59 | 17 |
| L123C-2 | IPEX TEMPEST HF | 83 | 1.59 | 17 |
| L124A-1 | IPEX TEMPEST HF | 85 | 1.58 | 18 |
| L124A-2 | IPEX TEMPEST HF | 95 | 1.58 | 22 |
| L125A-1 | IPEX TEMPEST HF | 95 | 1.69 | 23 |
| L125A-2 | IPEX TEMPEST HF | 102 | 1.69 | 26 |
| L126A-1 | IPEX TEMPEST HF | 83 | 1.54 | 17 |
| L126A-2 | IPEX TEMPEST HF | 83 | 1.54 | 17 |
| L126B-1 | IPEX TEMPEST HF | 83 | 1.63 | 17 |
| L126B-2 | IPEX TEMPEST HF | 83 | 1.63 | 17 |
| L127A-1 | IPEX TEMPEST HF | 83 | 1.5 | 17 |
| L127A-2 | IPEX TEMPEST HF | 83 | 1.5 | 17 |
| C128A-1 | IPEX TEMPEST HF | 152 | 1.74 | 59 |
| C128A-2 | IPEX TEMPEST HF | 152 | 1.74 | 59 |
| C128B-1 | IPEX TEMPEST HF | 102 | 1.57 | 26 |
| C128B-2 | IPEX TEMPEST HF | 102 | 1.57 | 26 |
| L128C-1 | IPEX TEMPEST HF | 83 | 1.57 | 21 |
| L130A-1 | IPEX TEMPEST HF | 95 | 1.65 | 23 |
| L130A-2 | IPEX TEMPEST HF | 102 | 1.65 | 26 |
| L130B-1 | IPEX TEMPEST HF | 102 | 1.65 | 26 |
| L130B-2 | IPEX TEMPEST HF | 95 | 1.65 | 23 |




| | | | | |
|---|---|---|---|---|
| 2 | REVISED PROFILE AND SURFACE GRADING | JP | SGG | 23.07.24 |
| 1 | ISSUED FOR FIRST SUBMISSION | JP | SGG | 23.01.12 |
| Revision | | By | Appd. | YY.MM.DD |
| File Name: 160401737 SD.dwg | | JP Dwn. | DT Chkd. | JP Dsgn. | 22.10.26 YY.MM.DD |

Permit-Seal

LICENSED PROFESSIONAL ENGINEER
D. C. THIFFAULT
100186107
2024-04-12
PROVINCE OF ONTARIO

Client/Project

MATTAMY (MER BLEUE 2) LTD
50 HINES ROAD, SUITE 100
OTTAWA ON K2K 2M5

SUMMERSIDE SOUTH PHASE 2/3 SUBDIVISION
OTTAWA, ON, CANADA

Title

STORM DRAINAGE PLAN

| Project No. | Scale | |
|---|---|---|
| 160401737 | 1:750 | 0 7.5 22.5 37.5 |
| Drawing No. | Sheet | Revision |
| SD-1 | 48 of 62 | 2 |

DWG# XXXXX


Stantec
Stantec Consulting Ltd.
400 - 1331 Clyde Avenue
Ottawa ON
Tel. 613.722.4420
www.stantec.com



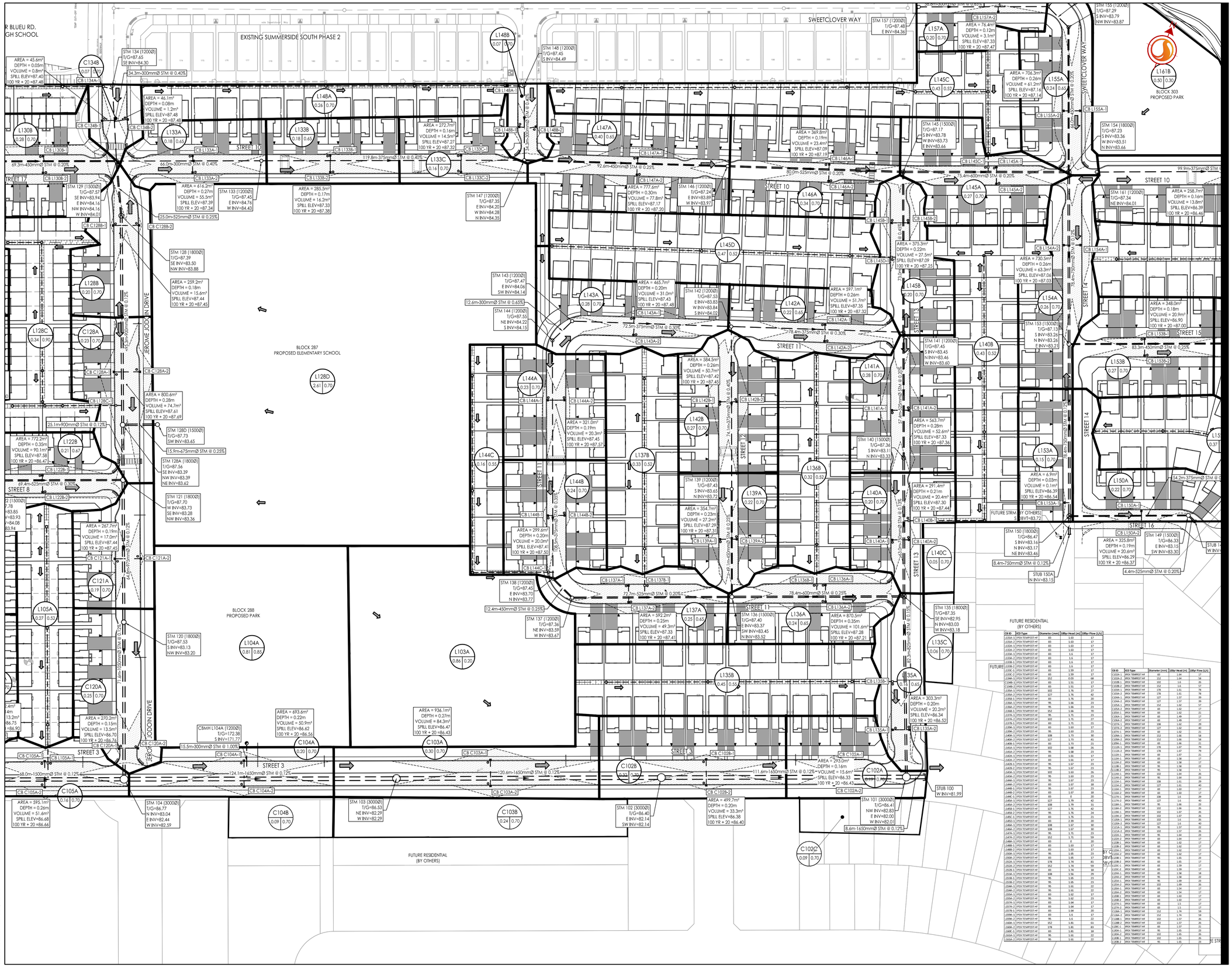
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Legend

- L202A 1.13 0.60 — AREA ID; RUNOFF COEFFICIENT
- STORM DRAINAGE AREA ha.
- STORM DRAINAGE BOUNDARY
- L202A 1.13 0.60 — FUTURE/EXTERNAL AREA ID; FUTURE/EXTERNAL RUNOFF COEFFICIENT
- FUTURE/EXTERNAL STORM DRAINAGE AREA ha.
- FUTURE/EXTERNAL STORM DRAINAGE BOUNDARY
- TYPICAL SERVICE LATERAL LOCATION
- DIRECTION OF OVERLAND FLOW
- DIRECTION OF OVERLAND FLOW (EXISTING)
- PROPOSED STORM SEWER
- PROPOSED CATCHBASIN MANHOLE
- PROPOSED CATCHBASIN
- PROPOSED DITCH INLET CATCHBASIN
- PROPOSED REAR CATCHBASIN WITH SOLID COVER AS PER S19
- PROPOSED PERFORATED SUBDRAIN
- EXISTING STORM SEWER
- EXISTING CATCHBASIN MANHOLE
- EXISTING CATCHBASIN
- EXISTING SUBDRAIN CATCHBASIN
- FUTURE STORM SEWER
- FUTURE CATCHBASIN MANHOLE
- FUTURE CATCHBASIN
- FUTURE SUBDRAIN CATCHBASIN
- CIRCULAR ORIFICE (SEE SEE ICD TABLE)

Notes

W:\active\160401737\design\drawings\160401737 SD.dwg
2022/08/16 8:01 PM By: Pallavi Jusher


SWEETCLOVER WAY
EXISTING SUMMERSIDE SOUTH PHASE 2
STREET 10
STREET 17
STREET 8
STREET 3
STREET 11
STREET 12
STREET 13
STREET 14
STREET 15
STREET 16
JEROME JODOIN DRIVE
BLOCK 287
PROPOSED ELEMENTARY SCHOOL
BLOCK 288
PROPOSED PARK
BLOCK 303
PROPOSED PARK
FUTURE RESIDENTIAL
(BY OTHERS)
STM 134 (1200Ø)
T/G=87.65
SE INV=84.30
STM 148 (1200Ø)
T/G=87.45
S INV=84.49
STM 157 (1200Ø)
T/G=87.48
E INV=84.36
STM 155 (1200Ø)
T/G=87.29
S INV=83.79
NW INV=83.87
STM 154 (1800Ø)
T/G=87.23
S INV=83.36
N INV=83.66
STM 145 (1500Ø)
T/G=87.17
S INV=83.78
W INV=83.73
E INV=83.66
STM 129 (1500Ø)
T/G=87.57
SE INV=83.94
E INV=84.16
NW INV=84.16
W INV=84.01
STM 128 (1800Ø)
T/G=87.39
SE INV=83.50
NW INV=83.88
STM 133 (1200Ø)
T/G=87.45
E INV=84.76
W INV=84.43
STM 146 (1200Ø)
T/G=87.24
E INV=83.89
W INV=83.97
STM 147 (1200Ø)
T/G=87.35
E INV=84.20
W INV=84.28
N INV=84.35
STM 143 (1200Ø)
T/G=87.47
E INV=84.06
SW INV=84.14
STM 144 (1200Ø)
T/G=87.55
NE INV=84.22
S INV=84.15
STM 142 (1200Ø)
T/G=87.53
E INV=83.83
W INV=83.84
S INV=84.02
STM 141 (1200Ø)
T/G=87.45
S INV=83.45
N INV=83.46
W INV=83.60
STM 161 (1200Ø)
T/G=87.34
NE INV=84.01
STM 153 (1500Ø)
T/G=87.13
S INV=83.26
N INV=83.26
E INV=83.21
STM 140 (1500Ø)
T/G=87.36
S INV=83.11
N INV=83.33
STM 139 (1200Ø)
T/G=87.43
S INV=83.65
N INV=83.72
STM 150 (1800Ø)
T/G=86.47
S INV=83.16
N INV=83.17
NE INV=83.46
STM 149 (1500Ø)
T/G=86.33
E INV=83.15
SW INV=83.30
STM 138 (1200Ø)
T/G=87.65
E INV=83.70
N INV=83.77
STM 137 (1200Ø)
T/G=87.36
NE INV=83.59
W INV=83.67
STM 136 (1500Ø)
T/G=87.40
E INV=83.37
SW INV=83.45
N INV=83.52
STM 135 (1800Ø)
T/G=87.35
SE INV=82.95
N INV=83.03
W INV=83.18
STM 101 (3000Ø)
T/G=86.41
NW INV=82.83
E INV=82.00
W INV=82.01
STM 102 (3000Ø)
T/G=86.40
E INV=82.14
SW INV=82.14
STM 103 (3000Ø)
T/G=86.53
NE INV=82.29
W INV=82.29
STM 104 (3000Ø)
T/G=86.77
N INV=83.04
E INV=82.44
W INV=82.59
STM 120 (1800Ø)
T/G=87.53
S INV=83.13
NW INV=83.20
STM 121 (1800Ø)
T/G=87.70
W INV=83.73
SE INV=83.28
NW INV=83.36
STM 128A (1800Ø)
T/G=87.56
SE INV=83.39
NW INV=83.39
NE INV=83.62
STM 128D (1500Ø)
T/G=87.73
SW INV=83.65
STUB 100
W INV=81.99
STUB 150A
N INV=83.15
AREA = 45.6m²
DEPTH = 0.05m
VOLUME = 0.8m³
SPILL ELEV=87.40
100 YR + 20 =87.48
AREA = 46.1m²
DEPTH = 0.08m
VOLUME = 1.2m³
SPILL ELEV=87.48
100 YR + 20 =87.48
AREA = 616.2m²
DEPTH = 0.27m
VOLUME = 55.5m³
SPILL ELEV=87.39
100 YR + 20 =87.34
AREA = 285.5m²
DEPTH = 0.17m
VOLUME = 16.2m³
SPILL ELEV=87.33
100 YR + 20 =87.38
AREA = 272.7m²
DEPTH = 0.16m
VOLUME = 14.5m³
SPILL ELEV=87.27
100 YR + 20 =87.32
AREA = 777.6m²
DEPTH = 0.30m
VOLUME = 77.8m³
SPILL ELEV=87.17
100 YR + 20 =87.20
AREA = 369.8m²
DEPTH = 0.19m
VOLUME = 23.4m³
SPILL ELEV=87.09
100 YR + 20 =87.19
AREA = 465.7m²
DEPTH = 0.20m
VOLUME = 31.0m³
SPILL ELEV=87.43
100 YR + 20 =87.48
AREA = 597.1m²
DEPTH = 0.26m
VOLUME = 51.7m³
SPILL ELEV=87.35
100 YR + 20 =87.32
AREA = 584.5m²
DEPTH = 0.26m
VOLUME = 50.7m³
SPILL ELEV=87.42
100 YR + 20 =87.45
AREA = 321.0m²
DEPTH = 0.19m
VOLUME = 20.3m³
SPILL ELEV=87.45
100 YR + 20 =87.57
AREA = 354.7m²
DEPTH = 0.23m
VOLUME = 27.2m³
SPILL ELEV=87.29
100 YR + 20 =87.31
AREA = 299.6m²
DEPTH = 0.20m
VOLUME = 20.0m³
SPILL ELEV=87.41
100 YR + 20 =87.50
AREA = 592.2m²
VOLUME = 49.3m³
SPILL ELEV=87.33
100 YR + 20 =87.41
AREA = 870.5m²
DEPTH = 0.35m
VOLUME = 101.6m³
SPILL ELEV=87.28
100 YR + 20 =87.21
AREA = 375.3m²
DEPTH = 0.22m
VOLUME = 27.5m³
SPILL ELEV=87.09
100 YR + 20 =87.25
AREA = 730.5m²
DEPTH = 0.26m
VOLUME = 63.3m³
SPILL ELEV=87.06
100 YR + 20 =87.05
AREA = 348.0m²
DEPTH = 0.18m
VOLUME = 20.9m³
SPILL ELEV=86.90
100 YR + 20 =87.00
AREA = 706.3m²
DEPTH = 0.26m
VOLUME = 61.2m³
SPILL ELEV=87.16
100 YR + 20 =87.14
AREA = 76.4m²
DEPTH = 0.12m
VOLUME = 3.1m³
SPILL ELEV=87.33
100 YR + 20 =87.47
AREA = 258.7m²
DEPTH = 0.16m
VOLUME = 13.8m³
SPILL ELEV=86.59
100 YR + 20 =86.46
AREA = 259.2m²
DEPTH = 0.18m
VOLUME = 15.6m³
SPILL ELEV=87.44
100 YR + 20 =87.45
AREA = 800.6m²
DEPTH = 0.28m
VOLUME = 74.7m³
SPILL ELEV=87.61
100 YR + 20 =87.69
AREA = 772.2m²
DEPTH = 0.35m
VOLUME = 90.1m³
SPILL ELEV=87.58
100 YR + 20 =86.47
AREA = 267.7m²
DEPTH = 0.19m
VOLUME = 17.0m³
SPILL ELEV=87.44
100 YR + 20 =87.45
AREA = 270.2m²
DEPTH = 0.15m
VOLUME = 13.5m³
SPILL ELEV=86.70
100 YR + 20 =86.76
AREA = 693.6m²
DEPTH = 0.22m
VOLUME = 50.9m³
SPILL ELEV=86.62
100 YR + 20 =86.56
AREA = 936.1m²
DEPTH = 0.27m
VOLUME = 84.3m³
SPILL ELEV=86.47
100 YR + 20 =86.43
AREA = 595.1m²
DEPTH = 0.26m
VOLUME = 51.6m³
SPILL ELEV=86.68
100 YR + 20 =86.66
AREA = 293.0m²
DEPTH = 0.16m
VOLUME = 15.6m³
SPILL ELEV=86.33
100 YR + 20 =86.43
AREA = 497.7m²
DEPTH = 0.20m
VOLUME = 33.3m³
SPILL ELEV=86.38
100 YR + 20 =86.40
AREA = 291.4m²
DEPTH = 0.21m
VOLUME = 20.4m³
SPILL ELEV=87.30
100 YR + 20 =87.44
AREA = 563.7m²
DEPTH = 0.28m
VOLUME = 52.6m³
SPILL ELEV=87.33
100 YR + 20 =87.36
AREA = 6.9m²
DEPTH = 0.03m
VOLUME = 0.1m³
SPILL ELEV=86.39
100 YR + 20 =86.54
AREA = 305.8m²
DEPTH = 0.19m
VOLUME = 20.6m³
SPILL ELEV=86.29
100 YR + 20 =86.37
AREA = 303.3m²
DEPTH = 0.20m
VOLUME = 20.2m³
SPILL ELEV=86.34
100 YR + 20 =86.52
AREA = 267.2m²
DEPTH = 0.15m
VOLUME = 13.2m³
SPILL ELEV=86.75
100 YR + 20 =86.90
L130B 0.28 0.70
L133A 0.18 0.65
L133B 0.18 0.65
L133C 0.16 0.70
L148A 0.26 0.70
L148B 0.07 0.70
L147A 0.40 0.65
L146A 0.34 0.70
L145D 0.47 0.52
L145A 0.27 0.70
L145B 0.20 0.70
L145C 0.43 0.52
L157A 0.20 0.70
L155A 0.24 0.65
L161B 0.50 0.30
BLOCK 303
PROPOSED PARK
L143A 0.28 0.70
L142A 0.22 0.65
L142B 0.27 0.70
L141A 0.28 0.70
L140A 0.20 0.70
L140B 0.43 0.52
L140C 0.05 0.70
L139A 0.22 0.70
L138A 0.32 0.52
L137A 0.25 0.65
L136A 0.24 0.65
L135A 0.10 0.65
L135B 0.45 0.55
L135C 0.06 0.70
L154A 0.24 0.70
L153A 0.15 0.70
L150A 0.22 0.70
L138A 0.27 0.70
L144A 0.23 0.70
L144B 0.24 0.70
L144C 0.16 0.55
L137B 0.33 0.52
L128B 0.20 0.70
L128C 0.34 0.90
L128D 2.61 0.70
C134B 0.07 0.70
C133A 0.18 0.65
C133C 0.16 0.70
C128A 0.23 0.70
C128C 0.34 0.90
C121A 0.19 0.70
C120A 0.25 0.70
C105A 0.16 0.70
C104A 0.20 0.70
C104B 0.09 0.70
C103A 0.30 0.70
C102A 0.11 0.70
C102B 0.32 0.70
C102C 0.09 0.70
L122B 0.21 0.67
L105A 0.27 0.50
L104A 0.81 0.85
L103A 0.86 0.20
L122A 0.37 0.70
L150B 0.37 0.70
L228 0.21 0.67
L228 0.21 0.67
L228 0.21 0.67




| CB ID | ICD Type | Diameter (mm) | 100yr Head (m) | 100yr Flow (L/s) |
|---|---|---|---|---|
| C102A-1 | IPEX TEMPEST HF | 83 | 1.64 | 17 |
| C102A-2 | IPEX TEMPEST HF | 152 | 1.64 | 58 |
| C102B-1 | IPEX TEMPEST HF | 102 | 1.6 | 26 |
| C102B-2 | IPEX TEMPEST HF | 152 | 1.6 | 57 |
| C103A-1 | IPEX TEMPEST HF | 178 | 1.61 | 78 |
| C103A-2 | IPEX TEMPEST HF | 178 | 1.61 | 78 |
| C104A-1 | IPEX TEMPEST HF | 127 | 1.57 | 39 |
| C104A-2 | IPEX TEMPEST HF | 127 | 1.57 | 39 |
| C105A-1 | IPEX TEMPEST HF | 152 | 1.62 | 57 |
| C105A-2 | IPEX TEMPEST HF | 83 | 1.62 | 17 |
| L105A-1 | IPEX TEMPEST HF | 83 | 1.62 | 21 |
| C106A-1 | IPEX TEMPEST HF | 83 | 1.49 | 17 |
| C106A-2 | IPEX TEMPEST HF | 83 | 1.49 | 17 |
| C107A-1 | IPEX TEMPEST HF | 108 | 1.62 | 29 |
| C107A-2 | IPEX TEMPEST HF | 127 | 1.62 | 40 |
| L107A-1 | IPEX TEMPEST HF | 83 | 1.62 | 21 |
| C109A-1 | IPEX TEMPEST HF | 152 | 1.66 | 58 |
| C109A-2 | IPEX TEMPEST HF | 152 | 1.66 | 58 |
| L109A-1 | IPEX TEMPEST HF | 83 | 1.66 | 21 |
| C112A-1 | IPEX TEMPEST HF | 178 | 1.67 | 79 |
| C112A-2 | IPEX TEMPEST HF | 178 | 1.67 | 79 |
| L112A-1 | IPEX TEMPEST HF | 83 | 1.67 | 21 |
| L113A-1 | IPEX TEMPEST HF | 83 | 1.58 | 17 |
| L113A-2 | IPEX TEMPEST HF | 83 | 1.58 | 17 |
| L113B-1 | IPEX TEMPEST HF | 95 | 1.58 | 22 |
| L113B-2 | IPEX TEMPEST HF | 95 | 1.58 | 5 |
| L114A-1 | IPEX TEMPEST HF | 102 | 1.64 | 26 |
| L114A-2 | IPEX TEMPEST HF | 95 | 1.64 | 23 |
| L115A-1 | IPEX TEMPEST HF | 108 | 1.61 | 29 |
| L115A-2 | IPEX TEMPEST HF | 127 | 1.61 | 40 |
| L116A-1 | IPEX TEMPEST HF | 83 | 1.63 | 17 |
| L116A-2 | IPEX TEMPEST HF | 83 | 1.63 | 17 |
| L117A-1 | IPEX TEMPEST HF | 108 | 1.6 | 29 |
| L117A-2 | IPEX TEMPEST HF | 127 | 1.6 | 40 |
| L118A-1 | IPEX TEMPEST HF | 95 | 1.66 | 23 |
| L118A-2 | IPEX TEMPEST HF | 102 | 1.66 | 26 |
| L119A-1 | IPEX TEMPEST HF | 102 | 1.67 | 26 |
| L119A-2 | IPEX TEMPEST HF | 102 | 1.67 | 26 |
| C120A-1 | IPEX TEMPEST HF | 102 | 1.6 | 26 |
| C120A-2 | IPEX TEMPEST HF | 127 | 1.6 | 40 |
| C121A-1 | IPEX TEMPEST HF | 95 | 1.57 | 22 |
| C121A-2 | IPEX TEMPEST HF | 102 | 1.57 | 26 |
| L122A-1 | IPEX TEMPEST HF | 95 | 1.64 | 23 |
| L122A-2 | IPEX TEMPEST HF | 83 | 1.64 | 17 |
| L122B-1 | IPEX TEMPEST HF | 83 | 1.62 | 17 |
| L122B-2 | IPEX TEMPEST HF | 83 | 1.62 | 17 |
| L123A-1 | IPEX TEMPEST HF | 83 | 1.62 | 17 |
| L123A-2 | IPEX TEMPEST HF | 83 | 1.62 | 17 |
| L123B-1 | IPEX TEMPEST HF | 95 | 1.65 | 23 |
| L123B-2 | IPEX TEMPEST HF | 83 | 1.65 | 17 |
| L123C-1 | IPEX TEMPEST HF | 83 | 1.59 | 17 |
| L123C-2 | IPEX TEMPEST HF | 83 | 1.59 | 17 |
| L124A-1 | IPEX TEMPEST HF | 85 | 1.58 | 18 |
| L124A-2 | IPEX TEMPEST HF | 95 | 1.58 | 22 |
| L125A-1 | IPEX TEMPEST HF | 95 | 1.69 | 23 |
| L125A-2 | IPEX TEMPEST HF | 102 | 1.69 | 26 |
| L126A-1 | IPEX TEMPEST HF | 83 | 1.54 | 17 |
| L126A-2 | IPEX TEMPEST HF | 83 | 1.54 | 17 |
| L126B-1 | IPEX TEMPEST HF | 83 | 1.63 | 17 |
| L126B-2 | IPEX TEMPEST HF | 83 | 1.63 | 17 |
| L127A-1 | IPEX TEMPEST HF | 83 | 1.5 | 17 |
| L127A-2 | IPEX TEMPEST HF | 83 | 1.5 | 17 |
| C128A-1 | IPEX TEMPEST HF | 152 | 1.74 | 59 |
| C128A-2 | IPEX TEMPEST HF | 152 | 1.74 | 59 |
| C128B-1 | IPEX TEMPEST HF | 102 | 1.57 | 26 |
| C128B-2 | IPEX TEMPEST HF | 102 | 1.57 | 26 |
| L128C-1 | IPEX TEMPEST HF | 83 | 1.57 | 21 |
| L130A-1 | IPEX TEMPEST HF | 95 | 1.65 | 23 |
| L130A-2 | IPEX TEMPEST HF | 102 | 1.65 | 26 |
| L130B-1 | IPEX TEMPEST HF | 102 | 1.65 | 26 |
| L130B-2 | IPEX TEMPEST HF | 95 | 1.65 | 23 |

| CB ID | ICD Type | Diameter (mm) | 100yr Head (m) | 100yr Flow (L/s) |
|---|---|---|---|---|
| L131A-1 | IPEX TEMPEST HF | 83 | 1.63 | 17 |
| L131A-2 | IPEX TEMPEST HF | 83 | 1.63 | 17 |
| L132A-1 | IPEX TEMPEST HF | 83 | 1.63 | 17 |
| L132A-2 | IPEX TEMPEST HF | 83 | 1.63 | 17 |
| L133A-1 | IPEX TEMPEST HF | 83 | 1.6 | 17 |
| L133A-2 | IPEX TEMPEST HF | 83 | 1.6 | 17 |
| L133B-1 | IPEX TEMPEST HF | 83 | 1.6 | 17 |
| L133B-2 | IPEX TEMPEST HF | 83 | 1.6 | 17 |
| L133C-1 | IPEX TEMPEST HF | 83 | 1.59 | 17 |
| L133C-2 | IPEX TEMPEST HF | 83 | 1.59 | 17 |
| L134A-1 | IPEX TEMPEST HF | 152 | 0.03 | 68 |
| C134B-1 | IPEX TEMPEST HF | 83 | 1.51 | 17 |
| C134B-2 | IPEX TEMPEST HF | 83 | 1.51 | 17 |
| L135A-1 | IPEX TEMPEST HF | 102 | 1.76 | 27 |
| L135A-2 | IPEX TEMPEST HF | 127 | 1.76 | 42 |
| L135B-1 | IPEX TEMPEST HF | 83 | 1.76 | 20 |
| L136A-1 | IPEX TEMPEST HF | 95 | 1.66 | 23 |
| L136A-2 | IPEX TEMPEST HF | 95 | 1.66 | 23 |
| L136B-1 | IPEX TEMPEST HF | 152 | 1.66 | 70 |
| L137A-1 | IPEX TEMPEST HF | 95 | 1.71 | 23 |
| L137A-2 | IPEX TEMPEST HF | 102 | 1.71 | 27 |
| L137B-1 | IPEX TEMPEST HF | 83 | 1.71 | 21 |
| L139A-1 | IPEX TEMPEST HF | 83 | 1.63 | 17 |
| L139A-2 | IPEX TEMPEST HF | 95 | 1.63 | 23 |
| L140A-1 | IPEX TEMPEST HF | 108 | 1.73 | 30 |
| L140A-2 | IPEX TEMPEST HF | 127 | 1.73 | 41 |
| L140B-1 | IPEX TEMPEST HF | 83 | 1.73 | 21 |
| L141A-1 | IPEX TEMPEST HF | 102 | 1.68 | 26 |
| L141A-2 | IPEX TEMPEST HF | 95 | 1.68 | 23 |
| L142A-2 | IPEX TEMPEST HF | 83 | 1.61 | 17 |
| L142A-2 | IPEX TEMPEST HF | 83 | 1.61 | 17 |
| L142B-1 | IPEX TEMPEST HF | 95 | 1.67 | 23 |
| L142B-2 | IPEX TEMPEST HF | 95 | 1.67 | 23 |
| L143A-1 | IPEX TEMPEST HF | 102 | 1.63 | 26 |
| L143A-2 | IPEX TEMPEST HF | 95 | 1.63 | 23 |
| L144A-1 | IPEX TEMPEST HF | 95 | 1.67 | 23 |
| L144A-2 | IPEX TEMPEST HF | 83 | 1.67 | 18 |
| L144B-1 | IPEX TEMPEST HF | 95 | 1.67 | 23 |
| L144B-2 | IPEX TEMPEST HF | 83 | 1.67 | 18 |
| L144C-1 | IPEX TEMPEST HF | 83 | 0 | 20 |
| L145A-1 | IPEX TEMPEST HF | 127 | 1.79 | 42 |
| L145A-2 | IPEX TEMPEST HF | 108 | 1.79 | 31 |
| L145B-1 | IPEX TEMPEST HF | 127 | 1.76 | 42 |
| L145B-2 | IPEX TEMPEST HF | 95 | 1.76 | 24 |
| L145C-1 | IPEX TEMPEST HF | 83 | 1.76 | 21 |
| L145D-1 | IPEX TEMPEST HF | 83 | 2.39 | 20 |
| L146A-1 | IPEX TEMPEST HF | 108 | 1.67 | 30 |
| L146A-2 | IPEX TEMPEST HF | 108 | 1.67 | 30 |
| L147A-1 | IPEX TEMPEST HF | 95 | 1.71 | 23 |
| L147A-2 | IPEX TEMPEST HF | 152 | 1.71 | 59 |
| L148A-1 | IPEX TEMPEST HF | 83 | 0 | 20 |
| L148B-1 | IPEX TEMPEST HF | 83 | 1.63 | 17 |
| L148B-2 | IPEX TEMPEST HF | 83 | 1.63 | 17 |
| L150A-1 | IPEX TEMPEST HF | 95 | 1.65 | 23 |
| L150A-2 | IPEX TEMPEST HF | 83 | 1.65 | 17 |
| L152A-1 | IPEX TEMPEST HF | 178 | 1.74 | 81 |
| L152A-2 | IPEX TEMPEST HF | 152 | 1.74 | 59 |
| L152B-1 | IPEX TEMPEST HF | 83 | 1.74 | 18 |


Stantec

Stantec Consulting Ltd.
400 - 1331 Clyde Avenue
Ottawa ON
Tel. 613.722.4420
www.stantec.com



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Legend

- L202A / 1.13 / 0.60 — AREA ID, RUNOFF COEFFICIENT
- STORM DRAINAGE AREA ha.
- STORM DRAINAGE BOUNDARY
- L202A / 1.13 / 0.60 — FUTURE/EXTERNAL AREA ID, FUTURE/EXTERNAL RUNOFF COEFFICIENT
- FUTURE/EXTERNAL STORM DRAINAGE AREA ha.
- FUTURE/EXTERNAL STORM DRAINAGE BOUNDARY
- TYPICAL SERVICE LATERAL LOCATION
- DIRECTION OF OVERLAND FLOW
- DIRECTION OF OVERLAND FLOW (EXISTING)
- PROPOSED STORM SEWER
- PROPOSED CATCHBASIN MANHOLE
- PROPOSED CATCHBASIN
- PROPOSED DITCH INLET CATCHBASIN
- PROPOSED REAR CATCHBASIN WITH SOLID COVER AS PER S19
- PROPOSED PERFORATED SUBDRAIN
- EXISTING STORM SEWER
- EXISTING CATCHBASIN MANHOLE
- EXISTING CATCHBASIN
- EXISTING SUBDRAIN CATCHBASIN
- FUTURE STORM SEWER
- FUTURE CATCHBASIN MANHOLE
- FUTURE CATCHBASIN
- FUTURE SUBDRAIN CATCHBASIN
- CIRCULAR ORIFICE (SEE SEE ICD TABLE)

Notes

| | | | | |
|---|---|---|---|---|
| 2 | REVISED PROFILE AND SURFACE GRADING | JP | SGG | 23.07.24 |
| 1 | ISSUED FOR FIRST SUBMISSION | JP | SGG | 23.01.12 |
| Revision | | By | Appd. | YY.MM.DD |
| File Name: 160401737 SD.dwg | | JP | DT | JP | 22.10.26 |
| | | Dwn. | Chkd. | Dsgn. | YY.MM.DD |

Permit-Seal

LICENSED PROFESSIONAL ENGINEER
D. C. THIFFAULT
100186107
2024-04-12
PROVINCE OF ONTARIO

Client/Project

MATTAMY (MER BLEUE 2) LTD
50 HINES ROAD, SUITE 100
OTTAWA ON K2K 2M5

SUMMERSIDE SOUTH PHASE 2/3 SUBDIVISION
OTTAWA, ON, CANADA

Title

STORM DRAINAGE PLAN

| Project No. | Scale | Drawing No. | Sheet | Revision |
|---|---|---|---|---|
| 160401737 | 1:750 (0 7.5 22.5 37.5m) | SD-3 | 50 of 62 | 2 |

DWG# XXXXX

DXXXXXX

W:\active\160401737\design\drawings\160401737 SD.dwg
2022/08/10 10:02 PM By: Padraig Jucha

Stantec

**SUMMERSIDE PH2/3**

DATE: 2023-07-17
REVISION: 1
DESIGNED BY: JP
CHECKED BY: DT

**STORM SEWER DESIGN SHEET**
**(City of Ottawa)**

**FILE NUMBER: 160401737**

DESIGN PARAMETERS
$I = a / (t+b)^c$ (As per City of Ottawa Guidelines, 2012)

| | 1:2 yr | 1:5 yr | 1:10 yr | 1:100 yr |
|---|---|---|---|---|
| a = | 732.951 | 998.071 | 1174.184 | 1735.688 |
| b = | 6.199 | 6.053 | 6.014 | 6.014 |
| c = | 0.810 | 0.814 | 0.816 | 0.820 |

MANNING'S n = 0.013
MINIMUM COVER: 2.00 m
TIME OF ENTRY 10 min
BEDDING CLASS = B

| LOCATION | | | DRAINAGE AREA | | | | | | | | | | | | | | | | | | | | | | PIPE SELECTION | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AREA ID NUMBER | FROM M.H. | TO M.H. | AREA (2-YEAR) (ha) | AREA (5-YEAR) (ha) | AREA (10-YEAR) (ha) | AREA (100-YEAR) (ha) | AREA (ROOF) (ha) | C (2-YEAR) (-) | C (5-YEAR) (-) | C (10-YEAR) (-) | C (100-YEAR) (-) | A x C (2-YEAR) (ha) | ACCUM AxC (2YR) (ha) | A x C (5-YEAR) (ha) | ACCUM. AxC (5YR) (ha) | A x C (10-YEAR) (ha) | ACCUM. AxC (10YR) (ha) | A x C (100-YEAR) (ha) | ACCUM. AxC (100YR) (ha) | T of C (min) | $I_{2\text{-YEAR}}$ (mm/h) | $I_{5\text{-YEAR}}$ (mm/h) | $I_{10\text{-YEAR}}$ (mm/h) | $I_{100\text{-YEAR}}$ (mm/h) | $Q_{CONTROL}$ (L/s) | ACCUM. $Q_{CONTROL}$ (L/s) | $Q_{ACT}$ (CIA/360) (L/s) | LENGTH (m) | PIPE WIDTH OR DIAMETEI (mm) | PIPE HEIGHT (mm) | PIPE SHAPE (-) | MATERIAL (-) | CLASS (-) | SLOPE % | $Q_{CAP}$ (FULL) (L/s) | % FULL (-) | VEL. (FULL) (m/s) | VEL. (ACT) (m/s) | TIME OF FLOW (min) |
| L161B, L161A | 161 | 160 | 0.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.43 | 0.00 | 0.00 | 0.00 | 0.344 | 0.344 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 10.00 | 76.81 | 104.19 | 122.14 | 178.56 | 0.0 | 0.0 | 73.5 | 99.9 | 375 | 375 | CIRCULAR | PVC | - | 0.30 | 90.3 | **81.39%** | 0.86 | 0.85 | 1.96 |
| L160A, L160B | 160 | 159 | 1.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.56 | 0.00 | 0.00 | 0.00 | 0.697 | 1.042 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 11.96 | 70.01 | 94.86 | 111.15 | 162.41 | 0.0 | 0.0 | 202.6 | 110.4 | 525 | 525 | CIRCULAR | CONCRETE | - | 0.25 | 224.3 | **90.33%** | 1.00 | 1.02 | 1.94 |
| L159A | 159 | 158 | 0.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.65 | 0.00 | 0.00 | 0.00 | 0.172 | 1.213 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 13.90 | 64.48 | 87.27 | 102.22 | 149.31 | 0.0 | 0.0 | 217.3 | 122.4 | 600 | 600 | CIRCULAR | CONCRETE | - | 0.25 | 320.3 | **67.86%** | 1.10 | 1.03 | 1.99 |
| | | | | | | | | | | | | | | | | | | | | **15.89** | | | | | | | | | 600 | 600 | | | | | | | | | |
| L153B | 153 | 152 | 0.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.101 | 0.101 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 167.22 | 230.48 | 271.61 | 398.62 | 0.0 | 0.0 | 88.7 | 83.2 | 450 | 450 | CIRCULAR | CONCRETE | | 0.25 | 148.7 | **59.63%** | 0.91 | 0.92 | 1.70 |
| L152A, L152B | 152 | 151 | 1.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.63 | 0.00 | 0.00 | 0.00 | 0.657 | 0.847 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.70 | 137.40 | 188.40 | 221.65 | 324.97 | 0.0 | 0.0 | 323.5 | 121.9 | 675 | 675 | CIRCULAR | CONCRETE | - | 0.20 | 392.2 | **82.48%** | 1.06 | 1.06 | 1.92 |
| | | | | | | | | | | | | | | | | | | | | **3.62** | | | | | | | | | 675 | 675 | | | | | | | | | |
| L133B, L133C | 133 | 147 | 0.34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.67 | 0.00 | 0.00 | 0.00 | 0.231 | 0.231 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 10.00 | 76.81 | 104.19 | 122.14 | 178.56 | 0.0 | 0.0 | 49.4 | 119.8 | 375 | 375 | CIRCULAR | PVC | - | 0.40 | 104.3 | **47.35%** | 0.99 | 0.83 | 2.41 |
| | | | | | | | | | | | | | | | | | | | | **12.41** | | | | | | | | | | | | | | | | | | | |
| L148A, L148B | 148 | 147 | 0.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.225 | 0.225 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 10.00 | 76.81 | 104.19 | 122.14 | 178.56 | 0.0 | 0.0 | 48.1 | 34.3 | 300 | 300 | CIRCULAR | PVC | - | 0.40 | 60.8 | **79.11%** | 0.86 | 0.85 | 0.67 |
| | | | | | | | | | | | | | | | | | | | | **10.67** | | | | | | | | | | | | | | | | | | | |
| L147A | 147 | 146 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.65 | 0.00 | 0.00 | 0.00 | 0.259 | 0.716 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 12.41 | 68.65 | 92.99 | 108.95 | 159.19 | 0.0 | 0.0 | 136.5 | 92.6 | 450 | 450 | CIRCULAR | CONCRETE | - | 0.25 | 148.7 | **91.80%** | 0.91 | 0.93 | 1.66 |
| L146A | 146 | 145 | 0.34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.237 | 0.953 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 14.07 | 64.05 | 86.69 | 101.54 | 148.30 | 0.0 | 0.0 | 169.5 | 80.0 | 525 | 525 | CIRCULAR | CONCRETE | - | 0.20 | 200.6 | **84.50%** | 0.90 | 0.90 | 1.48 |
| L145C, L145A | 145 | 154 | 0.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.59 | 0.00 | 0.00 | 0.00 | 0.410 | 1.363 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 15.55 | 60.49 | 81.81 | 95.80 | 139.88 | 0.0 | 0.0 | 229.1 | 75.4 | 600 | 600 | CIRCULAR | CONCRETE | - | 0.20 | 286.5 | **79.96%** | 0.98 | 0.97 | 1.30 |
| | | | | | | | | | | | | | | | | | | | | **16.85** | | | | | | | | | | | | | | | | | | | |
| L157A, L157B | 157 | 156 | 0.34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.62 | 0.00 | 0.00 | 0.00 | 0.215 | 0.215 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 10.00 | 76.81 | 104.19 | 122.14 | 178.56 | 0.0 | 0.0 | 45.9 | 58.8 | 300 | 300 | CIRCULAR | PVC | - | 0.65 | 77.5 | **59.15%** | 1.10 | 0.99 | 0.99 |
| | 156 | 155 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.215 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 10.99 | 73.21 | 99.25 | 116.33 | 170.01 | 0.0 | 0.0 | 43.7 | 13.3 | 375 | 375 | CIRCULAR | PVC | - | 0.30 | 90.3 | **48.42%** | 0.86 | 0.73 | 0.31 |
| L155A | 155 | 154 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.65 | 0.00 | 0.00 | 0.00 | 0.158 | 0.373 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 11.29 | 72.18 | 97.83 | 114.65 | 167.55 | 0.0 | 0.0 | 74.7 | 66.0 | 450 | 450 | CIRCULAR | CONCRETE | - | 0.20 | 133.0 | **56.16%** | 0.81 | 0.72 | 1.53 |
| | | | | | | | | | | | | | | | | | | | | **12.82** | | | | | | | | | | | | | | | | | | | |
| L154A | 154 | 153 | 0.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.181 | 1.917 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 16.85 | 57.71 | 78.01 | 91.33 | 133.33 | 0.0 | 0.0 | 307.3 | 78.4 | 750 | 750 | CIRCULAR | CONCRETE | - | 0.12 | 402.3 | **76.38%** | 0.88 | 0.86 | 1.52 |
| L153A | 153 | 150 | 0.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.105 | 2.022 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 19.37 | 54.80 | 74.04 | 86.66 | 126.47 | 0.0 | 0.0 | 307.8 | 78.4 | 750 | 750 | CIRCULAR | CONCRETE | - | 0.12 | 402.3 | **76.54%** | 0.88 | 0.86 | 1.52 |
| | 150 | 150A | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 2.022 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 19.89 | 52.20 | 70.48 | 82.48 | 120.35 | 0.0 | 0.0 | 293.2 | 8.4 | 750 | 750 | CIRCULAR | CONCRETE | - | 0.12 | 402.2 | **72.90%** | 0.88 | 0.84 | 0.17 |
| | | | | | | | | | | | | | | | | | | | | **20.06** | | | | | | | | | 750 | 750 | | | | | | | | | |
| L150A | 150 | 149 | 0.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.154 | 0.154 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 167.22 | 230.48 | 271.61 | 398.62 | 0.0 | 0.0 | 71.3 | 54.2 | 375 | 375 | CIRCULAR | CONCRETE | - | 0.30 | 90.3 | **79.00%** | 0.86 | 0.84 | 1.08 |
| | 149 | 149A | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.154 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.08 | 146.88 | 201.73 | 237.45 | 348.27 | 0.0 | 0.0 | 62.7 | 4.4 | 525 | 525 | CIRCULAR | CONCRETE | - | 0.20 | 200.6 | **31.22%** | 0.90 | 0.66 | 0.11 |
| | | | | | | | | | | | | | | | | | | | | **1.19** | | | | | | | | | 525 | 525 | | | | | | | | | |
| | 144 | 143 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 10.00 | 76.81 | 104.19 | 122.14 | 178.56 | 0.0 | 0.0 | 0.0 | 12.6 | 300 | 300 | CIRCULAR | PVC | - | 0.65 | 77.5 | **0.00%** | 1.10 | 0.00 | 0.00 |
| L143A | 143 | 142 | 0.28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.199 | 0.199 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 10.00 | 76.81 | 104.19 | 122.14 | 178.56 | 0.0 | 0.0 | 42.5 | 72.5 | 375 | 375 | CIRCULAR | PVC | - | 0.30 | 90.3 | **47.10%** | 0.86 | 0.72 | 1.68 |
| L142A | 142 | 141 | 0.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.65 | 0.00 | 0.00 | 0.00 | 0.141 | 0.340 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 11.68 | 70.89 | 96.07 | 112.57 | 164.51 | 0.0 | 0.0 | 67.0 | 78.4 | 375 | 375 | CIRCULAR | PVC | - | 0.30 | 90.3 | **74.26%** | 0.86 | 0.82 | 1.59 |
| | | | | | | | | | | | | | | | | | | | | **13.27** | | | | | | | | | | | | | | | | | | | |
| L145B, L145D | 145 | 141 | 0.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.57 | 0.00 | 0.00 | 0.00 | 0.383 | 0.383 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 167.22 | 230.48 | 271.61 | 398.62 | 0.0 | 0.0 | 177.7 | 73.0 | 525 | 525 | CIRCULAR | CONCRETE | - | 0.50 | 317.2 | **56.02%** | 1.42 | 1.26 | 0.97 |
| | | | | | | | | | | | | | | | | | | | | **0.97** | | | | | | | | | | | | | | | | | | | |
| L141A | 141 | 140 | 0.28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.196 | 0.919 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 13.27 | 66.17 | 89.59 | 104.95 | 153.32 | 0.0 | 0.0 | 169.0 | 57.4 | 525 | 525 | CIRCULAR | CONCRETE | - | 0.20 | 200.6 | **84.20%** | 0.90 | 0.90 | 1.06 |
| L140A, L140B, L140C | 140 | 135 | 0.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.58 | 0.00 | 0.00 | 0.00 | 0.393 | 1.312 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 14.33 | 63.38 | 85.77 | 100.45 | 146.71 | 0.0 | 0.0 | 231.1 | 63.0 | 750 | 750 | CIRCULAR | CONCRETE | - | 0.13 | 418.8 | **55.18%** | 0.92 | 0.81 | 1.30 |
| | | | | | | | | | | | | | | | | | | | | **15.64** | | | | | | | | | | | | | | | | | | | |
| L144C, L144A, L144B | 144 | 138 | 0.63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.66 | 0.00 | 0.00 | 0.00 | 0.421 | 0.421 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 10.00 | 76.81 | 104.19 | 122.14 | 178.56 | 0.0 | 0.0 | 89.7 | 108.5 | 375 | 375 | CIRCULAR | PVC | - | 0.35 | 97.5 | **92.00%** | 0.92 | 0.95 | 1.91 |
| | 138 | 137 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.421 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 11.91 | 70.18 | 95.09 | 111.42 | 162.81 | 0.0 | 0.0 | 82.0 | 12.4 | 450 | 450 | CIRCULAR | CONCRETE | - | 0.25 | 148.7 | **55.13%** | 0.91 | 0.80 | 0.26 |
| L137A, L137B | 137 | 136 | 0.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.58 | 0.00 | 0.00 | 0.00 | 0.334 | 0.754 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 12.17 | 69.38 | 93.99 | 110.12 | 160.91 | 0.0 | 0.0 | 145.3 | 72.7 | 525 | 525 | CIRCULAR | CONCRETE | - | 0.20 | 200.6 | **72.43%** | 0.90 | 0.86 | 1.41 |
| | | | | | | | | | | | | | | | | | | | | **13.58** | | | | | | | | | | | | | | | | | | | |
| L142B | 142 | 139 | 0.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.186 | 0.186 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 167.22 | 230.48 | 271.61 | 398.62 | 0.0 | 0.0 | 86.3 | 74.1 | 375 | 375 | CIRCULAR | PVC | - | 0.40 | 104.3 | **82.79%** | 0.99 | 0.98 | 1.25 |
| L139A | 139 | 136 | 0.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.152 | 0.338 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.25 | 144.04 | 197.74 | 232.72 | 341.29 | 0.0 | 0.0 | 135.3 | 49.1 | 450 | 450 | CIRCULAR | CONCRETE | - | 0.25 | 148.7 | **90.95%** | 0.91 | 0.92 | 0.89 |
| | | | | | | | | | | | | | | | | | | | | **2.14** | | | | | | | | | | | | | | | | | | | |
| L136A, L136B | 136 | 135 | 0.55 | 0.00 | 0.00 | 0.00 | 0.00 | 0.58 | 0.00 | 0.00 | 0.00 | 0.319 | 1.412 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 13.58 | 65.34 | 88.44 | 103.60 | 151.33 | 0.0 | 0.0 | 256.2 | 78.4 | 600 | 600 | CIRCULAR | CONCRETE | - | 0.25 | 320.3 | **79.98%** | 1.10 | 1.08 | 1.21 |
| | | | | | | | | | | | | | | | | | | | | **14.79** | | | | | | | | | | | | | | | | | | | |
| L135A, L135B, L135C | 135 | 101 | 0.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.59 | 0.00 | 0.00 | 0.00 | 0.390 | 3.114 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 15.64 | 60.30 | 81.55 | 95.50 | 139.44 | 0.0 | 0.0 | 521.7 | 82.3 | 825 | 825 | CIRCULAR | CONCRETE | - | 0.15 | 580.0 | **89.95%** | 1.05 | 1.07 | 1.28 |
| | | | | | | | | | | | | | | | | | | | | **16.92** | | | | | | | | | | | | | | | | | | | |
| L122B | 122 | 121 | 0.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.67 | 0.00 | 0.00 | 0.00 | 0.140 | 0.829 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 11.96 | 70.01 | 94.86 | 111.15 | 162.41 | 0.0 | 0.0 | 161.2 | 69.4 | 525 | 525 | CIRCULAR | CONCRETE | - | 0.30 | 245.7 | **65.58%** | 1.10 | 1.02 | 1.13 |
| | | | | | | | | | | | | | | | | | | | | **13.09** | | | | | | | | | | | | | | | | | | | |
| L128D | 128D | 128A | 2.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 1.827 | 1.827 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 10.00 | 76.81 | 104.19 | 122.14 | 178.56 | 0.0 | 0.0 | 389.7 | 15.9 | 675 | 675 | CIRCULAR | CONCRETE | - | 0.25 | 438.5 | **88.87%** | 1.19 | 1.21 | 0.22 |
| | | | | | | | | | | | | | | | | | | | | **10.22** | | | | | | | | | | | | | | | | | | | |
| C134B, L134A | 134 | 129 | 0.16 | 0.07 | 0.00 | 0.00 | 0.00 | 0.55 | 0.70 | 0.00 | 0.00 | 0.088 | 0.088 | 0.050 | 0.050 | 0.000 | 0.000 | 0.000 | 0.000 | 10.00 | 76.81 | 104.19 | 122.14 | 178.56 | 0.0 | 0.0 | 33.3 | 34.5 | 300 | 300 | CIRCULAR | PVC | - | 0.40 | 60.8 | **54.78%** | 0.86 | 0.76 | 0.76 |
| | | | | | | | | | | | | | | | | | | | | **10.76** | | | | | | | | | | | | | | | | | | | |
| L133A | 133 | 129 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.65 | 0.00 | 0.00 | 0.00 | 0.117 | 0.117 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 10.00 | 76.81 | 104.19 | 122.14 | 178.56 | 0.0 | 0.0 | 25.0 | 66.0 | 300 | 300 | CIRCULAR | PVC | - | 0.40 | 60.8 | **41.18%** | 0.86 | 0.70 | 1.58 |
| | | | | | | | | | | | | | | | | | | | | **11.58** | | | | | | | | | | | | | | | | | | | |
| L130B | 130 | 129 | 0.28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.195 | 0.195 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 167.22 | 230.48 | 271.61 | 398.62 | 0.0 | 0.0 | 90.7 | 69.3 | 450 | 450 | CIRCULAR | CONCRETE | - | 0.20 | 133.0 | **68.16%** | 0.81 | 0.76 | 1.52 |
| | | | | | | | | | | | | | | | | | | | | **1.52** | | | | | | | | | | | | | | | | | | | |
| | 129 | 128 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.401 | 0.000 | 0.050 | 0.000 | 0.000 | 0.000 | 0.000 | 11.58 | 71.22 | 96.51 | 113.10 | 165.28 | 0.0 | 0.0 | 92.7 | 25.0 | 525 | 525 | CIRCULAR | CONCRETE | - | 0.25 | 224.3 | **41.33%** | 1.00 | 0.81 | 0.52 |
| C128A, L128B, L128C | 128 | 128A | 0.53 | 0.23 | 0.00 | 0.00 | 0.00 | 0.83 | 0.70 | 0.00 | 0.00 | 0.439 | 0.840 | 0.158 | 0.208 | 0.000 | 0.000 | 0.000 | 0.000 | 12.10 | 69.59 | 94.28 | 110.46 | 161.41 | 0.0 | 0.0 | 216.8 | 95.3 | 900 | 900 | CIRCULAR | CONCRETE | - | 0.12 | 654.2 | **33.14%** | 1.00 | 0.76 | 2.10 |
| | | | | | | | | | | | | | | | | | | | | **14.20** | | | | | | | | | | | | | | | | | | | |
| | 128A | 121 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 2.667 | 0.000 | 0.208 | 0.000 | 0.000 | 0.000 | 0.000 | 14.20 | 63.72 | 86.24 | 101.00 | 147.52 | 0.0 | 0.0 | 521.8 | 25.1 | 900 | 900 | CIRCULAR | CONCRETE | - | 0.12 | 652.5 | **79.97%** | 0.99 | 0.98 | 0.43 |
| | | | | | | | | | | | | | | | | | | | | **14.63** | | | | | | | | | | | | | | | | | | | |
| C121A | 121 | 120 | 0.00 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.000 | 3.495 | 0.130 | 0.338 | 0.000 | 0.000 | 0.000 | 0.000 | 14.63 | 62.66 | 84.78 | 99.29 | 145.01 | 0.0 | 0.0 | 688.0 | 64.8 | 975 | 975 | CIRCULAR | CONCRETE | - | 0.12 | 809.9 | **84.95%** | 1.05 | 1.05 | 1.03 |
| C120A | 120 | 104 | 0.00 | 0.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.000 | 3.495 | 0.178 | 0.516 | 0.000 | 0.000 | 0.000 | 0.000 | 15.65 | 60.27 | 81.50 | 95.44 | 139.35 | 0.0 | 0.0 | 701.9 | 71.6 | 1050 | 1050 | CIRCULAR | CONCRETE | - | 0.12 | 986.8 | **71.12%** | 1.10 | 1.05 | 1.14 |
| | | | | | | | | | | | | | | | | | | | | **16.79** | | | | | | | | | | | | | | | | | | | |
| | 132 | 131 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 10.00 | 76.81 | 104.19 | 122.14 | 178.56 | 0.0 | 0.0 | 0.0 | 12.3 | 300 | 300 | CIRCULAR | PVC | - | 0.65 | 77.5 | **0.00%** | 1.10 | 0.00 | 0.00 |
| L131A | 131 | 130 | 0.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.65 | 0.00 | 0.00 | 0.00 | 0.134 | 0.134 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 10.00 | 76.81 | 104.19 | 122.14 | 178.56 | 0.0 | 0.0 | 28.7 | 49.3 | 300 | 300 | CIRCULAR | PVC | - | 0.40 | 60.8 | **47.16%** | 0.86 | 0.72 | 1.13 |
| L130A | 130 | 124 | 0.28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.198 | 0.332 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 11.13 | 72.71 | 98.56 | 115.51 | 168.82 | 0.0 | 0.0 | 67.1 | 97.2 | 375 | 375 | CIRCULAR | PVC | - | 0.30 | 90.3 | **74.34%** | 0.86 | 0.82 | 1.97 |
| | | | | | | | | | | | | | | | | | | | | **13.10** | | | | | | | | | | | | | | | | | | | |
| L126B, L126C | 126 | 125 | 0.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.68 | 0.00 | 0.00 | 0.00 | 0.356 | 0.356 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 167.22 | 230.48 | 271.61 | 398.62 | 0.0 | 0.0 | 165.6 | 59.3 | 525 | 525 | CIRCULAR | CONCRETE | - | 0.25 | 224.3 | **73.81%** | 1.00 | 0.97 | 1.02 |
| | | | | | | | | | | | | | | | | | | | | **1.02** | | | | | | | | | | | | | | | | | | | |
| L132A | 132 | 125 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.130 | 0.130 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 10.00 | 76.81 | 104.19 | 122.14 | 178.56 | 0.0 | 0.0 | 27.8 | 88.7 | 300 | 300 | CIRCULAR | PVC | - | 0.40 | 60.8 | **45.67%** | 0.86 | 0.72 | 2.06 |
| | | | | | | | | | | | | | | | | | | | | **12.06** | | | | | | | | | | | | | | | | | | | |
| L125A | 125 | 124 | 0.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.200 | 0.687 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 12.06 | 69.71 | 94.44 | 110.66 | 161.69 | 0.0 | 0.0 | 132.9 | 58.0 | 525 | 525 | CIRCULAR | CONCRETE | - | 0.25 | 224.3 | **59.27%** | 1.00 | 0.90 | 1.07 |
| | | | | | | | | | | | | | | | | | | | | **13.13** | | | | | | | | | | | | | | | | | | | |
| L124A | 124 | 122 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.113 | 1.132 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 13.13 | 66.57 | 90.13 | 105.59 | 154.25 | 0.0 | 0.0 | 209.4 | 48.3 | 525 | 525 | CIRCULAR | CONCRETE | - | 0.25 | 224.3 | **93.34%** | 1.00 | 1.03 | 0.78 |
| | | | | | | | | | | | | | | | | | | | | **13.91** | | | | | | | | | | | | | | | | | | | |
| L123C | 123 | 122 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.67 | 0.00 | 0.00 | 0.00 | 0.087 | 0.087 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 10.00 | 76.81 | 104.19 | 122.14 | 178.56 | 0.0 | 0.0 | 18.6 | 47.4 | 375 | 375 | CIRCULAR | PVC | - | 0.40 | 104.3 | **17.86%** | 0.99 | 0.62 | 1.27 |
| | | | | | | | | | | | | | | | | | | | | **11.27** | | | | | | | | | | | | | | | | | | | |
| L122A | 122 | 119 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.165 | 1.384 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 13.91 | 64.47 | 87.26 | 102.21 | 149.29 | 0.0 | 0.0 | 247.9 | 68.4 | 600 | 600 | CIRCULAR | CONCRETE | - | 0.20 | 286.5 | **86.55%** | 0.98 | 0.99 | 1.15 |
| L119A | 119 | 105 | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.210 | 1.594 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 15.06 | 61.62 | 83.36 | 97.62 | 142.55 | 0.0 | 0.0 | 272.9 | 67.9 | 600 | 600 | CIRCULAR | CONCRETE | - | 0.20 | 286.5 | **95.26%** | 0.98 | 1.02 | 1.11 |
| | | | | | | | | | | | | | | | | | | | | **16.17** | | | | | | | | | | | | | | | | | | | |
| L123B | 123 | 118 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.169 | 0.169 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 10.00 | 76.81 | 104.19 | 122.14 | 178.56 | 0.0 | 0.0 | 36.1 | 67.2 | 375 | 375 | CIRCULAR | PVC | - | 0.40 | 104.3 | **34.65%** | 0.99 | 0.76 | 1.48 |

Stantec

SUMMERSIDE PH2/3

DATE: 2023-07-17
REVISION: 1
DESIGNED BY: JP
CHECKED BY: DT

FILE NUMBER: 160401737

# STORM SEWER DESIGN SHEET
(City of Ottawa)

DESIGN PARAMETERS
$I = a / (t+b)^c$ (As per City of Ottawa Guidelines, 2012)

| | 1:2 yr | 1:5 yr | 1:10 yr | 1:100 yr |
|---|---|---|---|---|
| a = | 732.951 | 998.071 | 1174.184 | 1735.688 |
| b = | 6.199 | 6.053 | 6.014 | 6.014 |
| c = | 0.810 | 0.814 | 0.816 | 0.820 |

MANNING'S n = 0.013
MINIMUM COVER: 2.00 m
TIME OF ENTRY 10 min
BEDDING CLASS = B

| LOCATION | | | DRAINAGE AREA | | | | | | | | | | | | | | | | | | | | | PIPE SELECTION | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AREA ID NUMBER | FROM M.H. | TO M.H. | AREA (2-YEAR) (ha) | AREA (5-YEAR) (ha) | AREA (10-YEAR) (ha) | AREA (100-YEAR) (ha) | AREA (ROOF) (ha) | C (2-YEAR) (-) | C (5-YEAR) (-) | C (10-YEAR) (-) | C (100-YEAR) (-) | A x C (2-YEAR) (ha) | ACCUM AxC (2YR) (ha) | A x C (5-YEAR) (ha) | ACCUM. AxC (5YR) (ha) | A x C (10-YEAR) (ha) | ACCUM. AxC (10YR) (ha) | A x C (100-YEAR) (ha) | ACCUM. AxC (100YR) (ha) | T of C (min) | $I_{2\text{-YEAR}}$ (mm/h) | $I_{5\text{-YEAR}}$ (mm/h) | $I_{10\text{-YEAR}}$ (mm/h) | $I_{100\text{-YEAR}}$ (mm/h) | $Q_{CONTROL}$ (L/s) | ACCUM. $Q_{CONTROL}$ (L/s) | $Q_{ACT}$ (CIA/360) (L/s) | LENGTH (m) | PIPE WIDTH OR DIAMETEI (mm) | PIPE HEIGHT (mm) | PIPE SHAPE (-) | MATERIAL (-) | CLASS (-) | SLOPE % | $Q_{CAP}$ (FULL) (L/s) | % FULL (-) | VEL. (FULL) (m/s) | VEL. (ACT) (m/s) | TIME OF FLOW (min) |
| L118A | 118 | 106 | 0.28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.198 | 0.367 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 11.48 | 71.57 | 97.00 | 113.67 | 166.11 | 0.0 | 0.0 | 73.0 | 68.6 | 450 | 450 | CIRCULAR | CONCRETE | - | 0.20 | 133.0 | **54.90%** | 0.81 | 0.71 | 1.61 |
| | | | | | | | | | | | | | | | | | | | | **13.08** | | | | | | | | | | | | | | | | | | |
| L123A | 123 | 117 | 0.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.67 | 0.00 | 0.00 | 0.00 | 0.144 | 0.144 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 10.00 | 76.81 | 104.19 | 122.14 | 178.56 | 0.0 | 0.0 | 30.6 | 72.0 | 300 | 300 | CIRCULAR | PVC | - | 0.40 | 60.8 | **50.36%** | 0.86 | 0.74 | 1.62 |
| | | | | | | | | | | | | | | | | | | | | **11.62** | | | | | | | | | | | | | | | | | | |
| L127A, L127B | 127 | 126 | 1.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.69 | 0.00 | 0.00 | 0.00 | 0.706 | 0.706 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 10.00 | 76.81 | 104.19 | 122.14 | 178.56 | 0.0 | 0.0 | 150.6 | 120.0 | 450 | 450 | CIRCULAR | CONCRETE | - | 0.30 | 162.9 | **92.45%** | 0.99 | 1.02 | 1.96 |
| L126A | 126 | 117 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.67 | 0.00 | 0.00 | 0.00 | 0.080 | 0.786 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 11.96 | 70.03 | 94.88 | 111.17 | 162.45 | 0.0 | 0.0 | 152.8 | 48.4 | 600 | 600 | CIRCULAR | CONCRETE | - | 0.25 | 320.3 | **47.71%** | 1.10 | 0.92 | 0.88 |
| | | | | | | | | | | | | | | | | | | | | **12.83** | | | | | | | | | | | | | | | | | | |
| L117A | 117 | 116 | 0.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.178 | 1.108 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 12.83 | 67.40 | 91.28 | 106.94 | 156.23 | 0.0 | 0.0 | 207.4 | 68.1 | 600 | 600 | CIRCULAR | CONCRETE | - | 0.25 | 320.3 | **64.74%** | 1.10 | 1.01 | 1.12 |
| L116A | 116 | 108 | 0.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.146 | 1.253 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 13.96 | 64.35 | 87.09 | 102.01 | 149.00 | 0.0 | 0.0 | 224.0 | 63.1 | 600 | 600 | CIRCULAR | CONCRETE | - | 0.25 | 320.3 | **69.95%** | 1.10 | 1.04 | 1.01 |
| | | | | | | | | | | | | | | | | | | | | **14.97** | | | | | | | | | | | | | | | | | | |
| L115A | 115 | 114 | 0.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.205 | 0.205 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 10.00 | 76.81 | 104.19 | 122.14 | 178.56 | 0.0 | 0.0 | 43.7 | 62.2 | 375 | 375 | CIRCULAR | PVC | - | 0.30 | 90.6 | **48.23%** | 0.86 | 0.73 | 1.43 |
| L114A | 114 | 110 | 0.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.201 | 0.406 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 11.43 | 71.73 | 97.22 | 113.93 | 166.50 | 0.0 | 0.0 | 80.9 | 80.9 | 450 | 450 | CIRCULAR | CONCRETE | - | 0.20 | 133.0 | **60.79%** | 0.81 | 0.74 | 1.83 |
| | | | | | | | | | | | | | | | | | | | | **13.26** | | | | | | | | | | | | | | | | | | |
| L113A, L113B | 113 | 112 | 0.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.69 | 0.00 | 0.00 | 0.00 | 0.225 | 0.225 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 10.00 | 76.81 | 104.19 | 122.14 | 178.56 | 0.0 | 0.0 | 48.1 | 99.7 | 375 | 375 | CIRCULAR | PVC | - | 0.30 | 90.3 | **53.24%** | 0.86 | 0.75 | 2.23 |
| C112A, C112B, L112A | 112 | 111 | 0.29 | 1.70 | 0.00 | 0.00 | 0.00 | 0.52 | 0.70 | 0.00 | 0.00 | 0.152 | 0.378 | 1.192 | 1.192 | 0.000 | 0.000 | 0.000 | 0.000 | 12.23 | 69.19 | 93.74 | 109.83 | 160.47 | 0.0 | 0.0 | 382.9 | 55.0 | 900 | 900 | CIRCULAR | CONCRETE | - | 0.12 | 654.2 | **58.52%** | 1.00 | 0.89 | 1.03 |
| L111A | 111 | 110 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.00 | 0.127 | 0.505 | 0.000 | 1.192 | 0.000 | 0.000 | 0.000 | 0.000 | 13.26 | 66.21 | 89.65 | 105.01 | 153.41 | 0.0 | 0.0 | 389.6 | 32.6 | 900 | 900 | CIRCULAR | CONCRETE | - | 0.12 | 654.2 | **59.55%** | 1.00 | 0.90 | 0.61 |
| | | | | | | | | | | | | | | | | | | | | **13.86** | | | | | | | | | | | | | | | | | | |
| | 110 | 109 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.911 | 0.000 | 1.192 | 0.000 | 0.000 | 0.000 | 0.000 | 13.86 | 64.59 | 87.42 | 102.40 | 149.57 | 0.0 | 0.0 | 452.7 | 30.2 | 1050 | 1050 | CIRCULAR | CONCRETE | - | 0.12 | 986.9 | **45.88%** | 1.10 | 0.92 | 0.55 |
| C109A, L109A | 109 | 108 | 0.38 | 0.19 | 0.00 | 0.00 | 0.00 | 0.52 | 0.70 | 0.00 | 0.00 | 0.198 | 1.109 | 0.135 | 1.326 | 0.000 | 0.000 | 0.000 | 0.000 | 14.41 | 63.19 | 85.51 | 100.14 | 146.26 | 0.0 | 0.0 | 509.6 | 37.9 | 1050 | 1050 | CIRCULAR | CONCRETE | - | 0.12 | 986.9 | **51.64%** | 1.10 | 0.95 | 0.66 |
| | | | | | | | | | | | | | | | | | | | | **15.07** | | | | | | | | | | | | | | | | | | |
| | 108 | 107 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 2.362 | 0.000 | 1.326 | 0.000 | 0.000 | 0.000 | 0.000 | 15.07 | 61.59 | 83.32 | 97.57 | 142.48 | 0.0 | 0.0 | 711.1 | 36.8 | 1200 | 1200 | CIRCULAR | CONCRETE | - | 0.12 | 1407.3 | **50.53%** | 1.21 | 1.03 | 0.60 |
| L107A, C107A | 107 | 106 | 0.27 | 0.15 | 0.00 | 0.00 | 0.00 | 0.52 | 0.70 | 0.00 | 0.00 | 0.140 | 2.502 | 0.103 | 1.430 | 0.000 | 0.000 | 0.000 | 0.000 | 15.67 | 60.23 | 81.45 | 95.38 | 139.27 | 0.0 | 0.0 | 742.0 | 35.7 | 1200 | 1200 | CIRCULAR | CONCRETE | - | 0.12 | 1409.8 | **52.63%** | 1.21 | 1.05 | 0.57 |
| | | | | | | | | | | | | | | | | | | | | **16.24** | | | | | | | | | | | | | | | | | | |
| C106A | 106 | 105 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.00 | 0.00 | 0.000 | 2.869 | 0.063 | 1.492 | 0.000 | 0.000 | 0.000 | 0.000 | 16.24 | 59.00 | 79.77 | 93.40 | 136.35 | 0.0 | 0.0 | 800.8 | 48.7 | 1200 | 1200 | CIRCULAR | CONCRETE | - | 0.12 | 1409.0 | **56.84%** | 1.21 | 1.07 | 0.76 |
| | | | | | | | | | | | | | | | | | | | | **16.99** | | | | | | | | | | | | | | | | | | |
| L105A, C105A | 105 | 104 | 0.27 | 0.16 | 0.00 | 0.00 | 0.00 | 0.52 | 0.70 | 0.00 | 0.00 | 0.142 | 4.605 | 0.110 | 1.602 | 0.000 | 0.000 | 0.000 | 0.000 | 16.99 | 57.43 | 77.62 | 90.87 | 132.66 | 0.0 | 0.0 | 1080.2 | 68.0 | 1500 | 1500 | CIRCULAR | CONCRETE | - | 0.12 | 2554.6 | **42.28%** | 1.40 | 1.14 | 1.00 |
| | | | | | | | | | | | | | | | | | | | | **17.99** | | | | | | | | | | | | | | | | | | |
| L104A, C104A, C104B | 104 | 103 | 0.81 | 0.29 | 0.00 | 0.00 | 0.00 | 0.85 | 0.70 | 0.00 | 0.00 | 0.691 | 8.792 | 0.201 | 2.319 | 0.000 | 0.000 | 0.000 | 0.000 | 17.99 | 55.51 | 75.00 | 87.79 | 128.13 | 0.0 | 0.0 | 1838.6 | 124.1 | 1650 | 1650 | CIRCULAR | CONCRETE | - | 0.12 | 3293.8 | **55.82%** | 1.49 | 1.32 | 1.56 |
| L103A, C103A, C103B | 103 | 102 | 0.86 | 0.54 | 0.00 | 0.00 | 0.00 | 0.20 | 0.70 | 0.00 | 0.00 | 0.171 | 8.963 | 0.377 | 2.696 | 0.000 | 0.000 | 0.000 | 0.000 | 19.55 | 52.76 | 71.25 | 83.38 | 121.66 | 0.0 | 0.0 | 1847.2 | 120.6 | 1650 | 1650 | CIRCULAR | CONCRETE | - | 0.12 | 3293.9 | **56.08%** | 1.49 | 1.32 | 1.52 |

### 5.3.5 Results

The following tables demonstrate the peak outflow from each modeled connection point to downstream infrastructure during the design storm events assessed.

**Table 5.12: Storm Event Peak Discharge Rates (Minor System)**

| Outlet Node | 2-Year Peak Flow Rate ($m^3/s$) | 5-Year Peak Flow Rate ($m^3/s$) | 100-Year Peak Flow Rate ($m^3/s$) | 100-Year + 20% Peak Flow Rate ($m^3/s$) |
|---|---|---|---|---|
| STM100 | 2.77 | 3.66 | 4.39 | 4.57 |
| STM150A | 0.22 | 0.30 | 0.34 | 0.35 |
| STM149A | 0.00 | 0.01 | 0.01 | 0.01 |
| STM151 | 0.29 | 0.32 | 0.34 | 0.35 |
| STM158 | 0.21 | 0.23 | 0.24 | 0.25 |
| **Total** | **3.49** | **4.52** | **5.32** | **5.53** |

**Table 5.13: Storm Event Peak Discharge Rates (Major System)**

| Outlet Node | 100-Year Peak Flow Rate ($m^3/s$) | 100-Year + 20% Peak Flow Rate ($m^3/s$) |
|---|---|---|
| OF1 | 0 | 0.01 |
| OF2 | 0 | 0.02 |
| OF3 | 0 | 0 |
| OF4 | 0 | 0 |
| OF5 | 0 | 0 |
| **Total** | **0** | **0.03** |

**Table 5.14: Site Plan Block Design Parameters**

| Subcatchment | Area (ha) | Tie-in MH | Allowable Release Rate ($m^3/s$) | Design Storage Volume ($m^3$) |
|---|---|---|---|---|
| L126C | 0.32 | 126 | 0.048 | 52 |
| L127B | 0.89 | 127 | 0.133 | 142 |
| L103A | 0.86 | 103 | 0.037 | 90 |
| L104A | 0.81 | 104 | 0.069 | 93 |
| L128D | 2.61 | 128D | 0.553 | 240 |

There is no allowable release rate or design storage volume assigned to the Parkette in the NE corner of the phase boundary. The peak runoff rate from the Parkette area will not coincide with the peak runoff rate from the upstream Avalon West SWM Pond so there is no change in the peak flow condition within McKinnon's Creek.

N

STUDY AREA BOUNDARY

AVALON WEST SWM FACILITY

EXISTING AVALON SOUTH SWM FACILITY

AS-BUILT 2 YR WATER LEVEL

30m OFFSET FROM 2 YR WATER LEVEL

15m OFFSET FROM DESIGN TOV

DESIGN TOV

TENTH LINE ROAD

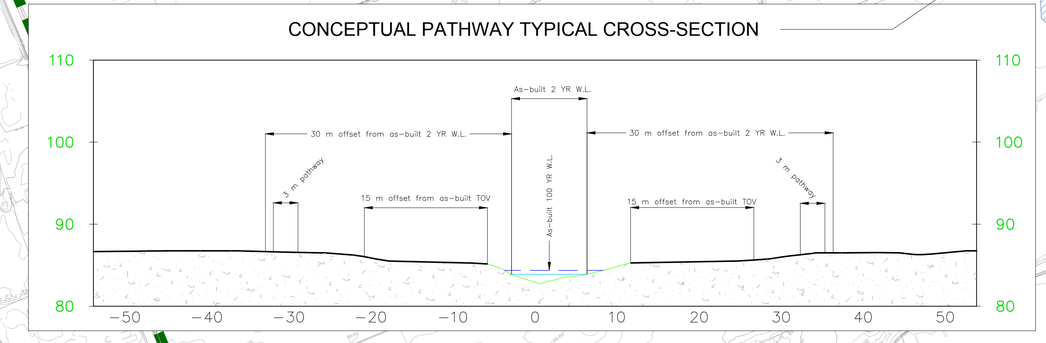
WALL ROAD

MER BLEUE ROAD

AS BUILT 100-YEAR WATER SURFACE ELEVATION

84.46 11346
84.42 11074
84.35 10796
84.31 10576
83.99 10270
83.96 10228
83.87 10159
83.84 10127
83.79 10102
83.96 10213
83.99 10218
83.94 10172
83.91 10164
83.80 10125
83.75 10111
83.70 9954
83.58 9781
83.51 9512
83.51 9205

## CONCEPTUAL PATHWAY TYPICAL CROSS-SECTION




LEGEND:

- 30M OFFSET FROM AS-BUILT 2 YR WATER LEVEL
- DESIGNED TOP OF VALLEY SLOPE (TOV)
- 15M OFFSET FROM TOP OF VALLEY SLOPE
- AS-BUILT 100 YR FLOODLINE
- MAXIMUM POTENTIAL EXTENT OF CORRIDOR
- 84.17 / 10796 — 100 YEAR FLOOD LEVEL* / HEC-RAS STATION ID*

EXISTING REGULATORY FLOODPLAIN:

- SNC REGULATORY FLOODPLAIN BOUNDARY
- SPECIAL STUDY AREA (15 M OFFSET FROM REGULATORY FLOOD LINE - SUBJECT TO ONTARIO REGULATION 170/06. PERMIT REQUIRED FOR DEVELOPMENT OR SITE ALTERATION)


J:\34739—Cumberreport\5.9 Drawings\39swm\MSS\Figures\4th Submission\34739—Figure 4.4 FloodPlain mapping.dwg Layout Name: Figure 4.4MP Last Saved By: Jessie.Forget Last Saved At: Jun. 26, 17


IBI

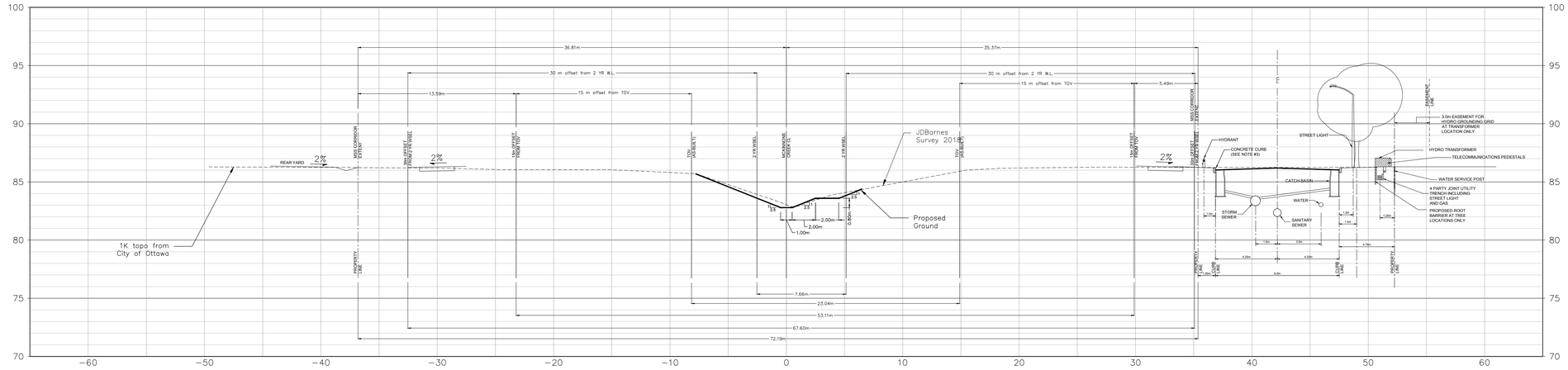
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MER BLEUE CDP
ENVIRONMENTAL
MANAGEMENT PLAN

Drawing Title
TOPOGRAPHICAL &
AS-BUILT FLOODPLAIN MAPPING

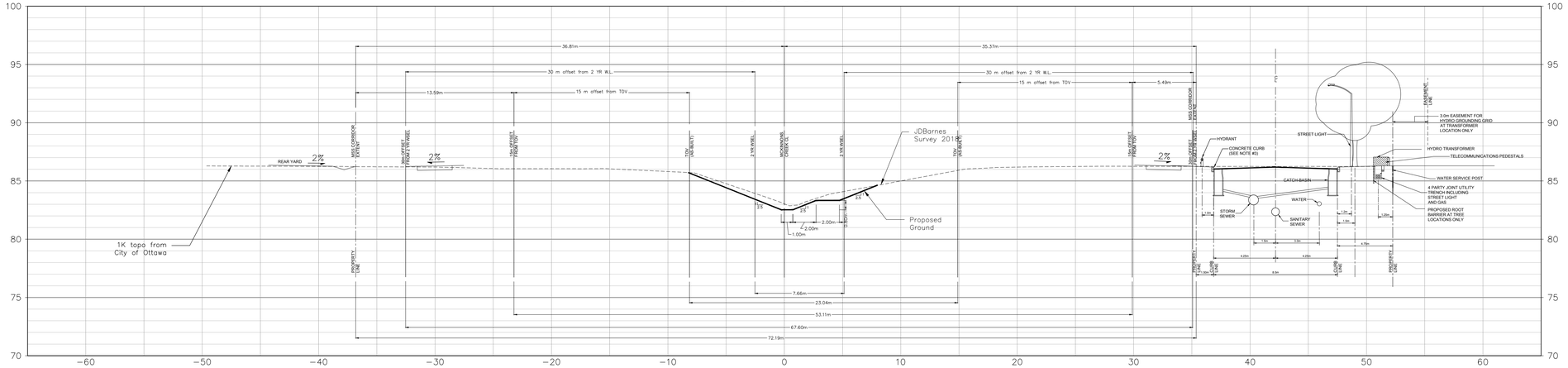
Sheet No.
FIGURE 4.4
JUNE 2017

J: \117618_MBMcKCreek\5.9 Drawings\59civil\swm\figures\Options-Lowering\FIGURE-OPTIONS-Cross-Section1.dwg Layout Name: Figure Plot Scale: 1:5.13 Plotted At: 1/10/2019 Last Saved By: Jesse-Sebastien.Forg Last Saved At: Jan. 10, 19

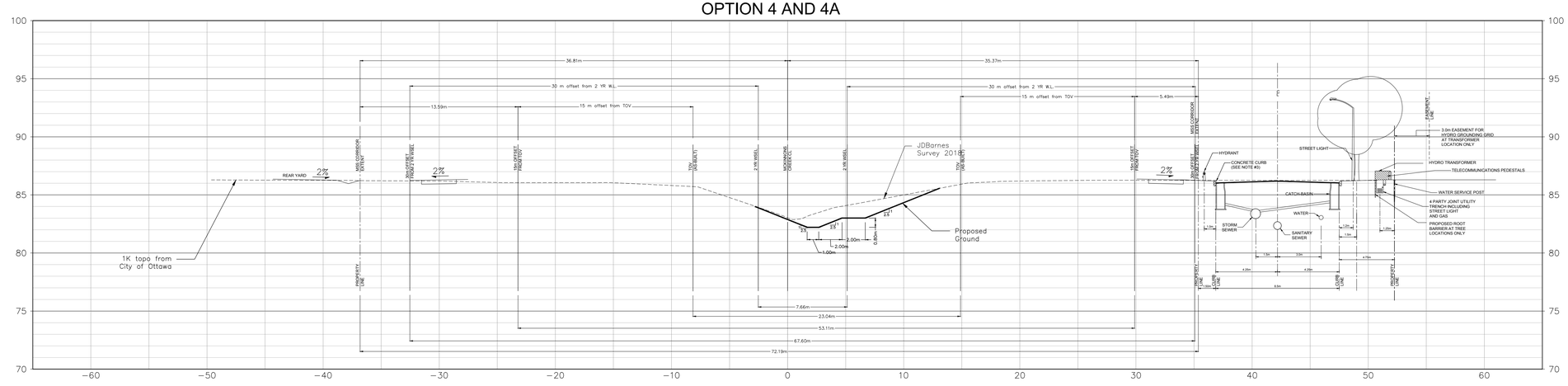
## OPTION 2




## OPTION 3




## OPTION 4 AND 4A




| Scale | Project Title | Drawing Title | Sheet No. |
|---|---|---|---|
| H = 1:200<br>V = 1:200 | MER BLEUE URBAN EXPANSION AREA<br>MCKINNONS CREEK ENHANCEMENT | MCKINNONS CREEK UPPER REACH<br>CROSS-SECTION 1 (11420) | FIGURE 12 |

# Appendix E

- **Figure 5.1 Macro Grading**
- **Figure 6.0 Erosion and Sediment Control Plan**
- **MSS Figure 9.1 Macro Grading**

LEGEND:

81.89 / 83.30 — PROPOSED ELEVATION / EXISTING ELEVATION

MAJOR OVERLAND FLOW ROUTE

AREA REQUIRING LIGHT WEIGHT FILL UNDER GARAGE & POARCH TO MEET GRADE RAISE REQUIREMENTS

POTENTIAL DRY POND AREA

PHASE 1 LIMIT

PHASE 1A

PHASE 1B

PHASE 1C

PHASE 1D

DRY POND VOLUME REQUIRED 1046m³

SLOPE STABILITY MEMO TO BE PROVIDED AS PART OF McKINNON'S CREEK DESIGN

SCHOOL BLOCK

Project Title: MER BLEUE PHASE 1

Drawing Title: MACRO GRADING

Sheet No.: FIGURE 5.1

ARCADIS

J:\116761_MerBleuePh1\5.9 Drawings\5.9civil\current\Adequacy\Report\Layout\FIGURE 5.1 MACRO GRADING.dwg Plotted At: 12/5/2025 1:44 PM Last Saved By: hennisel2006 Last Saved At: May 29, 25

EROSION AND SEDIMENT CONTROL MEASURES ALONG COMMON LOT LINE TO BE COORDINATED WITH ADJACENT DEVELOPER BASED ON TIMING OF WORKS.

PHASE 1A

PHASE 1B

PHASE 1C

PHASE 1D

MUD MAT

MUD MAT

McKinnon's Creek

LEGEND:

- SILT FENCE
- STRAW BALE CHECK DAM
- SEDIMENT INTERCEPTOR SWALE
- SEDIMENT TRAP
- PHASE 1 LIMIT

N

Project Title

MER BLEUE
PHASE 1

Drawing Title

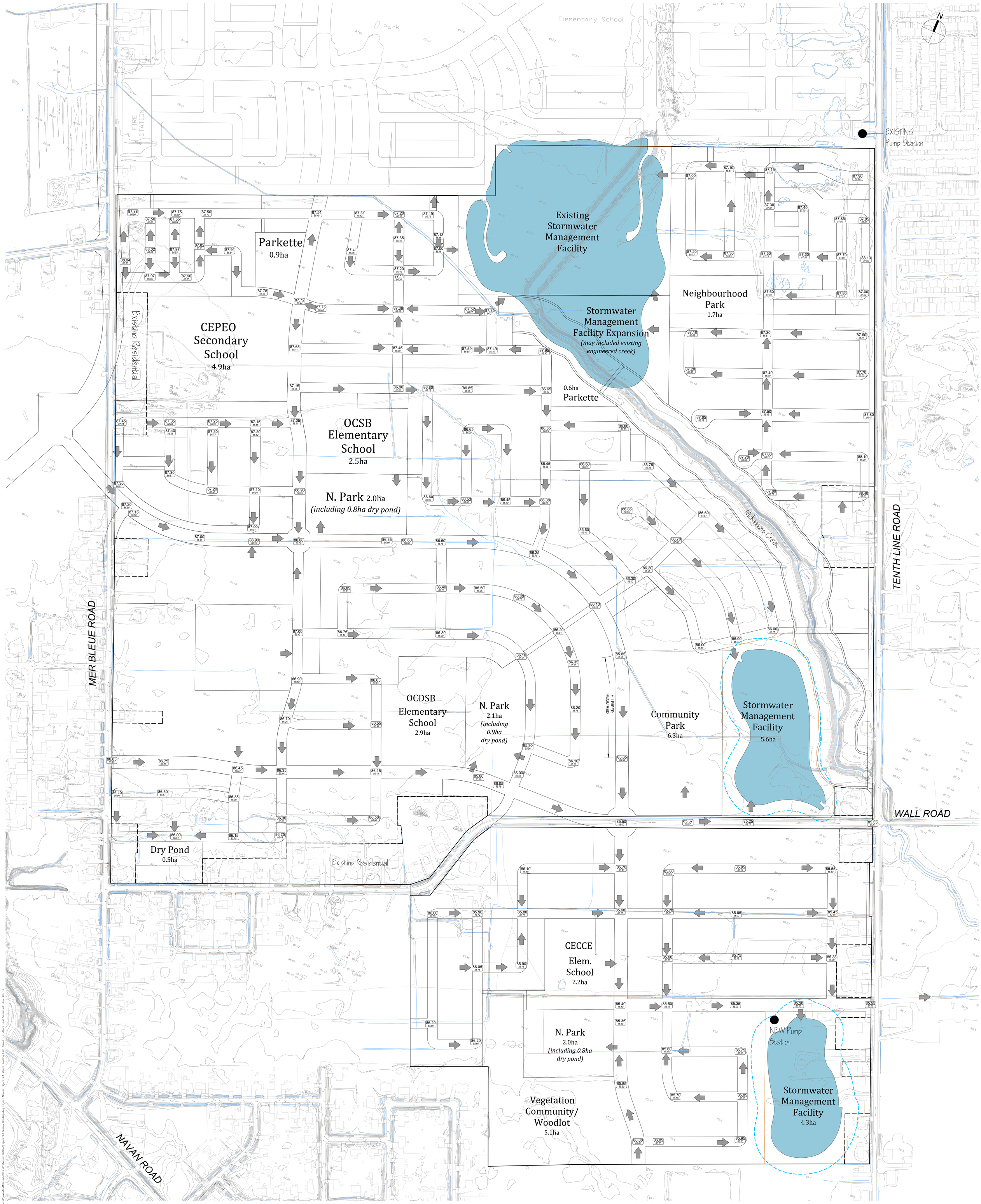
EROSION & SEDIMENTATION CONTROL PLAN

Sheet No.

FIGURE 6.0
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ARCADIS

J:\116761_MerBleuePh1\5.9 Drawings\59civil\current\Adequacy\Report\Layout\FIGURE 6.0 EROSION & SEDIMENTATION CONTROL PLAN.dwg Plotted At: 12/5/2025 Last Saved By: henrie6006 Last Saved At: May, 16, 25




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Sheet No.

FIGURE 9.1
JUNE 2017

Drawing Title

MACRO
GRADING

Project Title

MER BLEUE
MASTER SERVICING STUDY

IBI

Arcadis Professional Services (Canada) Inc.
333 Preston Street, Suite 500
Ottawa, Ontario K1S 5N4
Canada
Phone: 613 241 3300
Fax:
www.arcadis.com