JLR No.: 26299-005.1
Revision: 0

December 10, 2021

Prepared for:

MINTO COMMUNITIES INC.
200-180 Kent Street
Ottawa, ON
K1P 0B6

Prepared by:

J.L. RICHARDS & ASSOCIATES LIMITED
1565 Carling Avenue
Ottawa, ON
K1Z 8R1
Tel: 613-728-3571
Fax: 613-728-6012

Servicing Brief

Arcadia Stage 5

370 and 450 Huntmar Drive, Ottawa, Ontario

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

Table of Contents

List of Tables

List of Figures

List of Appendices

List of Drawings

1.0 Introduction

1.1 Background

Minto Communities Inc. (Minto) has retained the services of J.L. Richards & Associates Limited (JLR) to prepare a Servicing Brief for municipal infrastructure for their respective development referred to as Arcadia Stage 5.

Arcadia Stage 5 is situated along the eastern limit of the Arcadia subdivision just north of Campeau Drive and will include low-rise residential units and a dry pond. Arcadia Stage 5 is one of the final two phases of the Arcadia development, the other being Arcadia Stage 6.

This Servicing Brief will be used for a Plan of Subdivision Application to the City. It has been prepared to outline the design objectives and criteria, servicing constraints and high-level strategies for developing the subject lands with water, wastewater, storm, and stormwater management services in accordance with previous servicing studies developed for the area and the Servicing Study Guidelines for Development Applications in the City of Ottawa.

1.2 Site Description and Proposed Development

Arcadia Stage 5 is located within the City of Ottawa's Official Plan (OP) boundary and consists o a ±8.2 ha parcel of land at 370 and 450 Huntmar Drive. The property is apart of the developing Arcadia subdivision within the Kanata Urban Area in the township of March, Ottawa. The site boundaries include the Carp River to the east, Campeau Drive to the south, Arcadia Stage 3 to the west, and future Riverchase Park to the north as depicted on the Location Plan (Figure 1).

The Draft Plan of Subdivision prepared by Stantec is attached in Appendix A. Arcadia Stage 5 is currently an undeveloped parcel and is zoned as a Development Reserve [DR]. The site is designated as General Urban Area in the Official Plan and the Carp River Restoration Policy Area Overlay applies. The land is undeveloped, and the most recent topographic survey conducted by ASL on April 21, 2021 indicates a relatively flat terrain. However, there is a steep downward slope towards the southwestern corner of the site which is the location of the proposed dry pond. A copy of the topographic survey prepared by ASL is attached to Appendix A.

As shown in the concept plan prepared by Minto (refer to Appendix A), the proposed development for Arcadia Stage 5 will feature low-rise residential dwellings and a dry pond. In total, there are 224 units proposed consisting of 62 single-family homes, 88 row townhouses, and 74 back-to-back townhouses.

PROJECT:

MINTO COMMUNITIES INC.
ARCADIA STAGE 5
370 AND 450 HUNTMAR DRIVE

DRAWING:

LOCATION PLAN

www.jlrichards.ca

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

DESIGN:	AT
DRAWN:	KT
CHECKED:	
JLR #:	26299-005

DRAWING #:

FIGURE 1

File Location: P:\26000\26299-005 - Arcadia Stage 5\5-Production\1-Civil\26299-005 C LOCATION PLAN.dwg

PLOT DATE: Friday, December 10, 2021 10:18:43 AM

1.3 Existing Conditions and Infrastructure

A review of existing services was carried out along the frontage of the subject property to identify existing sewers and watermains. Based on a review of GeoOttawa for Winterset Road, the following infrastructure has been identified to exist within municipal right-of-way (R.O.W.):

Watermains:

- 305 mm diameter PVC watermain along Winterset Road.

Sanitary Sewers:

- 300 mm diameter PVC sanitary sewer along Winterset Road.

Storm Sewers:

- 600 mm diameter CONC. Storm sewer along Winterset Road; and
- 900 mm diameter CONC. Storm sewer along Winterset Road.

1.4 Pre-Consultation, Permits and Approvals

The pre-consultation meeting that was held on September 2, 2021 summarizes the planning process, design criteria and servicing constraints for the development. As stated in the pre-consultation meeting notes, the stormwater management objectives for this site are based on the criteria outlined in the 2006 Kanata West Master Servicing Study (KWMSS) and any deviations of the KWMSS during the previous phases (Stages 1 to 4) of the Arcadia Development. The storm discharge criteria and allowable peak flow used for the preparation of this Report are presented in Section 4. A copy of the pre-consultation meeting notes can be found in Appendix B.

1.5 Conceptual Grading

A conceptual Grading Plan (refer to Drawing CG1) has been developed for the Arcadia Stage 5 development. Centre line of road grades (preliminary high and low points) from the local streets were conceptually designed to tie into existing roads from the adjacent street (Winterset Road). The conceptual road grades were developed to convey and safely evacuate the minor system's runoff excess to strategic low points. The 1:100-year runoff is to be contained on-site; however, the emergency overland flow route will be directed towards Campeau Pond.

2.0 Water Servicing

2.1 Water Supply Design Criteria

A Hydraulic Network Analysis (HNA) was carried out to confirm the site's watermain sizing and to demonstrate its compliance to the Ottawa Design Guidelines for Water Distribution (July 2010) and Technical Bulletins ISDTB-2014-02, ISTB-2018-02 and ISTB-2021-03. These documents are herein referred to as the Design Guidelines and TB-2014-02, TB-2018-02, and TB-2021-03 respectively.

Section 4.2.2 of the Design Guidelines state that all new development additions to the public water distribution system shall be designed such that the minimum and maximum residual pressures, as well as flow rates, comply with the following:

- Under maximum hourly demand conditions (peak hour), the pressures shall not be less than 276 kPa;
- During periods of maximum day and fire flow demand, the residual pressure at any point in the distribution system shall not be less than 140 kPa (20 psi);
- In accordance with the Ontario Building Code in areas that may be occupied, the static pressure at any fixture shall not exceed 552 kPa (80 psi);
- The maximum pressure at any point in the distribution system in unoccupied areas shall not exceed 689 kPa (100 psi); and
- Feedermains, which have been provided primarily for the purpose of redundancy, shall meet, at a minimum, the basic day plus fire flow demand.

To satisfy the design criteria and water demands for Arcadia Stage 5, supply to the proposed development will be achieved from the existing 305 mm diameter watermain in Winterset Road.

Table 2-1 summarizes the design criteria for water distribution systems, which will serve as the basis for the conceptual design of the proposed watermains for the site.

Table 2-1: Water Design Criteria

Design Criteria	Design Value
Average demand	280 L/cap/day
Maximum demand	2.5 x Avg
Peak hour	2.2 x Max Day
Density Single-Family Home	3.4
Density Townhouse (Row and Back-to-Back)	2.7
Fire Flow Requirements	
Municipal ROW	FUS
Private Site	OBC & NFPA 13
Pressure/Flow	
Peak hour	>276 kPa (40 psi)
Maximum day plus fire flow	>140 kPa (20 psi)
Minimum hour (maximum HGL)	<552 kPa (80 psi)

2.2 Domestic Water Demands

The estimated domestic water demands presented in this section are based on the site layout and unit count proposed in the Concept Plan (Appendix A). Arcadia Stage 5 will consist of 62 single-family units, 88 row townhouses, and 74 back-to-back townhouses for a total of 224 low-rise residential units. The estimated domestic water demand distribution is presented in Appendix C.

The residential consumption rate for average day demand was set in accordance with the City's TB-2021-03. Table 2-2 summarizes the water consumption rates and peaking factors used for the HNA. Table 2-3 presents the calculated theoretical water demand results based on the proposed site details and the Design Guidelines. The detailed water demand calculations for Arcadia Stage 5 can be found in Appendix C.

Table 2-2: Water Consumption Unit Rates and Peaking Factors

Demand Scenario	Residential Demand
Average Day Demand	280 L/c/d
Maximum Day Demand	2.5 x Avg Day
Peak Hour Demand	2.2 x Max Day

Table 2-3: Water Demands

Demand Scenario	Residential Demand (L/s)
Average Day Demand	2.10
Maximum Day Demand	5.26
Peak Hour Demand	11.56

2.3 Proposed Watermain Sizing and Roughness

The overall watermain layout for Arcadia Stage 5 is shown on the Model Schematic in Appendix C. Table 2-4 summarizes the watermain roughness coefficients that were set based on Section 4.2.12. of the Design Guidelines. Similarly, the internal pipe diameters were modelled as per Section 4.3.5 of the Design Guidelines and are summarized in Table 2-5.

Table 2-4: Watermain Roughness Coefficients

Watermain Diameter	C-Factor
150 mm	100
200 to 250 mm	110
300 to 600 mm	120

Table 2-5: Watermain Internal Diameters

Nominal Diameter	Inside Diameter
150 mm	155 mm
200 mm	204 mm
300 mm	297 mm

2.4 Fire Flow Requirements

2.4.1 General

According to the latest technical bulletin TB-2021-03, required fire flow (RFF) within the municipal right-of-way (ROW) must achieve the guidance of the Fire Underwriters Survey (FUS). Specifically, the use of the protocol for the application of the FUS method as outlined in Appendix H: Protocol to Clarify the Application of the Fire Flow calculation method published by Fire Underwriters Survey (FUS) of TB-2018-02. Given that the residential units on Arcadia Stage 5 are proposed along a dedicated municipal ROW, the RFF calculations will be governed by the FUS requirements.

2.4.2 Required Fire Flow

The RFF per the FUS for the residential units along the municipal ROW were calculated based on the type of unit, exposure to adjacent units, building material, etc. In addition, the RFF for the units must also be calculated based on the maximum number of consecutive units should the distance between wood frame structures be less than 3.0 m.

Given the proposed layout for Arcadia Stage 5, the critical RFF per the FUS was calculated at seven (7) locations as presented in Appendix C:

- Critical Fire Area 1: One (1) proposed block (Block 18) of six (6) row townhouse units situated at the western corner of the development;
- Critical Fire Area 2: One (1) proposed block (Block 15) of four (4) row townhouse units situated east of Winterset Road and northwest of the proposed Dry Pond at Block 43;
- Critical Fire Area 3: One (1) proposed block (Block 5) of four (4) row townhouse units fronting Street No. 6 within the proposed development;
- Critical Fire Area 4: One (1) proposed block (Block 22) of ten (10) back-to-back townhouse units fronting Streets No. 4 and 6 within the proposed development;
- Critical Fire Area 5: One (1) proposed block (Block 26) of twelve (12) back-to-back units situated north of Campeau Drive and east of the proposed Dry Pond (Block 43);
- Critical Fire Area 6: A string of single-family homes (units 53 to 57) fronting Street No. 2 within the proposed development; and
- Critical Fire Area 7: A string of single-family homes (units 58 to 62) fronting Street No. 2 within the proposed development.

Appendix C includes the RFF calculations in accordance with the Design Guidelines, TB-2014-02, TB-2018-02, and TB-2021-03. According to TB-2014-02, required fire flows for townhouse units calculated by means of the FUS may be capped to 10,000 L/min (167 L/s) under the following two (2) conditions:

1. Townhouses are constructed to separate a town or row house block into fire areas of no more than the lesser of 7 dwellings, or 600 m^2 in building footprint; and

2. There is a minimum separation of 10 m between the backs of adjacent units.

Therefore, based on TB-2014-02 and the calculated exposure distances for this site (Appendix C), the RFF for all the row townhouses can be capped at 10,000 L/min (167 L/s) and the corresponding calculations can be found in Appendix C.

Back-to-back units are not eligible for the City cap requirements outlined in TB-2014-02. The RFF for the back-to-back units were calculated according to the FUS method and the results are presented in Table 2-6. Given that the RFF demands from the back-to-back units are high, a firewall is recommended to be installed to subdivide all back-to-back units within the subdivision. The calculated RFF for the back-to-back units with firewalls installed are presented in Table 2-7. A copy of the RFF calculations per the FUS method is attached to Appendix C.

Table 2-6: Fire Flow Requirements for Back-to-Back Units (Without Firewall)

Location	Block Number	Calculated RFF L/min (L/s)
Critical Fire Area 4	Block 22	18,000 (300)
Critical Fire Area 5	Block 26	19,000 (317)

Table 2-7: Fire Flow Requirements for Back-to-Back Units (With Firewall)

Location	Block Number	Calculated RFF L/min (L/s)
Critical Fire Area 4	Block 22	13,000 (217)
Critical Fire Area 5	Block 26	12,000 (200)

The single-family units at Critical Fire Area 6 and 7 do not meet the City cap criteria listed in TB-2014-02, hence a cap of 10,000 L/min (167 L/s) cannot be applied. The RFF for both Critical Fire Area 6 and 7 were calculated as 17,000 L/min (283 L/s) and the accompanying calculations are provided in Appendix C.

2.5 Water Servicing and Boundary Conditions

2.5.1 Water Servicing

The proposed water service for the development will consist of a local 203 mm diameter watermain loop as shown in the Conceptual Servicing (CS1) Drawing. This watermain is located within the municipal ROW and it will service all the residential units within the site. The 203 mm diameter loop will connect to the existing 305 mm diameter watermain in Winterset Road. Watermain looping is proposed throughout the development to provide redundancy per the Design Guidelines.

2.5.2 Boundary Conditions

The performance of the proposed water distribution system for the development was evaluated under various domestic demands and fire flow conditions using the hydraulic

boundary conditions provided by the City. In October 2018, the City provided boundary conditions for Arcadia Stage 3 which also accounted for future Stages 4 and 5. These boundary conditions were utilized in the HNA featured in this Report. A copy of the City correspondence from the Arcadia Stage 3 request is attached to Appendix C. Furthermore, the water model developed using WaterCAD® for Stages 3 and 4 (as approved by the City) has been revised to include the Stage 5 watermain configuration shown in Drawing CS1, and the results of this analysis have been included in Section 2.6.

2.6 Simulation Results

A Hydraulic Network Analysis (HNA) was carried out to confirm preliminary water servicing. Boundary conditions provided by the City (Appendix C) were used in this HNA. Simulations were carried out under peak hour, maximum day demand plus fire flow, and maximum HGL conditions.

2.6.1 Peak Hour

The peak hour demand shown in Table 2-3 was distributed throughout the nodes within the site. Using the boundary conditions provided by the City, the simulation results found the pressures to range between 605 kPa (87.7 psi) at Junction J-51 and 609 kPa (88.3 psi) at Junction J-44, as shown in Appendix C. Based on the simulation results, the minimum pressure criterion of 276 kPa (40 psi) is expected to be exceeded everywhere on the site. However, these simulated pressures exceeded the maximum pressure criterion which is discussed in Section 2.6.3.

2.6.2 Maximum Day Plus Fire Flow

To ensure adequate fire protection, the maximum day demand shown in Table 2-3 was analyzed simultaneously with the available fire flow. The simulation was conducted using the boundary conditions provided by the City. The fire flow simulation was carried out by allowing WaterCAD® to calculate the maximum fire flow that can be drawn from each node without allowing any part of the system to experience pressures less than 140 kPa (20 psi). The requirements for fire protection within the site are presented in Section 2.4.2.

In the case of the critical string of single units (Critical Area 6 and 7), the required fire flow (RFF) was calculated as 283 L/s. The fire flow analysis performed on WaterCAD® indicated that the water network in that area is expected to provide fire flows of 400 L/s at node J-42 (see Appendix C). Therefore, the RFF for the single units in the subdivision can be met.

The remaining units in the development have a maximum fire flow requirement of 217 L/s as shown in the RFF calculations in Section 2.4.2. Based on the fire flow analysis from WaterCAD®, the minimum anticipated fire flow that the water distribution system can deliver within Stage 5 is 234 L/s at node J-51 (see Appendix C). Thus, the proposed watermains are expected to be able to deliver the RFF within the site.

At detailed design, hydrant locations and spacing will be developed in accordance with TB-2018-02. This exercise will include the evaluation of hydrant placement in order to optimize fire flow availability to the units.

2.6.3 Maximum HGL

The Design Guidelines require that a high-pressure check (maximum hydraulic grade elevation) be performed on the proposed system to determine the need to incorporate pressure reducing valves (PRVs). Based on a zero (0 L/s) demand condition and the corresponding boundary conditions (refer to Appendix C), the minimum pressure on the site was found to be 646 kPa (93.7 psi). Since this value exceeds the maximum pressure constraint of 552 kPa (80 psi) presented in the Design Guidelines, all units within Arcadia Stage 5 will require PRVs.

2.7 Water Servicing Conclusions

The findings from the water simulation results in Section 2.6 indicate that the proposed development for Arcadia Stage 5 can be serviced by the 203 mm diameter watermain network shown in Drawing CS1. Simulation results under peak hour demand and maximum hydraulic grade line (HGL) showed that the pressure requirements listed in the Design Guidelines can be achieved with the use of PRVs for all the units within the site. Fire protection can also be achieved from the proposed watermains in accordance with the design criteria.

3.0 Wastewater Servicing

3.1 Background

Wastewater servicing in Arcadia Stage 5 was conceptually designed as part of the KWMSS to outlet to existing gravity sanitary sewers in the Kanata West Community, which then outlets to the existing Campeau Drive 675 mm diameter trunk sanitary sewer. The existing Campeau Drive trunk sanitary sewer ultimately discharges to the Signature Ridge Pump Station (SRPS) which, in turn, outlets to the Robert O. Pickard Environmental Centre (ROPEC) where wastewater is processed and treated prior to discharge into the Ottawa River.

Specifically, wastewater generated within Arcadia Stage 5 will be directed to the existing sanitary maintenance hole (Ex. MH16) located at the intersection of Winterset Road and Natare Place and as shown on the Conceptual Servicing Drawing (Drawing CS1). The sewage from this maintenance hole will outlet to the 300 mm diameter PVC along Winterset Road and then eventually discharge into the 675 mm diameter trunk sanitary sewer on Campeau Drive. This existing trunk sanitary sewer is the dedicated outlet for the entire Arcadia Development in accordance with the 2006 Kanata West Master Servicing Study (KWMSS).

3.2 Design Criteria

Wastewater servicing for Arcadia Stage 5 will be designed based on the City of Ottawa Sewer Design Guidelines (October 2012) (OSDG) and Technical Bulletin ISTB-2018-01. Key design parameters have been summarized in Table 3-1.

Table 3-1: Design Criteria

Design Criteria	Design Value	Reference
Residential average flow	280 L/cap/day	ISTB-2018-01
Residential peaking factor	Harmon Formula x 0.8	ISTB-2018-01
ICI peaking factor -1.5 if ICI contribution >20%, 1.0 otherwise	1.0/1.5	ISTB-2018-01
Total Infiltration	0.33 L/s/ha	ISTB-2018-01
Minimum velocity	0.6 m/s	OSDG Section 6.1.2.2
Maximum velocity	3.0 m/s	OSDG Section 6.1.2.2
Manning Roughness Coefficient (for smooth wall pipes)	0.013	OSDG Section 6.1.8.2
Minimum allowable slopes	Varies	OSDG Table 6.2, Section 6.1.2.2
Population Density	Single Family: 3.4 p/unit Townhouses: 2.7 p/unit	OSDG Table 4.2, Section 4.3

3.3 Wastewater Flow Calculations

The proposed collection and conveyance of wastewater generated within the planned development will consist of a local 200 mm diameter sanitary sewer system. The system will service ±7.98 ha of land and will discharge into the existing sanitary maintenance hole (EX16) located at the intersection of Natare Place and Winterset Road (refer to Drawing CS1).

Population forecasts used to calculate peak flows were obtained using the projected number of residential units and corresponding population densities prescribed in the 2012 Design Guidelines. Three (3) different types of residential densities were identified in the subdivision concept plan and a corresponding population was calculated for each unit type based on the concept plan presented in appendix A.

It is anticipated that the proposed residential development will generate a peak wastewater flow of 9.33 L/s which will then discharge into the maintenance hole (EX16) located at the intersection of Natare Place and Winterset Road. This is based on a total population of 619 people. Table 3-2 summarizes the calculated peak flows for the system. A copy of the Conceptual Sanitary Sewer Design Sheet and Sanitary Drainage Areas Schematic prepared for Arcadia Stage 5 can be found in Appendix D. In addition to the above 9.33 L/s, there will also be frontage on Winterset Road which is expected to generate an additional 0.51 L/s of wastewater flows. Therefore, the Stage 5 lands is anticipated to generate a peak wastewater flow of 9.84 L/s.

Table 3-2: Allowable Peak Flow Summary for Arcadia Stage 5

Discharge Location	Mixed Use Residential Area (ha)	Unit	Pop. (1)	Residential Peaking Factor (2)	Res. Peak Flow (3) (L/s)	Infiltration Flow (4) (L/s)	Total Allowable Peak Flow (L/s)
Intersection of Natare Palace and Winterset Road (Maintenance Hole - EX16)	7.98	212	619	3.34	6.70	2.63	**9.33**
Winterset Road Sewers (Ex.16-Ex.2)	0.27	13	35	3.18	0.42	0.09	**0.51**
Total Arcadia Stage 5 Wastewater Flows							**9.84 L/s**

1. Population density is based on OSDG Table 4.2 in Section 4.3
2. Residential peaking factor based on Harmon equation.
3. Based on Residential Flow Rate 280 L/cap/day as per Technical Bulletin ISTB-2018-01
4. Based on Infiltration Rate 0.33 L/s/ha as per Technical Bulletin ISTB-2018-01

3.4 Allowable Peak Flows

The peak wastewater flow for the Stage 5 lands as presented in Table 3-2 was compared to flows allocated for the Future Stage 5 lands as part of the Winterset Road sanitary sewer design. Based on the City approved sanitary design sheets from Arcadia Stage 4 (refer to Appendix D), an allowable flow of 13.36 L/s was attributed for the 8.2 ha future Stage 5 lands. It was proposed that the wastewater from Stage 5 would then discharge into the existing 675 mm Campeau Drive trunk sanitary sewer system.

The wastewater servicing analysis from Stage 3 and 4 conformed to the allowable flow restrictions set by IBI Group (IBI) on the Campeau Drive sanitary sewer. The flow restriction was set as 35.62 L/s for the 32.67 ha parcel north of Campeau Drive, which included the future Stage 5 lands, to the existing 450 mm diameter sanitary sewer extending northward along Winterset Road. A copy of IBI's design sheet for the Campeau trunk sanitary sewer is attached to Appendix D.

The calculated peak flow of 9.94 L/s for the Stage 5 lands presented in Section 3.3 well below the allowable flow of 13.36 L/s presented in the Stage 4 Winterset Road and it is expected that there will be adequate residual capacity in the downstream sewers to accommodate the wastewater flows generated within Arcadia Stage 5.

3.5 Overflows and Hydraulic Grade Line (HGL) Analysis

Protection against basement flooding within the existing Arcadia phases (Stages 1 to 4) is currently provided by an existing 600 mm diameter overflow that outlets to the Paine stormwater management facility, constructed as part of Stage 4. As per the 2014 SRPS HGL Analysis and

subsequent detailed design for Stage 4, protection against basement flooding for the future Arcadia development is to be provided by this emergency sanitary sewer. A flow allocation was allotted for Stage 5 as part of the SRPS model and design sheets. The SRPS model was modified by JLR to account for detailed design flows for all Arcadia stages in order to design the sanitary overflow in Stage 4.

The sanitary HGL analysis was carried out based on detailed design of Stages 3 and 4 which has shown that the design criterion for freeboard was met for these stages. An updated HGL analysis will be carried out during detailed design to reflect the addition of the wastewater flows to the system from Stage 5 and ensure the freeboard criterion is met for the new units and maintained for existing units.

3.6 Wastewater Conclusions

Wastewater servicing for Arcadia Stage 5 will be designed based on the City of Ottawa Sewer Design Guidelines, associated Technical Bulletins and with the previously approved Site Servicing Reports for Arcadia Stages 3 & 4. It is recommended that the sanitary servicing systems shown on the Conceptual Servicing Drawing (Drawing CS1) be implemented for the proposed development.

4.0 Storm Servicing and Stormwater Management

4.1 Background

In 2006, the KWMSS was prepared on behalf of the Kanata West Owner's Group to investigate servicing requirements for a large mixed-use community in Kanata West. The KWMSS recommended that all stages of the Arcadia development, the Campeau Drive right-of-way (from Huntmar to Carp River), and the future transit way be serviced by Pond 1, the largest SWM facility in Kanata West.

In August 2016, JLR developed an alternative SWM solution for the Arcadia Development to the one presented in the 2006 KWMSS. This solution was presented to the City in the form of a Memorandum entitled "Conceptual Alternate Stormwater Servicing and Stormwater Management Strategy" dated August 2, 2016. The proposed stormwater management approach consisted of two (2) wet ponds supplemented by privately owned water quality units, all of which would serve as the dedicated outlets to the Arcadia Development as well as for the future Campeau Drive ROW and transit way. The two wet ponds are located immediately west of the Carp River: one at Paine Avenue and one south of Campeau Drive to service the Arcadia Development.

Stormwater flows were allocated to the Arcadia Stage 5 land parcel as part of the KWMSS and later accounted for as part of both the Campeau and Paine Pond designs. An additional dry pond is proposed as part of Stage 5 to control overland flow north of Campeau Drive. The major system will direct flow to the dry pond where it will drain at a controlled rate into the minor system.

4.2 Design Criteria

The functional design of the storm sewer system was developed for Minto's Arcadia Stage 5 lands depicted in Drawing CS1 was done to respect the flow allocations and drainage boundaries allocated during Paine and Campeau pond designs. Detailed design of the stormwater

management system for Stage 5 will be in accordance with the City of Ottawa 2012 Sewer Design Guidelines (OSDG) and Technical Bulletins. Design criteria that will be applied at detailed design for both minor and major systems are described below.

4.2.1 Minor System

Design Capture and Level of Service

- Minimum 1:2 year capture for local roads
- Minimum 1:5 year capture for Winterset Road
- Maximum allowable release rates from Stage 5 are 800 L/s at the northern minor system outlet to MH 116_(P-Stm) and 780 L/s at the southern minor system outlet to MH 102_(Ex-Stm)

Design Flows

- Initial sizing of the storm sewers with Rational Method design sheets and final sizing confirmed with a HGL analysis;
- IDF Rainfall statistics as per OSDG;
- Time of concentration (Tc) based on a minimum inlet time of 10 minutes;
- Runoff coefficients based on recently approved developments of similar nature as per Section 5.4.5.2.2 of the OSDG (to be verified at the detailed design stage).

Sewer Design Criteria

Design Criteria as per the OSDG

- Minimum velocity 0.80 m/s;
- Maximum velocity 6.0 m/s;
- Manning roughness coefficient 0.013;
- Minimum allowable slopes as per Table 6.1 of the OSDG;
- Minor losses at maintenance holes set in accordance with Appendix 6B of the OSDG;

4.2.2 Major System

Major System Flow Outlets

Detention of runoff from storm events up to 1:100 year recurrence period is required for the site.

4.3 Proposed Storm Servicing

4.3.1 Minor System

The proposed storm sewers for Arcadia Stage 5 will be sized at detailed design to provide the minimum 1:2 year capture rate using the Rational Method. Two minor system outlets were allocated for Stage 5 as part of the pond designs:

- the existing storm maintenance hole (EX116) located at Natare Place at Winterset Road which ultimately discharges to the Paine pond; and
- the existing storm maintenance hole (EX102) located at Campeau Drive at Winterset Road which ultimately discharges to the Campeau pond.

The Overall Storm Drainage Plan (Drawing OST) presented in Appendix E depicts the minor and major system drainage areas allocated for the Stage 5 land parcels. A high level overall drainage plan for Stage 5 is also presented in the conceptual storm drainage schematic (Appendix E) that demonstrates how this drainage boundary will be respected during detailed design.

The conceptual rational method design sheet calculations show that with capture of the 1:2 year return period event peak flow release rates are less than the allowable release rates from the site (Table 4-1). The downstream system therefore has sufficient capacity for the proposed conceptual site. A copy of the Storm Sewer Design Sheet and Conceptual Storm Drainage Plan (Drawing CDST) for Arcadia Stage 5 can be found in Appendix E.

Table 4-1: Minor System Release Rates

Connection Location	Allowable Release Rate (L/s)	1:2 year Design Sheet Flow Rate (L/s)
116_(P-Stm) – North Connection	800	383
102_(Ex-Stm) – South Connection	780	327

4.3.2 Major System

All major system flows up to the 1:100 year return period event are to be detained on site. This will be achieved through the use of street sag storage and grading towards a dry pond located at the south corner of the site. The dry pond will provide major system storage and will release via the additional capacity available via the south minor system connection.

The grading means that some of the rear yards will not be able to grade towards the site and will slope towards the Carp River. This uncontrolled clean rear yard runoff will be in the form of overland sheet flow. Due to timing of the localized sheet flow it will not affect peak flow rates or peak water levels in the Carp River, however during detailed design the outlet configuration of the Paine Pond will be assessed to ensure that the peak flows in the Carp River continued to be maintained as per the 2018 City of Ottawa Modelling results.

4.3.1 Stormwater Quality

Stormwater quality control will be provided by the Paine and Campeau Ponds respectively. The ponds were designed to accept flows from these areas for water quality treatment and have sufficient capacity to do so.

4.4 Storm Servicing and Stormwater Management Conclusions

The stormwater servicing and management concept shown on the Conceptual Servicing Plan (Drawing CS1) is proposed to provide stormwater servicing for Arcadia Stage 5.

5.0 Erosion and Sedimentation Control

Erosion and sediment control measures, as outlined in the Ontario Ministry of Natural Resources (MNR) Guidelines on Erosion and Sediment Control for Urban Construction Sites, will be implemented to trap sediment on site. The following erosion and sediment control measures could be implemented during construction, refer to attached Conceptual Erosion and Sediment Control Plan CESC:

- Supply and installation of a silt fence barrier, as per OPSD 219.110.
- Supply and installation of filter fabric between the frame and cover of catch basins and maintenance holes adjacent to the project area during construction, to prevent sediment from entering the sewer system. The filter fabric is to be inspected regularly and corrected as required.
- Stockpiling of material during construction is to be located along flat areas away from drainage paths. For material placed on sloped areas, stockpiles are to be enclosed with a silt fence to protect watercourses.
- All catch basins are to be equipped with sumps, inspected frequently, and cleaned as required.
- A mud mat is to be built at each of the site entranceways to prevent the transport of sediment onto paved surfaces. The mud mat shall be:
  - Minimum of 20 m in length for the full width of the entrance way (10 m wide minimum).
  - Minimum of 400 mm thick underlain with a geotextile (or graded aggregate filter); and
  - Constructed with 50 mm diameter clear stone for the first 10 m (extending from the paved street) and the remainder of the length with 150 mm diameter clear stone.

The proposed removal and reinstatement measures as well as the erosion control measures shall conform to the following documents:

- "Guidelines on Erosion and Sediment Control for Urban Construction Sites" published by Ontario Ministries of Natural Resources, Environment, Municipal Affairs, and Transportation & Communication, Association of Construction Authorities of Ontario and Urban Development Institute, Ontario, May 1987.
- "MTO Drainage Manual", Chapter F: "Erosion of Materials and Sediment Control", Ministry of Transportation & Communications, 1985.
- "Erosion and Sediment Control" Training Manual by Ministry of Environment, Spring 1998.
- Applicable Regulations and Guidelines of the Ministry of Natural Resources.

This Report has been prepared for the exclusive use of Minto Communities Inc., for the stated purpose, for the named facility. Its discussions and conclusions are summary in nature and cannot be properly used, interpreted, or extended to other purposes without a detailed understanding and discussions with the client as to its mandated purpose, scope, and limitations. This report was prepared for the sole benefit and use of Minto Communities Inc. and may not be used or relied on by any other party without the express written consent of J.L. Richards & Associates Limited.

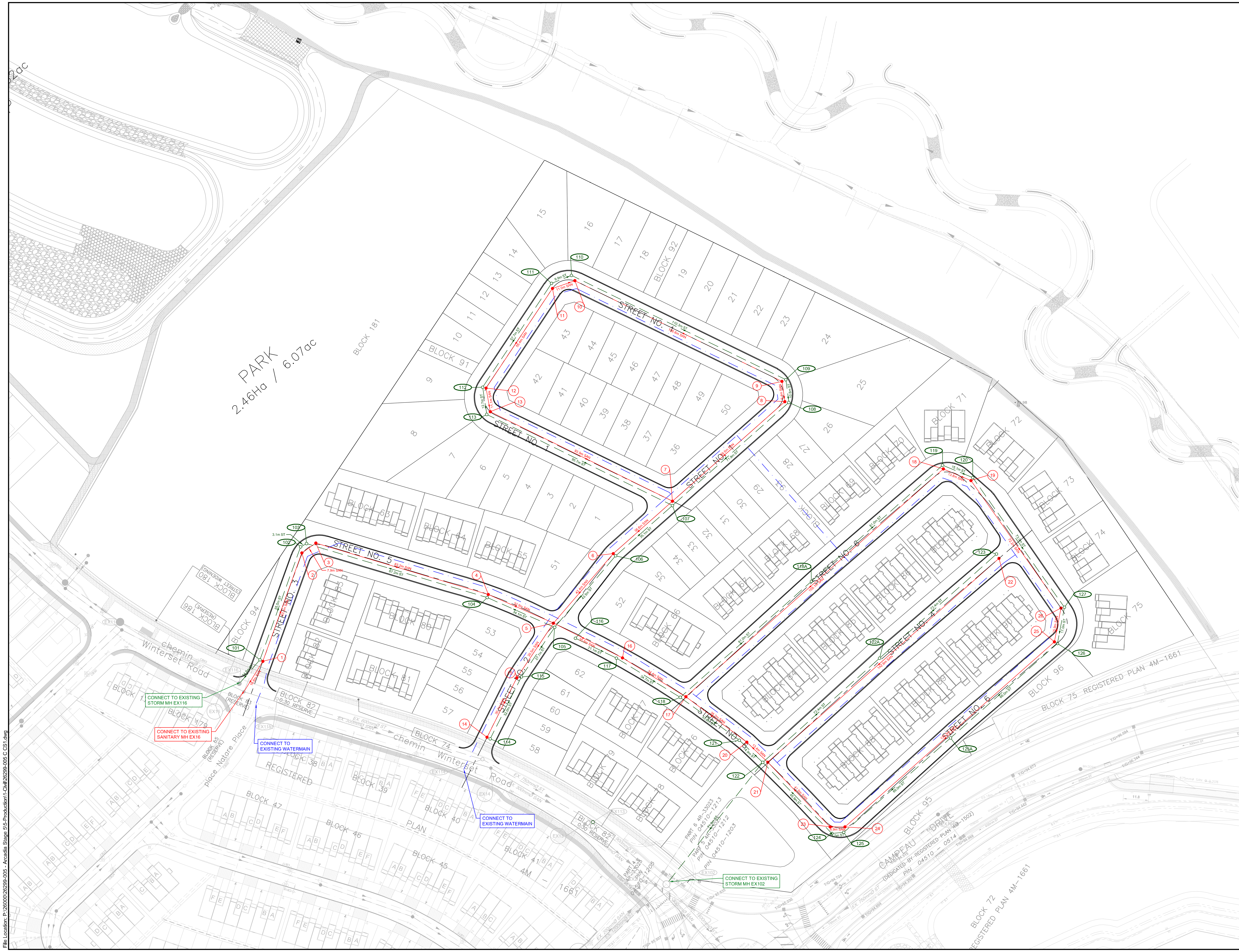
J.L. RICHARDS & ASSOCIATES LIMITED

Prepared by:

Mahad Musse
Civil Engineering Designer

Reviewed by:

Karla Ferrey, P.Eng.
Associate, Senior Civil Engineer


PARK
2.46Ha / 6.07ac
STREET NO. 1
STREET NO. 2
STREET NO. 3
STREET NO. 4
STREET NO. 5
STREET NO. 6
BLOCK 181
BLOCK 91
BLOCK 92
BLOCK 94
BLOCK 95
BLOCK 96
chemin Winterset Road
place Natare Place
CAMPEAU DRIVE
CONNECT TO EXISTING STORM MH EX116
CONNECT TO EXISTING SANITARY MH EX16
CONNECT TO EXISTING WATERMAIN
CONNECT TO EXISTING WATERMAIN
CONNECT TO EXISTING STORM MH EX102
BLOCK 75 REGISTERED PLAN 4M-1661

LEGEND

- HYDRANT, VALVE & VB
- WATERMAIN
- CAP
- VALVE & VB
- TEE
- SANITARY SEWER
- FLOW DIRECTION
- MAINTENANCE HOLE
- STORM SEWER
- FLOW DIRECTION
- MAINTENANCE HOLE
- CATCHBASIN & LEAD

No.	ISSUE / REVISION	DD/MM/YY
0	ISSUED FOR DRAFT PLAN APPROVAL	07/12/21

VERIFY SHEET SIZE AND SCALES. BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE: 1:750

CLIENT: minto Communities

CONSULTANT: www.jlrichards.ca J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT:

PROFESSIONAL STAMP

PROFESSIONAL STAMP

PROJECT: ARCADIA STAGE 5

DRAWING: CONCEPTUAL SERVICING

DESIGN: KF
DRAWN: CJ
CHECKED: KF
JLR #: 26299-005

DRAWING #: CS1

PLOT DATE: December 7, 2021 10:14:01 AM

File Location: P:\26000\26299-005 - Arcadia Stage 5\5-Production\1-Civil\26299-005 C CS1.dwg

LEGEND

93.84 EXISTING TOPO COMPLETED APRIL, 2021, PROVIDED BY ASL AGRODRAIN LTD.

95.60 CONCEPTUAL CL ROAD ELEVATION

No.	ISSUE / REVISION	DD/MM/YY
0	ISSUED FOR DRAFT PLAN APPROVAL	07/12/21

VERIFY SHEET SIZE AND SCALES. BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE: 1:750

CLIENT: minto Communities

CONSULTANT: www.jlrichards.ca

J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT:

PROFESSIONAL STAMP

PROFESSIONAL STAMP

PROJECT: ARCADIA STAGE 5

DRAWING: CONCEPTUAL GRADING

DESIGN: KF	
DRAWN: CJ	DRAWING #: CG1
CHECKED: KF	
JLR #: 26299-005	

PLOT DATE: December 9, 2021 - 1:37:57 PM

File Location: P:\26000\26299-005 - Arcadia Stage 5\5-Production\1-Civil\26299-005 C CG1.dwg

LEGEND

- HYDRANT, VALVE & VB
- WATERMAIN
- CAP
- VALVE & VB
- TEE
- SANITARY SEWER
- FLOW DIRECTION
- MAINTENANCE HOLE
- STORM SEWER
- FLOW DIRECTION
- MAINTENANCE HOLE
- CATCHBASIN & LEAD
- SILT FENCING
- MUD MAT
- FILTER FABRIC

PARK
2.46Ha / 6.07ac

STREET NO. 1
STREET NO. 2
STREET NO. 3
STREET NO. 4
STREET NO. 5
STREET NO. 6

CONNECT TO EXISTING STORM MH EX116
CONNECT TO EXISTING SANITARY MH EX16
CONNECT TO EXISTING WATERMAIN
CONNECT TO EXISTING WATERMAIN
CONNECT TO EXISTING STORM MH EX102

chemin Winterset Road

No.	ISSUE / REVISION	DD/MM/YY
0	ISSUED FOR DRAFT PLAN APPROVAL	07/12/21

VERIFY SHEET SIZE AND SCALES. BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE: 1:750

CLIENT: minto Communities

CONSULTANT: www.jlrichards.ca
J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT:

PROFESSIONAL STAMP

PROFESSIONAL STAMP

PROJECT:
ARCADIA STAGE 5

DRAWING:
CONCEPTUAL
EROSION & SEDIMENT
CONTROL PLAN

DESIGN: KF	
DRAWN: CJ	DRAWING #: CESC
CHECKED: KF	
JLR #: 26299-005	

PLOT DATE: December 7, 2021 10:14:01 AM

File Location: P:\26000\26299-005 - Arcadia Stage 5\5-Production\1-Civil\26299-005 C CS1.dwg

Appendix A

Draft Plan of Subdivision, Concept Plan and Topographic Survey

APPROVED UNDER SECTION 51 OF THE PLANNING ACT BY THE CITY OF OTTAWA THIS ____ DAY OF _____, 20___

STEPHEN WILLIS, MCIP, RPP, GENERAL MANAGER
PLANNING, INFRASTRUCTURE AND ECONOMIC
DEVELOPMENT DEPARTMENT, CITY OF OTTAWA

PLAN 4M-

I CERTIFY THAT THIS PLAN IS REGISTERED IN THE LAND REGISTRY OFFICE FOR THE LAND TITLES DIVISION OF OTTAWA-CARLETON No.4 AT____ O'CLOCK ON THE_____ DAY OF _____, 2021 AND ENTERED IN THE PARCEL REGISTER FOR PROPERTY IDENTIFIER_____, AND THE REQUIRED CONSENTS ARE REGISTERED AS PLAN DOCUMENT NUMBER OC-_____.

REPRESENTATIVE FOR LAND REGISTRAR

THIS PLAN COMPRISED OF ALL OF PINS 04510-1203, 04510-1204, 04510-1205, 04510-1212, 04510-1213, 04510-1553 AND 04510-1365.

PLAN OF SUBDIVISION of

PART OF LOTS 3 AND 4 CONCESSION 1
(GEOGRAPHIC TOWNSHIP OF MARCH)
AND BLOCK 82, REGISTERED PLAN 4M-1661 AND BLOCK 186, REGISTERED PLAN 4M-1680 CITY OF OTTAWA

Scale 1:750
20 0 20 40 METRES

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

GRID SCALE CONVERSION
DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999914

BEARING NOTE
BEARINGS ARE GRID, DERIVED FROM CAN-NET VRS NETWORK GPS OBSERVATIONS ON NCC HORIZONTAL CONTROL MONUMENTS 19773035 AND 19680191, CENTRAL MERIDIAN, 76° 30' WEST LONGITUDE MTM ZONE 9, NAD83 (ORIGINAL).

19773035 N:5006060.42 E:324888.04
19680191 N:5033564.26 E:388064.94

LEGEND

■	DENOTES	FOUND MONUMENTS
□	"	SET MONUMENTS (IB)
	"	UNLESS OTHERWISE STATED
IB	"	IRON BAR
IB⊕	"	ROUND IRON BAR
SIB	"	STANDARD IRON BAR
SSIB	"	SHORT STANDARD IRON BAR
CC	"	CUT CROSS
CP	"	CONCRETE PIN
WIT	"	WITNESS
PIN	"	PROPERTY IDENTIFICATION NUMBER
MEAS	"	MEASURED
PROP	"	PROPORTIONED
OU	"	ORIGIN UNKNOWN
SG	"	STANTEC GEOMATICS LTD.
ORP	"	OBSERVED REFERENCE POINT

ALL OF PIN 04510-1365
ALL OF PIN 04510-1553
ALL OF PIN 04510-1203
ALL OF PIN 04510-1204
ALL OF PIN 04510-1205
ALL OF PIN 04510-1212
ALL OF PIN 04510-1213

OWNER'S CERTIFICATE

THIS IS TO CERTIFY THAT :

1. LOTS 1 TO 62 BOTH INCLUSIVE. BLOCKS 63 TO 97 BOTH INCLUSIVE, THE STREETS, NAMELY - HAVE BEEN LAID OUT IN ACCORDANCE WITH OUR INSTRUCTIONS.
2. THE STREETS ARE DEDICATED TO CITY OF OTTAWA AS PUBLIC HIGHWAYS.

MINTO COMMUNITIES INC.

DATE

BRONWYN ANDERSON
VICE PRESIDENT, DEVELOPMENT
I HAVE THE AUTHORITY TO BIND THE CORPORATION

DATE

SEAN MACFARLANE
VICE PRESIDENT, LOW RISE CONSTRUCTION
I HAVE THE AUTHORITY TO BIND THE CORPORATION

SURVEYOR'S CERTIFICATE

I CERTIFY THAT :

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE LAND TITLES ACT AND THE REGULATIONS MADE UNDER THEM.

THE SURVEY WAS COMPLETED ON THE DAY OF , 2020

DATE

FRANCIS LAU
ONTARIO LAND SURVEYOR

OBSERVED REFERENCE POINTS DERIVED FROM THE CAN-NET VRS NETWORK GPS OBSERVATIONS ON NCC HORIZONTAL CONTROL MONUMENTS 19773035 AND 19680191, CENTRAL MERIDIAN, 76° 30' WEST LONGITUDE MTM ZONE 9, NAD83 (ORIGINAL).
COORDINATES TO URBAN ACCURACY PER SEC 14(2) OF O.REG. 216/10

ORP ID	NORTHING	EASTING
(A)		*
(B)		

COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

Stantec Geomatics Ltd.
CANADA LANDS SURVEYORS
ONTARIO LAND SURVEYORS
1331 CLYDE AVENUE, SUITE 400
OTTAWA, ONTARIO, K2C 3G4
TEL. 613.722.4420 FAX. 613.722.2799
stantec.com

DRAWN: ME	CHECKED: *	PM: FL	FIELD: *	PROJECT No.: 161614463-132

STAGE 4

BLOCK 44
Open space/ Park
0.03 ha
(0.08 ac)

Stage 5

Block 76
Open Space
0.07 ha / 0.17 ac

Block 75
Grading Easement
0.13 ha / 0.32 ac

Block 43
(DRY POND)
0.27 ha
(0.68 ac)

Stage 3

BASALT LANE
NATARE PLACE
WINTERSET ROAD
SPEEDVALE COURT
CAMPEAU DRIVE
STREET NO. 1
STREET NO. 2
STREET NO. 3
STREET NO. 4
STREET NO. 5
STREET NO. 6

Unit Type	Stage 5		Total	
	Units		Units	
Singles	**62**	**27.7%**	**62**	**27.7%**
30'	15	24.2%	15	24.2%
36'	34	54.8%	34	54.8%
43'	13	21.0%	13	21.0%
Executive Towns	**88**	**39.3%**	**88**	**39.3%**
Avenue Towns	**74**	**33.0%**	**74**	**33.0%**
Rear Lane Towns	**0**	**0.0%**	**0**	**0.0%**
Infusion Terraces	**0**	**0.0%**	**0**	**0.0%**
Longbranch Condos	**0**	**0.0%**	**0**	**0.0%**
Total	**224**	**100.0%**	**224**	**100.0%**

Title:
Concept Plan 13 Rev 4.4

Project:
Arcadia - Stage 5

Legend

- 30' Singles
- 36' Singles
- 43' Singles
- Executive Town Homes
- Avenue (B2B) Town Homes
- Condo Lands
- Rear Lane Town Homes
- Parkland
- Storm Water Management
- Open Space
- Stage Limits

No.	Description	Date	By
4.4	Relocated pathway block	8/20/2021	D.F.
4.3	Added a 53.88 m pathway block and adjusted the lotting around it	8/16/2021	D.F.
4.2	Updated Block 76 Grading Easement to match the legal 4M plan for Arcadia Stage 3	2/5/2021	M.S.
4.1	Add singles at the entrance of the P-Loop	1/27/2021	K.G.
4	Update Avenue block distribution, change Block 17-20 from Exec TH to singles	12/17/2020	K.G.
3	Update Block 8 & 9 to 3-unit block, remove 1 unit from Block 1 to meet zoning, re-lot singles.	12/10/2020	K.G.
2	Issued For Review	12/7/2020	M.S.
1	Issued For Review	12/2/2020	M.S.
0	Issued For Review	2020-11-19	B.A.

Revisions

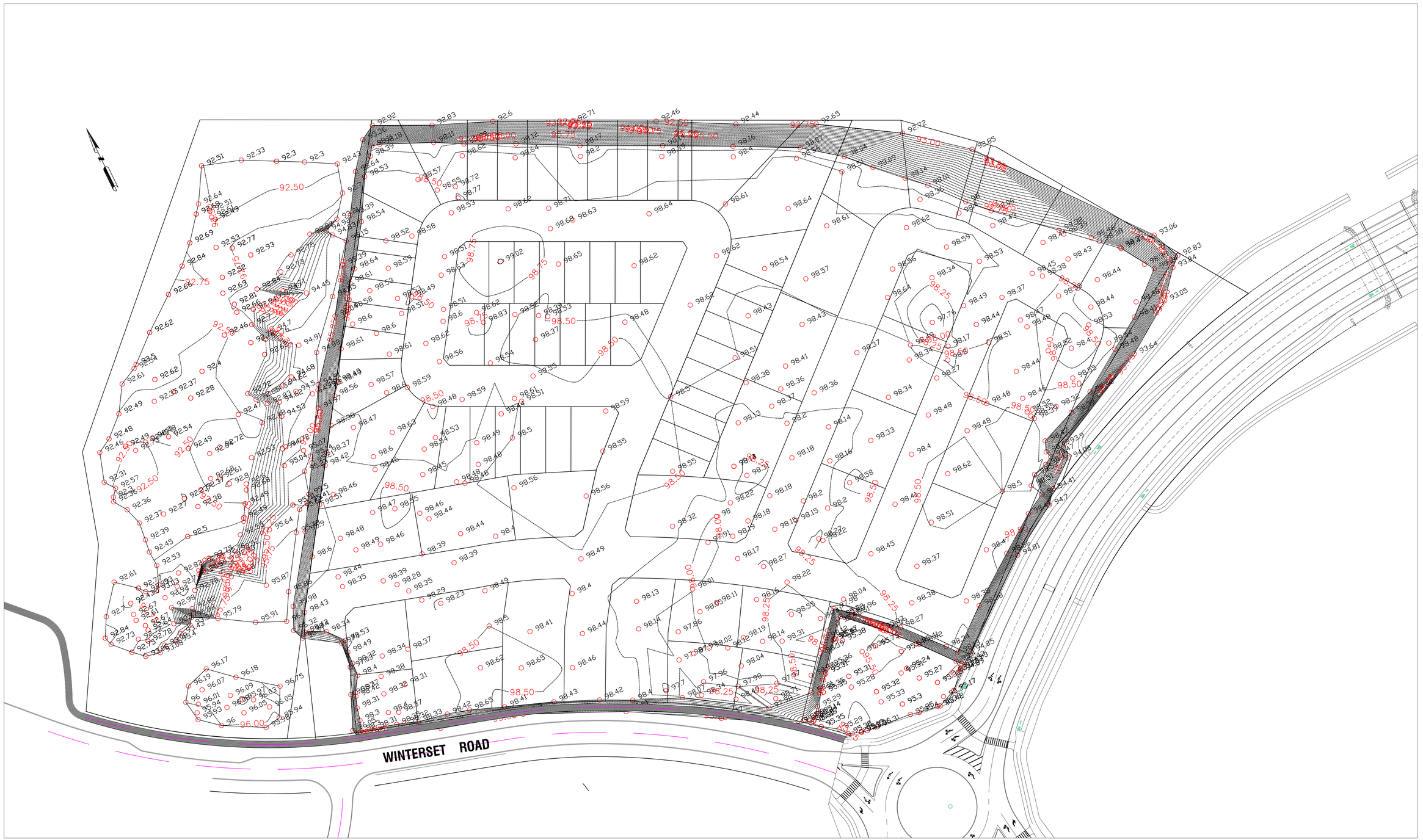
minto Communities

Drawn By: M.S.
Checked By: C.S.

Minto Communities Inc
180 Kent Street,
Ottawa, ON
K1P 0B6

North

Scale: NTS



ARCADIA PH 5 SURCHARGE AS BUILT APR 21-2021

APR 21-2021
SCALE 1:750

Appendix B

Pre-consultation meeting notes

File Number: PC2021-0275
September 2, 2021

Pre-application Consultation Meeting Notes

Site Address: 370 Huntmar Drive and 450 Huntmar Drive
Location: Virtual - Microsoft Teams
Meeting Date: August 12, 2021

Attendees: Colette Gorni – Planner, City of Ottawa
Wendy Tse – Planner, City of Ottawa
Justin Armstrong – Project Manager (Infrastructure), City of Ottawa
Mark Young – Planner (Urban Design), City of Ottawa
Jeff Goettling – Planner (Parks), City of Ottawa
Mike Russett – Planner (Parks), City of Ottawa
Jeffrey Ren – Co-op Student, City of Ottawa
Matt Craig – MVCA
Erica Ogden – MVCA
Curtiss Scarlett – Minto Communities Inc.
Bronwyn Anderson – Minto Communities Inc.
Kiara Gonzales – Minto Communities Inc.
Danielle Forget – Minto Communities Inc.
Alexandre Tourigny – J.L Richards
Eric Forhan – J.L Richards
Lucie Dalrymple – J.L Richards
Andrew Harte – CGH Transportation

Regrets: Mark Richardson – Planning Forester, City of Ottawa
Mike Giampa – Project Manager (Transportation), City of Ottawa
Matthew Hayley – Planner (Environmental), City of Ottawa

APPLICANT COMMENTS:

1. Two separate developments are proposed:

    a. Stage 5 will be a Plan of Subdivision application and a Zoning By-law Amendment application:

        - Stage 5 is located east of Arcadia Stages 1-4; it is the last piece north of Campeau Drive;
        - Existing infrastructure extends to the boundaries of the site and two accesses off of Winterset Road are proposed;
        - A total of 225 low-rise units are proposed in the form of singles, townhouses and back-to-back townhouses; and,

- The site is designated as General Urban Area in the Official Plan; the Carp River Restoration Policy Area Overlay applies; and the site is zoned Development Reserve (DR).

b. Stage 6 will be a Site Plan Control application and a Zoning By-law Amendment application:

- Stage 6 lands are located south of Campeau Drive, the parcel closest to the intersection of Huntmar Drive and Campeau Drive was sold by Minto to a hotel developer;
- The site is designated as Mixed-Use Centre in the Official Plan, the Kanata West Concept Plan identifies this area as a community core, and the site is zoned Development Reserve;
- Land dedications have been made for the proposed future Campeau Station LRT Station;
- Two accesses, one off of Campeau Drive is proposed and one off of Country Glen Way, are proposed;
- Infrastructure connections are proposed to be made from Country Glen Way and Donum Lane;
- A total of 480 units are proposed in the form of stacked townhouses (please note that the submitted plans reference a higher unit count); and,
- 2 communal amenity spaces are proposed.

2. The separate applications for both developments are expected to be submitted in September 2021 (Stage 5) and October 2021 (Stage 6).

STAFF COMMENTS:

Planning

Stage 5

1. A Major Zoning By-law Amendment application will be required for the Stage 5 lands to permit the proposed development. Urban Exception 1932 can removed through this application as the Holding Symbol has now been lifted.
2. A new Plan of Subdivision application will be required to permit the proposed development, as Stage was not included in the previous draft approval.
3. Please note that there is a 30cm reserve along Winterset Road that will need to be lifted.
4. Staff are generally satisfied with the current layout.

5. Please consider adding another pedestrian connection between Street 1 and 6; please consider providing a pedestrian plan with the application submissions.
6. Please submit a streetscape plan with your application. The location of trees and sidewalks should be considered early in the design process.

Stage 6

7. A Major Zoning By-law Amendment application will be required to permit the proposed development on the Stage 6 lands.
8. The Phase 6 lands previously received draft approval through a previous plan of subdivision application (File No. D07-16-16-0025).
9. It is understood that the applicant currently intends to allow the draft approval to lapse and pursue Site Plan Control and Plan of Condominium applications to permit the proposed development.
    a. The proposed development requires a Complex (Manager Approval, Public Consultation) Site Plan Control Application.
10. Please note that there are 30cm reserves along Country Glen Way, Campeau, and Donum Lane.
11. It is understood that the applicant is interested in straightening the jagged section of the Country Glen Way right-of-way. Staff have reach out to the City's Corporate Real Estate Office (CREO) to discuss the possibility of a land swap, and will provide more information once a response is received.
12. Please ensure that adequate bicycle parking is provided both in and outside the proposed storage building.
13. Please review the City's Urban Design Guidelines for Transit Oriented Development to ensure that proposed development conforms to the guidelines

General

14. Fees and forms for the above mentioned applications can be found here; please note that each planning application fee will be reduced by 10 per cent if two or more applications are submitted at the same time and for the same lands.
15. Please ensure that each submission considers the Official Plan policies that are applicable at the time of the submission of the application
    a. If a complete application is received by no later than the day before the new Official Plan is adopted (October 2021), it will be processed on the basis of existing Official Plan policy provided it is consistent with the 2020 Provincial Policy Statement.

b. Applications received after the day before the new Official Plan is adopted (October 2021), will be reviewed and evaluated on the basis of the policies of the new Official Plan, which is consistent with the 2020 Provincial Policy Statement.

Please contact the Planner, Colette Gorni, at Colette.Gorni@ottawa.ca if you have any questions or require additional information relating to the comments above.

Urban Design

Stage 5

1. A design brief is required. A terms of reference is attached.
2. Please ensure the pathway connections to the Carp River Open Space Lands are accessible. This may require co-locating the two blocks in the vicinity of Lot 25 and Block 8 to provide additional length for these blocks.
3. Please consider locations for sidewalks and trees at the time of submission, as it relates to utilities and clay soils.
4. Orientation of units to minimize the need for noise walls on Winterset Road should be considered.
5. A pathway connection should be provided within Block 43 – Dry Pond to provide access to Winterset Road.

Stage 6

6. A design brief is required. A terms of reference is attached.
7. The subject lands are located within a design priority area. A high-quality site and building design are expected, suitable for a mixed use centre.
8. Consideration should be given to providing more than one product/dwelling type for this site.
9. Options to eliminate the need for a single loaded private street abutting Campeau Drive should be explored.
10. The current access on Campeau should be considered for a more urban treatment vs. a pork chop island.
11. The units abutting Campeau Drive in the Western Block, should be oriented to be in alignment with Campeau Drive vs. being offset.
12. The treatment of built form abutting Country Glen Way should be reviewed. Opportunities to regularize this property line should also be explored if possible.
13. Connectivity to the MUP along Feedmill Creek should be strengthened at key locations.

14. Consideration should be given to allowing for live/work arrangements at grade.

15. Consideration should be given to allowing for a mix of uses on-site.

Please contact Urban Design Planner Mark Young at Mark.Young@ottawa.ca if you have any questions or require additional information relating to the comments above.

Engineering

1. The Servicing Study Guidelines for Development Applications are available at the following address: http://ottawa.ca/en/development-application-review-process-0/servicing-study-guidelines-development-applications

2. Servicing and site works shall be in accordance with the following documents:

   - ⇨ Ottawa Sewer Design Guidelines (October 2012)
   - ⇨ Ottawa Design Guidelines – Water Distribution (2010)
   - ⇨ Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa (2007)
   - ⇨ City of Ottawa Slope Stability Guidelines for Development Applications (revised 2012)
   - ⇨ City of Ottawa Environmental Noise Control Guidelines (January, 2016)
   - ⇨ City of Ottawa Park and Pathway Development Manual (2012)
   - ⇨ City of Ottawa Accessibility Design Standards (2012)
   - ⇨ Ottawa Standard Tender Documents (latest version)
   - ⇨ Ontario Provincial Standards for Roads & Public Works (2013)

3. Record drawings and utility plans are also available for purchase from the City (Contact the City's Information Centre by email at InformationCentre@ottawa.ca or by phone at (613) 580-2424 x.44455).

4. The Stormwater Management Criteria, for the subject site, is to be based on the criteria outlined in the KWMSS. Understanding that deviations have been made to the KWMSS in previous phases and that Phases 5 & 6 are the final two phases in the Arcadia subdivision area, and that infrastructure and stormwater management facilities surrounding the sites have been constructed as part of previous phases of development, it will be important to demonstrate that the surrounding infrastructure has been designed with enough capacity to support the proposed developments.

Deviations from previous design assumption shall be justified in the plans and reports.

5. As was mentioned in the pre-consultation meeting, Phases 5 & 6 are the final two phases in the Arcadia subdivision area, and the surrounding infrastructure intended to provide servicing for Phases 5 & 6 has been constructed as part of previous Phases. The plans and reports that are to be submitted in support of Phase 5 & 6 will need to demonstrate that the surrounding/downstream infrastructure has been designed with enough capacity to support the proposed developments and that any works required by the KWMSS to support the proposed developments have been completed. Any deviations within Phase 5 & 6 from previous design assumptions will need to be clearly justified.

6. Preference for servicing of Phase 5 would be entirely internal to Phase 5 (i.e., individual building service connections to Winterset to be avoided) in order to eliminate any potential service disruptions to existing residents.

7. Water Boundary condition requests must include the location of the service and the expected loads required by the proposed development. Please provide the following information:

    i. Location of service

    ii. Type of development and the amount of fire flow required (as per FUS, 1999).

    iii. Average daily demand: ___ l/s.

    iv. Maximum daily demand: ___l/s.

    v. Maximum hourly daily demand: ___ l/s.

8. As mentioned in the pre-consultation meeting, soil and geotechnical conditions are of potential concern for these sites. Sufficient justification should be provided to support the feasibility of Phase 5 and 6 proposals from a geotechnical perspective. For these proposals, where sensitive marine clays exist, the following information must be provided to the City:

    - A map that shows:

        i. Location and depth of sensitive soils

        ii. Location of utilities

iii. Location of proposed landscaping

9. MOECC ECA Requirements

   It is anticipated that an MECP Environmental Compliance Approval(s) (ECA) will be needed (or existing will need to be amended) for sewers as well as for any deviation from previous ECA approvals.

10. Phase 1 ESAs and Phase 2 ESAs must conform to clause 4.8.4 of the Official Plan that requires that development applications conform to Ontario Regulation 153/04.

Please contact Infrastructure Project Manager Justin Armstrong at Justin.Armstrong@ottawa.ca if you have any questions or require additional information relating to the comments above.

Transportation

1. A TIA is warranted- proceed to scoping.
2. The application will not be deemed complete until the submission of the draft step 1-4, including the functional draft RMA package (if applicable) and/or monitoring report (if applicable). Although a full review of the TIA Strategy report (Step 4) is not required prior to an application, it is strongly recommended.
3. Synchro files are required with Step 4.
4. ROW protection on Campeau is 37.5m.
5. Geometric Road Design (GRD) drawings will be required with the first submission of underground infrastructure and grading drawings.
6. These drawings should include such items as, but is not limited to:
   a. Road Signage and Pavement Marking for the subdivision;
   b. Intersection control measure at new internal intersections; and
   c. Location of depressed curbs and TWSIs;
   d. Include traffic calming measures on roads within the limits of their subdivision to limit vehicular speed to 30 kph and improve pedestrian safety. These measures may include either vertical or horizontal features.
7. Site triangles at the following locations on the final plan will be required:
   a. Local Road to Local Road: 3 metre x 3 metres
   b. Local Road to Collector Road: 5 metre x 5 metres
   c. Collector Road to Collector Road: 5 metre x 5 metres

d. Collector Road to Arterial Road: 5 metre x 5 metres

8. A Road Noise Impact Study is required.

9. Please note that all new applications (pre-consultation meetings dated after March 3, 2021) must use the NEW TRANS Trip Generation Manual when forecasting site generated trips using this manual. The TRANS committee (a joint transportation planning committee serving the National Capital region) finalized a new manual early in March 2021. The document will be available in French and English on the TRANS website http://www.ncr-trans-rcn.ca/surveys/2009-trip-generation. The new manual has simplified the conversion from vehicle trips to person trips and then trips by modal share.

10. Any Development Charge road work may be front ended by the applicant, so long as the work is listed in the affordable network. Repayment will be based on warrants, as determined solely by the Transportation Services Department. A Front Ending application is required.

Please contact Transportation Project Manager Mike Giampa at Mike.Giampa@ottawa.ca if you have any questions or require additional information relating to the comments above.

Parks

1. Staff understand that the applicant intends to provide cash-in-lieu rather than dedicate land for parkland for both Stages 5 and 6.

2. Please confirm lands that are to be dedicated to the City (e.g., corner park blocks, dry ponds, open space blocks, etc.) in each application..

3. Please provide more information on pedestrian pathways to the adjacent park and open space blocks for Stage 5.

4. Please reach out to Councillor Sudds to discuss the cash-in-lieu of parkland proposal.

Please contact Parks Planner Mike Russett at Mike.Russett@ottawa.ca if you have any questions or require additional information relating to the comments above.

Environment

1. Up-dated EIS, should focus on the transition from the developed lands to the natural area/watercourse blocks.

2. Implementing all recommendations from older EIS if still applicable.

Please contact Environmental Planner Matthew Hayley at Matthew.Hayley@ottawa.ca if you have any questions or require additional information relating to the comments above.

Forestry

TCR requirements:

1. A Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City
    a. An approved TCR is a requirement of Site Plan approval.
    b. The TCR may be combined with eh LP provided all information is supplied
2. As of January 1 2021, any removal of privately-owned trees 10cm or larger in diameter, or publicly (City) owned trees of any diameter requires a tree permit issued under the Tree Protection Bylaw (Bylaw 2020 – 340); the permit will be based on an approved TCR and made available at or near plan approval.
3. The Planning Forester from Planning and Growth Management as well as foresters from Forestry Services will review the submitted TCR
    a. If tree removal is required, both municipal and privately-owned trees will be addressed in a single permit issued through the Planning Forester
    b. Compensation may be required for city owned trees – if so, it will need to be paid prior to the release of the tree permit
4. The TCR must list all trees on site, as well as off-site trees if the CRZ extends into the developed area, by species, diameter and health condition
5. Please identify trees by ownership – private onsite, private on adjoining site, city owned, co-owned (trees on a property line)
6. the TCR must list all trees on adjacent sites if they have a critical root zone that extends onto the development site
7. If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained
8. All retained trees must be shown and all retained trees within the area impacted by the development process must be protected as per City guidelines available at Tree Protection Specification or by searching Ottawa.ca
        a. The location of tree protection fencing must be shown on a plan;
        b. Show the critical root zone of the retained trees; and,
        c. If excavation will occur within the critical root zone, please show the limits of excavation .

9. The City encourages the retention of healthy trees; if possible, please seek opportunities for retention of trees that will contribute to the design/function of the site.

For more information on the process or help with tree retention options, contact Mark Richardson mark.richardson@ottawa.ca or on City of Ottawa

Landscape Plan Tree Planting requirements:

10. Minimum Setbacks

    a. Maintain 1.5m from sidewalk or MUP/cycle track.

    b. Maintain 2.5m from curb

    c. Coniferous species require a minimum 4.5m setback from curb, sidewalk or MUP/cycle track/pathway.

    d. Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing.

    e. Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors.

11. Tree specifications

    a. Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.

    b. Maximize the use of large deciduous species wherever possible to maximize future canopy coverage

    c. Tree planting on city property shall be in accordance with the City of Ottawa's Tree Planting Specification; and include watering and warranty as described in the specification (can be provided by Forestry Services).

    d. Plant native trees whenever possible

    e. No root barriers, dead-man anchor systems, or planters are permitted.

    f. No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree)

12. Hard surface planting

    a. Curb style planter is highly recommended

    b. No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.

c. Trees are to be planted at grade

13. Soil Volume

a. Please ensure adequate soil volumes are met:

Tree Type/Size	Single Tree Soil Volume (m3)	Multiple Tree Soil Volume (m3/tree)
Ornamental	15	9
Columnar	15	9
Small	20	12
Medium	25	15
Large	30	18
Conifer	25	15

**Please note that these soil volumes are not applicable in cases with Sensitive Marine Clay.

14. Sensitive Marine Clay

a. Please follow the City's 2017 Tree Planting in Sensitive Marine Clay guidelines.

Please contact Adam Palmer at adam.palmer@Ottawa.ca if you have any questions or require additional information relating to the landscape plan tree planting requirements.

MVCA

1. MVCA staff have recently reviewed permit applications and related documents required as part of the Lifting of a Holding Symbol application for the Stage 5 lands.
2. Please ensure that the Campeau pond setbacks and LRT alignment are considered as the site designs for both applications are further refined.
3. Please note that the MVCA will be conducting a floodplain mapping update by the end of the year.
4. Please refer to MVCA comments provided for previous stages of the Arcadia subdivision.

Please contact the MVCA's Planning Manager, Matt Craig, at MCraig@mvc.on.ca if you have any questions or require additional information relating to the comments above.

NEXT STEPS:

Please refer to the links to Guide to preparing studies and plans and fees for further information. Additional information is available related to building permits, development charges, and the Accessibility Design Standards. Be aware that other fees and permits may be required, outside of the development review process. You may obtain background drawings by contacting informationcentre@ottawa.ca.

These pre-con comments are valid for one year. If you submit a development application(s) after this time, you may be required to meet for another pre-consultation meeting and/or the submission requirements may change. You are as well encouraged to contact us for a follow-up meeting if the plan/concept will be further refined.

Please do not hesitate to Colette Gorni, at Colette.Gorni@ottawa.ca, if you have any questions.

Appendix C

Water Servicing

WATERMAIN DEMAND CALCULATION SHEET

PROJECT : ARCADIA STAGE 5
LOCATION : CITY OF OTTAWA
DEVELOPER : MINTO COMMUNITIES INC.

NODE	RESIDENTIAL					NON-RESIDENTIAL			AVERAGE DAILY DEMAND (l/s)			MAXIMUM DAILY DEMAND (l/s)			PEAK HOUR DEMAND (l/s)		
	SINGLES	ROW TOWNHOUSE	B2B TOWNHOUSE	UNIT COUNT	POP'N	COMM (ha.)	INST. (ha.)	PARK (ha.)	Res.	Non-res.	Total	Res.	Non-res.	Total	Res.	Non-res.	Total
ARCADIA STAGE 5																	
J-41	0	17	0	17	46	0.00	0.00	0.00	0.15	0.00	0.15	0.37	0.00	0.37	0.82	0.00	0.82
J-42	11	14	0	25	75	0.00	0.00	0.00	0.24	0.00	0.24	0.61	0.00	0.61	1.34	0.00	1.34
J-43	0	22	0	22	59	0.00	0.00	0.00	0.19	0.00	0.19	0.48	0.00	0.48	1.06	0.00	1.06
J-44	0	0	30	30	81	0.00	0.00	0.00	0.26	0.00	0.26	0.66	0.00	0.66	1.44	0.00	1.44
J-45	0	0	24	24	65	0.00	0.00	0.00	0.21	0.00	0.21	0.53	0.00	0.53	1.16	0.00	1.16
J-46	0	8	12	20	54	0.00	0.00	0.00	0.18	0.00	0.18	0.44	0.00	0.44	0.96	0.00	0.96
J-47	0	8	8	16	43	0.00	0.00	0.00	0.14	0.00	0.14	0.35	0.00	0.35	0.77	0.00	0.77
J-48	0	7	0	7	19	0.00	0.00	0.00	0.06	0.00	0.06	0.15	0.00	0.15	0.34	0.00	0.34
J-49	6	0	0	6	20	0.00	0.00	0.00	0.07	0.00	0.07	0.17	0.00	0.17	0.36	0.00	0.36
J-50	11	0	0	11	37	0.00	0.00	0.00	0.12	0.00	0.12	0.30	0.00	0.30	0.67	0.00	0.67
J-51	14	0	0	14	48	0.00	0.00	0.00	0.15	0.00	0.15	0.39	0.00	0.39	0.85	0.00	0.85
J-52	16	0	0	16	54	0.00	0.00	0.00	0.18	0.00	0.18	0.44	0.00	0.44	0.97	0.00	0.97
J-53	4	0	0	4	14	0.00	0.00	0.00	0.04	0.00	0.04	0.11	0.00	0.11	0.24	0.00	0.24
J-54	0	12	0	12	32	0.00	0.00	0.00	0.11	0.00	0.11	0.26	0.00	0.26	0.58	0.00	0.58
TOTALS	62	88	74	224	648	0.00	0.00	0.00	**2.10**	**0.00**	**2.10**	**5.26**	**0.00**	**5.26**	**11.56**	**0.00**	**11.56**

ASSUMPTIONS

RESIDENTIAL DENSITIES

- SINGLES 3.4 p / p / u
- ROW TOWNHOUSE 2.7 p / p / u
- B2B TOWNHOUSE 2.7 p / p / u

AVG. DAILY DEMAND

- Residential 280 l / cap / day
- Institutional 28,000 l / ha / day
- Commercial 28,000 l / ha / day

MAX. DAILY DEMAND

- Residential 700 l / cap / day
- Institutional 42,000 l / ha / day
- Commercial 42,000 l / ha / day

MAX. HOURLY DEMAND

- Residential 1,540 l / cap / day
- Institutional 75,600 l / ha / day
- Commercial 75,600 l / ha / day

Critical Fire Area 1
RFF = 10,000 L/min (167 L/s)

Critical Fire Area 2
RFF = 10,000 L/min (167 L/s)

Critical Fire Area 3
RFF = 12,000 L/min (200 L/s)

Critical Fire Area 4 (With FW)
RFF = 13,000 L/min (217 L/s)

Critical Fire Area 4 (Without FW)
RFF = 18,000 L/min (300 L/s)

Critical Fire Area 5 (With FW)
RFF = 12,000 L/min (200 L/s)

Critical Fire Area 5A (Without FW)
RFF = 19,000 L/min (317 L/s)

Critical Fire Area 6
RFF = 17,000 L/min (283 L/s)

Critical Fire Area 7
RFF = 17,000 L/min (283 L/s)

exposure greater than 45 m

STAGE 4

Stage 5

Stage 3

BLOCK 44
Open space/Park
0.03 ha
(0.08 ac)

Block 43
(DRY POND)
0.27 ha
(0.68 ac)

Block 76
Open Space
0.07 ha / 0.17 ac

Block 75
Grading/Eas
0.13 ha /

EAST DIVERSION

WEST DIVERSION

STREET NO. 1

STREET NO. 2

STREET NO. 4

STREET NO. 5

STREET NO. 6

WINTERSET ROAD

NATARE PLACE

SPEEDVALE COURT

BLOCK 1
BLOCK 2
BLOCK 3
BLOCK 4
BLOCK 6
BLOCK 7
BLOCK 8
BLOCK 9
BLOCK 10
BLOCK 11
BLOCK 12
BLOCK 13
BLOCK 14
BLOCK 15
BLOCK 17
BLOCK 18
BLOCK 19
BLOCK 20
BLOCK 21
BLOCK 22
BLOCK 24
BLOCK 25
BLOCK 26
BLOCK 27
BLOCK 36
BLOCK 37
BLOCK 38
BLOCK 39
BLOCK 40
BLOCK 41
BLOCK 44
BLOCK 45
BLOCK 46
BLOCK 47
BLOCK 51
BLOCK 52
BLOCK 53
BLOCK 54

No.	ISSUE / REVISION	DD/MM/YY

VERIFY SHEET SIZE AND SCALES. BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE: 1:750

CLIENT: minto Communities

CONSULTANT: www.jlrichards.ca
J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT:

PROFESSIONAL STAMP

PROFESSIONAL STAMP

PROJECT:
ARCADIA STAGE 5

DRAWING:

DESIGN: SP	
DRAWN: SP	DRAWING #:
CHECKED: AT	
JLR #: 26299-005	

File Location: P:\26000\26299-005 - Arcadia Stage 5\5-Production\1-Civil\26299-005 C CONCEPT-OPTION 4.dwg

PLOT DATE: Tuesday, September 7, 2021 3:50:11 PM

FUS Fire Flow Calculations

ARCADIA STAGE 5 - Row Townhouse

(JLR 26299-05)

Step	Parameter	Value		Note
A	Type of Construction	Wood Frame		
	Coefficient (C)	1.5		
B	Ground Floor Area	520	m^2	ROW TH with 6 Units
C	Height in storeys	2	storeys	Basements are excluded.
	Total Floor Area	1040	m^2	
D	Fire Flow Formula	$F=220C\sqrt{A}$		
	Fire Flow	10642	L/min	
	Rounded Fire Flow	11000	L/min	Flow rounded to nearest 1000 L/min.
E	Occupancy Class	Limited Combustible		Residential units have a limited combustible occupancy.
	Occupancy Charge	-15%		
	Occupancy Increase or Decrease	-1650		
	Fire Flow	9350	L/min	No rounding applied.
F	Sprinkler Protection	None		
	Sprinkler Credit	0%		
	Decrease for Sprinkler	0	L/min	
G	*North Side Exposure*			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	15.0	m	
	Height of Exposed Wall:	2	storeys	
	Length-Height Factor	30.0	m-storeys	
	Separation Distance	8.36	m	
	North Side Exposure Charge	17%		
	East Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	31.8	m	
	Height of Exposed Wall:	2	storeys	
	Length-Height Factor	63.5	m-storeys	
	Separation Distance	29.53	m	
	East Side Exposure Charge	9%		
	South Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	15.0	m	
	Height of Exposed Wall:	2	storeys	
	Length-Height Factor	30.0	m-storeys	
	Separation Distance	7.63	m	*assumed min. 6 m setback for unit 54
	South Side Exposure Charge	17%		
	West Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	31.2	m	
	Height of Exposed Wall:	2	storeys	
	Length-Height Factor	62.3	m-storeys	
	Separation Distance	13.45	m	
	West Side Exposure Charge	14%		
	Total Exposure Charge	57%		The total exposure charge is below the maximum value of 75%.
	Increase for Exposures	5330	L/min	
H	Fire Flow	14680	L/min	
	Rounded Fire Flow	15000	L/min	Flow rounded to nearest 1000 L/min.
City Cap	**Required Fire Flow (RFF)**	**10000**	**L/min**	The City of Ottawa's cap does apply since separation of front and back is greater than 10 m AND total exposing area is less than 600 sq-m (and less than 7 units in dwelling)
		167	**L/s**	

Fire Underwriters Survey (FUS) Fire Flow Calculations
In accordance with City of Ottawa Technical Bulletin ISTB-2018-02 dated March 21, 2018

FUS Fire Flow Calculations

ARCADIA STAGE 5 - Row Townhouse

(JLR 26299-05)

Step	Parameter	Value		Note
A	Type of Construction	Wood Frame		
	Coefficient (C)	1.5		
B	Ground Floor Area	355	m^2	ROW TH with 4 Units
C	Height in storeys	2	storeys	Basements are excluded.
	Total Floor Area	710	m^2	
D	Fire Flow Formula	$F=220C\sqrt{A}$		
	Fire Flow	8793	L/min	
	Rounded Fire Flow	9000	L/min	Flow rounded to nearest 1000 L/min.
E	Occupancy Class	Limited Combustible		Residential units have a limited combustible occupancy.
	Occupancy Charge	-15%		
	Occupancy Increase or Decrease	-1350		
	Fire Flow	7650	L/min	No rounding applied.
F	Sprinkler Protection	None		
	Sprinkler Credit	0%		
	Decrease for Sprinkler	0	L/min	
G	*North Side Exposure*			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	15.0	m	
	Height of Exposed Wall:	2	storeys	
	Length-Height Factor	30.0	m-storeys	
	Separation Distance	9	m	*assumed min. 6 m rear yard setback for unit 62
	North Side Exposure Charge	17%		
	East Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	25.0	m	
	Height of Exposed Wall:	2	storeys	
	Length-Height Factor	50.0	m-storeys	
	Separation Distance	30.05	m	
	East Side Exposure Charge	8%		
	South Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	15.0	m	
	Height of Exposed Wall:	2	storeys	
	Length-Height Factor	30.0	m-storeys	
	Separation Distance	3.52	m	
	South Side Exposure Charge	17%		
	West Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	25.0	m	
	Height of Exposed Wall:	2	storeys	
	Length-Height Factor	50.0	m-storeys	
	Separation Distance	13.26	m	
	West Side Exposure Charge	13%		
	Total Exposure Charge	55%		The total exposure charge is below the maximum value of 75%.
	Increase for Exposures	4208	L/min	
H	Fire Flow	11858	L/min	
	Rounded Fire Flow	12000	L/min	Flow rounded to nearest 1000 L/min.
City Cap	**Required Fire Flow (RFF)**	**10000**	**L/min**	The City of Ottawa's cap does apply since separation of front and back is greater than 10 m AND total exposing area is less than 600 sq-m (and less than 7 units in dwelling)
		167	**L/s**	

Fire Underwriters Survey (FUS) Fire Flow Calculations
In accordance with City of Ottawa Technical Bulletin ISTB-2018-02 dated March 21, 2018

FUS Fire Flow Calculations

ARCADIA STAGE 5 - Row Townhouse
(JLR 26299-05)

Step	Parameter	Value		Note
A	Type of Construction	Wood Frame		
	Coefficient (C)	1.5		
B	Ground Floor Area	345	m^2	ROW TH with 4 Units
C	Height in storeys	2	storeys	Basements are excluded.
	Total Floor Area	690	m^2	
D	Fire Flow Formula	F=220C√A		
	Fire Flow	8668	L/min	
	Rounded Fire Flow	9000	L/min	Flow rounded to nearest 1000 L/min.
E	Occupancy Class	Limited Combustible		Residential units have a limited combustible occupancy.
	Occupancy Charge	-15%		
	Occupancy Increase or Decrease	-1350		
	Fire Flow	7650	L/min	No rounding applied.
F	Sprinkler Protection	None		
	Sprinkler Credit	0%		
	Decrease for Sprinkler	0	L/min	
G	*North Side Exposure*			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	25.0	m	
	Height of Exposed Wall:	2	storeys	
	Length-Height Factor	50.0	m-storeys	
	Separation Distance	12.25	m	*assumed min. 6 m rear yard setback for units 32-34
	North Side Exposure Charge	13%		
	East Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	15.0	m	
	Height of Exposed Wall:	2	storeys	
	Length-Height Factor	30.0	m-storeys	
	Separation Distance	3.6	m	
	East Side Exposure Charge	17%		
	South Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	25.0	m	
	Height of Exposed Wall:	3	storeys	
	Length-Height Factor	75.0	m-storeys	
	Separation Distance	27.88	m	
	South Side Exposure Charge	9%		
	West Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	15.0	m	
	Height of Exposed Wall:	2	storeys	
	Length-Height Factor	30.0	m-storeys	
	Separation Distance	10.85	m	
	West Side Exposure Charge	12%		
	Total Exposure Charge	51%		The total exposure charge is below the maximum value of 75%.
	Increase for Exposures	3902	L/min	
H	Fire Flow	11552	L/min	
	Rounded Fire Flow	12000	L/min	Flow rounded to nearest 1000 L/min.
City Cap	**Required Fire Flow (RFF)**	**10000**	**L/min**	The City of Ottawa's cap does not apply since 10-m separation of front and back cannot be met
		167	**L/s**	

Fire Underwriters Survey (FUS) Fire Flow Calculations
In accordance with City of Ottawa Technical Bulletin ISTB-2018-02 dated March 21, 2018

FUS Fire Flow Calculations

ARCADIA STAGE 5 - Back-to-Back Townhouse
(JLR 26299-05)

Step	Parameter	Value		Note
A	Type of Construction	Wood Frame		
	Coefficient (C)	1.5		
B	Ground Floor Area	582	m^2	Back-to-back TH with 10 Units
C	Height in storeys	3	storeys	Basements are excluded.
	Total Floor Area	1746	m^2	
D	Fire Flow Formula	F=220C√A		
	Fire Flow	13789	L/min	
	Rounded Fire Flow	14000	L/min	Flow rounded to nearest 1000 L/min.
E	Occupancy Class	Limited Combustible		Residential units have a limited combustible occupancy.
	Occupancy Charge	-15%		
	Occupancy Increase or Decrease	-2100		
	Fire Flow	11900	L/min	No rounding applied.
F	Sprinkler Protection	None		
	Sprinkler Credit	0%		
	Decrease for Sprinkler	0	L/min	
G	*North Side Exposure*			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	28.0	m	
	Height of Exposed Wall:	2	storeys	
	Length-Height Factor	56.0	m-storeys	
	Separation Distance	27.88	m	
	North Side Exposure Charge	8%		
	East Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	21.5	m	
	Height of Exposed Wall:	3	storeys	
	Length-Height Factor	64.5	m-storeys	
	Separation Distance	3.45	m	
	East Side Exposure Charge	19%		
	South Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	28.0	m	
	Height of Exposed Wall:	3	storeys	
	Length-Height Factor	84.0	m-storeys	
	Separation Distance	26.32	m	
	South Side Exposure Charge	9%		
	West Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	21.5	m	1
	Height of Exposed Wall:	3	storeys	
	Length-Height Factor	64.5	m-storeys	
	Separation Distance	3.45	m	
	West Side Exposure Charge	19%		
	Total Exposure Charge	55%		The total exposure charge is below the maximum value of 75%.
	Increase for Exposures	6545	L/min	
H	Fire Flow	18445	L/min	
	Rounded Fire Flow	18000	L/min	Flow rounded to nearest 1000 L/min.
City Cap	**Required Fire Flow (RFF)**	**18000**	**L/min**	The City of Ottawa's cap does not apply
		300	**L/s**	

Fire Underwriters Survey (FUS) Fire Flow Calculations
In accordance with City of Ottawa Technical Bulletin ISTB-2018-02 dated March 21, 2018

FUS Fire Flow Calculations

ARCADIA STAGE 5 - Back-to-Back Townhouse

(JLR 26299-05)

Step	Parameter	Value		Note
A	Type of Construction	Wood Frame		
	Coefficient (C)	1.5		
B	Ground Floor Area	344.85	m^2	Back-to-back TH with 10 units separated by one (1) FW. FW divides the block into two (2) compartments: one with six units and one with four units. Six (6) unit TH compartment is considered in this analysis
C	Height in storeys	3	storeys	Basements are excluded.
	Total Floor Area	1034.55	m^2	
D	Fire Flow Formula	$F=220C\sqrt{A}$		
	Fire Flow	10614	L/min	
	Rounded Fire Flow	11000	L/min	Flow rounded to nearest 1000 L/min.
E	Occupancy Class	Limited Combustible		Residential units have a limited combustible occupancy.
	Occupancy Charge	-15%		
	Occupancy Increase or Decrease	-1650		
	Fire Flow	9350	L/min	No rounding applied.
F	Sprinkler Protection	None		
	Sprinkler Credit	0%		
	Decrease for Sprinkler	0	L/min	
G	*North Side Exposure*			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	19.0	m	
	Height of Exposed Wall:	2	storeys	
	Length-Height Factor	38.0	m-storeys	
	Separation Distance	27.88	m	
	North Side Exposure Charge	8%		
	East Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	21.5	m	
	Height of Exposed Wall:	3	storeys	
	Length-Height Factor	64.5	m-storeys	
	Separation Distance	3.45	m	
	East Side Exposure Charge	19%		
	South Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	19.0	m	
	Height of Exposed Wall:	3	storeys	
	Length-Height Factor	57.0	m-storeys	
	Separation Distance	26.32	m	
	South Side Exposure Charge	8%		
	West Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	0.0	m	
	Height of Exposed Wall:	0	storeys	
	Length-Height Factor	0.0	m-storeys	
	Separation Distance	100	m	
	West Side Exposure Charge	0%		
	Total Exposure Charge	35%		The total exposure charge is below the maximum value of 75%.
	Increase for Exposures	3273	L/min	
H	Fire Flow	12623	L/min	
	Rounded Fire Flow	13000	L/min	Flow rounded to nearest 1000 L/min.
City Cap	**Required Fire Flow (RFF)**	**13000**	**L/min**	The City of Ottawa's cap does not apply
		217	**L/s**	

Fire Underwriters Survey (FUS) Fire Flow Calculations
In accordance with City of Ottawa Technical Bulletin ISTB-2018-02 dated March 21, 2018

FUS Fire Flow Calculations

ARCADIA STAGE 5 - Back-to-Back Townhouse
(JLR 26299-05)

Step	Parameter	Value		Note
A	Type of Construction	Wood Frame		
	Coefficient (C)	1.5		
B	Ground Floor Area	700	m^2	Back-to-back TH with 12 Units
C	Height in storeys	3	storeys	Basements are excluded.
	Total Floor Area	2100	m^2	
D	Fire Flow Formula	$F=220C\sqrt{A}$		
	Fire Flow	15122	L/min	
	Rounded Fire Flow	15000	L/min	Flow rounded to nearest 1000 L/min.
E	Occupancy Class	Limited Combustible		Residential units have a limited combustible occupancy.
	Occupancy Charge	-15%		
	Occupancy Increase or Decrease	-2250		
	Fire Flow	12750	L/min	No rounding applied.
F	Sprinkler Protection	None		
	Sprinkler Credit	0%		
	Decrease for Sprinkler	0	L/min	
G	*North Side Exposure*			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	38.0	m	
	Height of Exposed Wall:	3	storeys	
	Length-Height Factor	114.0	m-storeys	
	Separation Distance	26.32	m	
	North Side Exposure Charge	10%		
	East Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	21.5	m	
	Height of Exposed Wall:	3	storeys	
	Length-Height Factor	64.5	m-storeys	
	Separation Distance	3.45	m	
	East Side Exposure Charge	19%		
	South Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	28.0	m	
	Height of Exposed Wall:	3	storeys	
	Length-Height Factor	84.0	m-storeys	
	Separation Distance	46	m	
	South Side Exposure Charge	0%		
	West Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	21.5	m	
	Height of Exposed Wall:	3	storeys	
	Length-Height Factor	64.5	m-storeys	
	Separation Distance	3.45	m	
	West Side Exposure Charge	19%		
	Total Exposure Charge	48%		The total exposure charge is below the maximum value of 75%.
	Increase for Exposures	6120	L/min	
H	Fire Flow	18870	L/min	
	Rounded Fire Flow	19000	L/min	Flow rounded to nearest 1000 L/min.
City Cap	**Required Fire Flow (RFF)**	**19000**	**L/min**	The City of Ottawa's cap does not apply
		317	**L/s**	

Fire Underwriters Survey (FUS) Fire Flow Calculations
In accordance with City of Ottawa Technical Bulletin ISTB-2018-02 dated March 21, 2018

FUS Fire Flow Calculations

ARCADIA STAGE 5 - Back-to-Back Townhouse

(JLR 26299-05)

Step	Parameter	Value		Note
A	Type of Construction	Wood Frame		
	Coefficient (C)	1.5		
B	Ground Floor Area	348.48	m^2	Back-to-back TH with 12 Units separated by one (1) FW (FW separates the block into two compartments of 6 units each)
C	Height in storeys	3	storeys	Basements are excluded.
	Total Floor Area	1045.44	m^2	
D	Fire Flow Formula	$F=220C\sqrt{A}$		
	Fire Flow	10670	L/min	
	Rounded Fire Flow	11000	L/min	Flow rounded to nearest 1000 L/min.
E	Occupancy Class	Limited Combustible		Residential units have a limited combustible occupancy.
	Occupancy Charge	-15%		
	Occupancy Increase or Decrease	-1650		
	Fire Flow	9350	L/min	No rounding applied.
F	Sprinkler Protection	None		
	Sprinkler Credit	0%		
	Decrease for Sprinkler	0	L/min	
G	*North Side Exposure*			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	15.0	m	
	Height of Exposed Wall:	3	storeys	
	Length-Height Factor	45.0	m-storeys	
	Separation Distance	26.32	m	
	North Side Exposure Charge	8%		
	East Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	0.0	m	
	Height of Exposed Wall:	0	storeys	
	Length-Height Factor	0.0	m-storeys	
	Separation Distance	100	m	
	East Side Exposure Charge	0%		
	South Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	28.0	m	
	Height of Exposed Wall:	3	storeys	
	Length-Height Factor	84.0	m-storeys	
	Separation Distance	46	m	
	South Side Exposure Charge	0%		
	West Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	21.5	m	
	Height of Exposed Wall:	3	storeys	
	Length-Height Factor	64.5	m-storeys	
	Separation Distance	3.45	m	
	West Side Exposure Charge	19%		
	Total Exposure Charge	27%		The total exposure charge is below the maximum value of 75%.
	Increase for Exposures	2525	L/min	
H	Fire Flow	11875	L/min	
	Rounded Fire Flow	12000	L/min	Flow rounded to nearest 1000 L/min.
City Cap	**Required Fire Flow (RFF)**	**12000**	**L/min**	The City of Ottawa's cap does not apply
		200	**L/s**	

Fire Underwriters Survey (FUS) Fire Flow Calculations

In accordance with City of Ottawa Technical Bulletin ISTB-2018-02 dated March 21, 2018

FUS Fire Flow Calculations

ARCADIA STAGE 5 - Single Family Dwelling
(JLR 26299-05)

Step	Parameter	Value		Note
A	Type of Construction	Wood Frame		
	Coefficient (C)	1.5		
B	Ground Floor Area	900	m^2	5 units (53 to 57) of single family dwellings. Largest single family dwelling area used
C	Height in storeys	2	storeys	Basements are excluded.
	Total Floor Area	1800	m^2	
D	Fire Flow Formula	$F=220C\sqrt{A}$		
	Fire Flow	14001	L/min	
	Rounded Fire Flow	14000	L/min	Flow rounded to nearest 1000 L/min.
E	Occupancy Class	Limited Combustible		Residential units have a limited combustible occupancy.
	Occupancy Charge	-15%		
	Occupancy Increase or Decrease	-2100		
	Fire Flow	11900	L/min	No rounding applied.
F	Sprinkler Protection	None		
	Sprinkler Credit	0%		
	Decrease for Sprinkler	0	L/min	
G	*North Side Exposure*			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	30.0	m	
	Height of Exposed Wall:	3	storeys	
	Length-Height Factor	90.0	m-storeys	
	Separation Distance	7.63	m	*assumed min. 6 m rear yard setback for singles
	North Side Exposure Charge	19%		
	East Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	16.6	m	
	Height of Exposed Wall:	3	storeys	
	Length-Height Factor	49.8	m-storeys	
	Separation Distance	21	m	**assumed 1.5 m side yard setback for singles
	East Side Exposure Charge	8%		
	South Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	50.0	m	
	Height of Exposed Wall:	2	storeys	
	Length-Height Factor	100.0	m-storeys	
	Separation Distance	21	m	**assumed 1.5 m front yard setback for singles
	South Side Exposure Charge	10%		
	West Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	16.6	m	
	Height of Exposed Wall:	3	storeys	
	Length-Height Factor	49.8	m-storeys	
	Separation Distance	32.5	m	**assumed 1.5 m side yard setback for singles
	West Side Exposure Charge	5%		
	Total Exposure Charge	42%		The total exposure charge is below the maximum value of 75%.
	Increase for Exposures	4998	L/min	
H	Fire Flow	16898	L/min	
	Rounded Fire Flow	17000	L/min	Flow rounded to nearest 1000 L/min.
City Cap	**Required Fire Flow (RFF)**	**17000**	**L/min**	The City of Ottawa's cap does not apply
		283	**L/s**	

Fire Underwriters Survey (FUS) Fire Flow Calculations
In accordance with City of Ottawa Technical Bulletin ISTB-2018-02 dated March 21, 2018

FUS Fire Flow Calculations

ARCADIA STAGE 5 - Single Family Dwelling
(JLR 26299-05)

Step	Parameter	Value		Note
A	Type of Construction	Wood Frame		
	Coefficient (C)	1.5		
B	Ground Floor Area	900	m^2	5 units (58 to 62) of single family dwellings. Largest single family dwelling area used
C	Height in storeys	2	storeys	Basements are excluded.
	Total Floor Area	1800	m^2	
D	Fire Flow Formula	$F=220C\sqrt{A}$		
	Fire Flow	14001	L/min	
	Rounded Fire Flow	14000	L/min	Flow rounded to nearest 1000 L/min.
E	Occupancy Class	Limited Combustible		Residential units have a limited combustible occupancy.
	Occupancy Charge	-15%		
	Occupancy Increase or Decrease	-2100		
	Fire Flow	11900	L/min	No rounding applied.
F	Sprinkler Protection	None		
	Sprinkler Credit	0%		
	Decrease for Sprinkler	0	L/min	
G	*North Side Exposure*			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	50.0	m	
	Height of Exposed Wall:	2	storeys	
	Length-Height Factor	100.0	m-storeys	
	Separation Distance	21	m	*assumed min. 1.5 m front yard setback for singles
	North Side Exposure Charge	10%		
	East Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	16.6	m	
	Height of Exposed Wall:	2	storeys	
	Length-Height Factor	33.2	m-storeys	
	Separation Distance	21	m	*assumed min. 1.5 m side yard setback for singles
	East Side Exposure Charge	8%		
	South Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	30.0	m	
	Height of Exposed Wall:	3	storeys	
	Length-Height Factor	90.0	m-storeys	
	Separation Distance	9	m	*assumed min. 6 m rear yard setback for singles
	South Side Exposure Charge	19%		
	West Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	16.6	m	
	Height of Exposed Wall:	3	storeys	
	Length-Height Factor	49.8	m-storeys	
	Separation Distance	32.5	m	**assumed 1.5 m side yard setback for singles
	West Side Exposure Charge	5%		
	Total Exposure Charge	42%		The total exposure charge is below the maximum value of 75%.
	Increase for Exposures	4998	L/min	
H	Fire Flow	16898	L/min	
	Rounded Fire Flow	17000	L/min	Flow rounded to nearest 1000 L/min.
City Cap	**Required Fire Flow (RFF)**	**17000**	**L/min**	The City of Ottawa's cap does not apply
		283	**L/s**	

Fire Underwriters Survey (FUS) Fire Flow Calculations
In accordance with City of Ottawa Technical Bulletin ISTB-2018-02 dated March 21, 2018

BOUNDARY CONDITIONS

Boundary Conditions For: Arcadia Stage 3A 3B 4 Future Stage 5

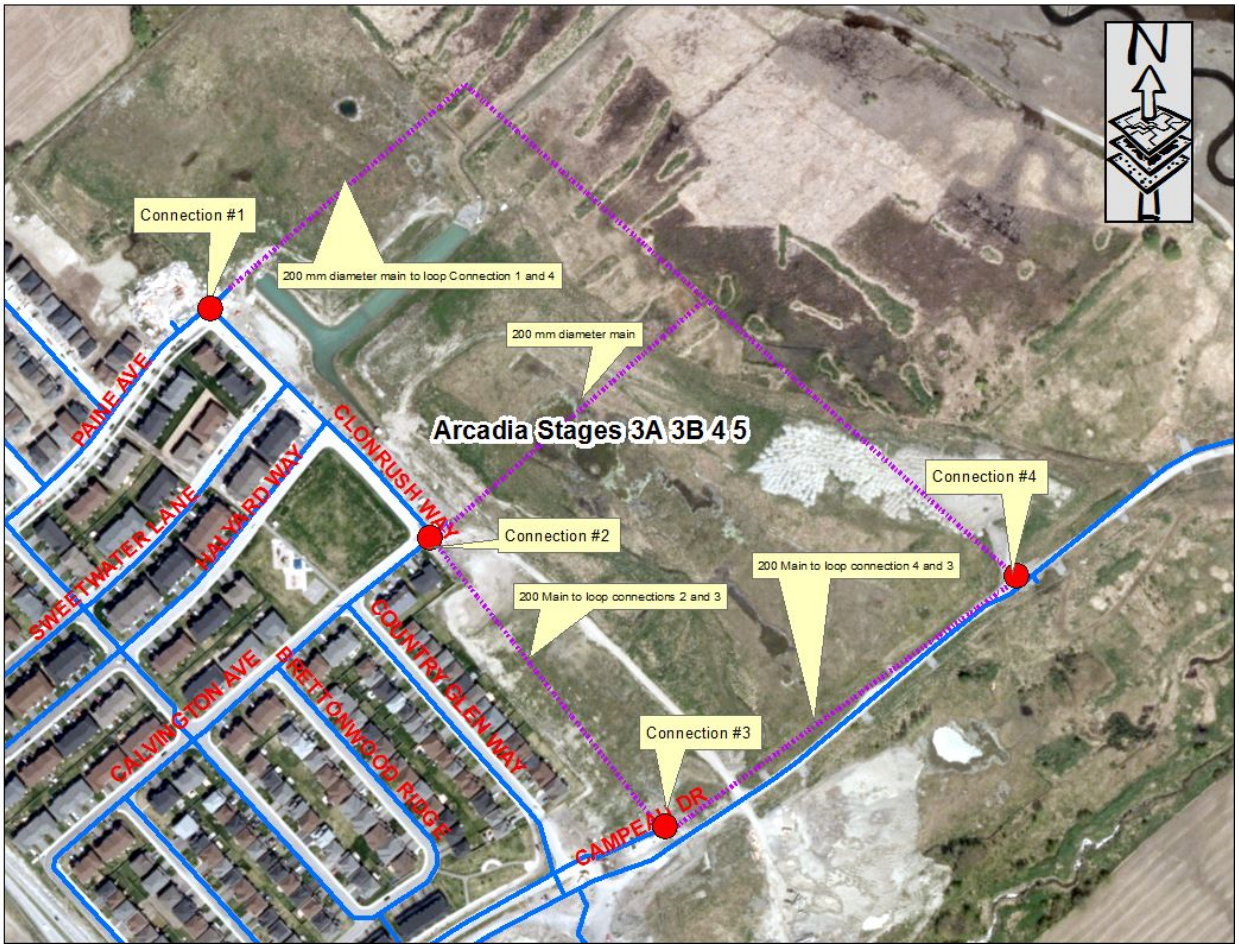
Date of Boundary Conditions: 2018-Oct-15

Provided Information:

Scenario	Demand	
	L/min	L/s
Average Daily Demand	910.8	15.2
Maximum Daily Demand	1630.2	27.2
Peak Hour	3127.2	52.1
Fire Flow #1 Demand	11,000	183.3
Fire Flow #2 Demand	17,000	283.3

Number Of Connections: 4

Location:



BOUNDARY CONDITIONS

Results:

Connection #: 1

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	162.2	94.5
Peak Hour	157.6	87.9
Max Day Plus Fire (11,000) L/min	147.6	73.7
Max Day Plus Fire (17,000) L/min	133.0	52.9

[1]Elevation: **95.74 m**

Connection #: 2

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	162.2	93.0
Peak Hour	157.6	86.4
Max Day Plus Fire (11,000) L/min	150.7	76.5
Max Day Plus Fire (17,000) L/min	139.6	60.9

[1]Elevation: **96.82 m**

Connection #: 3

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	162.2	91.7
Peak Hour	158.7	86.9
Max Day Plus Fire (11,000) L/min	156.2	83.3
Max Day Plus Fire (17,000) L/min	151.3	83.3

[1]Elevation: **97.58 m**

BOUNDARY CONDITIONS

Connection #: 4

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	162.2	95.4
Peak Hour	158.7	90.7
Max Day Plus Fire (11,000) L/min	157.1	88.3
Max Day Plus Fire (17,000) L/min	153.1	82.7

[1]Elevation: **94.76 m**

Notes:

1) As per the Ontario Building Code in areas that may be occupied, the static pressure at any fixture shall not exceed 552 kPa (80 psi.) Pressure control measures to be considered are as follows, in order of preference:

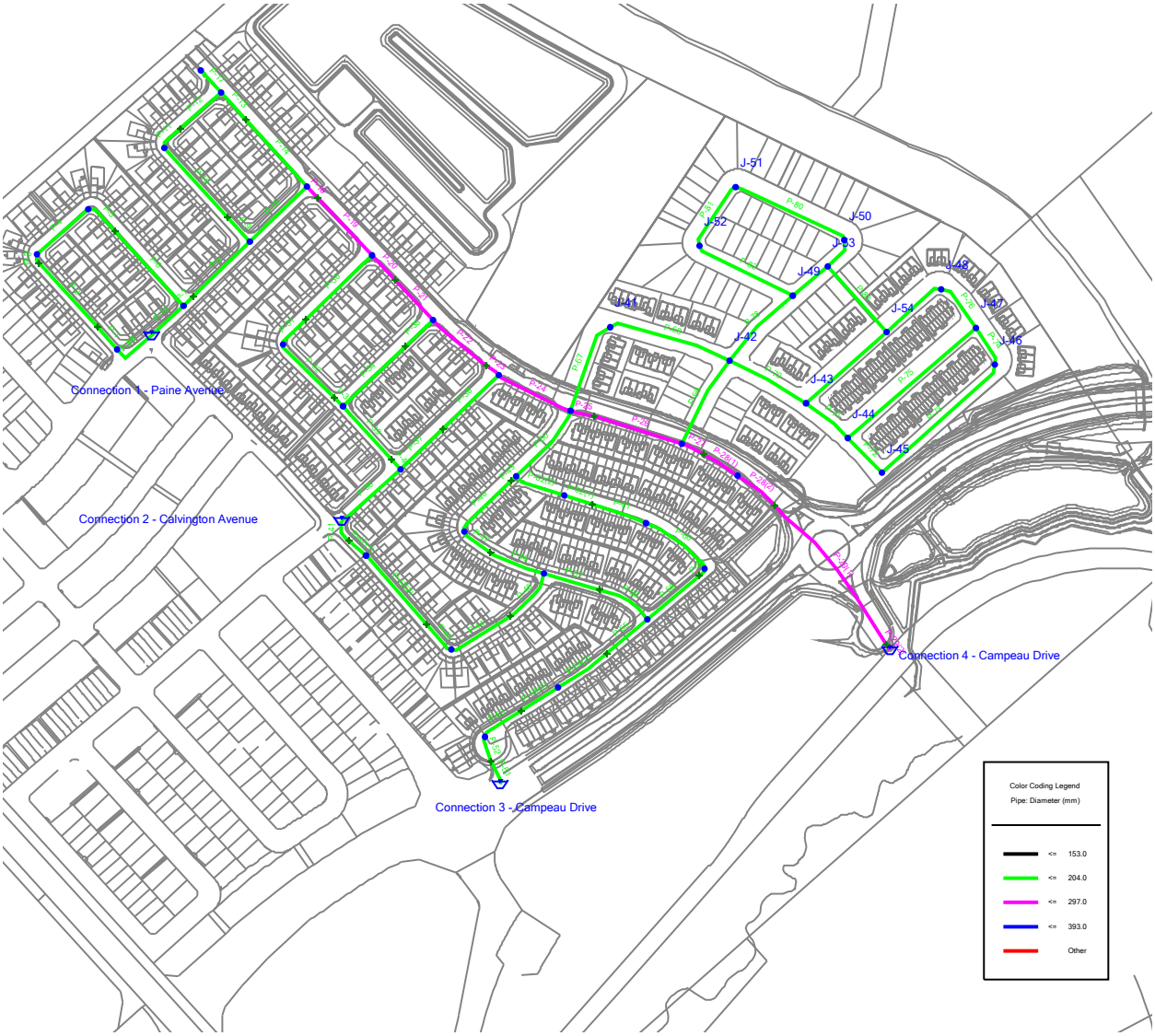
a) If possible, systems to be designed to residual pressures of 345 to 552 kPa (50 to 80 psi) in all occupied areas outside of the public right-of-way without special pressure control equipment.
b) Pressure reducing valves to be installed immediately downstream of the isolation valve in the home/ building, located downstream of the meter so it is owner maintained.

2) The resulting HGL and pressures are to be in conjunction with the watermain network layout provided in this boundary condition. Minimum size main to be used in looping all 4 connections is 200 mm diameter.

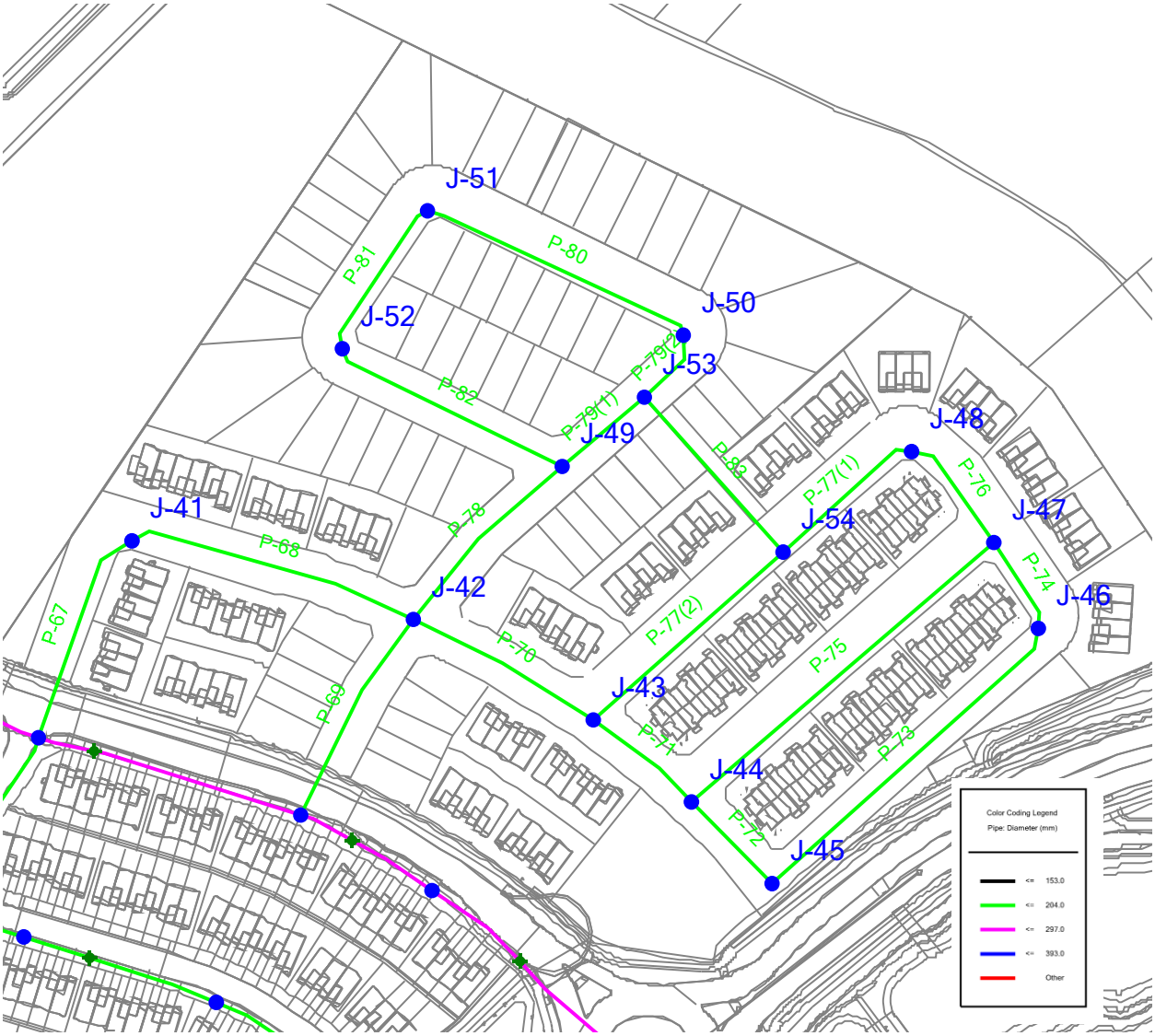
Disclaimer

The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation. Fire Flow analysis is a reflection of available flow in the watermain; there may be additional restrictions that occur between the watermain and the hydrant that the model cannot take into account.

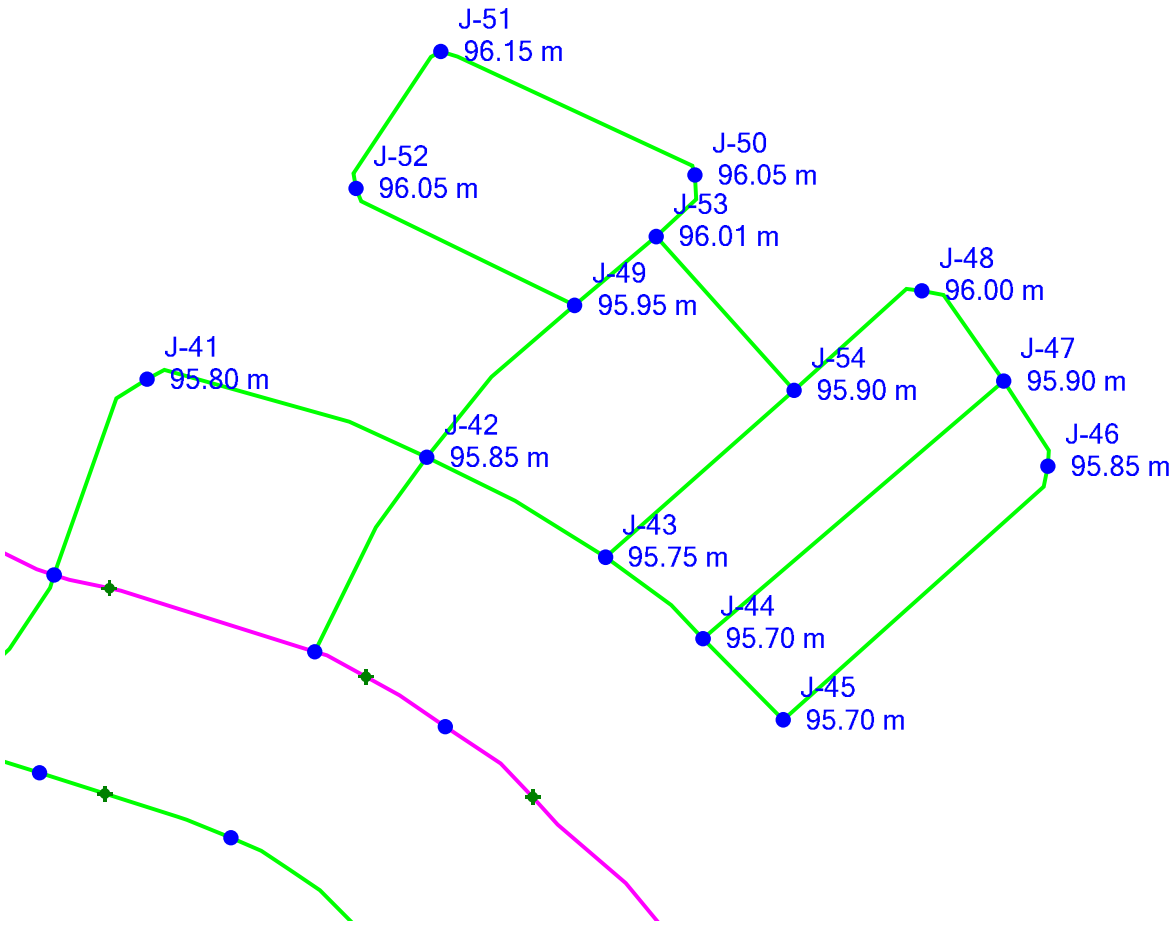
Arcadia Stage 3, 4 and 5
Model Schematic



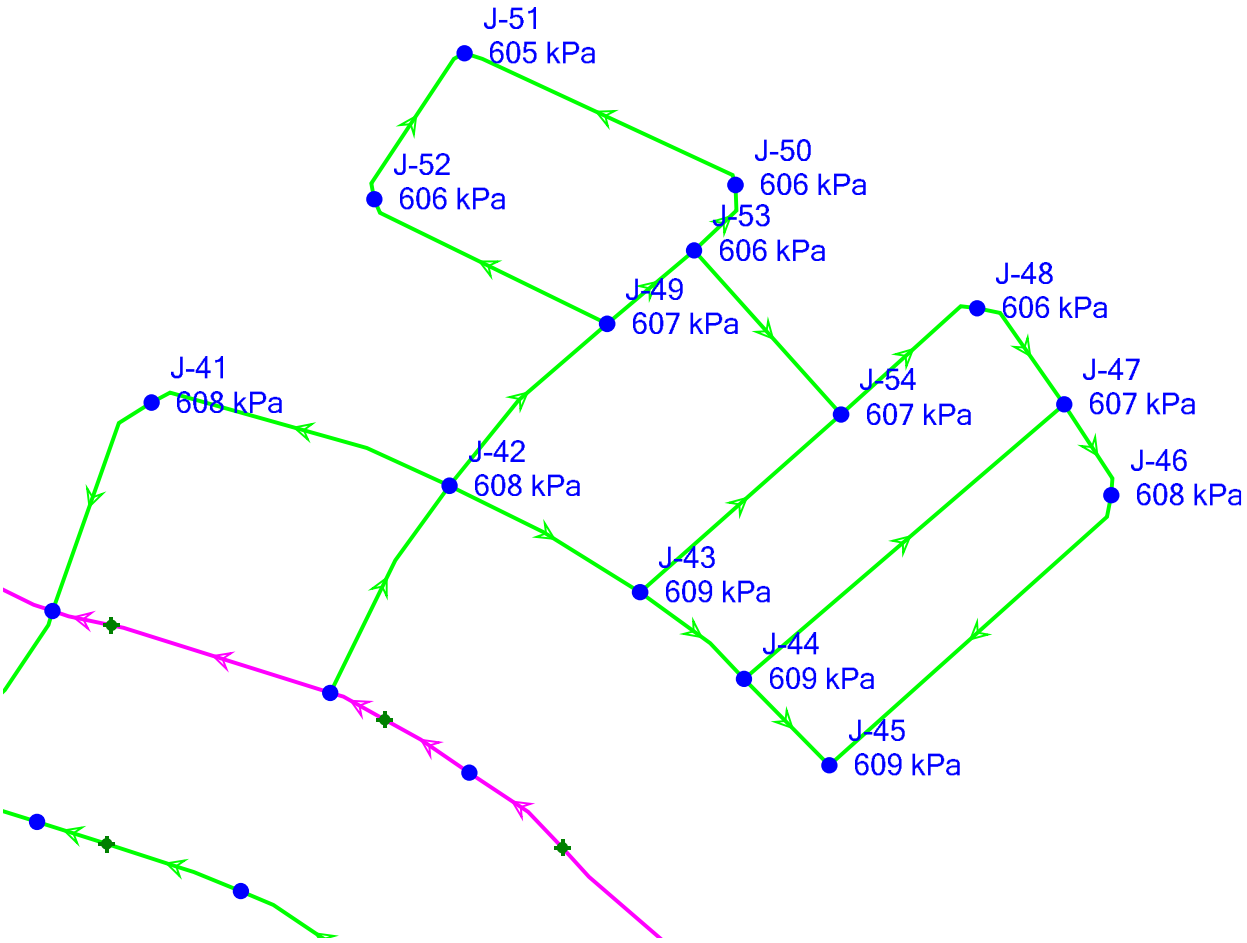
Arcadia Stage 5
Model Schematic



Arcadia Stage 5
Model Schematic
Elevation Model



Arcadia Stage 5
Peak Hour Demand
Existing Condition



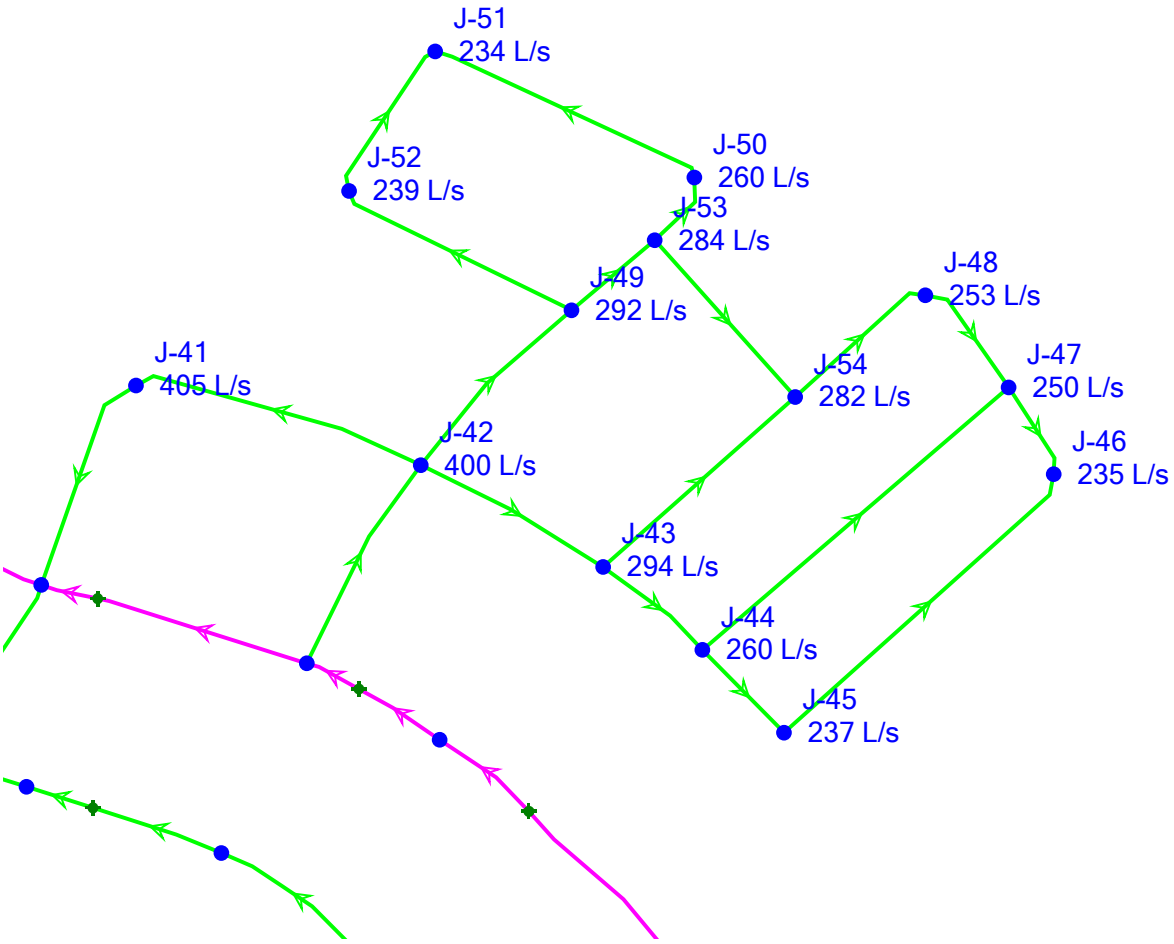
Arcadia Stage 5
Peak Hour Demand
Existing Condition
Junction Table

Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (kPa)
J-51	96.15	0.85	157.93	605
J-50	96.05	0.67	157.93	606
J-52	96.05	0.97	157.93	606
J-53	96.01	0.24	157.93	606
J-48	96.00	0.34	157.93	606
J-49	95.95	0.36	157.93	607
J-47	95.90	0.77	157.93	607
J-54	95.90	0.58	157.93	607
J-46	95.85	0.96	157.93	608
J-42	95.85	1.34	157.95	608
J-41	95.80	0.82	157.94	608
J-43	95.75	1.06	157.93	609
J-45	95.70	1.16	157.93	609
J-44	95.70	1.44	157.93	609

Arcadia Stage 5
Peak Hour Demand
Existing Condition
Pipe Table

ID	Label	Length (Scaled) (m)	Diameter (mm)	Material	Hazen-Williams C	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)	Flow (L/s)	Velocity (m/s)
265	P-72	42.37	204.0	PVC	110.0	157.93	157.93	1.14	0.03
266	P-73	137.62	204.0	PVC	110.0	157.93	157.93	-0.02	0.00
267	P-74	36.65	204.0	PVC	110.0	157.93	157.93	-0.98	0.03
269	P-76	47.14	204.0	PVC	110.0	157.93	157.93	1.42	0.04
264	P-71	47.37	204.0	PVC	110.0	157.93	157.93	2.91	0.09
268	P-75	147.06	204.0	PVC	110.0	157.93	157.93	-0.33	0.01
283	P-77(1)	62.06	204.0	PVC	110.0	157.93	157.93	-1.76	0.05
286	P-83	76.77	204.0	PVC	110.0	157.93	157.93	1.33	0.04
263	P-70	76.18	204.0	PVC	110.0	157.95	157.93	4.98	0.15
284	P-77(2)	93.51	204.0	PVC	110.0	157.93	157.93	-1.01	0.03
273	P-80	106.36	204.0	PVC	110.0	157.93	157.93	0.23	0.01
281	P-79(2)	29.26	204.0	PVC	110.0	157.93	157.93	0.90	0.03
274	P-81	61.85	204.0	PVC	110.0	157.93	157.93	-0.62	0.02
280	P-79(1)	39.65	204.0	PVC	110.0	157.93	157.93	2.48	0.08
271	P-78	79.11	204.0	PVC	110.0	157.95	157.93	4.42	0.14
275	P-82	93.30	204.0	PVC	110.0	157.93	157.93	-1.59	0.05
260	P-67	82.98	204.0	PVC	110.0	157.93	157.94	-2.19	0.07
261	P-68	110.30	204.0	PVC	110.0	157.94	157.95	-3.01	0.09
262	P-69	83.65	204.0	PVC	110.0	157.95	158.07	-13.75	0.42

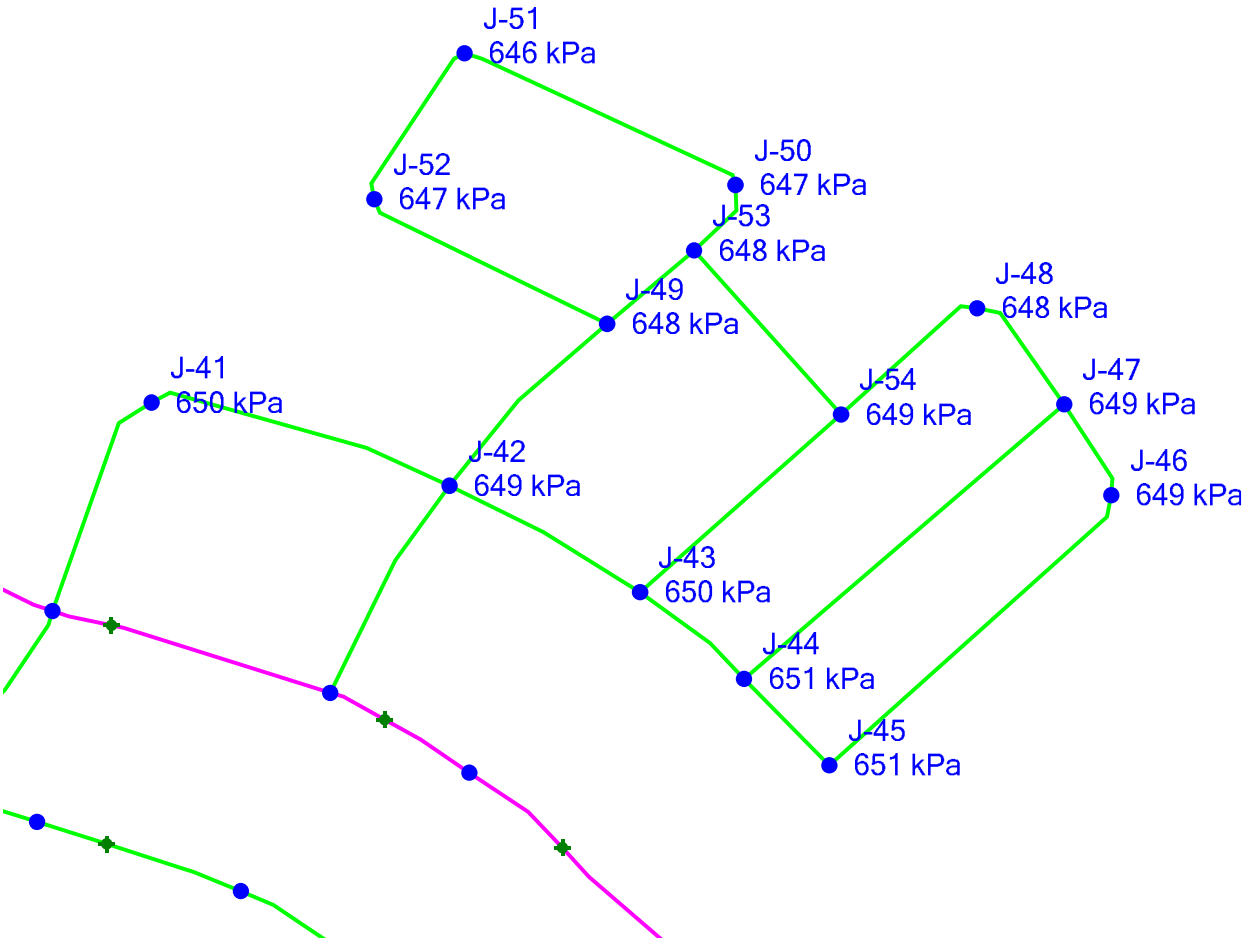
Arcadia Stage 5
Maximum Day + Fire Flow Requirement (17,000 L/min)



Arcadia Stage 5
Maximum Day + Fire Flow Requirement (17,000 L/min)

Label	Fire Flow (Needed) (L/s)	Fire Flow (Available) (L/s)	Flow (Total Available) (L/s)	Satisfies Fire Flow Constraints?	Pressure (Residual Lower Limit) (kPa)	Pressure (Calculated Residual) (kPa)	Junction w/ Minimum Pressure (System)
J-51	217	234	234	True	140	140	J-52
J-46	217	235	236	True	140	140	J-47
J-45	217	237	238	True	140	140	J-46
J-52	217	239	239	True	140	140	J-51
J-47	217	250	251	True	140	140	J-46
J-48	217	253	253	True	140	140	J-47
J-50	217	260	260	True	140	140	J-51
J-44	217	260	261	True	140	140	J-45
J-54	217	282	282	True	140	140	J-48
J-53	217	284	284	True	140	140	J-50
J-49	217	292	292	True	140	140	J-52
J-43	217	294	295	True	140	140	J-44
J-42	217	400	400	True	140	143	J-51
J-41	217	405	406	True	140	140	J-51

Arcadia Stage 5
Maximum Pressure Analysis
Existing Condition



Arcadia Stage 5
Maximum Pressure Analysis
Existing Condition
Junction Table

Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (kPa)
J-51	96.15	0	162.20	646
J-50	96.05	0	162.20	647
J-52	96.05	0	162.20	647
J-53	96.01	0	162.20	648
J-48	96.00	0	162.20	648
J-49	95.95	0	162.20	648
J-54	95.90	0	162.20	649
J-47	95.90	0	162.20	649
J-42	95.85	0	162.20	649
J-46	95.85	0	162.20	649
J-41	95.80	0	162.20	650
J-43	95.75	0	162.20	650
J-44	95.70	0	162.20	651
J-45	95.70	0	162.20	651

Arcadia Stage 5
Maximum Pressure Analysis
Existing Condition
Pipe Table

ID	Label	Length (Scaled) (m)	Diameter (mm)	Material	Hazen-Williams C	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)	Flow (L/s)	Velocity (m/s)
260	P-67	82.98	204.0	PVC	110.0	162.20	162.20	0	0.00
261	P-68	110.30	204.0	PVC	110.0	162.20	162.20	0	0.00
262	P-69	83.65	204.0	PVC	110.0	162.20	162.20	0	0.00
263	P-70	76.18	204.0	PVC	110.0	162.20	162.20	0	0.00
264	P-71	47.37	204.0	PVC	110.0	162.20	162.20	0	0.00
265	P-72	42.37	204.0	PVC	110.0	162.20	162.20	0	0.00
266	P-73	137.62	204.0	PVC	110.0	162.20	162.20	0	0.00
267	P-74	36.65	204.0	PVC	110.0	162.20	162.20	0	0.00
268	P-75	147.06	204.0	PVC	110.0	162.20	162.20	0	0.00
269	P-76	47.14	204.0	PVC	110.0	162.20	162.20	0	0.00
283	P-77(1)	62.06	204.0	PVC	110.0	162.20	162.20	0	0.00
284	P-77(2)	93.51	204.0	PVC	110.0	162.20	162.20	0	0.00
271	P-78	79.11	204.0	PVC	110.0	162.20	162.20	0	0.00
280	P-79(1)	39.65	204.0	PVC	110.0	162.20	162.20	0	0.00
281	P-79(2)	29.26	204.0	PVC	110.0	162.20	162.20	0	0.00
273	P-80	106.36	204.0	PVC	110.0	162.20	162.20	0	0.00
274	P-81	61.85	204.0	PVC	110.0	162.20	162.20	0	0.00
275	P-82	93.30	204.0	PVC	110.0	162.20	162.20	0	0.00
286	P-83	76.77	204.0	PVC	110.0	162.20	162.20	0	0.00

Appendix D

Wastewater Servicing

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

MINTO COMMUNITIES INC.
ARCADIA STAGE 5
CONCEPTUAL SANITARY SEWER DESIGN SHEET (OPTION 4)
JLR NO. 26299-005

DESIGNED BY: CJ
CHECKED BY: KF
December 2021

Street Name	Maintenace Hole No.		Residential								Commercial/Institutional				Park/Roads		Infiltration			Peak Design Flow L/s	Pipe Data							Upstream Geometry				Downstream Geometry				
	From	To	Singles	Multiples	Area (ha)	Pop.	Cum. Pop.	Cum. Area (ha)	Peaking Factor	Residential Flow (L/s)	Area (ha)	Cum. Area (ha)	Peaking Factor	Inst. Flow (L/s)	Area (ha)	Cum. Area (ha)	Area (ha)	Cum. Area (ha)	Peak Extr. Flow L/s		Dia	Slope	Q Full (L/s)	V Full	Length	Residual Capacity	% Full	TG From	Obvert	Invert	Cover	TG TO	Drop	Obvert	Invert	Cover
Winterset Road (Stage 3B)	EX.18	EX16		7	0.31	19	630	9.89	3.34	6.81						2.45	0.31	12.34	4.07	10.88															
STREET 6	18	19		4	0.20	11	11	0.20	3.73	0.13		0.00	1.50	0.00		0.00	0.20	0.20	0.07	0.20	200	0.65%	27.59	0.88	13.84	27.39	1%	95.976	93.380	93.177	2.596	95.863		93.290	93.087	2.573
STREET 6	19	26		12	0.48	32	43	0.68	3.66	0.51		0.00	1.50	0.00		0.00	0.48	0.68	0.22	0.73	200	0.35%	20.24	0.64	72.24	19.51	4%	95.863	93.290	93.087	2.573	95.770		93.037	92.834	2.733
STREET 6	26	25		3	0.15	8	51	0.83	3.65	0.60		0.00	1.50	0.00		0.00	0.15	0.83	0.27	0.88	200	0.35%	20.24	0.64	15.89	19.37	4%	95.770	93.037	92.834	2.733	95.801		92.982	92.778	2.820
STREET 6	25	24		18	0.41	49	100	1.24	3.59	1.17		0.00	1.50	0.00		0.00	0.41	1.24	0.41	1.57	200	0.35%	20.24	0.64	129.33	18.67	8%	95.801	92.982	92.778	2.820	95.666		92.529	92.326	3.137
STREET 6	24	23			0.02	0	100	1.26	3.59	1.17		0.00	1.50	0.00		0.00	0.02	1.26	0.42	1.58	200	0.35%	20.24	0.64	6.88	18.66	8%	95.666	92.529	92.326	3.137	95.679		92.505	92.302	3.174
STREET 6	23	21			0.07	0	100	1.33	3.59	1.17		0.00	1.50	0.00		0.00	0.07	1.33	0.44	1.60	200	0.35%	20.24	0.64	41.54	18.64	8%	95.679	92.505	92.302	3.174	95.698		92.359	92.156	3.339
STREET 4	22	21		37	0.65	100	100	0.65	3.59	1.17		0.00	1.50	0.00		0.00	0.65	0.65	0.21	1.38	100	0.35%	3.19	0.41	142.61	1.81	43%	95.725	92.859	92.757	2.866	95.698		92.359	92.258	3.339
STREET 6	21	20			0.30	0	200	2.28	3.52	2.28		0.00	1.50	0.00		0.00	0.30	2.28	0.75	3.03	200	0.35%	20.24	0.64	13.38	17.21	15%	95.698	92.359	92.156	3.339	95.593		92.313	92.109	3.280
STREET 6	20	17		5	0.16	14	214	2.44	3.51	2.43		0.00	1.50	0.00		0.00	0.16	2.44	0.81	3.24	200	0.35%	20.24	0.64	35.22	17.00	16%	95.593	92.313	92.109	3.280	95.749		92.189	91.986	3.560
STREET 6	18	17		35	0.82	95	95	0.82	3.60	1.11		0.00	1.50	0.00		0.00	0.82	0.82	0.27	1.38	200	0.35%	20.24	0.64	159.07	18.86	7%	95.976	92.746	92.543	3.229	95.749		92.189	91.986	3.560
STREET 6	17	16		8	0.22	22	331	3.48	3.45	3.70		0.00	1.50	0.00		0.00	0.22	3.48	1.15	4.85	200	0.35%	20.24	0.64	34.38	15.40	24%	95.749	92.189	91.986	3.560	95.503		92.069	91.866	3.434
STREET 6	16	5	1	1	0.12	6	337	3.60	3.45	3.76		0.00	1.50	0.00		0.00	0.12	3.60	1.19	4.95	200	0.35%	20.24	0.64	35.75	15.29	24%	95.503	92.069	91.866	3.434	95.844		91.944	91.741	3.900
STREET 1	11	10	2		0.16	7	7	0.16	3.74	0.08		0.00	1.50	0.00		0.00	0.16	0.16	0.05	0.14	200	0.35%	20.24	0.64	10.98	20.11	1%	96.029	92.908	92.705	3.121	96.132		92.870	92.666	3.263
STREET 1	10	9	16		0.86	54	61	1.02	3.64	0.72		0.00	1.50	0.00		0.00	0.86	1.02	0.34	1.06	200	0.35%	20.24	0.64	106.56	19.19	5%	96.132	92.870	92.666	3.263	96.008		92.497	92.293	3.511
STREET 1	9	8	3		0.35	10	71	1.37	3.63	0.83		0.00	1.50	0.00		0.00	0.35	1.37	0.45	1.29	200	0.35%	20.24	0.64	9.44	18.96	6%	96.008	92.497	92.293	3.511	95.996		92.464	92.260	3.532
STREET 1	8	7	5		0.27	17	88	1.64	3.61	1.03		0.00	1.50	0.00		0.00	0.27	1.64	0.54	1.57	200	0.35%	20.24	0.64	69.48	18.67	8%	95.996	92.464	92.260	3.532	95.950		92.220	92.017	3.730
STREET 1	11	12	4		0.23	14	14	0.23	3.72	0.17		0.00	1.50	0.00		0.00	0.23	0.23	0.08	0.24	200	0.35%	20.24	0.64	55.38	20.00	1%	96.029	92.782	92.579	3.248	95.940		92.588	92.385	3.352
STREET 1	12	13	2		0.22	7	21	0.45	3.70	0.25		0.00	1.50	0.00		0.00	0.22	0.45	0.15	0.40	200	0.35%	20.24	0.64	11.10	19.84	2%	95.940	92.588	92.385	3.352	96.038		92.549	92.346	3.489
STREET 1	13	7	14		0.70	48	69	1.15	3.63	0.81		0.00	1.50	0.00		0.00	0.70	1.15	0.38	1.19	200	0.35%	20.24	0.64	93.91	19.05	6%	96.038	92.549	92.346	3.489	95.950		92.220	92.017	3.730
STREET 1	7	6	4		0.17	14	171	2.96	3.54	1.96		0.00	1.50	0.00		0.00	0.17	2.96	0.98	2.94	200	0.35%	20.24	0.64	36.58	17.31	15%	95.950	92.220	92.017	3.730	95.694		92.092	91.889	3.602
STREET 1	6	5			0.06	0	171	3.02	3.54	1.96		0.00	1.50	0.00		0.00	0.06	3.02	1.00	2.96	200	0.35%	20.24	0.64	42.42	17.29	15%	95.694	92.092	91.889	3.602	95.844		91.944	91.741	3.900
STREET 2	14	15	6		0.23	20	20	0.23	3.70	0.24		0.00	1.50	0.00		0.00	0.23	0.23	0.08	0.32	200	0.35%	20.24	0.64	30.73	19.93	2%	95.418	92.158	91.955	3.260	95.565		92.051	91.847	3.514
STREET 2	15	5	4		0.18	14	34	0.41	3.68	0.41		0.00	1.50	0.00		0.00	0.18	0.41	0.14	0.54	200	0.35%	20.24	0.64	30.50	19.70	3%	95.565	92.051	91.847	3.514	95.844		91.944	91.741	3.900
STREET 5	5	4	1	2	0.15	9	551	7.18	3.36	6.00		0.00	1.50	0.00		0.00	0.15	7.18	2.37	8.37	200	0.35%	20.24	0.64	32.94	11.87	41%	95.844	91.944	91.741	3.900	95.689		91.829	91.625	3.860
STREET 5	4	3		18	0.50	49	600	7.68	3.35	6.51		0.00	1.50	0.00		0.00	0.50	7.68	2.53	9.04	200	0.35%	20.24	0.64	83.24	11.20	45%	95.689	91.829	91.625	3.860	95.824		91.537	91.334	4.287
STREET 3	3	2			0.03	0	600	7.71	3.35	6.51		0.00	1.50	0.00		0.00	0.03	7.71	2.54	9.05	200	0.35%	20.24	0.64	7.94	11.19	45%	95.824	91.537	91.334	4.287	95.798		91.509	91.306	4.289
STREET 3	2	1		7	0.27	19	619	7.98	3.34	6.70		0.00	1.50	0.00		0.00	0.27	7.98	2.63	9.33	200	0.35%	20.24	0.64	53.32	10.91	46%	95.798	91.509	91.306	4.289	95.703		91.323	91.120	4.380
STREET 3	**1**	**EX16**				**0**	**619**	**7.98**	**3.34**	**6.70**		**0.00**	**1.50**	**0.00**		**0.00**	**0.00**	**7.98**	**2.63**	**9.33**	200	0.35%	20.24	0.64	16.58	10.91	46%	95.703	91.323	91.120	4.380	95.858		91.265	90.960	4.593
Winterset Road	EX16	EX14		19	0.70	51	1300	18.57	3.18	13.39						2.45	0.70	21.02	6.94	20.33	300	0.26%	51.48	0.73	119.04	31.15	39%	95.890	91.265	90.960	4.625	95.440		90.955	90.650	4.638
Winterset Road	EX14	EX13		11	0.37	30	1330	18.94	3.17	13.68						2.45	0.37	21.39	7.06	20.74	300	0.20%	45.28	0.64	50.64	24.54	46%	95.440	90.945	90.640	4.495	95.320		90.843	90.538	4.630
Winterset Road	EX13	EX2		9	0.29	24	1354	19.23	3.17	13.91						2.45	0.29	21.68	7.15	21.06	300	0.32%	57.46	0.81	43.46	36.40	37%	95.320	90.843	90.538	4.477	94.860		90.702	90.397	4.311
Speedvale	**30A**	**EX2**			**0.20**	**0**	**549**	**6.49**	**3.36**	**5.98**					**0.20**	**0.24**	**0.40**	**6.73**	**2.22**	**8.20**	200	0.32%	19.26	0.61	44.81	11.14	42%	95.700	91.925	91.722	3.775	94.860	1.083	91.783	91.580	3.178
Winterset Road	EX2	EX2A			0.18	0	1903	25.90	3.08	19.01					0.18	2.87	0.36	28.77	9.49	28.50	300	0.60%	77.88	1.10	42.12	46.62	40%	94.860	90.702	90.397	4.158	94.860		90.298	90.146	4.562
					25.90	1903									2.87		28.77																		

Design Parameters		
Single Family Population	3.4	Cap/Unit
Semi-Detached/Townhouse Population	2.7	Cap/Unit
Residential Flows	280	L/Cap/Day
Infiltration Flows	0.33	L/s/ha
Manning Coefficient	0.013	

Legend

89.232 — Existing/Proposed Infrastructure
Existing (As-Built Information)

PARK
2.46Ha / 6.07ac

BLOCK 181

0.16 ha
0.23 ha
0.86 ha
0.35 ha
0.22 ha
0.7 ha
0.27 ha
0.2 ha
0.03 ha
0.5 ha
0.17 ha
0.48 ha
0.15 ha
0.06 ha
0.82 ha
0.27 ha
0.12 ha
0.65 ha
0.1 ha
0.22 ha
0.16 ha
0.23 ha
0.41 ha
0.06 ha
0.16 ha
0.02 ha
0.11 ha
0.07 ha
0.28 ha
0.02 ha

STREET NO. 1
STREET NO. 2
STREET NO. 3
STREET NO. 4
STREET NO. 5
STREET NO. 6

BLOCK 91
BLOCK 92
BLOCK 94
BLOCK 71
BLOCK 74
BLOCK 82

chemin Winterset Road
place Natare Place
CAMPEAU DRIVE

CONNECT TO EXISTING STORM MH EX116
CONNECT TO EXISTING SANITARY MH EX16
CONNECT TO EXISTING WATERMAIN
CONNECT TO EXISTING WATERMAIN
CONNECT TO EXISTING STORM MH EX102
EX.14
EX.13

LEGEND

- HYDRANT, VALVE & VB
- WATERMAIN
- CAP
- VALVE & VB
- TEE
- SANITARY SEWER
- FLOW DIRECTION
- MAINTENANCE HOLE
- STORM SEWER
- FLOW DIRECTION
- MAINTENANCE HOLE
- CATCHBASIN & LEAD

No.	ISSUE / REVISION	DD/MM/YY
0	ISSUED FOR DRAFT PLAN APPROVAL	06/12/21

VERIFY SHEET SIZE AND SCALES. BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE: 1:750

CLIENT: minto Communities

CONSULTANT: www.jlrichards.ca
J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT:

PROFESSIONAL STAMP

PROFESSIONAL STAMP

PROJECT: ARCADIA STAGE 5

DRAWING: CONCEPTUAL SANITARY DRAINAGE PLAN

DESIGN:	KF
DRAWN:	CJ
CHECKED:	KF
JLR #:	26299-005

DRAWING #: C-DSAN

File Location: P:\26000\26299-005 - Arcadia Stage 5\5-Production\1-Civil\26299-005 C CS1.dwg

PLOT DATE: December 6, 2021 3:35:45 PM

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

MINTO COMMUNITIES INC.
ARCADIA STAGE 4
450 HUNTMAR DRIVE
SANITARY SEWER DESIGN SHEET
JLR NO. 26299-004

DESIGNED BY: AR
CHECKED BY: AT
(Rev)2020-02-28

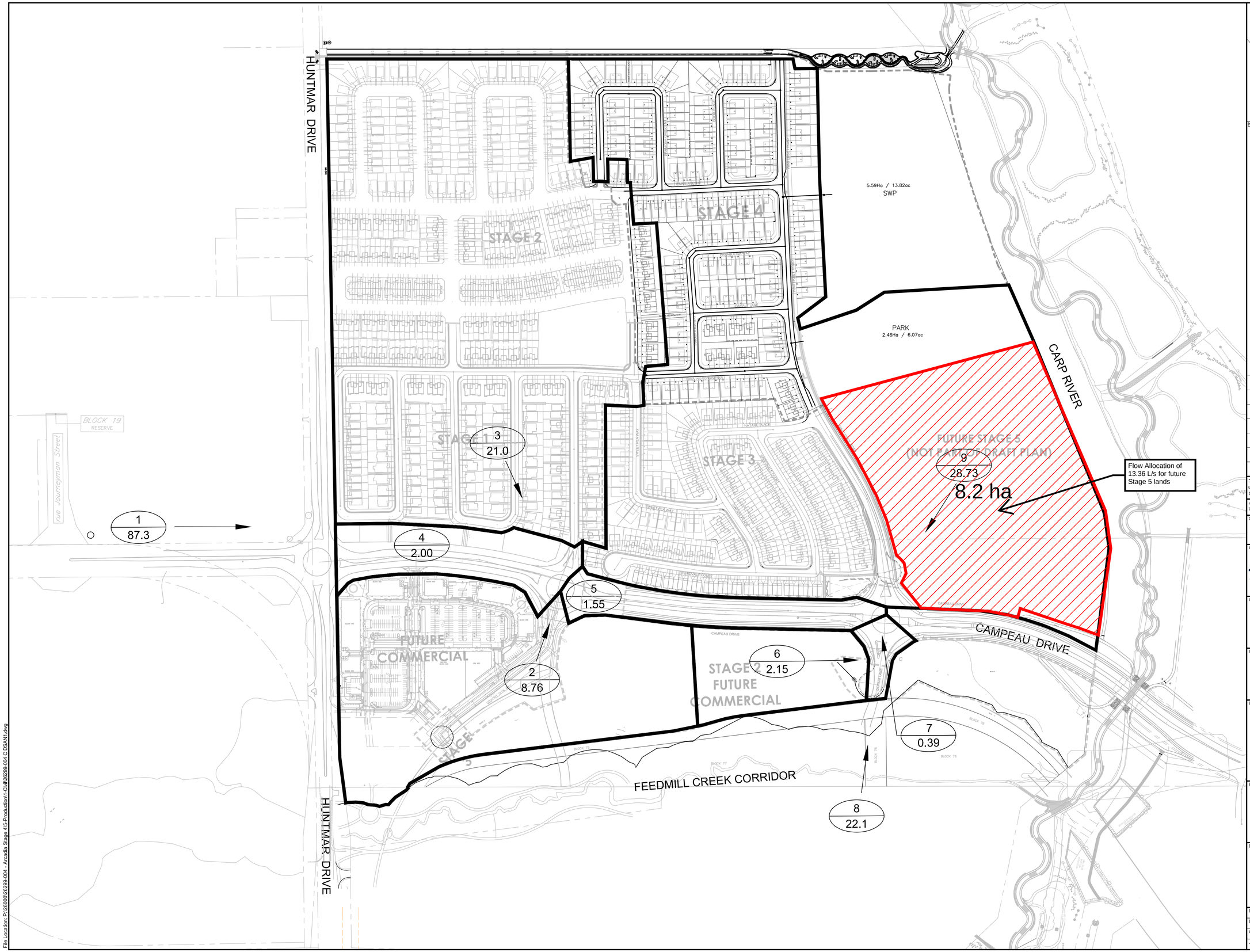
Street Name	Maintenace Hole No.		Residential							Park/Roads		Infiltration			Peak Design Flow L/s	Pipe Data						Upstream Geometry				Downstream Geometry				
	From	To	Singles	Multiples	Area (ha)	Pop.	Cum. Pop.	Cum. Area (ha)	Peaking Factor	Residential Flow (L/s)	Area (ha)	Cum. Area (ha)	Area (ha)	Cum. Area (ha)	Peak Extr. Flow L/s		Dia	Slope	Q Full (L/s)	V Full	Length	Residual Capacity	Centerline	Obvert	Invert	Cover	Centerline	Drop	Obvert	Invert	Cover
Eramosa Crescent	90	91	14		0.65	48	48	0.65	3.65	0.57		0.00	0.65	0.65	0.21	0.78	200	0.55%	25.28	0.80	79.43	24.50	97.000	94.675	94.472	2.325	97.300		94.242	94.039	3.058
Eramosa Crescent	91	92	2		0.18	7	55	0.83	3.64	0.65		0.00	0.18	0.83	0.27	0.92	200	0.35%	20.24	0.64	7.95	19.32	97.300	94.242	94.039	3.058	97.300		94.214	94.011	3.086
Eramosa Crescent	92	93	4		0.28	14	69	1.11	3.63	0.81		0.00	0.28	1.11	0.37	1.18	200	0.35%	20.24	0.64	61.89	19.07	97.300	94.214	94.011	3.086	97.100		93.997	93.794	3.103
Eramosa Crescent	93	94	2		0.18	7	76	1.29	3.62	0.89		0.00	0.18	1.29	0.43	1.32	200	0.35%	20.24	0.64	11.42	18.93	97.100	93.997	93.794	3.103	97.100		93.957	93.754	3.143
Eramosa Crescent	94	81	14		0.65	48	124	1.94	3.57	1.44		0.00	0.65	1.94	0.64	2.08	200	0.35%	20.24	0.64	116.53	18.17	97.100	93.957	93.754	3.143	96.150		93.553	93.350	2.597
Paine Avenue	EX. 8	EX. 9				0	0	0.00	3.80	0.00		0.00	0.00	0.00	0.00	0.00	250	0.25%	31.05	0.63	27.94	31.05	97.100	94.144	93.890	2.956	97.100		93.719	93.820	3.381
Paine Avenue	EX. 9	81	7		0.29	24	24	0.29	3.70	0.29		0.00	0.29	0.29	0.10	0.38	200	0.35%	20.24	0.64	47.35	19.86	97.100	93.719	93.515	3.381	96.150		93.553	93.350	2.597
Paine Avenue	81	80	10		0.50	34	182	2.73	3.53	2.08		0.00	0.50	2.73	0.90	2.98	200	0.35%	20.24	0.64	72.77	17.26	96.150	93.553	93.350	2.597	95.850	0.200	93.298	93.095	2.552
Coco	27	23	5		0.30	17	17	0.30	3.71	0.20		0.00	0.30	0.30	0.10	0.30	200	0.65%	27.59	0.88	70.24	27.28	96.110	93.697	93.494	2.413	95.550		93.241	93.037	2.309
Winterset Road	24	23	2		0.15	7	7	0.15	3.74	0.08		0.00	0.15	0.15	0.05	0.14	250	0.35%	36.70	0.75	37.01	36.57	95.450	93.370	93.116	2.080	95.550		93.241	92.987	2.309
Winterset Road	23	22	16		0.83	54	78	1.28	3.62	0.91		0.00	0.83	1.28	0.42	1.34	250	0.35%	36.70	0.75	116.70	35.36	95.550	93.241	92.987	2.309	95.220		92.832	92.578	2.388
Coco	27	28	2		0.18	7	7	0.18	3.74	0.08		0.00	0.18	0.18	0.06	0.14	200	0.65%	27.59	0.88	7.56	27.44	96.110	93.649	93.446	2.461	96.150	0.100	93.600	93.397	2.550
Coco	28	80	15		0.69	51	58	0.87	3.64	0.68		0.00	0.69	0.87	0.29	0.97	200	0.35%	20.24	0.64	114.71	19.27	96.150	93.500	93.297	2.650	95.850		93.098	92.895	2.752
Paine Avenue	80	22	6		0.35	20	260	3.94	3.48	2.94		0.00	0.35	3.94	1.30	4.24	200	0.35%	20.24	0.64	76.04	16.01	95.850	93.098	92.895	2.752	95.220		92.832	92.629	2.388
Winterset Road	22	22B	0		0.09	0	338	5.31	3.44	3.77		0.00	0.09	5.31	1.75	5.53	250	0.50%	43.87	0.89	15.02	38.34	95.220	92.832	92.578	2.388	95.210	0.590	92.757	92.503	2.453
Winterset Road	22B	21	5		0.32	17	355	5.63	3.44	3.95		0.00	0.32	5.63	1.86	5.81	300	0.25%	50.44	0.71	61.00	44.63	95.210	91.954	91.649	3.256	95.350		91.802	91.497	3.548
Pond Block	22B	22C	0			0	0	0.00	3.80	0.00		0.00	0.00	0.00	0.00	0.00	600	1.17%	692.87	2.45	50.56	692.87	95.250	93.980	93.370	1.270	94.400	1.574	93.388	92.778	1.012
Pond Block	22C	Overflow	0			0	0	0.00	3.80	0.00			0.00	0.00	0.00	0.00	600	1.13%	680.92	2.41	9.77	680.92	95.350	93.388	92.778		93.850		93.278	92.668	0.572
Parabolica	72	71	2		0.18	7	7	0.18	3.74	0.08		0.00	0.18	0.18	0.06	0.14	200	0.65%	27.59	0.88	11.70	27.44	99.210	92.598	92.395	6.612	96.120		92.522	92.319	3.598
Parabolica	71	21	14		0.67	48	55	0.85	3.64	0.65		0.00	0.67	0.85	0.28	0.93	200	0.65%	27.59	0.88	110.81	26.66	96.120	92.522	92.319	3.598	95.350		91.802	91.598	3.548
Winterset Road	21	20	10		0.56	34	444	7.04	3.40	4.89		0.00	0.56	7.04	2.32	7.22	300	0.25%	50.44	0.71	77.58	43.23	95.350	91.802	91.497	3.548	95.700		91.606	91.303	4.092
Parabolica	61	73	5		0.28	17	17	0.28	3.71	0.20		0.00	0.28	0.28	0.09	0.30	200	0.65%	27.59	0.88	74.02	27.29	96.600	92.998	92.794	3.602	96.600		92.517	92.313	4.083
Parabolica	72	73	7		0.33	24	24	0.33	3.70	0.29		0.00	0.33	0.33	0.11	0.40	200	0.65%	27.59	0.88	68.20	27.19	96.110	92.960	92.757	3.150	96.600		92.517	92.313	4.083
Basalt	73	20	6	9	0.60	45	86	1.21	3.61	1.01		0.00	0.60	1.21	0.40	1.40	200	0.35%	20.24	0.64	116.81	18.84	96.600	92.517	92.313	4.083	95.700	0.500	92.108	91.905	3.592
Winterset Road	20	19	3		0.19	10	540	8.44	3.37	5.89		0.00	0.19	8.44	2.78	8.67	300	0.25%	50.44	0.71	42.14	41.77	95.700	91.608	91.303	4.092	95.638		91.502	91.198	4.136
Park	19B	19				0	0	0.00	3.80	0.00	2.45	2.45	2.45	2.45	0.81	0.81	200	0.35%	20.24	0.64	15.38	19.43	95.710	91.556	91.353	4.154	95.638		91.502	91.299	4.136
Winterset Road	19	18	2		0.15	7	547	8.58	3.36	5.96		2.45	0.15	11.03	3.64	9.60	300	0.25%	50.44	0.71	32.40	40.84	95.638	91.502	91.198	4.136	95.787		91.421	91.117	4.366
Calvington Avenue	62	61	6		0.32	20	20	0.32	3.70	0.24		0.00	0.32	0.32	0.11	0.35	200	0.65%	27.59	0.88	59.64	27.24	96.700	93.368	93.164	3.332	96.800	0.150	92.980	92.777	3.820
Calvington Avenue	61	60	5	6	0.43	33	53	0.75	3.65	0.63		0.00	0.43	0.75	0.25	0.87	200	0.65%	27.59	0.88	61.68	26.71	96.800	92.830	92.627	3.970	96.800		92.429	92.226	4.371
Calvington Avenue	60	18	2	3	0.23	15	68	0.98	3.63	0.80		0.00	0.23	0.98	0.32	1.12	200	0.65%	27.59	0.88	64.24	26.46	96.800	92.429	92.226	4.371	95.787	0.590	92.011	91.808	3.776
Winterset Road	18	Winterset Stub		7	0.31	19	634	9.87	3.34	6.85		2.45	0.31	12.32	4.07	10.92	300	0.25%	50.44	0.71	50.64	39.52	95.787	91.421	91.117	4.366	95.787		91.295	90.990	4.492
Winterset Road	Winterset Stub	16				0	634	9.87	3.34	6.85		2.45	0.00	12.32	4.07	10.92	300	0.24%	48.98	0.69	12.73	38.06	95.787	91.295	90.990	4.492	95.690		91.112	90.960	4.778
Stage 5*	Stage 5	16		180	4.10	486	486	4.10	3.38	5.33		0.00	4.10	4.10	1.35	6.68	250	0.14%	22.85	0.47	22.12	16.16	97.820	91.244	90.990	6.576	95.690		91.265	90.960	4.625
Winterset Road	16	14		14	0.60	38	1158	14.57	3.21	12.03		2.45	0.60	17.02	5.62	17.65	300	0.26%	51.36	0.73	119.59	33.71	95.890	91.265	90.960	4.625	95.440		90.802	90.650	4.638
Winterset Road	14	13		8	0.31	22	1180	14.88	3.20	12.24		2.45	0.31	17.33	5.72	17.97	300	0.20%	45.28	0.64	50.62	27.32	95.440	90.945	90.640	4.495	95.320		90.690	90.538	4.630
Winterset Road	13	02		4	0.18	11	1191	15.06	3.20	12.35		2.45	0.18	17.51	5.78	18.13	300	0.33%	57.61	0.81	43.24	39.48	95.320	90.843	90.538	4.477	94.860		90.549	90.397	4.311
Natare	45	46		17	0.48	46	46	0.48	3.66	0.55		0.00	0.48	0.48	0.16	0.70	200	1.03%	34.66	1.10	60.23	33.96	96.430	93.641	93.438	2.789	96.100	0.237	92.922	92.820	3.178
Natare	47	46		3	0.13	8	8	0.13	3.74	0.10		0.00	0.13	0.13	0.04	0.14	200	1.53%	42.34	1.35	18.94	42.20	95.790	93.153	92.950	2.637	96.100	0.077	92.762	92.660	3.338
Speedvale	46	39		0	0.54	0	54	0.61	3.65	0.64		0.00	0.00	0.61	0.20	0.84	200	0.31%	18.94	0.60	9.79	18.10	96.100	92.783	92.580	3.317	95.940	0.030	92.652	92.350	3.288
Speedvale	39	38		16	0.48	43	97	1.09	3.60	1.13		0.00	0.48	1.09	0.36	1.49	200	0.35%	20.17	0.64	74.79	18.68	95.940	92.733	92.530	3.207	95.600		92.372	92.270	3.228
Speedvale	38	37		12	0.31	32	129	1.40	3.57	1.49		0.00	0.31	1.40	0.46	1.95	200	0.33%	19.74	0.63	45.09	17.78	95.600	92.463	92.260	3.137	95.660		92.212	92.110	3.448
Speedvale	37	36		9	0.24	24	153	1.64	3.55	1.76		0.00	0.24	1.64	0.54	2.30	200	0.34%	20.07	0.64	31.99	17.76	95.660	92.313	92.110	3.347	95.700		92.102	92.000	3.598
Speedvale	36	30		7	0.24	19	172	1.88	3.54	1.97		0.00	0.24	1.88	0.62	2.59	200	0.35%	20.36	0.65	33.90	17.77	95.700	92.193	91.990	3.507	95.700		91.972	91.870	3.728
Natare	45	44		4	0.19	11	11	0.19	3.73	0.13		0.00	0.19	0.19	0.06	0.20	200	0.70%	28.61	0.91	16.88	28.41	96.430	93.796	93.593	2.634	96.460	0.030	93.577	93.475	2.883
Natare	44	43		6	0.18	16	27	0.37	3.69	0.32		0.00	0.18	0.37	0.12	0.44	200	0.27%	17.65	0.56	35.33	17.20	96.460	93.643	93.440	2.817	96.160		93.448	93.346	2.712
Natare	43	42		10	0.31	27	54	0.68	3.65	0.64		0.00	0.31	0.68	0.22	0.86	200	0.37%	20.69	0.66	47.88	19.82	96.160	93.549	93.346	2.611	96.400	0.300	93.273	93.171	3.127
Sweet Pea	54	53	17		0.80	58	58	0.80	3.64	0.68		0.00	0.80	0.80	0.26	0.95	200	0.34%	19.94	0.63	107.78	18.99	97.070	93.951	93.748	3.119	96.770	0.030	93.484	93.382	3.286
Sweet Pea	53	52	2		0.15	7	65	0.95	3.63	0.77		0.00	0.15	0.95	0.31	1.08	200	0.44%	22.60	0.72	9.16	21.53	96.770	93.563	93.360	3.207	96.750	0.030	93.422	93.320	3.328
Sweet Pea	52	51	10		0.44	34	99	1.39	3.60	1.15		0.00	0.44	1.39	0.46	1.61	200	0.35%	20.19	0.64	70.07	18.58	96.750	93.513	93.310	3.237	96.130		93.168	93.066	2.962
Sweet Pea	51	50	1		0.10	3	102	1.49	3.59	1.19		0.00	0.10	1.49	0.49	1.68	200	0.35%	20.19	0.64	25.28	18.51	96.130	93.259	93.056	2.871	96.320		93.070	92.968	3.250
Sweet Pea	50	42			0.01	0	102	1.50	3.59	1.19		0.00	0.01	1.50	0.50	1.68	200	0.40%	21.52	0.68	7.59	19.83	96.320	93.154	92.951	3.166	96.400	0.060	93.023	92.921	3.377
Natare	42	40		16	0.48	43	199	2.66	3.52	2.27		0.00	0.48	2.66	0.88	3.15	200	0.33%	19.61	0.62	63.65	16.46	96.400	93.063	92.860	3.337	95.730	0.030	92.753	92.651	2.977
Natare	40	31		5	0.18	14	213	2.84	3.51	2.42		0.00	0.18	2.84	0.94	3.36	200	0.29%	18.38	0.59	34.32	15.02	95.730	92.804	92.601	2.926	96.000	0.060	92.604	92.502	3.396
Speedvale	34	33		6	0.27	16	16	0.27	3.71	0.19		0.00	0.27	0.27	0.09	0.28	200	0.70%	28.67	0.91	17.09	28.39	97.430	93.719	93.516	3.711	97.220	0.052	93.498	93.396	3.722
Speedvale	33	32		29	0.68	78	94	0.95	3.60	1.10		0.00	0.68	0.95	0.31	1.41	200	0.60%	26.52	0.84	100.89	25.11	97.220	93.534	93.331	3.686	96.680	0.031	92.827	92.725	3.853
Speedvale	32	31		12	0.30	32	126	1.25	3.57	1.46		0.00	0.30	1.25	0.41	1.67	200	0.35%	20.28	0.65	65.48	18.41	96.680	92.893	92.690	3.787	96.000		92.562	92.460	3.438
Speedvale	31	30		14	0.32	38	377	4.41	3.43	4.19		0.00	0.32	4.41	1.46	5.64	200	0.36%	20.50	0.65	74.35	14.86	96.000	92.640	92.437	3.360	95.700	0.276	92.272	92.170	3.428
Speedvale	30	30A				0	549	6.29	3.36	5.98		0.00	0.00	6.29	2.08	8.06	200	0.34%	19.94	0.63	39.77	11.88	95.700	92.070	91.867	3.630	95.700		91.834	91.732	3.866
Speedvale	30A	02			0.20	0	549	6.49	3.36	5.98		0.00	0.20	6.49	2.14	8.12	200	0.32%	19.41	0.62	44.12	11.29	95.700	91.925	91.722	3.775	94.660	1.083	91.682	91.580	3.178
Stage 5*	Stage 5S	02		180	4.10	486	486	4.10	3.38	5.33		0.00	4.10	4.10	1.35	6.68	250	1.13%	65.90	1.34	30.13	59.22	93.493	92.174	91.920	1.319	94.660	0.197	90.899	91.580	3.961
Winterset Road	02	02A			0.18	0	2226	25.63	3.04	21.93		2.45	0.18	28.28	9.33	31.26	300	0.60%	77.88	1.10	42.12	46.62	94.860	90.702	90.397	4.158	94.660		90.298	90.146	4.562
Winterset Road	02A	EX. 307A				0	2226	25.83	3.04	21.93		2.45	0.00	28.28	9.33	31.26	450	0.17%	122.12	0.77	11.27	90.86	94.860	90.466	90.009	4.394	95.500	-0.229	90.219	89.990	5.281
Campeau Drive	ex.306A	EX. 307A			23.00	0	0	23.00	3.80	0.00		0.00	23.00	23.00	7.59	7.59	525	0.24%	219.72	1.02	120.08	212.13	95.500	90.817	90.284	4.683	95.500	-0.147	90.263	89.996	5.237
Donum Lane	South Stub	01				0	0	0.00	3.80	0.00		0.00	0.00	0.00	0.00	0.00	375	0.39%	114.62	1.04	16.30	114.62	94.740	90.921	90.540	3.819	94.740		90.667	90.476	4.074
Donum Lane	Commercial Stub	01				0	0	0.00	3.80	0.00		0.00	0.00	0.00	0.00	0.00	250	0.35%	36.75	0.75	26.51	36.75	94.740	90.917	90.663	3.823	94.740		90.697	90.570	4.043
Donum Lane	01	01A				0	0	0.00	3.80	0.00		0.00	0.00	0.00	0.00	0.00	375	0.40%	116.06	1.05	51.67	116.06	94.740	90.827	90.446	3.913	95.290		90.429	90.238	4.862
Donum Lane	01A	Ex. 307A				0	0	0.00	3.80	0.00		0.00	0.00	0.00	0.00	0.00	375	0.21%	84.37	0.76	33.84	84.37	95.290	90.609	90.228	4.681	95.500	-0.139	90.347	90.156	5.153
Campeau Drive	Ex. 307A	Ex. 308A				0	2226	48.83	3.04	21.93		2.45	0.00	51.28	16.92	38.85	675	0.25%	438.19	1.22	118.95	399.34	95.500	90.676	89.990	4.824	95.500		90.036	89.693	5.464

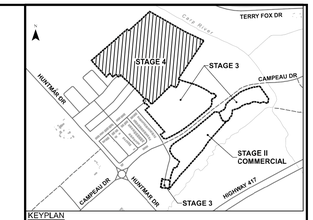
Design Parameters		
Single Family Population	3.4	Cap/Unit
Semi-Detached/Townhouse Population	2.7	Cap/Unit
Residential Flows	280	L/Cap/Day
Infiltration Flows	0.33	L/s/ha
Manning Coefficient	0.013	

Legend

89.232 — Existing/Proposed Infrastructure
Existing (As-Built Information)

Total peak flows from Stage 5 lands = 6.68 + 6.68 = 13.36 L/s





KEYPLAN

AREA ID
10
2.15
AREA (ha)

AREA DESCRIPTIONS

1. 87.3 ha COMMERCIAL / EMPLOYMENT AS PER SIGNATURE RIDGE PUMPING STATION HYDRAULIC GRADE ANALYSIS , IBI GROUP, 2014 (REV 2)
2. 5.2 COMMERCIAL & 3.56 ha INFILTRATION AS PER ARCADIA RETAIL DEVELOPMENT DESIGN (IBI GROUP, 2014)
3. 21 ha RESIDENTIAL DEVELOPEMTN AS PER ARCADIA STAGE 1 DETAILED DESIGN (IBI GROUP 2012) AND ARCADIA STAGE 2 DETAILED DESIGN (JLR 2014)
4. 2 ha RESIDENTIAL & R.O.W. AS PER ARCADIA STAGE 1 DETAILED DESIGN (IBI GROUP 2012)
5. 1.54 ha R.O.W. AS PER CURRENT DESIGN (JLR)
6. 2.15 ha FUTURE COMMERCIAL AS PER CURRENT DESIGN (JLR)
7. 0.37 ha R.O.W. AS PER CURRENT DESIGN (JLR)
8. 22.1 Ha COMMERCIAL AS PER SIGNATURE RIDGE PUMPING STATION HYDRAULIC GRADE ANALYSIS , IBI GROUP, 2014 (REV 2)
9. ARCADIA STAGE 3, 4 DEVELOPMENT. INCLUDES PARK AND FUTURE STAGE 5 LANDS

No.	ISSUE / REVISION	DD/MM/YY
03	ISSUED TO CITY FOR REVIEW - 3rd SUBMISSION	28/02/20
02	ISSUED TO CITY FOR REVIEW - 2nd SUBMISSION	06/12/19
01	ISSUED TO CITY FOR REVIEW - 1st SUBMISSION	09/08/19

VERIFY SHEET SIZE AND SCALES. BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE: 1:2000

CLIENT: minto Communities

CONSULTANT: www.jlrichards.ca
J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT:

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER K. N. L. DALRYMPLE PROVINCE OF ONTARIO

PROJECT NORTH

PROJECT:
MINTO COMMUNITIES INC.
ARCADIA STAGE 4
450 HUNTMAR DRIVE

DRAWING:
OVERALL SANITARY
DRAINAGE PLAN

DESIGN: AT	
DRAWN: SK	DRAWING #:
CHECKED: LD	ODSAN
JLR #: 26299-004	

City File No: D07-16-16-0025 Plan No: 17816

PLOT DATE: Friday, February 28, 2020 3:47:30 PM

File Location: P:\26000\26299-004 - Arcadia Stage 4\5-Production\1-Civil\26299-004 C DSAN1.dwg

IBI Group
333 Preston Street - Suite 400
Ottawa, Ontario
K1S 5N4

SANITARY SEWER DESIGN SHEET

PROJECT: ARCADIA PHASE 1
DEVELOPER: MINTO

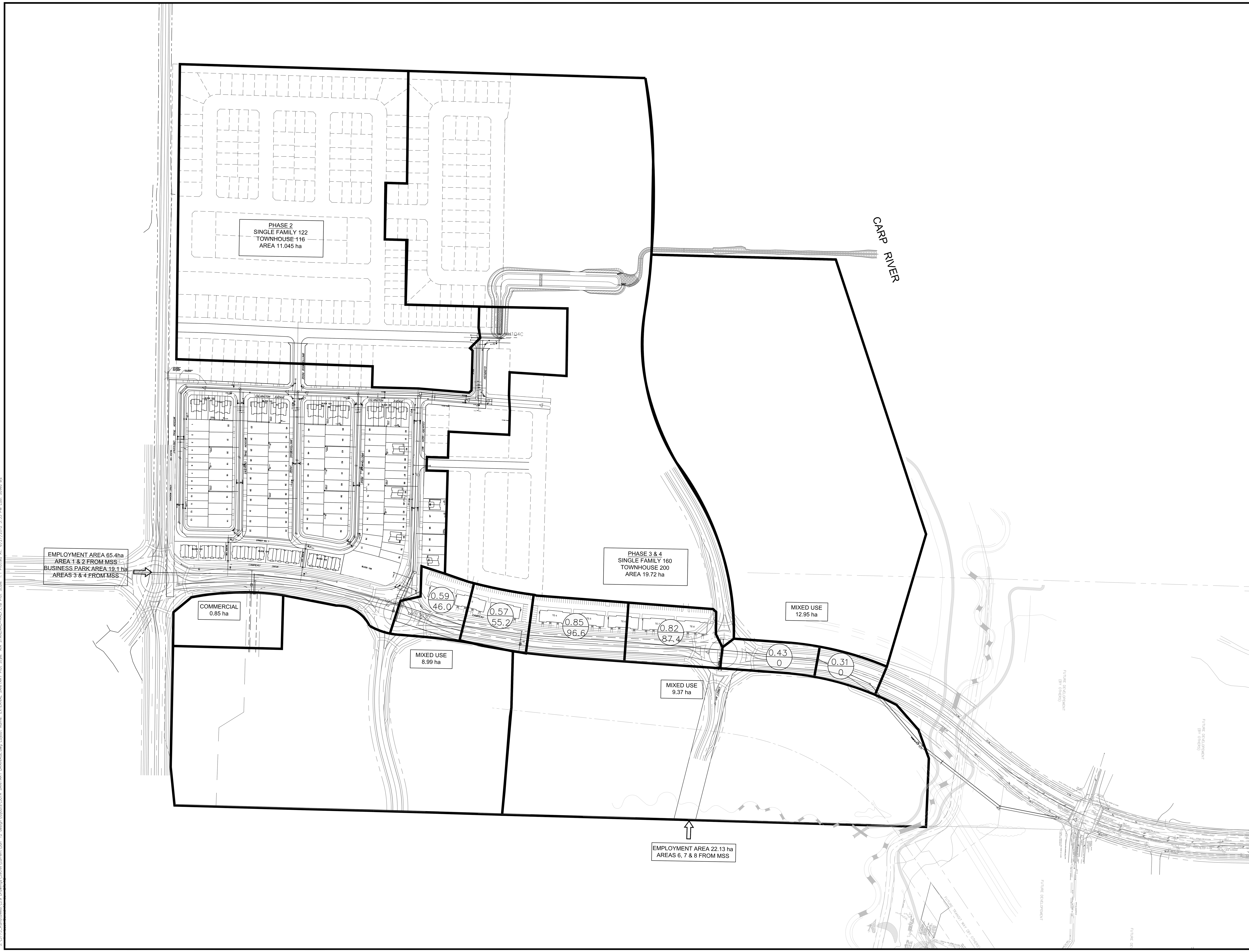
JOB #: 3775-5.7
DATE PRINTED: 27-Jun-18
DESIGN: LE

LOCATION			INDIVIDUAL					CUM. RES. FLOW			INSTIT., INDUST., & COMM. FLOW						INFILTRATION			TOTAL	PROPOSED SEWER						
STREET	FROM MH	TO MH	RESID. UNITS Sngls	Towns Semis	Stacked Towns	RES. AREA (Ha)	POP.	POP.	PEAK FACT.	PEAK FLOW (l/s)	Indust. AREA (Ha)	Comm. AREA (Ha)	Average FLOW (l/s)	CUM. Ave. Flow (l/s)	PEAK FACT.	PEAK FLOW (l/s)	INCR. AREA (Ha)	CUM. AREA (Ha)	FLOW (l/s)	DESIGN FLOW (l/s)	CAP. l/s	PIPE (mm)	LGTH. (m)	SLOPE %	VEL. (full) m/s	AVAIL. CAP. (l/s)	AVAIL. CAP. (%)
Phase 2	Stub	104 A	122	116		11.05	728.0	728	3.88	11.59							11.05	11.05	3.09	14.69	166.68	375	*12.00*	*0.83*	1.46	151.99	91%
Paine Avenue	104 C	104 A	19			0.71	64.6	65	4.00	1.06							0.71	0.71	0.20	1.26	135.67	375	*25.68*	*0.55*	1.19	134.41	99%
Clonrush Walk	104 A	200 A		7		0.27	18.9	812	3.86	12.83							0.27	12.03	3.37	16.20	77.64	375	*76.75*	*0.18*	0.68	61.44	79%
Calvington Avenue	Stub	200 A		5		0.19	13.5	14	4.00	0.22							0.19	0.19	0.05	0.27	26.72	200	*16.50*	*0.61*	0.82	26.45	99%
Calvington Avenue	200 A	201 A		7		0.29	18.9	844	3.85	13.31							0.29	12.51	3.50	16.81	85.85	375	*75.74*	*0.22*	0.75	69.04	80%
Mission Trail Crescent	208 A	207 A	7			0.42	23.8	24	4.00	0.39							0.42	0.42	0.12	0.51	28.02	200	*76.69*	*0.67*	0.86	27.51	98%
Mission Trail Crescent	207 A	206 A	5			0.28	17.0	41	4.00	0.67							0.28	0.70	0.20	0.87	27.37	200	*79.61*	*0.64*	0.84	26.51	97%
Mission Trail Crescent	206 A	205 A		2		0.08	5.4	46	4.00	0.76							0.08	0.78	0.22	0.98	28.83	200	*11.29*	*0.71*	0.89	27.85	97%
Calvington Avenue	205 A	204 A		15		0.43	40.5	87	4.00	1.42							0.43	1.21	0.34	1.76	52.24	200	*65.73*	*2.33*	1.61	50.48	97%
Mission Trail Crescent	209 A	210 A	14			0.74	47.6	48	4.00	0.78							0.74	0.74	0.21	0.99	27.37	200	*90.26*	*0.64*	0.84	26.38	96%
Mission Trail Crescent	210 A	204 A	6	1		0.41	23.1	71	4.00	1.16							0.41	1.15	0.32	1.48	22.44	200	*84.00*	*0.43*	0.69	20.96	93%
Calvington Avenue	204 A	203 A		15		0.46	40.5	198	4.00	3.25							0.46	2.82	0.79	4.04	24.19	200	*69.35*	*0.50*	0.75	20.16	83%
Brettonwood Crescent	212 A	211 A	15			0.75	51.0	51	4.00	0.84							0.75	0.75	0.21	1.05	28.21	200	*90.29*	*0.68*	0.87	27.17	96%
Brettonwood Crescent	211 A	203 A	7			0.37	23.8	75	4.00	1.23							0.37	1.12	0.31	1.54	29.45	200	*83.32*	*0.74*	0.91	27.91	95%
Calvington Avenue	203 A	202 A		15		0.47	40.5	313	4.00	5.14							0.47	4.41	1.23	6.37	24.19	200	*75.77*	*0.50*	0.75	17.82	74%
Brettonwood Crescent	213 A	214 A	1			0.11	3.4	3	4.00	0.06							0.11	0.11	0.03	0.09	32.82	200	*11.96*	*0.92*	1.01	32.73	100%
Brettonwood Crescent	214 A	215 A	13			0.67	44.2	48	4.00	0.78							0.67	0.78	0.22	1.00	28.21	200	*87.24*	*0.68*	0.87	27.21	96%
Brettonwood Crescent	215 A	202 A	8	1		0.48	29.9	78	4.00	1.27							0.48	1.26	0.35	1.62	26.07	200	*87.67*	*0.58*	0.80	24.45	94%
Calvington Avenue	202 A	201 A		8		0.31	21.6	412	4.00	6.76							0.31	5.98	1.67	8.44	21.92	200	*72.79*	*0.41*	0.68	13.49	62%
Country Glen Way	201 A	216 A	5	4		0.43	27.8	1284	3.73	19.62							0.43	18.92	5.30	24.92	83.80	375	*96.10*	*0.21*	0.74	58.88	70%
Country Glen Way	216 A	217 A	13	12		0.92	76.6	1361	3.71	20.69							0.92	19.84	5.56	26.25	77.64	375	*119.53*	*0.18*	0.68	51.39	66%
Country Glen Way	217 A	303 A				0.33	19.8	1380	3.71	20.97							0.33	20.17	5.65	26.62	114.24	375	*46.00*	*0.39*	1.00	87.62	77%
Campeau Drive	300 A	301 A		15		0.65	40.5	41	4.00	0.66	19.10	65.40	45.60	45.60	1.50	68.40	85.15	85.15	23.84	92.91	124.04	375	*99.52*	*0.46*	1.09	31.13	25%
Commercial Site	Stub	301 A					0.0	0	4.00	0.00		0.85	0.49	0.49	1.50	0.74	0.85	0.85	0.24	0.98	24.19	200	*24.14*	*0.50*	0.75	23.22	96%
Campeau Drive	301 A	302 A		14		0.51	37.8	78	4.00	1.28				46.09	1.50	69.14	0.51	86.51	24.22	94.65	131.91	375	*76.90*	*0.52*	1.16	37.26	28%
Campeau Drive	302 A	303 A		5		0.51	13.5	92	4.00	1.51				46.09	1.50	69.14	0.51	87.02	24.37	95.01	118.57	375	*104.69*	*0.42*	1.04	23.56	20%
Future Street	Stub	303 A				3.82	229.2	229	4.00	3.76	3.82	1.35	2.33	2.33	1.50	3.49	8.99	8.99	2.52	9.77	58.81	300	*20.58*	*0.34*	0.81	49.04	83%
Campeau Drive	303 A	304 A			20	0.59	46.0	1747	3.63	26.01				48.42	1.50	72.63	0.59	116.77	32.70	131.34	210.50	525	*84.99*	*0.22*	0.94	79.16	38%
Campeau Drive	304 A	305 A			24	0.57	55.2	1803	3.62	26.76				48.42	1.50	72.63	0.57	117.34	32.86	132.25	179.44	525	*79.82*	*0.16*	0.80	47.19	26%
Campeau Drive	305 A	306 A			42	0.85	96.6	1899	3.60	28.06				48.42	1.50	72.63	0.85	118.19	33.09	133.78	215.19	525	*119.77*	*0.23*	0.96	81.41	38%
Campeau Drive	306 A	307 A			38	0.82	87.4	1987	3.59	29.22				48.42	1.50	72.63	0.82	119.01	33.32	135.18	219.88	525	*120.08*	*0.24*	0.98	84.70	39%
Future north	Stub	307 A	160	200		19.72	1084.0	1084																			
						5.50	330.0	1414	3.70	21.44	5.50	1.95	3.36	3.36	1.50	5.03	32.67	32.67	9.15	35.62	180.92	450	*13.46*	*0.37*	1.10	145.30	80%
Future south	Stub	307 A				3.98	238.8	239			3.98	1.41	2.43	2.43	1.50	3.64											
							0.0	239	4.00	3.92		22.13	12.81	15.24	1.50	22.86	31.50	31.50	8.82	35.60	89.61	375	*25.50*	*0.24*	0.79	54.01	60%
Campeau Drive	307 A	308 A				0.43	0.0	3639	3.37	50.28				67.02	1.50	100.53	0.43	183.61	51.41	202.22	447.33	675	*118.96*	*0.26*	1.21	245.11	55%
Campeau Drive	308 A	309 A				0.31	0.0	3639	3.37	50.28				67.02	1.50	100.53	0.31	183.92	51.50	202.31	328.02	675	*71.29*	*0.14*	0.89	125.71	38%
Campeau Drive	309 A	310 A					0.0	3639	3.37	50.28				67.02	1.50	100.53	0.00	183.92	51.50	202.31	382.32	675	*97.73*	*0.19*	1.04	180.01	47%
Campeau Drive	310 A	311 A					0.0	3639	3.37	50.28				67.02	1.50	100.53	0.00	183.92	51.50	202.31	438.47	675	*120.85*	*0.25*	1.19	236.15	54%
Campeau Drive	311 A	312 A					0.0	3639	3.37	50.28				67.02	1.50	100.53	0.00	183.92	51.50	202.31	401.90	675	*70.47*	*0.21*	1.09	199.58	50%
Campeau Drive	312 A	SAN 8					0.0	3639	3.37	50.28				67.02	1.50	100.53	0.00	183.92	51.50	202.31	438.47	675	*36.21*	*0.25*	1.19	236.15	54%

Where Q = average daily per capita flow (350 l/cap.d.) or (0.0041l/sec./cap)
I = Unit of peak extraneous flow (0.28 l/sec/ha)
M = Residential Peaking factor = Harmon Peaking Factor , M = 1+(14/(4+P^0.5)) , where P = population in thousands
Q(p) = Peak population flow (l/s)
Q(i) = peak extraneous flow (l/s)
Population Density = 3.4 per single family, 2.7 per semi-detached and row townhouse units and 2.3 per stacked townhouse unit
Commercial, Employment Area - Average flow 50,000 l/day/ha (0.579 l/s/ha) with Peaking Factor = 1.5
Light Industrial; Business Park - Average flow 35,000 l/day/ha (0.405 l/s/ha) with Peaking Factor = 1.5
Gross Residential Lands = 60 persons/gross hectare

As Built Pipe Lengths and Slopes

LICENSED PROFESSIONAL ENGINEER
L. M. ERION
2018-06-27
PROVINCE OF ONTARIO



LEGEND:

0.77 / 72.5 — AREA IN HECTARES / POPULATION

No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9			
8			
7			
6			
5			
4	REVISED PER CITY COMMENTS		12:06:27
3	REVISED PER LEGAL & CITY COMMENTS	LME	12:05:15
2	REVISED PER NEW LEGAL	LME	12:02:17
1	ISSUED FOR SUBMISSION	LME	10:11:26

minto

IBI GROUP
333 Preston Street
Tower 1, Suite 400
Ottawa, Ontario
Canada K1S 5N4
Tel (613)225-1311
FAX (613)225-9868

Project Title

ARCADIA KANATA WEST

PHASE I

L. M. ERION

N

Drawing Title

EXTERNAL SANITARY DRAINAGE AREA PLAN

Scale: 1:2000

Design	Date
L.M.E.	MARCH '09
Drawn	**Checked**
M.M.	R.W.W.
Project No.	**Drawing No.**
3775	501A

Appendix E

Storm Servicing and
Stormwater Management

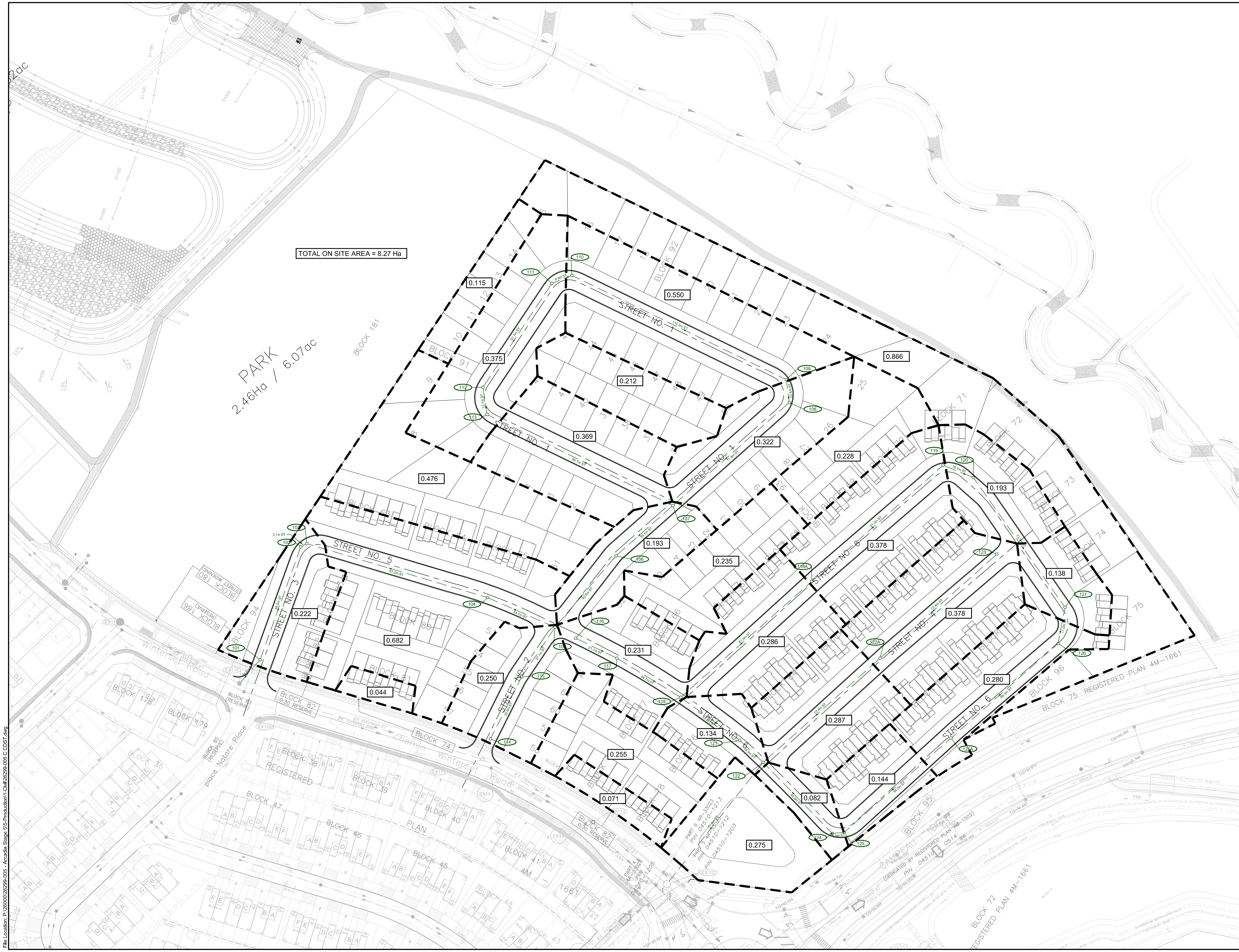
J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

MINTO COMMUNITIES INC.
ARCADIA STAGE 5
450 HUNTMAR DRIVE
STORM SEWER DESIGN SHEET
JLR NO. 26299-005

DESIGNED BY: CJ
CHECKED BY: KF
December 2021

Street Name	Maintenace Hole No.		1:2 Year Storm			1:5 Year Storm	1:10 Year Storm	Total Areas			Total Area (ha)	Cum. Total Area (ha)	Inlet Time (min.)	In Pipe Flow Time (min)	Total Time	1:2 Year Peak Flow				1:5 Year Peak Flow				1:10 Year Peak Flow				Total Peak Flow	Pipe Data									Upstream Geometry				Downstream Geometry				
	From	To	0.20	0.61	0.67	0.67	0.8	1:2 Yr	1:5 Yr	1:10 Yr						2.78AR	Cum. 2.78AR	1:2 Yr Intensity	Peak Flow	2.78AR	Cum. 2.78AR	1:5 Yr Intensity	Peak Flow	2.78AR	Cum. 2.78AR	1:10 Yr Intensity	Peak Flow		Dia	Type	Actual Diameter	Slope	Q Full (L/s)	V Full	Length	Residual Capacity	% Full	TG From	Obvert	Invert	Cover	TG To	Drop	Obvert	Invert	Cover
TO PAINE POND:																																											
STREET 1	111	110						0.00	0.00	0.00	0.00	0.00	10.00	0.20	10.20	0.00	0.00	76.81	0.00	0.00	0.00	104.19	0.00	0.00	0.00	122.14	0.00	0.00	300	Circular	304.80	0.35%	59.68	0.84	9.95	59.68	0%	96.040	94.454	94.149	1.586	96.129		94.419	94.114	1.710
STREET 1	110	109			0.550			0.55	0.00	0.00	0.55	0.55	10.20	2.22	12.42	1.02	1.02	76.06	77.92	0.00	0.00	103.17	0.00	0.00	0.00	120.93	0.00	77.92	375	Circular	381.00	0.25%	91.46	0.83	110.29	13.54	85%	96.129	94.419	94.038	1.710	95.999		94.143	93.762	1.856
STREET 1	109	108						0.00	0.00	0.00	0.00	0.55	12.42	0.21	12.63	0.00	1.02	68.62	70.30	0.00	0.00	92.95	0.00	0.00	0.00	108.91	0.00	70.30	450	Circular	457.20	0.20%	133.02	0.84	10.63	62.71	53%	95.999	94.143	93.686	1.856	95.986		94.122	93.665	1.864
STREET 1	108	107		0.212	0.322			0.53	0.00	0.00	0.53	1.08	12.63	1.37	13.99	0.96	1.98	68.00	134.89	0.00	0.00	92.10	0.00	0.00	0.00	107.90	0.00	134.89	600	Circular	609.60	0.15%	248.09	0.88	71.93	113.20	54%	95.986	94.122	93.512	1.864	95.930		94.014	93.405	1.916
STREET 1	111	112		0.115	0.380			0.50	0.00	0.00	0.50	0.50	10.00	1.16	11.16	0.90	0.90	76.81	69.34	0.00	0.00	104.19	0.00	0.00	0.00	122.14	0.00	69.34	375	Circular	381.00	0.25%	91.46	0.83	57.66	22.12	76%	96.040	94.382	94.001	1.659	95.938		94.237	93.856	1.701
STREET 1	112	113						0.00	0.00	0.00	0.00	0.50	11.16	0.26	11.42	0.00	0.90	72.62	65.56	0.00	0.00	98.44	0.00	0.00	0.00	115.36	0.00	65.56	375	Circular	381.00	0.25%	91.46	0.83	12.73	25.89	72%	95.938	94.237	93.856	1.701	96.019		94.206	93.825	1.813
STREET 1	113	107			0.363			0.36	0.00	0.00	0.36	0.86	11.42	1.91	13.32	0.68	1.58	71.76	113.31	0.00	0.00	97.26	0.00	0.00	0.00	113.98	0.00	113.31	450	Circular	457.20	0.20%	133.02	0.84	95.69	19.71	85%	96.019	94.206	93.748	1.813	95.930		94.014	93.557	1.916
STREET 1	107	106						0.00	0.00	0.00	0.00	1.94	13.99	0.62	14.61	0.00	3.56	64.25	228.89	0.00	0.00	86.95	0.00	0.00	0.00	101.85	0.00	228.89	675	Circular	685.80	0.15%	339.63	0.95	35.13	110.74	67%	95.930	94.014	93.328	1.916	95.688		93.961	93.276	1.726
STREET 1	106	105		0.476	0.193			0.67	0.00	0.00	0.67	2.61	14.61	0.67	15.28	1.17	4.73	62.70	296.53	0.00	0.00	84.83	0.00	0.00	0.00	99.35	0.00	296.53	825	Circular	838.20	0.15%	579.98	1.08	43.46	283.45	51%	95.688	93.961	93.123	1.726	95.799		93.896	93.058	1.903
STREET 2	114	115						0.00	0.00	0.00	0.00	0.00	10.00	0.64	10.64	0.00	0.00	76.81	0.00	0.00	0.00	104.19	0.00	0.00	0.00	122.14	0.00	0.00	375	Circular	381.00	0.25%	91.46	0.83	32.00	91.46	0%	95.418	94.046	93.665	1.372	95.575		94.066	93.585	1.609
STREET 2	115	105			0.250			0.25	0.00	0.00	0.25	0.25	10.64	0.56	11.20	0.47	0.47	74.42	34.65	0.00	0.00	100.91	0.00	0.00	0.00	118.27	0.00	34.65	375	Circular	381.00	0.25%	91.46	0.83	27.71	56.80	38%	95.575	93.966	93.585	1.609	95.799		93.896	93.515	1.903
STREET 5	105	104						0.00	0.00	0.00	0.00	2.86	15.28	0.52	15.80	0.00	5.19	61.12	317.50	0.00	0.00	82.67	0.00	0.00	0.00	96.81	0.00	317.50	825	Circular	838.20	0.15%	579.98	1.08	34.10	262.48	55%	95.799	93.896	93.058	1.903	95.688		93.845	93.007	1.842
STREET 5	104	103			0.682			0.68	0.00	0.00	0.68	3.54	15.80	1.26	17.07	1.27	6.47	59.94	387.50	0.00	0.00	81.05	0.00	0.00	0.00	94.90	0.00	387.50	900	Circular	914.40	0.15%	731.45	1.15	87.23	343.94	53%	95.688	93.845	92.931	1.842	95.864		93.714	92.800	2.150
STREET 3	103	102						0.00	0.00	0.00	0.00	3.54	17.07	0.05	17.11	0.00	6.47	57.28	370.35	0.00	0.00	77.42	0.00	0.00	0.00	90.64	0.00	370.35	900	Circular	914.40	0.15%	731.45	1.15	3.14	361.09	51%	95.864	93.714	92.800	2.150	95.889		93.710	92.795	2.180
STREET 3	102	101			0.222			0.22	0.00	0.00	0.22	3.77	17.11	0.80	17.92	0.41	6.88	57.19	393.42	0.00	0.00	77.30	0.00	0.00	0.00	90.49	0.00	393.42	900	Circular	914.40	0.15%	731.45	1.15	55.50	338.03	54%	95.889	93.710	92.795	2.180	95.702		93.626	92.712	2.076
STREET 3	101	EX116						0.00	0.00	0.00	0.00	3.77	17.92	0.21	18.13	0.00	6.88	55.64	382.75	0.00	0.00	75.18	0.00	0.00	0.00	88.00	0.00	382.75	900	Circular	914.40	0.15%	731.45	1.15	14.61	348.69	52%	95.702	93.626	92.712	2.076	95.741		93.604	92.690	2.137
Winterset	EX116	EX118				0.24		0.00	0.24	0.00	0.24	4.01	18.13	0.58	18.71	0.00	6.88	55.25	380.05	0.45	0.45	74.64	33.37	0.00	0.00	87.37	0.00	413.42	900	Circular	914.40	0.35%	1117.30	1.76	61.27	703.88	37%	95.741	93.604	92.690	2.137	95.877		93.389	92.475	2.488
											4.01					6.88				0.45				0.00																			
TO CAMPEAU POND:																																											
Block 73	EX130A	EX102									5.64	5.64	16.58	0.53	17.10	10.11	10.11	58.28	589.23				0.00				0.00	589.23	1200	Circular	1219.20	0.17%	1676.99	1.48	45.30	1087.76	35%	95.128	93.526	92.307	1.602	95.280		93.623	92.230	1.657
Winterset Road	EX115	EX114				0.52		0.00	0.52	0.00	0.52	0.52	10.00	1.98	11.98					0.98	0.98	104.19	101.69				0.00	101.69	600	Circular	609.60	0.15%	248.09	0.88	99.41	146.40	41%	95.780	93.600	92.990	2.180	95.507		93.472	92.845	2.035
Winterset Road	EX114	EX113						0.00	0.00	0.00	0.00	0.52	11.98	0.92	12.89					0.00	0.98	94.80	92.52				0.00	92.52	750	Circular	762.00	0.17%	478.86	1.08	58.05	386.34	19%	95.507	93.472	92.710	2.035	95.415		93.385	92.610	2.030
Winterset Road	EX113	EX102			0.460	0.34		0.46	0.34	0.00	0.80	1.33	12.89	0.66	13.55	0.86	0.86	67.24	57.61	0.64	1.61	91.05	146.70				0.00	204.30	900	Circular	914.40	0.16%	755.43	1.19	44.95	551.13	27%	95.415	93.385	92.471	2.030	95.280		93.623	92.400	1.657
STREET 6	116	117						0.00	0.00	0.00	0.00	0.00	10.00	0.39	10.39	0.00	0.00	76.81	0.00	0.00	0.00	104.19	0.00	0.00	0.00	122.14	0.00	0.00	250	Circular	254.00	0.50%	43.87	0.89	21.12	43.87	0%	95.761	93.577	93.323	2.185	95.541		93.471	93.217	2.070
STREET 6	117	118			0.486			0.49	0.00	0.00	0.49	0.49	10.39	0.49	10.89	0.91	0.91	75.32	68.19	0.00	0.00	102.16	0.00	0.00	0.00	119.74	0.00	68.19	375	Circular	381.00	0.50%	129.34	1.17	34.66	61.15	53%	95.541	93.471	93.090	2.070	95.744		93.298	92.917	2.447
STREET 6	119	118A			0.606			0.61	0.00	0.00	0.61	0.61	10.00	0.80	10.80	1.13	1.13	76.81	86.69	0.00	0.00	104.19	0.00	0.00	0.00	122.14	0.00	86.69	600	Circular	609.60	0.55%	475.05	1.68	81.02	388.36	18%	95.974	94.189	93.579	1.785	95.708		93.743	93.134	1.964
STREET 6	118A	118			0.521			0.52	0.00	0.00	0.52	1.13	10.80	0.80	11.61	0.97	2.10	73.85	155.02	0.00	0.00	100.13	0.00	0.00	0.00	117.36	0.00	155.02	600	Circular	609.60	0.55%	475.05	1.68	81.02	320.03	33%	95.708	93.743	93.134	1.964	95.744		93.298	92.688	2.447
STREET 6	118	121			0.134			0.13	0.00	0.00	0.13	1.75	11.61	0.50	12.10	0.25	3.25	71.14	231.48	0.00	0.00	96.41	0.00	0.00	0.00	112.97	0.00	231.48	600	Circular	609.60	0.25%	320.28	1.13	33.79	88.80	72%	95.744	93.298	92.688	2.447	95.573		93.213	92.604	2.360
STREET 6	121	122						0.00	0.00	0.00	0.00	1.75	12.10	0.22	12.32	0.00	3.25	69.57	226.38	0.00	0.00	94.25	0.00	0.00	0.00	110.43	0.00	226.38	600	Circular	609.60	0.25%	320.28	1.13	14.87	93.90	71%	95.573	93.213	92.604	2.360	95.687		93.176	92.566	2.511
STREET 4	123	122A			0.378			0.38	0.00	0.00	0.38	0.38	10.00	1.29	11.29	0.70	0.70	76.81	54.08	0.00	0.00	104.19	0.00	0.00	0.00	122.14	0.00	54.08	450	Circular	457.20	0.25%	148.72	0.94	72.42	94.64	36%	95.736	93.538	93.081	2.197	95.722		93.357	92.900	2.365
STREET 4	122A	122			0.287			0.29	0.00	0.00	0.29	0.67	11.29	1.29	12.58	0.53	1.24	72.18	89.40	0.00	0.00	97.84	0.00	0.00	0.00	114.65	0.00	89.40	450	Circular	457.20	0.25%	148.72	0.94	72.42	59.31	60%	95.722	93.357	92.900	2.365	95.687		93.176	92.719	2.511
STREET 6	119	120						0.00	0.00	0.00	0.00	0.00	10.00	0.30	10.30	0.00	0.00	76.81	0.00	0.00	0.00	104.19	0.00	0.00	0.00	122.14	0.00	0.00	300	Circular	304.80	0.35%	59.68	0.84	15.07	59.68	0%	95.974	93.987	93.682	1.987	95.861		93.934	93.629	1.927
STREET 6	120	127			0.193			0.19	0.00	0.00	0.19	0.19	10.30	1.45	11.75	0.36	0.36	75.68	27.21	0.00	0.00	102.65	0.00	0.00	0.00	120.32	0.00	27.21	300	Circular	304.80	0.35%	59.68	0.84	73.51	32.48	46%	95.861	93.934	93.629	1.927	95.773		93.677	93.372	2.096
STREET 6	127	126			0.138			0.14	0.00	0.00	0.14	0.33	11.75	0.34	12.09	0.26	0.62	70.69	43.58	0.00	0.00	95.78	0.00	0.00	0.00	112.24	0.00	43.58	375	Circular	381.00	0.25%	91.46	0.83	17.04	47.88	48%	95.773	93.677	93.296	2.096	95.799		93.634	93.253	2.165
STREET 6	126	125A			0.280			0.28	0.00	0.00	0.28	0.61	12.09	1.18	13.27	0.52	1.14	69.61	79.22	0.00	0.00	94.31	0.00	0.00	0.00	110.50	0.00	79.22	450	Circular	457.20	0.25%	148.72	0.94	65.97	69.50	53%	95.799	93.634	93.177	2.165	95.688		93.469	93.012	2.219
STREET 6	125A	125			0.144			0.14	0.00	0.00	0.14	0.76	10.00	1.18	11.18	0.27	0.27	76.81	20.60	0.00	0.00	104.19	0.00	0.00	0.00	122.14	0.00	20.60	450	Circular	457.20	0.25%	148.72	0.94	65.97	128.12	14%	95.688	93.469	93.012	2.219	95.687		93.305	92.847	2.382
STREET 6	125	124						0.00	0.00	0.00	0.00	0.76	10.00	0.10	10.10	0.00	0.00	76.81	0.00	0.00	0.00	104.19	0.00	0.00	0.00	122.14	0.00	0.00	450	Circular	457.20	0.25%	148.72	0.94	5.52	148.72	0%	95.687	93.305	92.847	2.382	95.690		93.291	92.834	2.399
STREET 6	124	122			0.082			0.08	0.00	0.00	0.08	0.84	10.10	0.68	10.77	0.15	0.15	76.43	11.67	0.00	0.00	103.68	0.00	0.00	0.00	121.53	0.00	11.67	600	Circular	609.60	0.25%	320.28	1.13	45.89	308.61	4%	95.690	93.291	92.681	2.399	95.687		93.176	92.566	2.511
BLOCK 43	122	EX102	0.275					0.28	0.00	0.00	0.28	3.52	12.58	1.10	13.69	0.15	4.80	68.13	326.93	0.00	0.00	92.28	0.00	0.00	0.00	108.12	0.00	326.93	825	Circular	838.20	0.15%	579.98	1.08	71.86	253.05	56%	95.687	93.176	92.338	2.511	95.280		93.623	92.230	1.657
Winterset Road	EX102	EX101					0.20	0.00	0.00	0.20	0.20	10.69	17.10	0.57	17.67	0.00	15.77	57.21	901.99	0.00	1.61	77.33	124.59	0.16	0.16	90.53	14.48	1041.06	1500	Circular	1524.00	0.17%	3040.59	1.72	59.17	1999.53	34%	95.280	93.623	92.099	1.657	96.071		93.522	91.998	2.549
											10.69					17.17				1.61				0.16																			

14.20 Denotes existing Sewers (As-Constructed Information from Stage 3 - Dec 2019)
61.27 Denotes existing Sewers (As-Constructed Information from Stage 4 - Fall 2020)



LEGEND:

0.138	DRAINAGE AREA IN Ha

No.	ISSUE / REVISION	DD/MM/YY
0	ISSUED FOR DRAFT PLAN APPROVAL	07/12/21

This drawing is copyright protected and may not be reproduced or used for purposes other than execution of the described work without the express written consent of J.L. Richards & Associates Limited.

VERIFY SHEET SIZE AND SCALES. BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE: 1:750

CLIENT: minto Communities

CONSULTANT: www.jlrichards.ca J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT:

PROFESSIONAL STAMP

PROFESSIONAL STAMP

PROJECT:

ARCADIA STAGE 5

DRAWING:

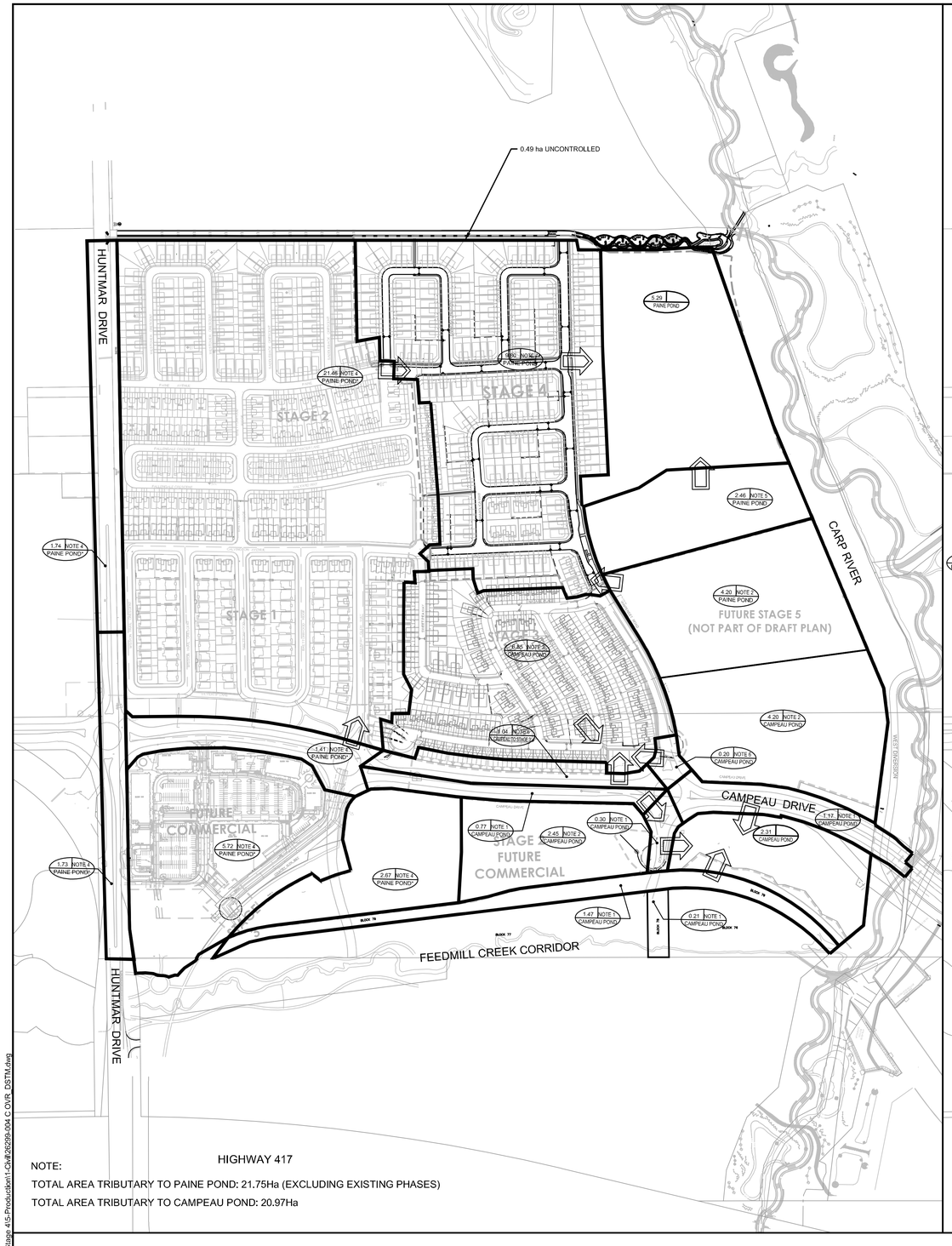
CONCEPTUAL STORM DRAINAGE

DESIGN: KF
DRAWN: CJ
CHECKED: KF
JLR #: 26299-005

DRAWING #: CDST

PLOT DATE: December 7, 2021 10:33:09 AM

File Location: P:\26000\26299-005 - Arcadia Stage 5\5-Production\1-Civil\26299-005 C CDST.dwg



NOTE:

TOTAL AREA TRIBUTARY TO PAINE POND: 21.75Ha (EXCLUDING EXISTING PHASES)

TOTAL AREA TRIBUTARY TO CAMPEAU POND: 20.97Ha

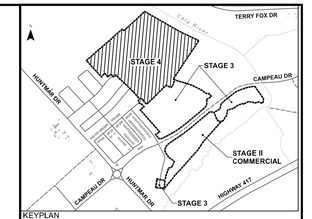
MAJOR SYSTEM

NOTE:

TOTAL AREA TRIBUTARY TO PAINE POND: 22.37Ha (EXCLUDING EXISTING PHASES)

TOTAL AREA TRIBUTARY TO CAMPEAU POND: 20.35Ha

MINOR SYSTEM



KEYPLAN

LEGEND

- MINOR SYSTEM FLOW
- PHASING LIMIT
- MAJOR SYSTEM FLOW
- AREA IN HECTARES
- 1.47 | 10 YR | CAMPEAU POND — LEVEL OF SERVICE TO MINOR SYSTEM; TRIBUTARY POND

NOTE 1 - MAJOR OVERLAND FLOW ABOVE 1:10 YR STORM TO BE CONVEYED TO THE CAMPEAU POND.

NOTE 2 - 1:100 YR STORM TO BE CONTAINED ON-SITE.

NOTE 3 - MAJOR OVERLAND FLOW TO BE ACCOMMODATED BY ROADWAY SAGS WITH EXCESS DYNAMIC FLOWS TO BE CONVEYED TO THE DRY POND.

NOTE 4 - MAJOR OVERLAND FLOW PER IBI OCTOBER 2014 SWM MODEL.

NOTE 5 - MAJOR AND MINOR OVERLAND FLOW TO BE DIRECTED TO PAINE POND VIA OVERLAND DRAINAGE. ALTERNATIVELY 86 L/s OF FLOW CAN BE DIRECTED TO MINOR SYSTEM VIA PROPOSED CBMH119B.

NOTE 6 - MAJOR OVERLAND FLOW ABOVE 1:10 YR STORM TO BE CONVEYED TO THE DRY POND.

NOTE 7 - MAJOR OVERLAND FLOW TO BE ACCOMMODATED BY ROADWAY SAGS WITH EXCESS DYNAMIC FLOWS TO BE CONVEYED TO THE PAINE POND.

* LANDS CURRENTLY TRIBUTARY TO INTERIM STORM WATER MANAGEMENT FACILITY IN ARCADIA STAGE 1

No.	ISSUE / REVISION	DD/MM/YY
04	ISSUED FOR CITY REVIEW - 3RD SUBMISSION	28/02/20
03	ISSUED FOR TENDER	17/01/20
02	ISSUED TO CITY FOR REVIEW - 2nd SUBMISSION	13/12/19
01	ISSUED TO CITY FOR REVIEW - 1st SUBMISSION	09/08/19

VERIFY SHEET SIZE AND SCALES. BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE: 1:3000

CLIENT: minto Communities

CONSULTANT: www.jlrichards.ca

J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT:

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER K. R. L. DALRYMPLE PROVINCE OF ONTARIO

PROJECT NORTH

PROJECT:

MINTO COMMUNITIES INC.
ARCADIA STAGE 4

450 HUNTMAR DRIVE

DRAWING:

OVERALL STORM DRAINAGE PLAN

DESIGN: AT	
DRAWN: SK	DRAWING #:
CHECKED: LD	OST
JLR #: 26299-004	

City File No: D07-16-16-0025 Plan No: 17816

File Location: P:\26000\26299-004 - Arcadia Stage 4\5-Production\1-Civil\26299-004 C OVR_OSTM.dwg

PLOT DATE: Friday, February 28, 2020 3:42:07 PM

BEST MANAGED COMPANIES CANADA Platinum member

www.jlrichards.ca

Ottawa

864 Lady Ellen Place
Ottawa ON Canada
K1Z 5M2
Tel: 613 728-3571

ottawa@jlrichards.ca

Kingston

203-863 Princess Street
Kingston ON Canada
K7L 5N4
Tel: 613 544-1424

kingston@jlrichards.ca

Sudbury

314 Countryside Drive
Sudbury ON Canada
P3E 6G2
Tel: 705 522-8174

sudbury@jlrichards.ca

Timmins

834 Mountjoy Street S
Timmins ON Canada
P4N 7C5
Tel: 705 360-1899

timmins@jlrichards.ca

North Bay

501-555 Oak Street E
North Bay ON Canada
P1B 8L3
Tel: 705 495-7597

northbay@jlrichards.ca

Hawkesbury

326 Bertha Street
Hawkesbury ON Canada
K6A 2A8
Tel: 613 632-0287

hawkesbury@jlrichards.ca

Guelph

107-450 Speedvale Ave. West
Guelph ON Canada
N1H 7Y6
Tel: 519 763-0713

guelph@jlrichards.ca

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS