Report
Project: 143934-6.4.3

BLOCK 5 – WATERIDGE PHASE 4 SERVICING BRIEF

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IBI GROUP

Prepared for ROHIT Communities Inc.
by ARCADIS

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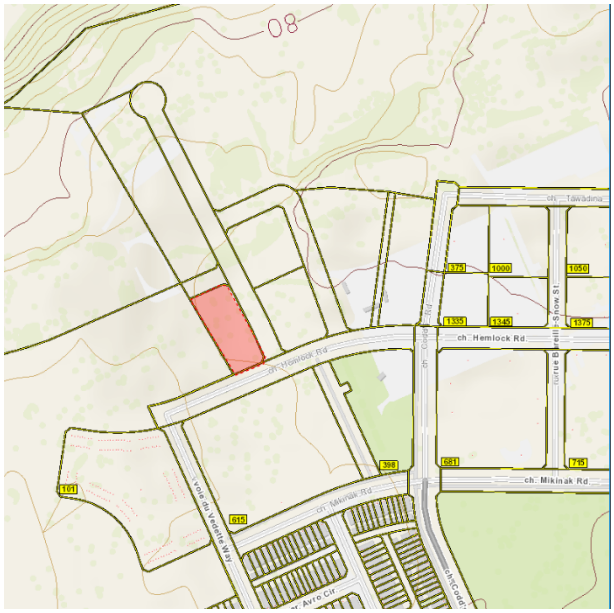
1 INTRODUCTION

In 2011, Canada Lands Company (CLC), bought and took ownership of about 125 ha of the former CFB Rockcliffe air base site. The acquisition of the decommissioned base by CLC offers the opportunity today to reconnect this site back into the urban fabric of the City and create a highly desirable mixed-use community for approximately 10,000 residents. CLC completed a Community Design Plan (CDP) in 2015. In support of the CDP, there were numerous supporting documents including the "Former CFB Rockcliffe Master Servicing Study" (MSS), August 2015, prepared by IBI Group. That report provided a plan for provision of major infrastructure needed to support the proposed development of the Wateridge Village.

CLC plans to develop the Wateridge Village property in several phases. Phases 1A, 1B, 2 and 4 have already been constructed, which cover about 45 ha. The Phase 4 registered 4M plan is provided in **Appendix A**. This phase covers about 5.7 ha and includes 7 blocks. Block 5 is located in the West portion of the Wateridge Village Phase 4. The site plan is included in **Appendix A**. ARCADIS Professional Services Inc. (ARCADIS) has been retained by Rohit Communities Inc. to provide professional engineering services for Block 5. The subject site is approximately 0.42 ha and consists of one 4-storey residential building with a total of 89 units. The site also consists of below grade parking facilities. Additionally, the Block 5 M-plan and Architectural Site Plan have also been provided in **Appendix A.**

Block 5 is bounded by Street No.1 to the North, Hemlock Road to the South, Wateridge Phase 3 to the West and Oshedinaa Street to the East. Its Civic Address is 1076 Hemlock Road. Refer to key plan on **Figure 1.1** for Site location.

Figure 1.1 Site Location



The proposed servicing design conforms to current City of Ottawa and MECP design criteria, and no pre-consultation meetings were requested from the Rideau Valley Conservation Authority (RVCA) or the Ontario Ministry of Environment, Conservation and Parks (MECP).

1.1 Guidelines and Standards

This evaluation takes into consideration the City of Ottawa Sewer Design Guidelines (OSDG) (October 2012), and the February 2014 Technical Bulletin ISDTB-2014-01, the September 2016 Technical Bulletin PIEDTB-2016-01, the June 2018 Technical Bulletin ISTB-2018-04, October 2019 Technical Bulletin 2019-01, and the July Technical Bulletin 2019-02.

It also considers the City of Ottawa Water Distribution Design Guidelines (OWDDG), and the 2010 Technical Bulletin 2010-02, the 2014 Technical Bulletin 2014-02, the 2018 Technical Bulletin 2018-02 and the 2020 Technical Bulletin 2020-02.

All specifications are as per current City of Ottawa standards and specifications, and Province of Ontario (OPSS/D) standards, specifications and drawings.

1.2 Pre-Consultation Meeting

The City of Ottawa hosted a virtual pre-consultation meeting on March 20th, 2023. Notes of the meeting are provided in **Appendix A**. There were no major engineering concerns flagged in this meeting. The City of Ottawa Servicing Study Checklist has also been included in **Appendix A**.

1.3 Environmental Issues

There are no environmental issues related to this site. All environmental concerns were dealt with as part of the CLC's Wateridge Phase 4 subdivision approval.

The Wateridge Phase 4 Development had previously cleared and pre-graded the subject lands. There are no existing watercourses or drainage features associated with this site.

1.4 Geotechnical Concerns

Terrapex was retained to prepare a geotechnical investigation for the proposed mixed-use development for Block 5. The objectives of the investigation were to prepare a report to:

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

The geotechnical report CO947.000 was prepared by Terrapex in January 2024. The report contains recommendations which include but are not limited to the following:

- Site grading;
- Foundation Design;
- Pavement Structure;
- Sewer and Watermain Construction;
- Groundwater Control;
- Soil Infiltration
- Grade raises

In general, the grading plan for Block 5 adheres to the grade raise constraints noted above. A copy of the grading plans is included in **Appendix E**.

2 WATER DISTRIBUTION

2.1 Existing Conditions

Phase 4 of Wateridge Village at Rockcliffe will be serviced with potable water from the City of Ottawa's Montreal Road Pressure Zone (Zone MONT). An existing 400 mm diameter watermain on Montreal Road will supply Phase 2B with connections at Codd's Road and Burma Road. As part of the Phase 1 water plan, two 400 mm mains were extended northward along Codd's Road and Wanaki Road. A copy of the existing watermain plan for Phase 4 is included in **Appendix B.**

There is an existing 200mm watermain in Oshedinaa Street to the east of Block 5, an existing 200mm watermain in Street No.1 to the north of the site, and an existing 300mm watermain in Hemlock Road to the south of the site. Refer to the General Plan of Services included in **Appendix A** for the detailed water distribution plan for the site.

2.2 Design Criteria

2.2.1 Water Demands

The proposed development consists of 89 apartment units. In order to calculate water demand rates, the per unit population density and consumption rates are taken from Tables 4.1 and 4.2 of the Ottawa Design Guidelines – Water Distribution were used and are summarized as follows:

- Apartment — 1.4 person per 1-bedroom unit
  2.1 person per 2-bedroom unit
  3.1 person per 3-bedroom unit
- Average Day Demand — 280 l/cap/day
- Peak Daily Demand — 700 l/cap/day
- Peak Hour Demand — 1,540 l/cap/day

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

- Average Day — 0.47 l/s
- Maximum Day — 1.18 l/s
- Peak Hour — 2.59 l/s

2.2.2 System Pressures

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

Minimum Pressure	Minimum system pressure under peak hour demand conditions shall not be less than 276 kPa (40 psi).
Fire Flow	During the period of maximum day demand, the system pressure shall not be less than 140 kPa (20 psi) during a fire flow event.

Maximum Pressure	Maximum pressure at any point in the distribution system in unoccupied areas shall not exceed 689 kPa (100 psi). In accordance with the Ontario Building/Plumbing Code the maximum pressure should not exceed 552 kPa (80 psi) in occupied areas. Pressure reduction controls may be required for buildings when it is not possible/feasible to maintain the system pressure below 552 kPa.

2.2.3 Fire Flow Rate

The Fire Underwriters Survey was used to determine the fire flow for the site. The calculations result in a fire flow of 6,000 l/min; a copy of the FUS calculation is included in **Appendix B**.

2.2.4 Boundary Conditions

The City of Ottawa has provided a hydraulic boundary condition at the proposed connection to the 200 mm main on Oshedinaa Street. The boundary condition is based on the water demand and fire flow rates provided. A copy of the boundary conditions received November 27, 2023 is included in **Appendix B** and are summarized as follows:

BOUNDARY CONDITIONS	
SCENARIO	HGL (m)
Minimum HGL	143.0
Maximum HGL	143.0
Max Day + Fire Flow (100 l/s)	140.7

2.3 Proposed Water Plan

The proposed development consists of 65 one-bedroom apartment units, 20 two-bedroom apartment units and 4 three-bedroom apartment units, equating to an estimated occupancy of 145.40. One new 150 mm diameter connection from Oshedinaa Street will be installed to service the building. The proposed 150 mm diameter watermain will provide adequate supply to the building to meet demands.

There are 2 municipal fire hydrants within 75m of Building A with a fire flow supply of 5,700 l/min and a combined total of 11,400 l/min. The capacity need for Building A of 6,000 l/min is provided in accordance with Technical Bulletin ISTB-2018-02 date March 21, 2018.

Minimum Pressure (Peak Hour) – The minimum peak hour pressure on the site can be estimated as HGL 143.00m – meter elevation of 88.2m = 54.8m or 537 kPa which exceeds the minimum requirement of 276 kPa. The pressure on the top floor can be estimated as 143.00m – 102.57m = 40.43m or 396.4 KPa which exceeds the minimum requirement of 276 kPa.

Fire Flow – The max day plus fire flow can be estimated as HGL 140.70 – ground floor elevation plus 0.4m 88.85 = 51.85m or 508 KPa which exceeds the minimum of 140kPa.

Max HGL (High Pressure Check) – The high-pressure check can be estimated as HGL 143.00 –

(lowest level) 88.20 = 54.80m or 537.3 KPa which is below the maximum of 552 kPa, therefore a

pressure reducing valve is not required.

3 WASTEWATER

3.1 Existing Conditions

Canada Lands Company completed a Community Design Plan (CDP) in 2015. To support that plan, a number of technical reports were prepared including the 'Former CFB Rockcliffe Master Servicing Study, August 2015 (MSS), which was subsequently updated in June 2020. That report recommended that the existing combined sewers on the subject site be abandoned in favour of dedicated sanitary and storm sewer systems.

In particular, the MSS recommended that future wastewater flow from Phase 4 be directed to the Codd's Road Shaft. Accordingly, wastewater flows from the subject site will be designed to outlet to that location. The previous Phase 1A design included the new connection to that shaft and the proposed Phase 4 sanitary sewers will connect to the Phase 1A system. A copy of Phase 4 sanitary drainage area plan and design sheet are included in **Appendix C**.

3.1.1 Verification of Existing Sanitary Sewer Capacity

An analysis was completed by Arcadis to determine the ability of the existing sanitary sewer system to accommodate the proposed development. The results of the analysis are included in **Appendix C**. Based on the analysis, the wastewater flows in the Oshedinaa Street sewer from MH191A to MH190A is 13.10 L/s, with a spare capacity of 30.88 L/s and from MH190A to MH180A is 14.64 L/s, with a spare capacity of 110.96 L/s. The sewer downstream of the Oshedinaa Street sewer, along Hemlock Road, from MH180A to MH179A has a wastewater flow of 17.62 L/s, with a spare capacity of 37.63 L/s. The Codd's Road Shaft has a wastewater flow of 125.93 L/s, with a spare capacity of 74.44 L/s. As such, it is Arcadis's opinion that the existing sanitary sewers in Oshedinaa Street and Hemlock Road can accommodate the sanitary flow from the proposed development.

A letter from CLC acknowledging the increased population from the MSS is included in **Appendix C**.

3.2 Proposed Sewers

All on-site sewers have been designed to City of Ottawa and MECP design criteria which include but are not limited to the below listed criteria. The detailed sanitary sewer design sheets which are included in **Appendix C** illustrate the population densities and sewers which provide the necessary outlets. The design wastewater criteria for this analysis:

3.2.1 Design Flow:

Average Residential Flow	-	280 l/cap/day
Peak Residential Factor	-	Modified Harmon Formula
Infiltration Allowance	-	0.33 l/sec/Ha
Minimum Pipe Size	-	200mm diameter

3.2.2 Population Density:

Apartment Units	-	1.4 person per 1-bedroom unit
	-	2.1 person per 2-bedroom unit
	-	3.1 person per 3-bedroom unit

4 SITE STORMWATER MANAGEMENT

4.1 Objective

The purpose of this evaluation is to prepare the dual drainage design, including the minor and major system, for the Block 5 development. The design includes the assignment of inlet control device, roof storage and maximum depth of surface ponding. The evaluation takes into consideration the City of Ottawa Sewer Design Guidelines (OSDG) (October 2012), the February 2014 Technical Bulletin ISDTB-2014-01, the September 2016 Technical Bulletin PIEDTB-2016-01 and the June 2018 Technical Bulletin ISTB-2018-04.

4.2 Existing Conditions

CLC completed an update to the servicing report, “Former CFB Rockcliffe Master Servicing Study” in 2020. That report recommended a preferred Stormwater Management Plan for the Wateridge Village at Rockcliffe site. The report recommended construction of two stormwater ponds and related appurtenances to service the CLC property; the Western Stormwater Management Facility and the Eastern Stormwater Management Facility. The Eastern Pond is proposed to provide management of flows from most of Phase 1 and 2 of the CLC property, including the subject site. The Eastern Pond was constructed and put into service in 2017.

The MSS Report also recommends a series of local and trunk storm sewers to collect runoff from Phases 1, 2 and 4 and route those flows to the Eastern Facility. The Phase 1 design followed the recommendations of the MSS report, including construction of the large diameter sewers, which outlet to the Eastern Stormwater Management Facility; the Eastern Stormwater Management Facility and outlet to the Ottawa River. The Phase 4 storm sewers connect to the downstream Phase 1 sewer system. A copy of the storm drainage area plan and the storm sewer design sheet for Phase 4 are included in **Appendix D**.

Note that a temporary drainage CB is shown on the Wateridge Village Phase 4 storm drainage plan inside Block 5. This CB is not currently existing and is therefore not shown on the Removals Plan.

4.3 Design Criteria

The stormwater system for the subdivision was designed following the principles of dual drainage, making accommodations for both major and minor flow.

Some of the key criteria include the following:

- Design Storm — 1:5-year return (Phase 4 Design Brief)
- Rational Method Sewer Sizing
- Initial Time of Concentration — 10 minutes
- Runoff Coefficients
  - Landscaped Areas — C = 0.25
  - Landscaped Area with Pathway/Roof — C = 0.50 - 0.65
  - Building and Roof Area — C = 0.90
  - Parking Area and Driveway — C = 0.90
- Pipe Velocities — 0.80 m/s to 3.0 m/s
- Minimum Pipe Size — 250 mm diameter (200 mm CB Leads)

4.4 System Concept

According to the Wateridge Phase 4 report prepared by IBI Group dated March 2023, the development of the adjacent downstream properties included the expected stormwater servicing needs of the subject property. The existing storm sewers constructed adjacent to the site were oversized to provide the needed capacity for minor storm runoff from the subject site. Minor storm runoff from the subject site is proposed to connect to the existing 3000 mmØ sewer in Oshedinaa Street.

4.4.1 Dual Drainage Design

The dual drainage system proposed for the subject site will accommodate both major and minor stormwater runoff. Minor flow from the subject site will be conveyed through the storm sewer network and discharge into the existing 3000 mmØ sewer in Oshedinaa Street.

The balance of the surface flow not captured by the minor system will be conveyed via the major system. Where possible, storage will be provided in surface sags or low points within the roadway. Once the maximum storage is utilized, the excess flow will cascade to the next downstream street sag. Major flow up to 100-year storm event will be restricted and detained on-site. Emergency overflow will be directed towards the North of the site at Street. No. 1.

Note that a foundation drainage system/weeping tiles may be recommended for this site by the geotechnical engineer. The design of any foundation drainage system is to be done under direction of the geotechnical engineer and is separate to civil works. This may not be finalized until detailed design of the building takes place. Any foundation drainage system is to be connected to the storm service downstream of any flow control devices.

4.4.2 Proposed Minor System

Using the criteria identified in Section 4.3, the proposed on-site storm sewers were sized accordingly. A detailed storm sewer design sheet and the associated storm sewer drainage area plan are included in **Appendix D**. The general plan of services, depicting all on-site storm sewers can be found in **Appendix A**.

4.5 Stormwater Management

Wateridge Phase 4 is part of the larger development referred to as the Former CFB Rockcliffe. The stormwater management strategy was outlined in the “Former CFB Rockcliffe Master Servicing Study” (MSS) (IBI Group, August 2020). Phase 4 is located north of Hemlock Road between Wateridge Phase 2B and Wateridge Phase 3&5 (refer to Figure 1.1).

The subject site is part of the drainage area that ultimately discharges to the Eastern SWM Facility. The trunk storm sewer to the pond and the pond itself were constructed as part of Wateridge Phase 1A.

4.5.1 Water Quality Control

The design takes into consideration the August 2020 MSS, the “Design Brief Wateridge Village at Rockcliffe Phase 1B” (IBI Group, June 2017), the “Design Brief Wateridge Village at Rockcliffe Phase 1A” (IBI Group, April 2016), the City of Ottawa Sewer Design Guidelines (OSDG) (October 2012), and the February 2014 Technical Bulletin ISDTB-2014-01.

Any runoff from the site, as with all future developments in Wateridge Village at Rockcliffe, will have end of pipe quality treatment. Any impacts to receiving watercourses will therefore be mitigated. There are no municipal drains in the vicinity of the subject development and there are no drainage catchment diversions proposed by the current development.

4.5.2 Water Quantity Control

The subject site will be limited to a maximum minor system release rate of 120 L/s according to Wateridge Phase 4 Design Brief dated March 2023. In the Phase 4 subdivision stormwater management system design, the development blocks are subjected to minor system inflow restriction with major flow cascading to a street segment. The restricted rates were provided in Table 5-3, taken from Wateridge Phase 4 – Design Brief, dated March 2023 included in **Appendix D**. This will be achieved through rooftop storage.

Surface flows in excess of the site's allowable release rate will be stored on the building rooftop and gradually released into the minor system to respect the site's allowable release rate. Average rooftop retention depth located within the building area will be limited to a maximum of 50mm during a 1:100-year event as show on the storm drainage area plan located in **Appendix D** and grading plans located in **Appendix E**. Correspondence from the architect confirms that, at the detailed design stage, the roof will accommodate this volume (see memo in **Appendix D**).

All stormwater from the roof will be directed to the infiltration gallery. If infiltration is not able to keep up with the flow, the gallery will outlet through the overflow pipe to CB1, which outlets through the underground parking garage to the storm sewer in Oshedinaa Street.

Surface flows within the CB1 and Area Drain drainage areas will not require on-site storage. These structures will collect stormwater and outlet to the building's storm service unrestricted as shown on the storm drainage area plan located in **Appendix D** and grading plans located in **Appendix E**. The maximum ponding outline at CB1 and Area Drain drainage area, should either structure become blocked, is well outside any part of the building envelope and overland flow routes allow for emergency outletting offsite.

Along the perimeter of the site, the opportunity to capture and store runoff is limited due to grading constraints and building geometry. These areas will discharge uncontrolled to Oshedinaa Street, Street No.1 and Hemlock Road. These areas are located at the perimeter of the site where it is necessary to tie into public boulevards and adjacent properties or in areas where ponding stormwater is undesirable. The drainage area of the ramp leading to the underground parkade will also discharge as uncontrolled to the trench drain at the bottom of the ramp and to the storm service outlet onto Oshedinaa Street through internal plumbing.

No stormwater is expected to flow to the west onto the adjacent lot. All overland flow routes and uncontrolled runoff is directed to city ROWs. A letter from CLC acknowledging the terracing onto the adjacent lot to the west (Block 13) is included in **Appendix C**. There are no interim grading concerns with ponding on Block 13 as this property flows away from Block 5.

Based on the proposed site plan, the total uncontrolled area has been calculated to be 0.18 Ha. For the detailed storm drainage area plan for the site, refer to Drawing 500 in **Appendix D**.

Based on a 1:100-year event, the flow from the 0.18 Ha uncontrolled area can be determined as:

UNC1 + UNC2

$\mathbf{Q_{uncontrolled}}$ = **2.78** x **C** x $\mathbf{i_{100yr}}$ x **A** where:

C = Average runoff coefficient = 0.45 x 1.25 = 0.5625 (100 year C-value)

$\mathbf{i_{100yr}}$ = Intensity of 100-year storm event (mm/hr)
= $1735.688 \times (T_c + 6.014)^{0.820}$ =178.56 mm/hr; where T_c = 10 minutes

A = Uncontrolled Area = 0.0782 Ha

Therefore, the uncontrolled release rate for this area can be determined as:

$\mathbf{Q_{uncontrolled}}$ = **2.78** x **C** x $\mathbf{i_{100yr}}$ x **A**
= 2.78 x 0.5625 x 178.56 x 0.0782
= 21.84 L/s

The calculations were repeated for each unrestricted drainage area to get a total uncontrolled flow rate of 81.82 L/s (see detailed calculations in **Appendix D**).

The Maximum allowable release rate from the site can be determined by subtracting the Uncontrolled release rate from the minor system restricted flow rate.

$Q_{max} = Q_{restricted} - Q_{uncontrolled}$

Q_{max} = 120.00 L/s – 84.80 L/s

Q_{max} = 35.20 L/s

The rooftop is the only drainage area that will be controlled. The total flow from the roof will be limited to 30 L/s and controlled through a number of roof drains. The location and number of roof drains is to be determined at the detailed design of the building. Included in the **Appendix D** is an example of a type of roof drain control device that can be used.

DRAINAGE AREA	ICD RESTRICTED FLOW (L/s)	100 YEAR STORAGE REQUIRED (m^3)	ROOF STORAGE PROVIDED (m^3)
BLDA	30.00	38.43	68.50
TOTAL	**30.00**	**38.43**	**68.50**

4.5.3 5 Year Ponding

As stated in the Design Brief for Wateridge Phase 4, a review of the 5-year ponding for Block 5 has been completed using the modified rational method. No ponding is expected outside the rooftop drainage area as it is the only area with a restricted flow rate.

DRAINAGE AREA	ICD RESTRICTED FLOW (L/s)	5 YEAR STORAGE REQUIRED (m^3)	ROOF STORAGE PROVIDED (m^3)
BLDA	30.00	11.12	68.50
TOTAL	**30.00**	**11.12**	**68.50**

4.5.4 100 year + 20% Stress Test

A cursory review of the 100yr event + 20% has been performed using the modified rational method. The Peak flow from each area during a 100-year event has been increased by 20%. The calculations have been included in **Appendix D.**

A summary of the storage volumes, and overflow balances is provided below.

DRAINAGE AREA	ICD RESTRICTED FLOW (L/s)	100yr20 STORAGE REQUIRED (m^3)	SURFACE STORAGE PROVIDED (m^3)	100yr20 OVERFLOW (m^3)
BLDA	30.00	51.51	68.50	0.00
TOTAL	**30.00**	**51.51**	**68.50**	**0.00**

5 LOW IMPACT DEVELOPMENT

Aquafor Beech was retained by Arcadis on behalf of ROHIT Communities Inc. to complete the design of an infiltration-based Stormwater Management (SWM) facility in support of the development at 1076 Hemlock Road, Ottawa.

A memo was prepared, titled “Block 5 Stormwater Management: Infiltration Facility Development Memo”, dated February 2024 by Aquafor Beech, which is included in **Appendix D** of this report. Arcadis has incorporated this infiltration system into the site servicing design.

6 SEDIMENT AND EROSION CONTROL PLAN

6.1 General

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

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

6.2 Trench Dewatering

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

6.3 Bulkhead Barriers

At the first manhole constructed immediately upstream of an existing sewer, a ½ diameter bulkhead will be constructed over the lower half of the outletting sewer. This bulkhead will trap any sediment carrying flows, thus preventing any construction –related contamination of existing sewers. The bulkheads will be inspected and maintained including periodic sediment removal as needed.

6.4 Seepage Barriers

These barriers will consist of both the Light Duty Straw Bale Barrier as per OPSD 219.100 or the Light Duty Silt Fence Barrier as per OPSD 219.110 and will be installed in accordance with the sediment and erosion control drawing. The barriers are typically made of layers of straw bales or geotextile fabric staked in place. All seepage barriers will be inspected and maintained as needed.

6.5 Surface Structure Filters

All catchbasins, and to a lesser degree manholes, convey surface water to sewers. However, until the surrounding surface has been completed these structures will be covered to prevent sediment from entering the minor storm sewer system. Until rear yards are sodded or until streets are asphalted and curbed, all catchbasins and manholes will be equipped with geotextile filter socks. These will stay in place and be maintained during construction and build until it is appropriate to remove them.

7 APPROVALS AND PERMIT REQUIREMENTS

7.1 City of Ottawa

The City of Ottawa reviews all development documents including this report and working drawings. Upon completion, the City will approve the local watermains, submit the sewer ECA application to the province, and eventually issue a Commence Work Notification.

7.2 Province of Ontario

The Ministry of Environment, Conservation and Parks (MECP) Environmental Compliance Approval is not required for the subject development. A Permit To Take Water for the subject site has been provided by the MECP. The permit, number 0565-A5AMP8, expires on December 31, 2025.

7.3 Conservation Authority

Since no watercourses are impacted by the proposed development, no permits will be required from the local Conservation Authority (Rideau Valley Conservation Authority).

7.4 Federal Government

There are no federal permits, authorizations or approvals needed for this development.

8 CONCLUSIONS & RECOMMENDATIONS

8.1 Conclusions

This report and the accompanying working drawings clearly indicate that the proposed development meets the requirements of the stakeholder regulators, including the City of Ottawa, provincial MECP and RVCA. The proposed development is also in general conformance with the Master Servicing Study completed by IBI dated June 2020.

Downstream sanitary and storm sewers were designed with the proposed development area included. There is a reliable water supply available adjacent to the proposed development.

8.2 Recommendations

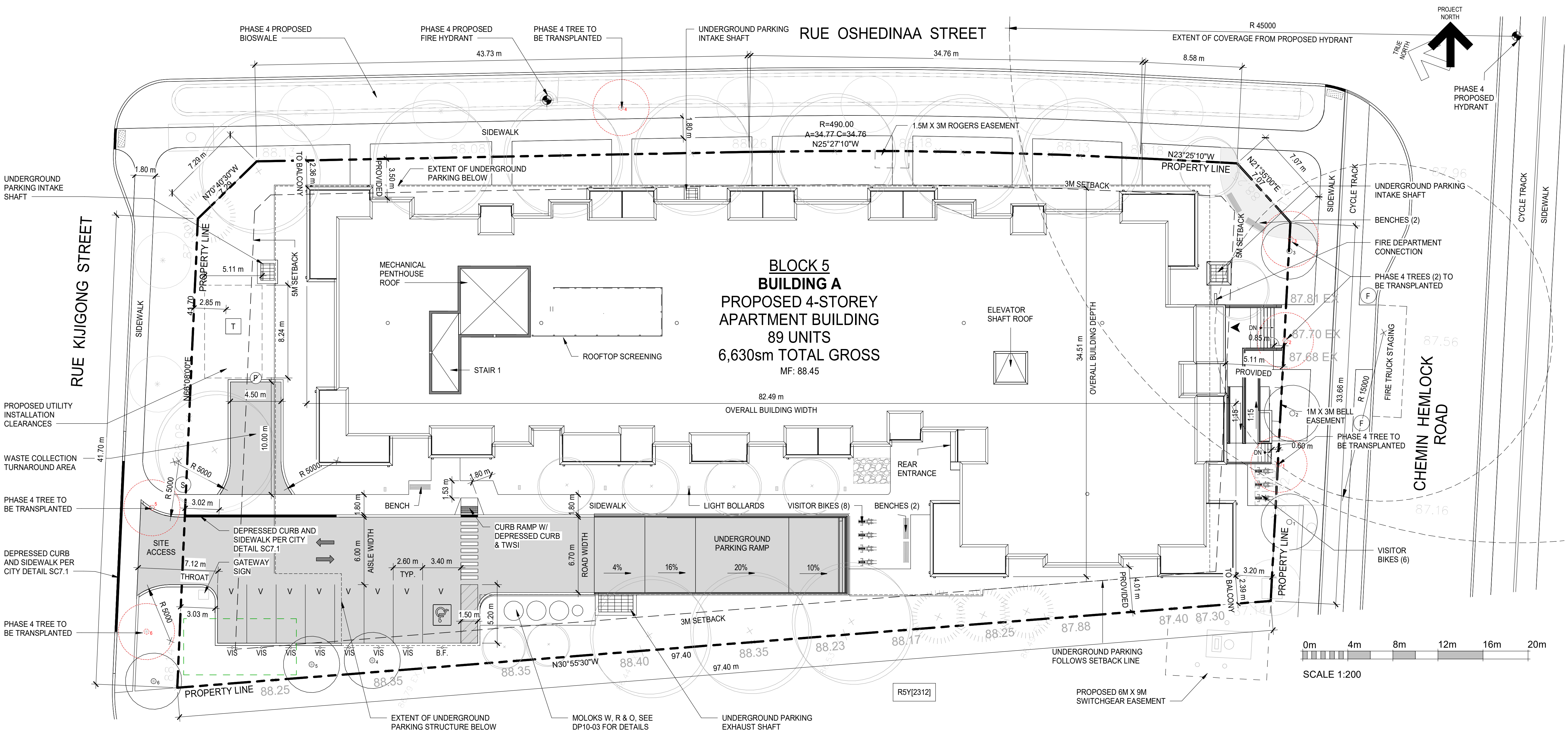
It is recommended that the regulators review this submission with an aim of providing the requisite approvals to permit the owners to proceed to the construction stage of the subject site.

Report prepared by:

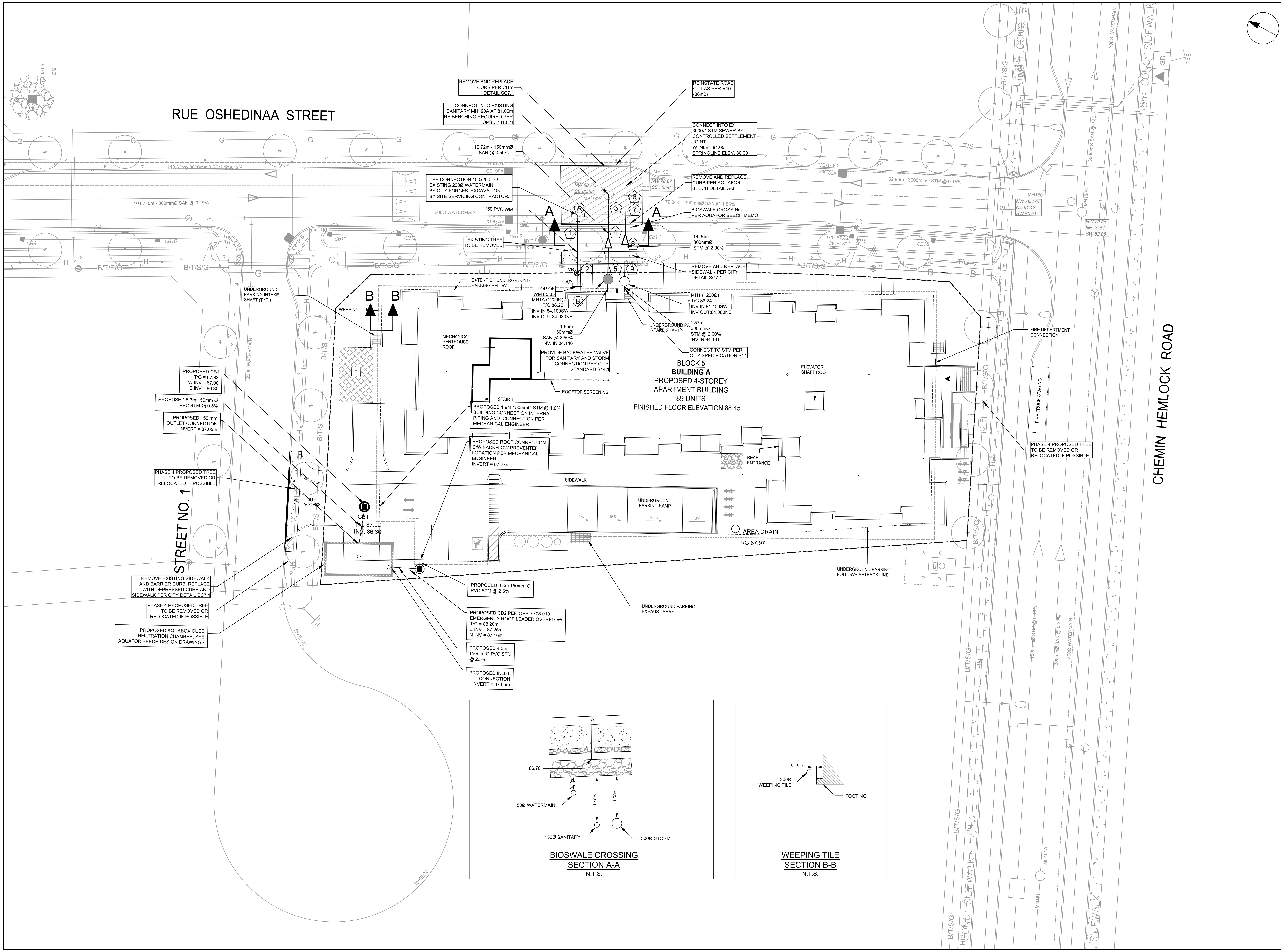
ARCADIS

Samantha E. Labadie
Civil Engineer

APPENDIX A



RUE OSHEDINAA STREET
RUE KIJIGONG STREET
CHEMIN HEMLOCK ROAD
PROJECT NORTH
TRUE NORTH
PHASE 4 PROPOSED BIOSWALE
PHASE 4 PROPOSED FIRE HYDRANT
PHASE 4 TREE TO BE TRANSPLANTED
UNDERGROUND PARKING INTAKE SHAFT
R 45000
EXTENT OF COVERAGE FROM PROPOSED HYDRANT
PHASE 4 PROPOSED HYDRANT
43.73 m
34.76 m
8.58 m
SIDEWALK
R=490.00
A=34.77 C=34.76
N25°27'10"W
1.5M X 3M ROGERS EASEMENT
N23°25'10"W
PROPERTY LINE
N21°35'00"E
7.07 m
EXTENT OF UNDERGROUND PARKING BELOW
3M SETBACK
5M SETBACK
UNDERGROUND PARKING INTAKE SHAFT
BENCHES (2)
FIRE DEPARTMENT CONNECTION
PHASE 4 TREES (2) TO BE TRANSPLANTED
CYCLE TRACK
BLOCK 5
BUILDING A
PROPOSED 4-STOREY APARTMENT BUILDING
89 UNITS
6,630sm TOTAL GROSS
MF: 88.45
MECHANICAL PENTHOUSE ROOF
ROOFTOP SCREENING
STAIR 1
ELEVATOR SHAFT ROOF
82.49 m
OVERALL BUILDING WIDTH
34.51 m
OVERALL BUILDING DEPTH
N70°40'30"W
7.29 m
N66°08'00"E
41.70 m
PROPOSED UTILITY INSTALLATION CLEARANCES
WASTE COLLECTION TURNAROUND AREA
PHASE 4 TREE TO BE TRANSPLANTED
DEPRESSED CURB AND SIDEWALK PER CITY DETAIL SC7.1
SITE ACCESS
THROAT
GATEWAY SIGN
AISLE WIDTH
ROAD WIDTH
BENCH
CURB RAMP W/ DEPRESSED CURB & TWSI
LIGHT BOLLARDS
VISITOR BIKES (8)
BENCHES (2)
REAR ENTRANCE
UNDERGROUND PARKING RAMP
4%
16%
20%
10%
1M X 3M BELL EASEMENT
PHASE 4 TREE TO BE TRANSPLANTED
VISITOR BIKES (6)
FIRE TRUCK STAGING
R 15000
33.66 m
UNDERGROUND PARKING FOLLOWS SETBACK LINE
PROPOSED 6M X 9M SWITCHGEAR EASEMENT
N30°55'30"W
97.40 m
PROPERTY LINE
EXTENT OF UNDERGROUND PARKING STRUCTURE BELOW
MOLOKS W, R & O, SEE DP10-03 FOR DETAILS
UNDERGROUND PARKING EXHAUST SHAFT
R5Y[2312]
0m 4m 8m 12m 16m 20m
SCALE 1:200


RUE OSHEDINAA STREET
CHEMIN HEMLOCK ROAD
STREET NO. 1
REMOVE AND REPLACE CURB PER CITY DETAIL SC7.1
CONNECT INTO EXISTING SANITARY MH190A AT 81.00m RE BENCHING REQUIRED PER OPSD 701.021
REINSTATE ROAD CUT AS PER R10 (86m2)
CONNECT INTO EX. 3000Ø STM SEWER BY CONTROLLED SETTLEMENT JOINT W INLET 81.05 SPRINGLINE ELEV. 80.00
12.72m - 150mmØ SAN @ 3.50%
TEE CONNECTION 150x200 TO EXISTING 200Ø WATERMAIN BY CITY FORCES. EXCAVATION BY SITE SERVICING CONTRACTOR.
REMOVE AND REPLACE CURB PER AQUAFOR BEECH DETAIL A-3
BIOSWALE CROSSING PER AQUAFOR BEECH MEMO
104.710m - 300mmØ SAN @ 0.19%
62.96m - 3000mmØ STM @ 0.15%
72.34m - 300mmØ SAN @ 1.55%
14.36m 300mmØ STM @ 2.00%
EXISTING TREE TO BE REMOVED
REMOVE AND REPLACE SIDEWALK PER CITY DETAIL SC7.1
EXTENT OF UNDERGROUND PARKING BELOW
UNDERGROUND PARKING INTAKE SHAFT (TYP.)
TOP OF WM 85.85
MH1A (1200Ø) T/G 88.22 INV IN:84.100SW INV OUT:84.080NE
MH1 (1200Ø) T/G 88.24 INV IN:84.100SW INV OUT:84.080NE
1.85m 150mmØ SAN @ 2.50% INV. IN 84.146
1.57m 300mmØ STM @ 2.00% INV IN 84.131
PROVIDE BACKWATER VALVE FOR SANITARY AND STORM CONNECTION PER CITY STANDARD S14.1
CONNECT TO STM PER CITY SPECIFICATION S14
MECHANICAL PENTHOUSE ROOF
ROOFTOP SCREENING
BLOCK 5
BUILDING A
PROPOSED 4-STOREY APARTMENT BUILDING
89 UNITS
FINISHED FLOOR ELEVATION 88.45
ELEVATOR SHAFT ROOF
FIRE DEPARTMENT CONNECTION
FIRE TRUCK STAGING
PHASE 4 PROPOSED TREE TO BE REMOVED OR RELOCATED IF POSSIBLE
PROPOSED CB1 T/G = 87.92 W INV = 87.00 S INV = 86.30
PROPOSED 5.3m 150mm Ø PVC STM @ 0.5%
PROPOSED 150 mm OUTLET CONNECTION INVERT = 87.05m
PROPOSED 1.9m 150mmØ STM @ 1.0% BUILDING CONNECTION INTERNAL PIPING AND CONNECTION PER MECHANICAL ENGINEER
PROPOSED ROOF CONNECTION C/W BACKFLOW PREVENTER LOCATION PER MECHANICAL ENGINEER INVERT = 87.27m
REAR ENTRANCE
SIDEWALK
UNDERGROUND PARKING RAMP
CB1 T/G 87.92 INV. 86.30
AREA DRAIN T/G 87.97
UNDERGROUND PARKING FOLLOWS SETBACK LINE
REMOVE EXISTING SIDEWALK AND BARRIER CURB, REPLACE WITH DEPRESSED CURB AND SIDEWALK PER CITY DETAIL SC7.1
PROPOSED AQUABOX CUBE INFILTRATION CHAMBER, SEE AQUAFOR BEECH DESIGN DRAWINGS
PROPOSED 0.8m 150mm Ø PVC STM @ 2.5%
PROPOSED CB2 PER OPSD 705.010 EMERGENCY ROOF LEADER OVERFLOW T/G = 88.20m E INV = 87.25m N INV = 87.16m
PROPOSED 4.3m 150mm Ø PVC STM @ 2.5%
PROPOSED INLET CONNECTION INVERT = 87.05m
UNDERGROUND PARKING EXHAUST SHAFT
150Ø WATERMAIN
150Ø SANITARY
300Ø STORM
BIOSWALE CROSSING SECTION A-A N.T.S.
200Ø WEEPING TILE
FOOTING
WEEPING TILE SECTION B-B N.T.S.

CLIENT

ROHIT GROUP

15 FITZGERALD ROAD, NEPEAN, ON

Arcadis Professional Services (Canada) Inc.
formerly IBI Group Professional Services (Canada) Inc.

ISSUES

No.	DESCRIPTION	DATE
1	ISSUED FOR CLIENT REVIEW	2023-11-22
2	SUBMISSION NO.1 FOR CITY REVIEW	2023-12-08
3	SUBMISSION NO.2 FOR CITY REVIEW	2024-03-04
4	SUBMISSION NO.3 FOR CITY REVIEW	2024-05-01
5	BIOSWALE CROSSING NOTE ADDED	2024-07-08
6	NEW SITE PLAN	2024-08-07
7		
8		

KEY PLAN

SEAL

PRIME CONSULTANT

ARCADIS

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Ottawa ON K1S 5N4 Canada
tel 613 225 1311
www.arcadis.com

PROJECT

WATERIDGE VILLAGE AT ROCKCLIFFE

PHASE 4 - BLOCK 5

PROJECT NO: 143934

DRAWN BY: M.M.	CHECKED BY: D.C.
PROJECT MGR: D.C.	APPROVED BY: A.C.

SHEET TITLE

GENERAL PLAN OF SERVICES

SHEET NUMBER C-001 ISSUE 6

D07-12-24-0090

19178

GENERAL LEGEND

Symbol	Description
	LIMIT OF CONSTRUCTION
	PHASING LINE
	BARRIER CURB
	MOUNTABLE CURB
	DEPRESSED BARRIER CURB
CONCRETE SIDEWALK	CONCRETE SIDEWALK
	TACTILE WALKING SURFACE INDICATOR
ASPHALT SIDEWALK	ASPHALT SIDEWALK / PATHWAY
BUS	BUS STOP CONCRETE / ASPHALT

SERVICING LEGEND

Symbol	Description
MH118A	SANITARY MANHOLE
200mmØ SAN	SANITARY SEWER
MH109, MH118	STORM MANHOLE
825mmØ STM	STORM SEWER - LESS THAN 900Ø
900mmØ STM	STORM SEWER - 900Ø AND GREATER
200Ø WATERMAIN	WATERMAIN
CB100 T/G 104.10	STREET CATCHBASIN C/W TOP OF GRATE
CICB101 G/G 104.25	CURB INLET CATCHBASIN C/W GUTTER GRADE
DCB100 T/G 104.10	DOUBLE CATCHBASIN C/W TOP OF GRATE
DCICB101 G/G 104.25	DOUBLE CURB INLET CATCHBASIN C/W GUTTER GRADE
DI101 T/G 103.59	DITCH INLET MANHOLE C/W TOP OF GRATE
CBMH101 T/G 103.59	CATCHBASIN MANHOLE C/W TOP OF GRATE
RYCB T/G 104.35	REAR YARD CATCHBASIN IN ROAD CONNECTING STRUCTURE C/W SOLID GRATE
T/G 104.35 INV 103.35	REAR YARD "TEE" CATCHBASIN (300Ø) C/W TOP OF GRATE AND INVERT OUT
T/G 104.50 INV 103.50	REAR YARD "END" CATCHBASIN (300Ø) C/W TOP OF GRATE AND INVERT OUT
T/G 104.35 INV 103.35	REAR YARD "CUSTOM ANGLED " CATCHBASIN (450Ø) C/W TOP OF GRATE AND INVERT OUT
T/G 104.35 INV 103.35	REAR YARD "THREE WAY" CATCHBASIN (450Ø) C/W TOP OF GRATE AND INVERT OUT
	PERFORATED REAR YARD SUBDRAIN
300mmØ CSP	CSP CULVERT C/W DIAMETER
V&VB	VALVE AND VALVE BOX
V&VC	VALVE AND VALVE CHAMBER
	PARK VALVE CHAMBER C/W SERVICE POST
HYD 104.35	FIRE HYDRANT C/W BOTTOM OF FLANGE ELEVATION
200Ø WM RED 150Ø WM	WATERMAIN REDUCER
2 VBENDS	VERTICAL BEND LOCATION
	SIAMESE CONNECTION (IF REQUIRED)
M	METER (IF REQUIRED)
RM	REMOTE METER (IF REQUIRED)
A	WATERMAIN IDENTIFICATION (IF REQUIRED)
1	PIPE CROSSING IDENTIFICATION (IF REQUIRED)
	SINGLE SERVICE LOCATION
	DOUBLE SERVICE LOCATION
BH 12 102.00	INFERRED REFUSAL (SEE GEOTECHNICAL REPORT)
HGL 101.79	100 YEAR STORM HYDRAULIC GRADE LINE AT MANHOLE
USF 101.79	UNDERSIDE OF FOOTING ELEVATION
	CLAY SEAL IN SEWER / WATERMAIN TRENCH

UTILITY NOTES :

1. ALL MATERIALS AND CONSTRUCTION IS TO BE IN ACCORDANCE WITH THE CURRENT CITY OF OTTAWA STANDARD DRAWINGS & SPECIFICATIONS OR OPSD/OPSS IF CITY DRAWINGS AND SPECIFICATIONS DO NOT APPLY.
2. THE POSITION OF UNDERGROUND AND ABOVEGROUND SERVICE, UTILITIES AND STRUCUTRES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH SERVICE, UTILITIES AND STRUCTURES IS NOT GUARENTEED. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING SERVICES AND UTILITIES PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR SHALL REPORT ALL CONFLICTS, DISCOVERIES OF ERROR AND DESCREPENCIES TO THE ENGINEER.
4. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT AND ASSUME RESPONSIBILITY FOR ALL UTILITIES WHETHER OR NOT SHOW ON THESE DRAWINGS.
5. THESE DRAWINGS ARE NOT TO BE SCALED OR USED FOR LAYOUT PURPOSES.
6. THE COMPOSITE UTILITY PLAN HAS BEEN REVIEWED BY ARCDIS FOR CONFORMITY TO THE DESIGN CONCEPT FOR THE DEVELOPMENT AND FOR GENERAL ARRANGEMENT ONLY AND AS SUCH SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR ERRORS OR OMISSIONS IN EITHER LAYOUT OR WORKMANSHIP.
7. THIS DRAWING IS A COMPILATION OF OTHER UTILITY DESIGNS AND DOES NOT INDICATE IN ANY WAY THAT THE PARTY SIGNING THIS DRAWING HAS DESIGNED OR APPROVED THE RESPECTIVE UTILITY PLANTS INDICATED ON THIS DRAWING. THE DRAWING WAS PREPARED TO BE USED AS REFERENCE ONLY AS PER REQUIREMENTS OF THE CITY OF OTTAWA. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE IT HAS REVIEWED THE CURRENT AND EXISTING DESIGNS BY HYDRO, STREET LIGHTING, BELL, CANADA POST, O.C. TRANSPO, CABLE TV AND ANY OTHER PARTIES INCLUDED BUT NOT MENTIONED AND COMPLETE THE INSTALLATION IN ACCORDANCE WITH THE REQUIREMENTS OF THE STAKEHOLDER UTILITY DESIGNS.
8. CONTRACTOR TO ADVISE ENGINEER IN WRITING OF ANY DISCREPANCIES IN THE HYDRO, BELL, ROGERS, ENBRIDGE, AND STREETLIGHT DRAWINGS, AND THE CUP AHEAD OF INSTALLATION.
9. HYDRO INSPECTOR IS TO BE NOTIFIED AND PRESENT AHEAD OF HYDRO INSTALLATION
10. BELL AND ROGERS VAULT EASEMENT SIZE AND LOCATION ARE AS SHOWN ON THE CUP. ANY LOCATION DISCREPANCIES ARE TO BE REPORTED TO THE ENGINEER IN WRITING AHEAD OF INSTALLATION.
11. BELL AND ROGERS VAULTS ARE TO BE PLACED TO THE EXTENT POSSIBLE IN THE RIGHT OF WAY RESPECTING THE REQUIRED CLEARANCES FROM DUCTS IN THE JOINT UTILITY TRENCH. IF VAULTS ARE ON PRIVATE PROPERTY THEY MUST BE PLACED WITHIN THE EASEMENT. VERIFY VAULT CORNERS PRIOR TO FINAL INSTALLATION AND FIBRE LINE PLACEMENT. VAULTS INSTALLED IN THE WRONG LOCATION OR OUTSIDE THE EASEMENTS WILL BE RELOCATED AT THE COST OF BELL AND ROGERS.
12. UTILITY EASEMENTS ARE TO BE STAKED - ALL 4 CORNERS WITH PROPOSED FINAL GRADES MARKED ON THE STAKES.
13. STREETLIGHTS ARE TO BE INSTALLED AT THE OFFSETS FROM FACE OF CURB SHOWN ON THE APPROVED ROAD SECTIONS FOR THE PROJECT.
14. CAD FILES OF THE CUP PROVIDED BY THE ENGINEER ARE AS A COURTESY ONLY TO ASSIST THE CONTRACTOR. LAYOUT OF THE UTILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR AND LEGAL SURVEYOR.

WATERMAIN SCHEDULE					
	Station	Description	Finished Grade	Top of Watermain	As Built Watermain
A	0+000.00	200x150 TEE	87.894	85.494	
	0+008.70	150 V&VB	88.150	85.750	
B	0+010.76	150 CAP	88.250	85.850	

CROSSING SCHEDULE

1	150 mm ø W/M	1.13 m	CLEARANCE UNDER	200 mm ø STM
2	150 mm ø W/M	1.05 m	CLEARANCE UNDER	UTILITY TRENCH
3	150 mm ø SAN	0.52 m	CLEARANCE UNDER	200 mm ø W/M
4	150 mm ø SAN	1.98 m	CLEARANCE UNDER	200 mm ø STM
5	150 mm ø SAN	0.58 m	CLEARANCE UNDER	UTILITY TRENCH
6	300 mm ø STM	4.18 m	CLEARANCE OVER	300 mm ø SAN
7	300 mm ø STM	0.48 m	CLEARANCE UNDER	200 mm ø W/M
8	300 mm ø STM	2.32 m	CLEARANCE UNDER	200 mm ø STM
9	300 mm ø STM	0.87 m	CLEARANCE UNDER	UTILITY TRENCH

NOTES :

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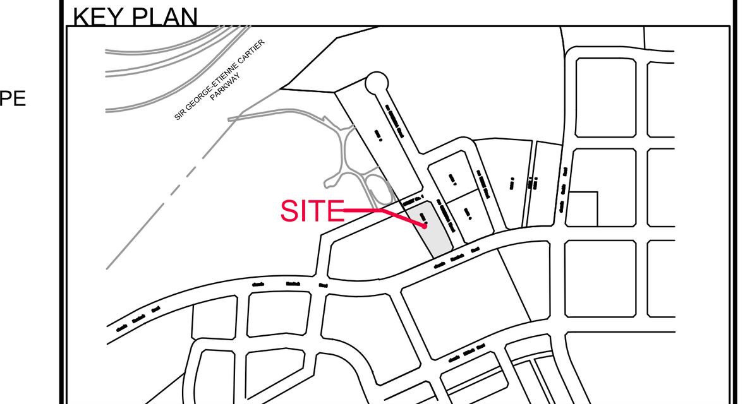
2. THE POSITION OF UNDERGROUND AND ABOVEGROUND SERVICE, UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH SERVICE, UTILITIES AND STRUCTURES IS NOT GUARANTEED. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING SERVICES AND UTILITIES PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR SHALL REPORT ALL CONFLICTS, DISCOVERIES OF ERROR AND DISCREPANCIES TO THE ENGINEER.
4. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT AND ASSUME RESPONSIBILITY FOR ALL UTILITIES WHETHER OR NOT SHOW ON THESE DRAWINGS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT ALL LANDS BEYOND THE SITE LIMITS. ANY AREAS BEYOND THE SITE LIMITS, WHICH ARE DISTURBED DURING CONSTRUCTION, SHALL BE REPAIRED AND RESTORED TO ORIGINAL CONDITION OR BETTER, TO THE SATISFACTION OF THE ADJACENT LAND OWNER, THE OWNER, THE OWNERS REPRESENTATIVES AND/OR THE AUTHORITY HAVING JURISDICTION AT THE EXPENSE OF THE CONTRACTOR.
6. WHERE NECESSARY, THE CONTRACTOR SHALL IMPLEMENT A TRAFFIC MANAGEMENT PLAN TO THE SATISFACTION OF THE CITY OF OTTAWA. ALL CONSTRUCTION SIGNAGE MUST CONFORM TO THE LATEST VERSION OF THE M.T.O. MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. ALL TEMPORARY TRAFFIC CONTROL MEASURES MUST BE REMOVED UPON THE COMPLETION OF THE WORKS.
7. SHOULD ANY BURIED ARCHAEOLOGICAL REMAINS BE FOUND ON THE PROPERTY DURING CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL NOTIFY THE OWNER TO CONTACT THE HERITAGE OPERATIONS UNIT OF THE ONTARIO MINISTRY OF CULTURE MUST BE NOTIFIED IMMEDIATE, AND WORK WITHIN THE AREA SHALL BE CEASED UNTIL FURTHER NOTICE.
8. FOR GEOTECHNICAL INFORMATION REFER TO GEOTECHNICAL REPORT CO947.00 PREPARED BY TERRAPEX.
9. FOR GEODETIC **BENCHMARK** AND GEOMETRIC LAYOUT OF STREET AND LOTS, REFER TO TOPOGRAPHICAL SURVEY AND PLAN OF SUBDIVISION PREPARED BY AOV 4M-1559 BENCHMARK BASED ON CAN--NET VIRTUAL REFERENCE SYSTEM NETWORK.
10. FOR SITE PLAN INFORMATION, REFER TO SITE PLAN PREPARED BY NORR ARCHITECTS.
11. THESE DRAWINGS ARE NOT TO BE SCALED OR USED FOR LAYOUT PURPOSES
12. THE CONTRACTOR SHALL IMPLEMENT THE EROSION AND SEDIMENT CONTROL PLAN PRIOR TO THE COMMENCEMENT OF ANY SITE CONSTRUCTION. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED TO THE SATISFACTION OF THE ENGINEER, OR ANY REGULATORY AGENCY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL VEGETATION IS ESTABLISH OR UNTIL THE START OF A SUBSEQUENT PHASE.
13. CONTRACTORS SHALL BE RESPONSIBLE FOR KEEPING CLEAN ALL ROADS WHICH BECOME COVERED IN DUST, DEBRIS AND/OR MUD AS A RESULT OF ITS CONSTRUCTION OPERATIONS.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL BEDDING OR ADDITIONAL STRENGTH PIPE SHOULD THE MAXIMUM OPSD TRENCH WIDTH BE EXCEEDED.
15. ALL PIPE, CULVERTS, STRUCTURES REFER TO NOMINAL INSIDE DIMENSIONS.
16. UNLESS SPECIFICALLY NOTED OTHERWISE, PIPE MATERIALS SHALL BE AS FOLLOWS;
    -WATERMAINS TO BE PVC DR18
    -SANITARY SEWER TO BE PVC DR35
    -PERFORATED STORM SEWERS IN REAR YARDS AND LANDSCAPE AREAS TO BE HDPE
    -STORM SEWERS 375mm DIAMETER AND LESS TO BE PVC DR35
    -STORM SEWERS 450mm DIAMETER AND GREATER TO BE CONCRETE, CLASS AS PER OPSD 807.010 OR 807.030, OR HIGHER
    FOR SHALLOW SEWERS, REFER TO CITY STANDARD S35.
17. ALL CONNECTIONS TO EXISTING WATERMAINS ARE TO BE COMPLETED BY CITY FORCES. CONTRACTOR IS TO EXCAVATE, BACKFILL, COMPACT AND REINSTATE.
18. ANY WATERMAIN WITH LESS THAN 2.4m AND ANY SEWER WITH LESS THAN 2.0m DEPTH OF COVER REQUIRES THERMAL INSULATION AS PER CITY OF OTTAWA STANDARD W22 OR AS APPROVED BY THE ENGINEER.
19. ALL STUBBED SEWERS SHALL HAVE PRE-MANUFACTURED CAPS INSTALLED.
20. ALL CATCHBASINS SHALL HAVE A 600mm SUMP.
21. ALL SANITARY MANHOLES SHALL BE EQUIPPED WITH A WATERTIGHT COVER.
22. ALL LEADS FOR STREET CATCHBASIN'S AND CURB INLET CATCHBASIN'S CONNECTED TO MAIN SHALL BE 200mmØ PVC DR35 @ MIN 2% SLOPE UNLESS NOTED OTHERWISE. ALL LEADS FOR RYCB'S CONNECTED TO MAIN SHALL BE 200mmØ PVC DR35 @ MIN 1% SLOPE UNLESS NOTED OTHERWISE.
23. UNLESS SPECIFICALLY NOTED OTHERWISE, ALL STREET CATCHBASINS SHALL BE INSTALLED WITH TWO - 3.0m MINIMUM SUBDRAINS INSTALLED LONGITUDINALLY, PARALLEL WITH THE CURB. ALL CATCHBASINS IN ASPHALT AREAS, NOT ADJACENT TO A CURB, SHALL BE INSTALLED WITH FOUR - 3.0m MINIMUM SUBDRAINS INSTALLED ORTHOGONALLY.
24. INLET CONTROL DEVICES SHALL BE INSTALLED PRIOR TO COMPLETING THE ROAD BASE (GRANULAR A).
25. ALL SEWER SERVICE LATERALS WITH MAINLINE CONNECTIONS DEEPER THAN 5.0m REQUIRE A CONTROLLED SETTLEMENT JOINT.
26. EACH BUILDING SHALL BE EQUIPPED WITH A SANITARY AND STORM SEWER BACKWATER VALVE AND CLEAN-OUT ON ITS PRIMARY SERVICE, AS PER ONTARIO BUILDING CODE REQUIREMENTS (BY OTHERS).
27. THE SUBGRADE OF ALL STRUCTURES, PIPE, ROADS, SIDEWALKS, WALKWAYS, AND BUILDINGS SHALL BE INSPECTED BY THE GEOTECHNICAL ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.
28. TOP COURSE ASPHALT SHALL NOT BE PLACED UNTIL THE FINAL CCTV INSPECTION AND NECESSARY REPAIRS HAVE BEEN COMPLETED TO THE SATISFACTION OF THE ENGINEER AND THE CITY OF OTTAWA.
29. ALL RETAINING WALLS GREATER THAN 0.6m IN HEIGHT REQUIRE A GUARD. ANY GUARD ON A RETAINING WALL GREATER THAN 1.0m IN HEIGHT SHALL BE DESIGNED BY THE QUALIFIED STRUCTURAL ENGINEER RESPONSIBLE FOR THE WALL DESIGN.
30. ALL PROPOSED COVER FRAMES LOCATED IN A LANDSCAPE AREA (ESPECIALLY OVERFLOW STRUCTURES) NEED TO BE ANCHORED DIRECTLY TO THE TOP OF THE PRECAST CONCRETE TOP AS PER S. P. NO. F-4070 TO PREVENT DISPLACEMENT.

CLIENT
ROHIT GROUP
15 FITZGERALD ROAD, NEPEAN, ON

ISSUES

No.	DESCRIPTION	DATE
1	SUBMISSION NO.1 FOR CITY REVIEW	2023-12-08
2	SUBMISSION NO.2 FOR CITY REVIEW	2024-03-04
3	SUBMISSION NO.3 FOR CITY REVIEW	2024-05-01
4	NEW SITE PLAN	2024-08-07
5		
6		
7		
8		

KEY PLAN


SEAL


CONFIRM PRIME CONSULTANT
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PROJECT
WATERIDGE VILLAGE
AT ROCKCLIFFE
PHASE 4 - BLOCK 5

PROJECT NO: 143934	
DRAWN BY: **M.M.**	CHECKED BY: **D.C.**
PROJECT MGR: **PHASE 4 - BLOCK 5**	APPROVED BY: **A.C.**

SHEET TITLE
NOTES AND LEGEND

SHEET NUMBER C-010
ISSUE 4

SCALE CHECK 1 in 10mm

File Location: J:\143934_Block_5_Ph_4\7.0_Production\7.03_Design\04_Civil\Sheets\010 NOTES AND LEGEND.dwg Last Saved: August 7, 2024, by MMilne Plotted: Wednesday, August 7, 2024 2:03:33 PM by Marian Milne

D07-12-24-0090
19178

Pre-Consul Meeting Notes to the File Lead - John Bernier **April 11, 2023**
Re: 1076 Hemlock Ave., St., Lane, Way, Rd.
Ward 13 - Rideau-Rockcliffe, Councillor Rawlson King
4-7 with residential buildings (a mix of mid-rise apartments and stacked townhouses) with approximately 450 units.

Infrastructure:

There is no current infrastructure in Phase 4 to date. Please refer to proposed infrastructure, designed by IBI and latest revisions to civil drawings for this area, including LID features.

The following apply to this site and any development within a separated sewer area:

- Total allowable release rate will be 5-year pre-development rate.
- Coefficient (C) of runoff will need to be determined **as per existing conditions** but in no case more than 0.5. Please refer to MSS, ECAs and CPD for this subdivision (including any covenants) and/or updates.
- TC = 20 minutes or can be calculated
  TC should be no less than 10 minutes, since IDF curves become unrealistic at less than 10 min.
- Any storm events greater than 5 year, up to 100 year, and including 100-year storm event must be detained on site.
- Two separate sewer laterals (one for sanitary and other for storm) will be required for each unit or for each block (network).
- LID features are part of the ROW and requires an ECA, which has not been submitted, to date.

  Note: It is anticipated that any roads proposed for this development will be private and be a common element and/or have a joint use, maintenance and liability agreement (JUMLA).
  - All municipal roads must meet current and approved ROW X-Sections, Municipal Consent and Utility Circulation protocols.

Please note:
Foundation drains are to be independently connected to sewermain unless being pumped with appropriate back up power, sufficient sized pump and back flow prevention.

Roof drains are to be connected downstream of any incorporated ICD within the SWM system.

Provide Roof plan showing roof drain and scupper locations with a table that indicates flow rates, drain type and weir opening, if controlled. Provide Manufacturer Specifications on drains and also provide 5- and 100-year ponding limits on plan.

Boundary Conditions will be provided at request of consultant after providing Average Daily Demands, Peak Hour Demands & Max Day + Fire Flow Demands

If window wells are proposed, they are to be indirectly connected to the footing drains.
A detail of window well with indirect connection is required, as is a note at window well location speaking to indirect connection.

Other:

Environmental Noise Study is required due to within 100m proximity of Hemlock Road.

Stationary Noise Study – consultant to speak to this in their report as per City NCG and NPC 300 Guidelines for each building in regards to roof top units, large parking areas, etc. May be required after Mechanical Design completed and prior to building permit issuance.

When equal to or greater than 9-storey in height, a Shadow Study is required for all buildings/dwellings.

When equal to or greater than 9-storey in height, a Wind Study is required for all buildings/dwellings.

Water Supply Redundancy – Fire Flow:

Applicant to ensure that a second service with an inline valve chamber be provided where the average daily demand exceeds 50 m^3 / day (0.5787 l/s per day)
FUS Fire Flow Criteria to be used unless a low-rise building, where OBC requirements may be applicable.

W12.pdf

Site Lighting:

Site lighting certificate and photometric plan required for this site. This will be a condition of agreement(s).

Site lighting certificate and photometric plan required for this site, particularly looking at light spillage and effects on nearby residential properties.

Trees:
Please note that a new Tree By-law is now in effect.

General Bulletin_New Tree Protection Bylaw.

Tree removal is not permitted from April 15- August 16
A gas pressure regulating station may be required depending on HVAC needs (typically for 12+ units). Be sure to include this on the Grading, Site Servicing, SWM and Landscape plans.
This is to ensure that there are no barriers for overland flow routes (SWM) or conflicts with any proposed grading or landscape features with installed structures and has nothing to do with supply and demand of any product.

Gas Pressure Regulating Station.pdf

Regarding Quantity Estimates:

Please note that external Garbage and/or bicycle storage structures are to be added to QE under Landscaping as it is subject to securities.

In addition, sump pumps for Sanitary and Storm laterals and/or cisterns are to be added to QE under Hard items as it is subject to securities, even though it is internal and is spoken to under SWM and Site Servicing Report and Plan.

Applicant to contact Rideau Valley Conservation Authority (RVCA) for possible restrictions due to quality control. Provide correspondence in Report.

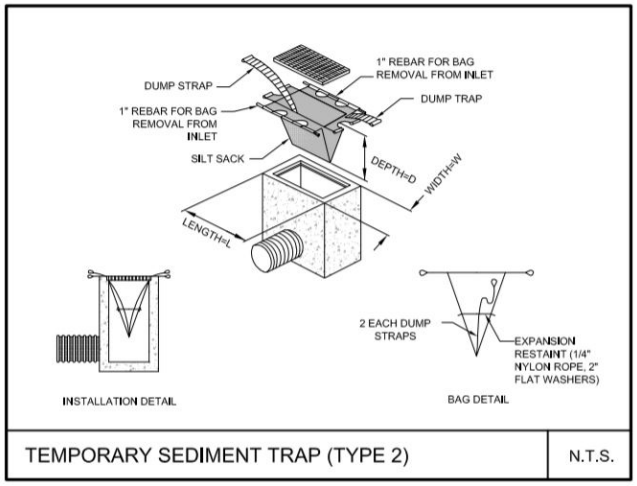
Where servicing involves three or more service trenches, either a full road width or full lane width 40 mm asphalt overlay will be required, as per amended Road Activity By-Law 2003-445 and City Standard Detail Drawing R10. The amount of overlay will depend on condition of roadway and width of roadway(s).

CCTV sewer inspection required for pre and post construction conditions to ensure no damage to City Assets surrounding site.

Pre-Construction (Piling/Hoe Ramming or excavation in close proximity to City Assets) and/or Pre-Blasting (if applicable) Survey required for any buildings/dwellings in proximity of 75m of

site and circulation of notice of vibration/noise to residents within 150 m of site. Conditions for Pre-Construction/ Pre-Blast Survey & Use of Explosives will be applied to agreements. Refer to City's Standard S.P. No. F-1201 entitled *Use of Explosives,* as amended. The intent is to protect nearby property owners, City and Utility Assets and, if appliable, unsupported claims against the applicant.

For Erosion and Sediment Control, provide details of specified and approved products. Please note that wrapping CB grates with geotextile fabric is not longer acceptable, see example of accepted CB protection, below:



UG storage and Surface Ponding for SWM:

Where underground storage (UG) and surface ponding are being considered:

Show all ponding for 5- and 100-year events

Above and below ground storage is permitted although uses ½ Peak Flow Rate or is modeled. Please confirm that this has been accounted for and/or revise.

Rationale:

The Modified Rational Method for storage computation in the Sewer Design Guidelines was originally intended to be used for above ground storage (i.e. parking lot) where the change in head over the orifice varied from 1.5 m to 1.2 m (assuming a 1.2 m deep CB and a max ponding depth of 0.3 m). This change in

head was small and hence the release rate fluctuated little, therefore there was no need to use an average release rate.

When underground storage is used, the release rate fluctuates from a maximum peak flow based on maximum head down to a release rate of zero. This difference is large and has a significant impact on storage requirements. We therefore require that an average release rate be used to estimate the required volume. Alternatively, the consultant may choose to use a submersible pump in the design to ensure a constant release rate.

In the event that there is a disagreement from the designer regarding the required storage, The City will require that the designer demonstrate their rationale utilizing dynamic modelling, that will then be reviewed by City modellers in the Water Resources Group.

Note that the above will added to upcoming revised Sewer Design Guidelines to account for underground storage, which is now widely used.

Further to above, what will be the actual underground storage provided during the major (100 year) and minor (2 year) storm events?

Please provide information on UG storage pipe. Provide required cover over pipe and details, chart of storage values, capacity etc. How will this pipe be cleaned of sediment and debris?

Note - There must be at least 15cm of vertical clearance between the spill elevation and the ground elevation at the building envelope that is in proximity of the flow route or ponding area. The exception in this case would be at reverse sloped loading dock locations. At these locations, a minimum of 15cm of vertical clearance must be provided below loading dock openings. Ensure to provide discussion in report and ensure grading plan matches if applicable.

Provide information on type of underground storage system including product name and model, number of chambers, chamber configuration, confirm invert of chamber system, top of chamber system, required cover over system and details, interior bottom slope (for self-cleansing), chart of storage values, length, width and height, capacity, entry ports (maintenance) etc.

Provide a cross section of underground chamber system showing invert and obvert/top, major and minor HWLs, top of ground, system volume provided during major and minor events. UG storage to provide actual 2- and 100-year event storage requirements.

In regard to all proposed UG storage, ground water levels (and in particular HGW levels) will need to be reviewed to ensure that the proposed system does not become surcharged and thereby ineffective.

Modeling can be provided to ensure capacity for both storm and sanitary sewers for the proposed development by City's Water Distribution Dept. – Modeling Group, through PM and upon request.

For proposed depressed driveways or developments with private lanes, parking areas or with entrances etc. lower than roadway…


S18.pdf


S18.1.pdf

Rear yard on grade parking to be permeable pavement. Refer to City Standard Detail Drawings SC26 (maintenance/temp parking areas), SC27 or permeable asphalt materials. No gravel or stone dust parking areas permitted.

Severance:
If severance is planned, this needs to be addressed in servicing to satisfy severance requirements. Where a large parcel with multiple buildings is planned, City will require an ultimate servicing plan so as to appropriately understand how severance requirements are being met.

info "Provided Info to applicant":
Please be advised that it is the responsibility of the applicant and their representatives/consultants to verify information provided by the City of Ottawa.
Please contact City View and Release Info Centre at Ext. 44455

Environmental Source Information:

Due to more sensitive use, a Record of Site Condition (RSC) is required. Ensure Phase I, and if applicable, Phase II ESA's speak to required RSC.

Please also note that in the event soil and/or groundwater contamination is identified on this site and the proposal is for a more sensitive land use, the MECP will require approximately 1-1.5 years to review the RSC.

PIED will apply appropriate conditions, based on Environmental Protection Act (Section 168.3.1 (1)) and O.Reg. 153/04 (Parts IV and V) regarding requirements for RSC prior to building permit issuance. Dependent on the levels/types of contamination, timelines for building permit issuance may be longer than expected and we recommend applicant speak to Building Code Services, at the earliest convenience, so as to discuss these timelines in more detail, if deemed applicable.

City of Ottawa - Historical Land Use Inventory (HLUI) - Required

Rationale:
The HLUI database is currently undergoing an update. The updated HLUI will include additional sources beyond those included in the current database, making the inclusion of this record search even more important.
Although a municipal historic land use database is not specifically listed as required environmental record in O. Reg 153/04, Schedule D, Part II states the following:

The following are the specific objectives of a records review:

1. To obtain and review records that relate to the Phase I (One) property and to the current and past uses of and activities at or affecting the Phase I (One) property in order to determine if an area of potential environmental concern exists and to interpret any area of potential environmental concern.

2. To obtain and review records that relate to properties in the Phase I (One) study area other than the Phase I (One) property, in order to determine if an area of potential environmental concern exists and to interpret any area of potential environmental concern.

It is therefore reasonable to request that the HLUI search be included in the Phase I ESA to meet the above objectives.
Please submit.

Under site plan application:
There is a need for Delegated Authority Report for SPCA not for sewer extension. In addition, there will be an agreement for site plan control application that will cover all planning and infrastructure aspects. You do need to ask for any Delegated Authority Report for sewer extension.

All existing reports and plans will need to be revised if older than 2 years and must reflect current City Standards, Guidelines, By-laws and Policies.

Please refer to City of Ottawa website portal **for "Guide to preparing Studies and Plans"** at https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/guide-preparing-studies-and-plans.

Specific information has been incorporated into both the Guide to Preparing Studies and Plans for a site plan. The guide outlines the requirement for a statement to be provided on the plan about where the property boundaries have been derived from.
Added to the general information for servicing and grading plans is a note that an O.L.S. should be engaged when reporting on or relating information to property boundaries or existing conditions. The importance of engaging an O.L.S. for development projects is emphasized.

Provide TBM location and elevation as well s Survey Monument information (taken from Survey Plan). Monument information should look like the following:

BENCH MARK No. 0011968U124
ELEVATIONS SHOWN ARE GEODETIC AND ARE REFERRED TO BENCHMARK No. 0011968U124 HAVING A PUBLISHED ELEVATION OF 95.185m. LOCATION: BRIDGE OVER JOCK RIVER IN RICHMOND, 0.8 KM SOUTH OF RICHMOND ROAD, BARSS CAP IN TOP OF EAST WALL, 2.7M FROM NORTH END.

Please ensure you are using the current guidelines, bylaws and standards including materials of construction, disinfection and all relevant reference to OPSS/D and AWWA guidelines - all current and as amended, such as:

City of Ottawa Sewer Design Guidelines (**CoOSDG**) complete with all current and relative ISTDB technical bulletin updates as well as current Sewer, Landscape & Road Standard Detail Drawings as well as Material Specifications (MS Docs).
Sewer Connection (2003-513) & Sewer Use (2003-514) By-Laws.

City of Ottawa Water Distribution Design Guidelines (**CoOWDDG**) complete with all current and relative ISTDB technical bulletin updates as well as current Watermain/ Services Material Specifications (MS Docs) as well as Water and Road Standard Detail Drawings.
FUS Fire Flow standards
Water (2018-167) By-Law

Ensure to include version date and add **"(as amended)"** when referencing all standards, detail drwaings, by-Laws and guidelines.

Lane Closures:
Special Condition is required for SPC – Applicant t o contact Traffic Eng. Reviewer
PM and/or File Lead to contact Britney McGrath at Britney.McGrath@ottawa.ca (Ext. 44218)

Structural Works within ROW:
Constructability Report required for any structural works (i.e. Tiebacks) within the ROW.
PM and/or File Lead to contact Greg Kent (Mgr., Traffic Mgmt.) Ext # 21707 - Greg.Kent@ottawa.ca

Fourth (4th) Review Charges,
Please note that additional charges (per day) for each review, for 4th and each consecutive review, will be applicable to each file. No exceptions.

Construction approach – Please contact the Right-of-Ways Permit Office TMconstruction@ottawa.ca early in the OP / Zoning / Site Plan process to determine the ability to construct site and copy Choose a File Lead on this request.

Fire Routes - fireroutes@ottawa.ca

Contact me by e-mail shawn.wessel@ottawa.ca if you have any questions.

Sincerely,

Shawn Wessel, A.Sc.T., rcji
Project Manager
Development Review, Central Branch
Planning, Infrastructure and Economic Development Department (PIED)
City of Ottawa

Servicing study guidelines for development applications

4. Development Servicing Study Checklist

The following section describes the checklist of the required content of servicing studies. It is expected that the proponent will address each one of the following items for the study to be deemed complete and ready for review by City of Ottawa Infrastructure Approvals staff.

The level of required detail in the Servicing Study will increase depending on the type of application. For example, for Official Plan amendments and re-zoning applications, the main issues will be to determine the capacity requirements for the proposed change in land use and confirm this against the existing capacity constraint, and to define the solutions, phasing of works and the financing of works to address the capacity constraint. For subdivisions and site plans, the above will be required with additional detailed information supporting the servicing within the development boundary.

4.1 General Content

- ☐ Executive Summary (for larger reports only).
- ☒ Date and revision number of the report.
- ☒ Location map and plan showing municipal address, boundary, and layout of proposed development.
- ☒ Plan showing the site and location of all existing services.
- ☐ Development statistics, land use, density, adherence to zoning and official plan, and reference to applicable subwatershed and watershed plans that provide context to which individual developments must adhere.
- ☒ Summary of Pre-consultation Meetings with City and other approval agencies.
- ☒ Reference and confirm conformance to higher level studies and reports (Master Servicing Studies, Environmental Assessments, Community Design Plans), or in the case where it is not in conformance, the proponent must provide justification and develop a defendable design criteria.
- ☒ Statement of objectives and servicing criteria.
- ☒ Identification of existing and proposed infrastructure available in the immediate area.
- ☒ Identification of Environmentally Significant Areas, watercourses and Municipal Drains potentially impacted by the proposed development (Reference can be made to the Natural Heritage Studies, if available).
- ☒ Concept level master grading plan to confirm existing and proposed grades in the development. This is required to confirm the feasibility of proposed stormwater management and drainage, soil removal and fill constraints, and potential impacts to neighbouring properties. This is also required to confirm that the proposed grading will not impede existing major system flow paths.
- ☐ Identification of potential impacts of proposed piped services on private services (such as wells and septic fields on adjacent lands) and mitigation required to address potential impacts.
- ☐ Proposed phasing of the development, if applicable.

☒ Reference to geotechnical studies and recommendations concerning servicing.

☒ All preliminary and formal site plan submissions should have the following information:
- Metric scale
- North arrow (including construction North)
- Key plan
- Name and contact information of applicant and property owner
- Property limits including bearings and dimensions
- Existing and proposed structures and parking areas
- Easements, road widening and rights-of-way
- Adjacent street names

4.2 Development Servicing Report: Water

☒ Confirm consistency with Master Servicing Study, if available
☒ Availability of public infrastructure to service proposed development
☒ Identification of system constraints
☒ Identify boundary conditions
☒ Confirmation of adequate domestic supply and pressure
☒ Confirmation of adequate fire flow protection and confirmation that fire flow is calculated as per the Fire Underwriter's Survey. Output should show available fire flow at locations throughout the development.
☒ Provide a check of high pressures. If pressure is found to be high, an assessment is required to confirm the application of pressure reducing valves.
☐ Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design
☒ Address reliability requirements such as appropriate location of shut-off valves
☐ Check on the necessity of a pressure zone boundary modification.
☒ Reference to water supply analysis to show that major infrastructure is capable of delivering sufficient water for the proposed land use. This includes data that shows that the expected demands under average day, peak hour and fire flow conditions provide water within the required pressure range

- ☒ Description of the proposed water distribution network, including locations of proposed connections to the existing system, provisions for necessary looping, and appurtenances (valves, pressure reducing valves, valve chambers, and fire hydrants) including special metering provisions.
- ☐ Description of off-site required feedermains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities, and timing of implementation.
- ☒ Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.
- ☐ Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.

4.3 Development Servicing Report: Wastewater

- ☒ Summary of proposed design criteria (Note: Wet-weather flow criteria should not deviate from the City of Ottawa Sewer Design Guidelines. Monitored flow data from relatively new infrastructure cannot be used to justify capacity requirements for proposed infrastructure).
- ☒ Confirm consistency with Master Servicing Study and/or justifications for deviations.
- ☐ Consideration of local conditions that may contribute to extraneous flows that are higher than the recommended flows in the guidelines. This includes groundwater and soil conditions, and age and condition of sewers.
- ☒ Description of existing sanitary sewer available for discharge of wastewater from proposed development.
- ☒ Verify available capacity in downstream sanitary sewer and/or identification of upgrades necessary to service the proposed development. (Reference can be made to previously completed Master Servicing Study if applicable)
- ☐ Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix ‘C’) format.
- ☒ Description of proposed sewer network including sewers, pumping stations, and forcemains.
- ☐ Discussion of previously identified environmental constraints and impact on servicing (environmental constraints are related to limitations imposed on the development in order to preserve the physical condition of watercourses, vegetation, soil cover, as well as protecting against water quantity and quality).
- ☐ Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.
- ☐ Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.
- ☐ Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.
- ☐ Special considerations such as contamination, corrosive environment etc.

4.4 Development Servicing Report: Stormwater Checklist

- ☒ Description of drainage outlets and downstream constraints including legality of outlets (i.e. municipal drain, right-of-way, watercourse, or private property)
- ☐ Analysis of available capacity in existing public infrastructure.
- ☒ A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.
- ☒ Water quantity control objective (e.g. controlling post-development peak flows to pre-development level for storm events ranging from the 2 or 5 year event (dependent on the receiving sewer design) to 100 year return period); if other objectives are being applied, a rationale must be included with reference to hydrologic analyses of the potentially affected subwatersheds, taking into account long-term cumulative effects.
- ☒ Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.
- ☒ Description of the stormwater management concept with facility locations and descriptions with references and supporting information.
- ☐ Set-back from private sewage disposal systems.
- ☐ Watercourse and hazard lands setbacks.
- ☐ Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.
- ☐ Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.
- ☒ Storage requirements (complete with calculations) and conveyance capacity for minor events (1:5 year return period) and major events (1:100 year return period).
- ☐ Identification of watercourses within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.
- ☐ Calculate pre and post development peak flow rates including a description of existing site conditions and proposed impervious areas and drainage catchments in comparison to existing conditions.
- ☐ Any proposed diversion of drainage catchment areas from one outlet to another.
- ☒ Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and stormwater management facilities.
- ☐ If quantity control is not proposed, demonstration that downstream system has adequate capacity for the post-development flows up to and including the 100 year return period storm event.
- ☐ Identification of potential impacts to receiving watercourses
- ☐ Identification of municipal drains and related approval requirements.
- ☐ Descriptions of how the conveyance and storage capacity will be achieved for the development.
- ☒ 100 year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading.

- ☐ Inclusion of hydraulic analysis including hydraulic grade line elevations.
- ☒ Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.
- ☐ Identification of floodplains – proponent to obtain relevant floodplain information from the appropriate Conservation Authority. The proponent may be required to delineate floodplain elevations to the satisfaction of the Conservation Authority if such information is not available or if information does not match current conditions.
- ☐ Identification of fill constraints related to floodplain and geotechnical investigation.

4.5 Approval and Permit Requirements: Checklist

The Servicing Study shall provide a list of applicable permits and regulatory approvals necessary for the proposed development as well as the relevant issues affecting each approval. The approval and permitting shall include but not be limited to the following:

- ☐ Conservation Authority as the designated approval agency for modification of floodplain, potential impact on fish habitat, proposed works in or adjacent to a watercourse, cut/fill permits and Approval under Lakes and Rivers Improvement Act. The Conservation Authority is not the approval authority for the Lakes and Rivers Improvement Act. Where there are Conservation Authority regulations in place, approval under the Lakes and Rivers Improvement Act is not required, except in cases of dams as defined in the Act.
- ☐ Application for Certificate of Approval (CofA) under the Ontario Water Resources Act.
- ☐ Changes to Municipal Drains.
- ☐ Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation etc.)

4.6 Conclusion Checklist

- ☒ Clearly stated conclusions and recommendations
- ☒ Comments received from review agencies including the City of Ottawa and information on how the comments were addressed. Final sign-off from the responsible reviewing agency.
- ☒ All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario

APPENDIX B

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

WATERMAIN DEMAND CALCULATION SHEET

Block 5 | Rohit Communities
143934-6.0 | Rev #2 | 2023-10-30
Prepared By: AC | Checked By: DRC

NODE	RESIDENTIAL				NON-RESIDENTIAL (ICI)			AVERAGE DAILY DEMAND (l/s)			MAXIMUM DAILY DEMAND (l/s)			MAXIMUM HOURLY DEMAND (l/s)			FIRE DEMAND (l/min)	PEAKING FACTORS FOR POP. UNDER 500 (l/s)		
	APARTMENT 3 BED	APARTMENT 2 BED	APARTMENT 1 BED	POPULATION	INDUST. (ha)	COMM. (ha)	INSTIT. (ha)	RESIDENTIAL	ICI	TOTAL	RESIDENTIAL	ICI	TOTAL	RESIDENTIAL	ICI	TOTAL		NIGHT MIN. HOUR FACTOR	MAX. DAY FACTOR	PEAK HOUR FACTOR
Building 3	4	20	65	145.40				0.47		0.47	1.18		1.18	2.59		2.59	6,000			
TOTAL	**4**	**20**	**65**	**145.40**						**0.47**			**1.18**			**2.59**		**0.05**	**2.39**	**3.61**

ASSUMPTIONS

POPULATION DENSITY

Apartment 3 Bed	3.1 persons/unit
Apartment 2 Bed	2.1 persons/unit
Apartment 1 Bed	1.4 persons/unit

WATER DEMAND RATES

Residential	280 l/cap/day
Commercial Shopping Center	2,500 L/(1000m2)/day

PEAKING FACTORS FOR POP. OF 501 TO 3000

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

FIRE DEMANDS

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

PEAKING FACTOR FOR POP. UNDER 500

Night Min. Hour Factor	0.10
Maxium Day Factor	5.08
Peak Hour Factor	7.66

*Interpolated from MECP Table 3.3 based on a population of 145.4

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

FIRE UNDERWRITERS SURVEY

Block 5 | Rohit Communities
143934-6.0 | Rev #1 | 2023-10-23
Prepared By: AC | Checked By: DRC

STEP	Contents	Description		Adjustment Factor		Result	
1	Floor Area	Building 3					m2
	Total Storey					4	storey
	Total Effective Floor Area					**6587**	m2
2	**Type of Construction**	**Type V** Wood Frame	1.5	Type II Noncombustible Construction	0.8		
		Type III Ordinary Construction	1.0				
		Type II Noncombustible Construction	0.8				
		Type I Fire Resistive Construction	0.6				
3	**Required Fire Flow**	RFF = 220C$\sqrt{A}$				**14000**	L/min
4	**Occupancy and Contents**	Noncombustible Contents	-25%	Noncombustible Contents.	-25%	-3500	L/min
		Limited Conbustible Contents	-15%				
		Combustible Contents	0%				
		Free Burning Contents	15%				
		Rapid Burning Contents	25%				
	Fire Flow					**10500**	L/min
5	**Automatic Sprinkler Protection**	Automatic Sprinkler Conforming to NFPA 13	-30%	Yes	-30%	-3150	L/min
		Standard Water Supply for both the system and Fire Department Hose Lines	-10%	Yes	-10%	-1050	L/min
		Fully Supervised System	-10%	No			
	Fire Flow					**-4200**	L/min
6	**Exposure Adjustment**	Based on **Table 6** Exposure Adjustement Charges for Subject Building					
	North	Separation (m)	>30	With unprotected opening	0%	0	L/min
		Length X Height Factor (m.storeys)	0				
		Construction Type	Type II				
	South	Separation (m)	>30	With unprotected opening	0%	0	L/min
		Length X Height Factor (m.storeys)	0				
		Construction Type	Type II				
	East	Separation (m)	>30	With unprotected opening	0%	0	L/min
		Length X Height Factor (m.storeys)	0				
		Construction Type	Type II				
	West	Separation (m)	>30	With unprotected opening	0%	0	L/min
		Length X Height Factor (m.storeys)	0				
		Construction Type	Type II				
	Fire Flow					**0**	L/min
7	**Total Required Fire Flow**					**6300**	
		Rounded to Nearest 1000 L/min				**6000**	L/min

Notes 1. Fire flow calculation are based on Fire Underwriters Survey version 2020.

Chetrar, Anton

From: Jhamb, Nishant <nishant.jhamb@ottawa.ca>
Sent: Monday, November 27, 2023 9:18 AM
To: Chetrar, Anton
Subject: RE: Block 5 - Wateridge Phase 4 - Water Boundary Conditions
Attachments: Waterridge Phase 4 Block 5 November 2023.pdf

Hi Anton,

The following are boundary conditions, HGL, for hydraulic analysis for Wateridge Phase 4 Block 5, (zone MONT) assumed to be a connected to the 203 mm stub watermain off Hemlock Road (see attached PDF for location).

Min HGL: 143.0 m

Max HGL: 143.0 m

Max Day + FF (100 L/s): 140.7 m

These are for current conditions and are based on computer model simulation.

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.

Thanks
Nishant

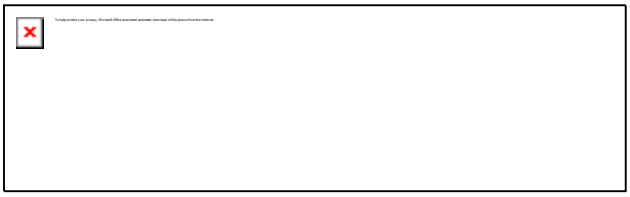
From: Chetrar, Anton <anton.chetrar@arcadis.com>
Sent: November 27, 2023 8:02 AM
To: Jhamb, Nishant <nishant.jhamb@ottawa.ca>
Subject: RE: Block 5 - Wateridge Phase 4 - Water Boundary Conditions

Good morning Nishant,

Hope you had a good weekend. Any news on the Boundary Conditions for Block 5 at Wateridge Phase 4?

Thanks,
Anton Chetrar P.Eng
Civil Engineer

Arcadis Professional Services (Canada) Inc.
Suite 500, 333 Preston Street | Ottawa | ON | K1S 5N4 | Canada
T: +1 613 225 1311 ext 64072
M: +1 613 882 8197
www.arcadis.com



Please note my new email address and update for your records.

From: Chetrar, Anton
Sent: Tuesday, October 31, 2023 8:22 AM
To: Jhamb, Nishant <nishant.jhamb@ottawa.ca>
Subject: RE: Block 5 - Wateridge Phase 4 - Water Boundary Conditions

Good morning Nishant,

Following up on the status of the boundary conditions for Block 5 at Wateridge Village as noted below.
Please let me know when you have a chance.

Thanks,
Anton Chetrar P.Eng
Civil Engineer
Arcadis Professional Services (Canada) Inc.
Suite 500, 333 Preston Street | Ottawa | ON | K1S 5N4 | Canada
T: +1 613 225 1311 ext 64072
M: +1 613 882 8197
www.arcadis.com

Please note my new email address and update for your records.

From: Chetrar, Anton
Sent: Wednesday, September 20, 2023 1:05 PM
To: Jhamb, Nishant <nishant.jhamb@ottawa.ca>
Subject: Block 5 - Wateridge Phase 4 - Water Boundary Conditions

Good afternoon Nishant,

We are requesting watermain boundary conditions for the proposed Block 5 site plan (the location of the watermain connections are shown on the figure attached).

Please find attached the water demands for Block 5 proposed development (90 apartment units).

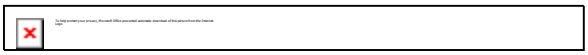
- Daily average demand – 0.53 l/s
- Maximum daily demand – 1.31 l/s
- Maximum hourly demand – 2.89 l/s

Fireflow for Building 3: 6,000 L/min

Let me know if you need any other information.

Regards,
Anton Chetrar | P.ENG.
Cell 613-882-8197

Suite 500, 333 Preston Street
Ottawa ON K1S 5N4 Canada
tel +1 613 225 1311 ext 64072



APPENDIX C

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

SANITARY SEWER DESIGN SHEET

Block 5 - Wateridge Phase 4
Rohit Communities
CITY OF OTTAWA

LOCATION				RESIDENTIAL										ICI AREAS								INFILTRATION ALLOWANCE			FIXED FLOW (L/s)		TOTAL FLOW	PROPOSED SEWER DESIGN						
				AREA w/ Units (Ha)	UNIT TYPES				AREA w/o Units (Ha)	POPULATION		RES PEAK FACTOR	PEAK FLOW (L/s)	AREA (Ha)						ICI PEAK FACTOR	PEAK FLOW (L/s)	AREA (Ha)		FLOW				CAPACITY	LENGTH	DIA	SLOPE	VELOCITY (full)	AVAILABLE CAPACITY	
STREET	AREA ID	FROM MH	TO MH		SF	1 Bed APT	2 Bed APT	3 Bed APT		IND	CUM			INSTITUTIONAL IND	INSTITUTIONAL CUM	COMMERCIAL IND	COMMERCIAL CUM	INDUSTRIAL IND	INDUSTRIAL CUM			IND	CUM	(L/s)	IND	CUM	(L/s)	(L/s)	(m)	(mm)	(%)	(m/s)	L/s	(%)
Oshedinaa Street		BLDG A	CTRL MH1A	0.42		65	20	4		145.4	145.4	3.56	1.68	0.00	0.0	0.00	0.0	0.00	0.0	1.00	0.00	0.42	0.42	0.14	0.00	0.00	1.81	25.12	1.85	150	2.50	1.377	23.31	92.78%
Oshedinaa Street		CTRL MH1A	MH190A							0.0	145.4	3.56	1.68	0.00	0.0	0.00	0.0	0.00	0.0	1.00	0.00	0.00	0.42	0.14	0.00	0.00	1.81	29.72	12.72	150	3.50	1.629	27.91	93.90%

Design Parameters:

Residential			ICI Areas		
SF	3.4	p/p/u			
APT	1.8	p/p/u	INST	28,000	L/Ha/day
1 Bed	1.4	p/p/u	COM	28,000	L/Ha/day
2 Bed	2.1	p/p/u	IND	35,000	L/Ha/day
3 Bed	3.1	p/p/u		17000	L/Ha/day
Other	60	p/p/Ha			

MOE Chart

Notes:

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

Designed: AC

Checked: DRC

Dwg. Reference: 143934

No.	Revision	Date
1.	Servicing Brief - Submission No. 1	2023-11-02
2.	Servicing Brief - Submission No. 2	2024-02-26
3.	Servicing Brief - Submission No. 3	2024-04-10

File Reference:	Date:	Sheet No:
143934-6.04.04	2024-04-10	1 of 1

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

LEGEND
MH190A Block 5 Information

SANITARY SEWER DESIGN SHEET

Wateridge at Rockcliffe - Phase 4
City of Ottawa
Canada Lands Company

LOCATION				RESIDENTIAL										ICI AREAS								INFILTRATION ALLOWANCE			FIXED FLOW (L/s)		TOTAL FLOW	PROPOSED SEWER DESIGN						
				AREA w/ Units (Ha)	UNIT TYPES				AREA w/o Units (Ha)	POPULATION		RES PEAK FACTOR	PEAK FLOW (L/s)	AREA (Ha)						ICI PEAK FACTOR	PEAK FLOW (L/s)	AREA (Ha)		FLOW				CAPACITY	LENGTH	DIA	SLOPE	VELOCITY (full)	AVAILABLE CAPACITY	
STREET	AREA ID	FROM MH	TO MH		SF	SD / TH/F	TH/S	APT		IND	CUM			INSTITUTIONAL		COMMERCIAL		INDUSTRIAL				IND	CUM	(L/s)	IND	CUM	(L/s)	(L/s)	(m)	(mm)	(%)	(m/s)	L/s	(%)
														IND	CUM	IND	CUM	IND	CUM														
Winisik Street	MH320A	MH320A	MH321A	1.48				174		330.6	330.6	3.45	3.69	0.00	0.00	0.09	0.09	0.00	0.00	1.00	0.03	1.57	1.57	0.52	0.00	0.00	4.24	72.08	100.50	250	1.35	1.423	67.84	94.12%
Winisik Street		MH321A	MH322A	0.00						0.0	330.6	3.45	3.69	0.00	0.00	0.00	0.09	0.00	0.00	1.00	0.03	0.00	1.57	0.52	0.00	0.00	4.24	72.08	12.05	250	1.35	1.423	67.84	94.12%
Winisik Street	MH323A	MH322A	MH191A	1.15				136		258.4	589.0	3.35	6.39	0.00	0.00	0.12	0.21	0.00	0.00	1.00	0.07	1.27	2.84	0.94	0.00	0.00	7.40	75.98	83.75	250	1.50	1.500	68.58	90.26%
Oshedinaa Street	*MH193A*	*MH193A*	*MH192A*	*1.69*				*202*	*1.18*	*383.8*	*383.8*	*3.42*	*4.26*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.00*	*0.00*	*2.87*	*2.87*	*0.95*	*0.00*	*0.00*	*5.21*	*54.44*	*83.66*	*250*	*0.77*	*1.074*	*49.23*	*90.44%*
Oshedinaa Street		*MH192A*	*MH191A*					*43*		*81.7*	*465.5*	*3.39*	*5.12*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*1.00*	*0.00*	*0.00*	*2.87*	*0.95*	*0.00*	*0.00*	*6.06*	*49.42*	*83.87*	*300*	*0.24*	*0.677*	*43.36*	*87.73%*
Oshedinaa Street		*MH191A*	*MH190A*	*0.34*				*0*		*0.0*	*1054.5*	*3.23*	*11.03*	*0.00*	*0.00*	*0.00*	*0.21*	*0.00*	*0.00*	*1.00*	*0.07*	*0.34*	*6.05*	*2.00*	*0.00*	*0.00*	*13.10*	*43.97*	*104.71*	*300*	*0.19*	*0.603*	*30.88*	*70.22%*
Oshedinaa Street	*MH190A*	*MH190A*	*MH180A*	*0.42*				*89*		*145.4*	*1199.9*	*3.20*	*12.44*	*0.00*	*0.00*	*0.00*	*0.21*	*0.00*	*0.00*	*1.00*	*0.07*	*0.42*	*6.47*	*2.14*	*0.00*	*0.00*	*14.64*	*125.60*	*71.19*	*300*	*1.55*	*1.721*	*110.96*	*88.34%*

Design Parameters:

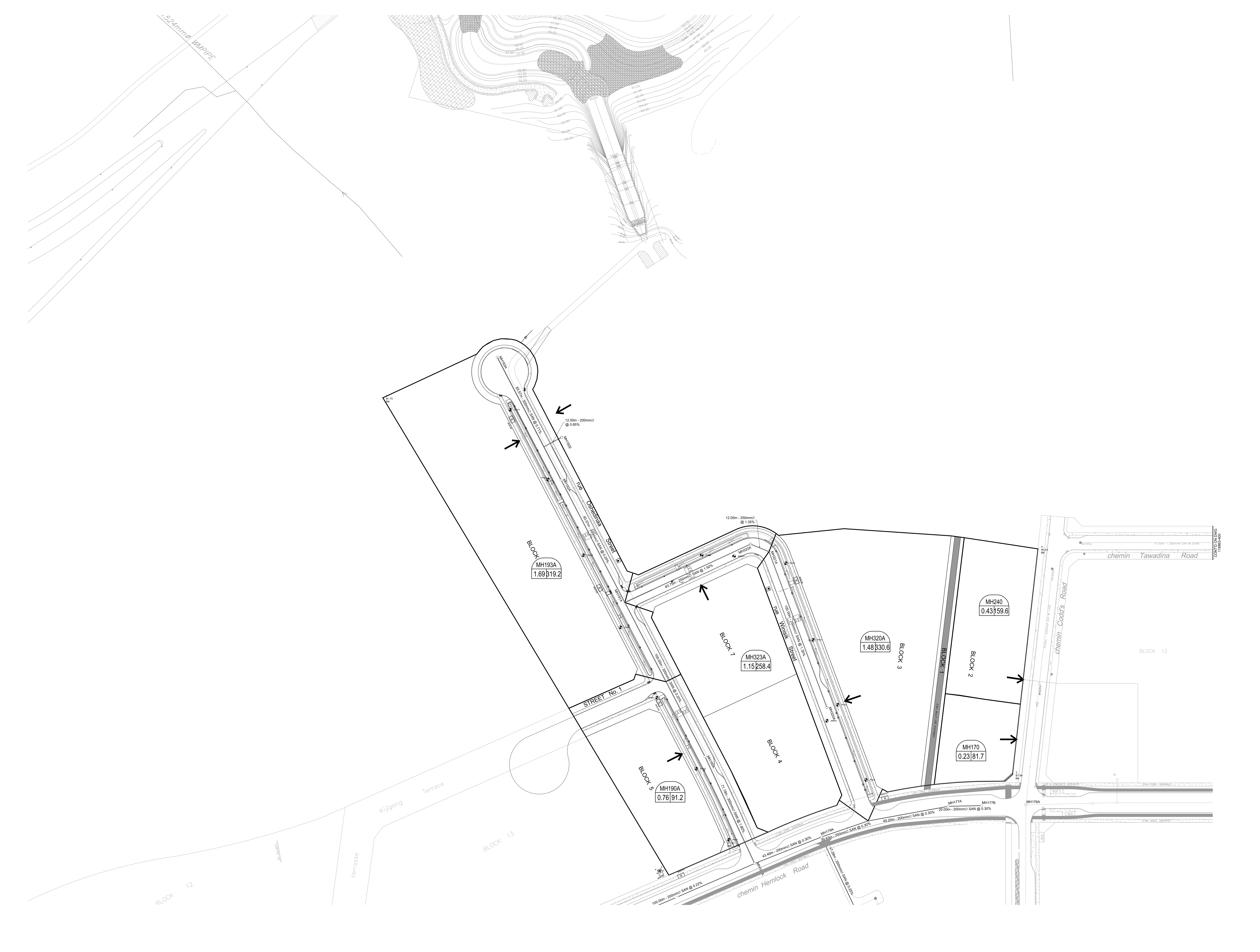
Residential			ICI Areas			
SF	3.2	p/p/u				
TH/F/SD	2.4	p/p/u	INST	28,000	L/Ha/day	
TH/S	2.4	p/p/u	COM	28,000	L/Ha/day	
APT	1.9	p/p/u	IND	35,000	L/Ha/day	MOE Chart
Other	60	p/p/Ha		17000	L/Ha/day	

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

Designed: AC
Checked: J.I.M.
Dwg. Reference: 118863-410

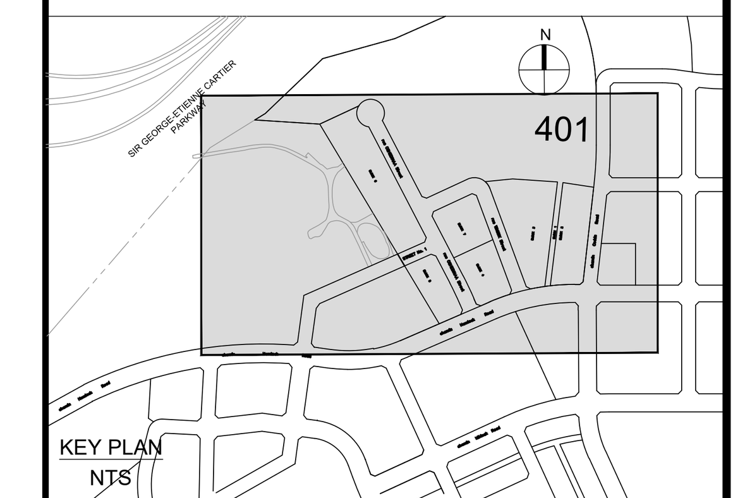
No.	Revision	Date
1	Submission No. 1 for City Review	2018-12-20
2	Submission No. 2 for City Review	2020-07-03
3	Submission No. 3 for City Review	2021-12-13
4	Submission No. 4 for City Review	2022-09-21
5	Block 5 Sanitary Information Added	2023-12-05

File Reference: 118863.5.7.1
Date: 2020-06-03
Sheet No: 1 of 1



LEGEND :

MH317A-1 / 0.45 / 30.4	MANHOLE NUMBER; POPULATION; AREA IN HECTARES
←	PROPOSED SERVICE LATERAL LOCATION



No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9	REVISED CB180 TO CICB180 AND ADDED NEW LID BASE	J.I.M.	2023:11:03
8	REVISED PER GRDD PLAN	J.I.M.	2023:08:17
7	ISSUED FOR CONSTRUCTION	J.I.M.	2023:07:24
6	ISSUED FOR RFP	J.I.M.	2023:02:28
5	SUBMISSION NO. 5 FOR CITY REVIEW	J.I.M.	2023:01:31
4	SUBMISSION NO. 4 FOR CITY REVIEW	J.I.M.	2022:09:23
3	SUBMISSION NO. 3 FOR CITY REVIEW	J.I.M.	2021:12:10
2	SUBMISSION NO. 2 FOR CITY REVIEW	J.I.M.	2020:07:08
1	SUBMISSION NO. 1 FOR CITY REVIEW	J.I.M.	2018:12:20

CANADA LANDS COMPANY
SOCIÉTÉ IMMOBILIÈRE DU CANADA
100 Queen Street
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ibigroup.com

Project Title
WATERIDGE VILLAGE AT ROCKCLIFFE
PHASE 4

LICENSED PROFESSIONAL ENGINEER
J. I. MOFFATT
2023/11/03
PROVINCE OF ONTARIO

N

Drawing Title
SANITARY DRAINAGE AREA PLAN

Scale
1:1000

Design: J.I.M.	Date: JUNE 2020
Drawn: M.M.	Checked: A.C.
Project No.: 118863	Drawing No.: 410

D07-16-15-0003_P4

#17063

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Block 5 Information Added

SANITARY SEWER DESIGN SHEET

Former CFB Rockcliffe
City of Ottawa
Canada Lands Company

LOCATION				RESIDENTIAL										ICI AREAS								INFILTRATION ALLOWANCE			FIXED FLOW	TOTAL FLOW	PROPOSED SEWER DESIGN						
				AREA	UNIT TYPES				AREA	POPULATION		PEAK	PEAK	AREA (Ha)						PEAK		AREA (Ha)		FLOW			CAPACITY	LENGTH	DIA	SLOPE	VELOCITY	AVAILABLE CAPACITY	
STREET	AREA ID	FROM MH	TO MH	Ph1 (Ha)	SF	SD	TH	APT	External (Ha)	IND	CUM	FACTOR	FLOW (L/s)	INSTITUTIONAL		COMMERCIAL		INDUSTRIAL		FLOW (L/s)										(full) (m/s)		
														IND	CUM	IND	CUM	IND	CUM		IND	CUM	(L/s)	(L/s)	(L/s)	(L/s)	(m)	(mm)	(%)		L/s	(%)
Hemlock Road	182A(b)	MH182A	MH181A	0.09						0.0	0.0	3.80	0.00		0.0		0.0		0.0	0.00	0.09	0.09	0.03		0.03	42.08	*37.30*	250	*0.46*	0.830	42.05	99.93%
	181A, EXT 12	MH181A	MH180A	0.25					0.86	72.0	72.0	3.62	0.85		0.0		0.0		0.0	0.00	1.11	1.20	0.40		1.24	47.32	*100.21*	300	*0.22*	0.648	46.08	97.38%
Street No. 19	190A	MH190A	MH180A						0.75	145.4	1144.5	3.21	11.90		0.0		0.0		0.0	0.00	0.75	13.87	4.58		16.48	125.60	*72.34*	300	*1.55*	1.721	109.12	86.88%
chemin Hemlock Road	180A	MH180A	MH179A	0.17						0.0	1216.5	3.19	12.60		0.0		0.0		0.0	0.00	0.17	15.24	5.03		17.62	55.26	*43.60*	300	*0.30*	0.757	37.63	68.10%
Hemlock Road	177A	MH177B	MH177A	0.23						0.0	0.0	3.80	0.00		0.0		0.0		0.0	0.00	0.23	0.23	0.08		0.08	36.17	*20.31*	250	*0.34*	0.714	36.10	99.79%
Hemlock Road	---	MH177A	MH178A							0.0	0.0	3.80	0.00		0.0		0.0		0.0	0.00	0.00	0.23	0.08		0.08	34.54	*48.80*	250	*0.31*	0.682	34.47	99.78%
Hemlock Road	---	MH178A	MH179A							0.0	0.0	3.80	0.00		0.0		0.0		0.0	0.00	0.00	0.23	0.08		0.08	39.24	*29.91*	250	*0.40*	0.774	39.16	99.81%
EX Shaft	---	MH179A	MH200A							0.0	1216.5	3.19	12.60		0.0		0.0		0.0	0.00	0.00	15.47	5.11		17.70	54.33	*47.91*	300	*0.29*	0.745	36.63	67.42%
EX Shaft	---	MH200A	EX. Shaft							0.0	10454.9	2.55	86.34		5.1		3.2		0.0	7.17	0.00	98.24	32.42		125.93	200.37	12.90	375	1.2	1.757	74.44	37.15%

Design Parameters:

Residential			ICI Areas		
SF	3.4	p/p/u			Peak Factor
TH/SD	2.7	p/p/u	INST	50,000 L/Ha/day	1.5
APT	1.8	p/p/u	COM	50,000 L/Ha/day	1.5
Other	60	p/p/Ha	IND	35,000 L/Ha/day	MOE Chart
				17000 L/Ha/day	

Notes:

1. Mannings coefficient (n) = 0.013
2. Demand (per capita): 280 L/day 300 L/day
3. Infiltration allowance: 0.33 L/s/Ha 0.4 L/s/Ha
4. Residential Peaking Factor:
   Harmon Formula = 1+(14/(4+P^0.5))
   where P = population in thousands

Designed: AC

Checked: JIM

Dwg. Reference: 38298-501

No.	Revision	Date
1.	Submission No. 1 for City Review	2023-10-26
2.	Upstream Capacity Check	2023-11-29

File Reference: 38298.5.7.1

Date: 2023-11-29

Sheet No: 2 of 2

Canada Lands Company
Société immobilière du Canada

February 20, 2024

Anton Chetrar, P. Eng.
Arcadis Professional Services (Canada) Inc.
Suite 500, 333 Preston Street
Ottawa, ON K1S 5N4

Subject: Block 5 Phase 4 Acknowledgement & Permission Letter, Wateridge Village, Ottawa, Ontario

Dear Anton Chetrar,

Canada Lands Company CLC Limited ("CLC") is aware of the increase in population from the approved Phase 4 Design Brief (91.2 to 145.4). CLC will account for, with assistance from Arcadis, this increase in population in the updated sanitary sewer design sheet and the updated water model for the entire subdivision.

CLC grants permission for the terracing works to proceed within Block 13 as shown and highlighted in the attached grading plan [Arcadis (2023, December 8), Grading Plan, C-200, Project No. 143934]. There are existing agreements between CLC and the Rohit Group of Companies which cover and detail requirements surrounding building operations and use of peripheral properties owned by CLC within Wateridge Village.

We look forward to working with you on this project.

Regards,

CANADA LANDS COMPANY CLC LIMITED

Xavier Redhead

Xavier Redhead
Development Manager, Real Estate (NCR)

Mary Jarvis

Mary Jarvis
Senior Director, Real Estate (NCR/Atlantic)

APPENDIX D

ARCADIS
500-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
arcadis.com

IBI GROUP

STORM SEWER DESIGN SHEET

Block 5 - Wateridge Phase 4
Rohit Communities Inc.
City of Ottawa

LOCATION				AREA (Ha)										RATIONAL DESIGN FLOW													SEWER DATA									
STREET	AREA ID	FROM	TO	C= 0.20	C= 0.25	C= 0.45	C= 0.50	C= 0.57	C= 0.67	C= 0.69	C= 0.70	C= 0.79	C= 0.80	IND 2.78AC	CUM 2.78AC	INLET (min)	TIME IN PIPE	TOTAL (min)	I (2) (mm/hr)	I (5) (mm/hr)	I (10) (mm/hr)	I (100) (mm/hr)	2yr PEAK FLOW (L/s)	5yr PEAK FLOW (L/s)	10yr PEAK FLOW (L/s)	100yr PEAK FLOW (L/s)	FIXED FLOW IND	FIXED FLOW CUM	DESIGN FLOW (L/s)	CAPACITY (L/s)	LENGTH (m)	PIPE SIZE (mm) DIA	PIPE SIZE (mm) W	PIPE SIZE (mm) H	SLOPE (%)	VELOCITY (m/s)	AVAIL CAP (2yr) (L/s)	AVAIL CAP (2yr) (%)
BUILDING A	BLDA, CB1	BLDA	CTRL MH1						0.09			0.22		0.65	0.65	10.00	0.01	10.01	76.81			178.44	49.98			116.13	0.00	0.00	116.13	142.67	1.57	300			2.00	1.955	26.54	18.60%
		CTRL MH 1	TEE											0.00	0.65	10.01	0.12	10.14	76.75			177.33	49.95			115.40	0.00	0.00	115.40	142.67	14.36	300			2.00	1.955	27.26	19.11%

Definitions:

Q = 2.78CiA, where:

Q = Peak Flow in Litres per Second (L/s)

A = Area in Hectares (Ha)

i = Rainfall intensity in millimeters per hour (mm/hr)

[i = 732.951 / (TC+6.199)^0.810] 2 YEAR

[i = 998.071 / (TC+6.053)^0.814] 5 YEAR

[i = 1174.184 / (TC+6.014)^0.816] 10 YEAR

[i = 1735.688 / (TC+6.014)^0.820] 100 YEAR

Notes:

1. Mannings coefficient (n) = 0.013

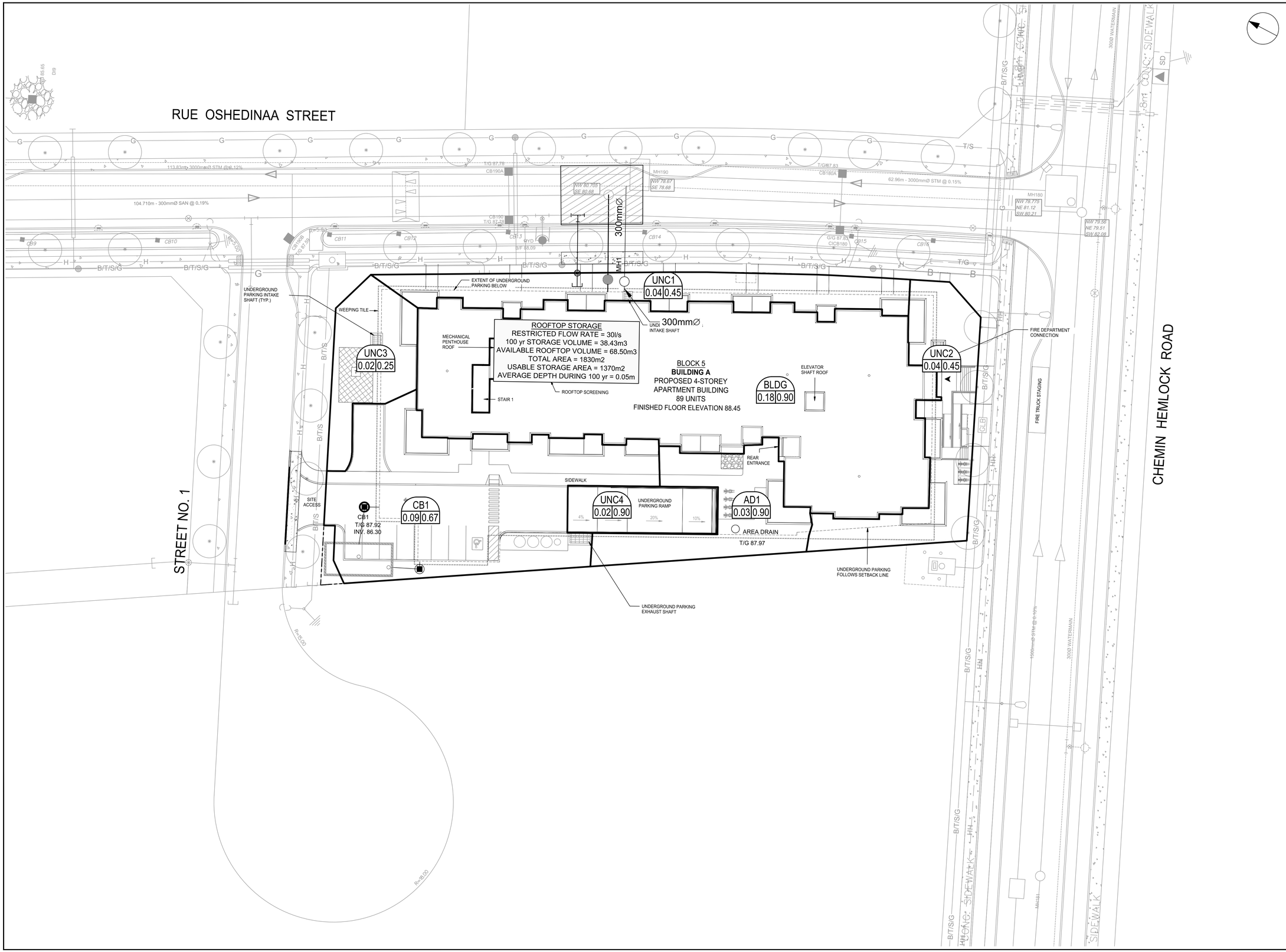
Designed: AC

Checked: DRC

Dwg. Reference: 143934-500

No.	Revision	Date
1.	Servicing Brief - Submission No. 1	2023-11-02
2.	Servicing Brief - Submission No. 2	2024-02-26
3.	Servicing Brief - Submission No. 3	2024-04-10

File Reference:	Date:	Sheet No:
143934-6.04.04	2024-04-10	1 of 1



CLIENT

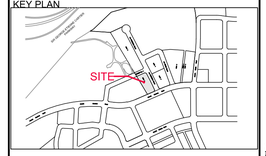
ROHIT GROUP

15 FITZGERALD ROAD, NEPEAN, ON

ISSUES

No.	DESCRIPTION	DATE
1	SUBMISSION NO.1 FOR CITY REVIEW	2023-12-08
2	SUBMISSION NO.2 FOR CITY REVIEW	2024-03-04
3	SUBMISSION NO.3 FOR CITY REVIEW	2024-05-01
4	NEW SITE PLAN	2024-08-07
5		
6		
7		
8		

KEY PLAN



1:250 0 2.5 7.5 12.5m

SEAL

LICENSED PROFESSIONAL ENGINEER
S. É. LABADIE
100214983
2024/08/07
PROVINCE OF ONTARIO

PRIME CONSULTANT

ARCADIS

333 Preston Street - Suite 500
Ottawa ON K1S 5N4 Canada
tel 613 225 1311
www.arcadis.com

PROJECT

WATERIDGE VILLAGE
AT ROCKCLIFFE

PHASE 4 - BLOCK 5

PROJECT NO: 143934	
DRAWN BY: **M.M.**	CHECKED BY: **D.C.**
PROJECT MGR: **D.C.**	APPROVED BY: **A.C.**

SHEET TITLE

STORM DRAINAGE AREA PLAN

SHEET NUMBER	ISSUE
C-500	4

SCALE CHECK 10mm 1 in

19178

D07-12-24-0090

File Location: J:\143934_Block_5_Ph_4\7.0_Production\7.03_Design\04_Civil\Sheets\C-500 DRAINAGE AREA PLAN.dwg Last Saved: August 7, 2024, by MMilne Plotted: Wednesday, August 7, 2024 2:06:39 PM by Marian Milne

NORR

INFORMATION

March 11, 2024

Rohit Ottawa – 5 and 100-year storm event ponding areas

Project No.
NCCA22-0243-05

Project Name
Rohit - Ottawa Wateridge Village LOT 5

To whom it may concern,

This letter is to confirm that in order to accommodate the 5- and 100- year storm event ponding areas, at the time of detailed design of the building, the roof of the building will accommodate a ponding volume on the roof of the building of 68.50 m3, which equals to an average of 52 mm across 70% of the whole roof surface area.

For more information please do not hesitate to contact us.

Signed by

Project Manager Name: Erin Faulkner

Erin Faulkner

Digitally signed by Erin Faulkner
DN: C=CA, E=erin.faulkner@norr.com, CN=Erin Faulkner
Date: 2024.03.11 10:39:58-05'00'

Signature

2024-03-11

Date

Notification: ☒ Email

NORR Architects & Engineers Limited

55 Murray Street, Suite 600
Ottawa, ON
Canada K1N 5M3

55, rue Murray, bureau 600
Ottawa, ON
Canada K1N 5M3

T 613 241 5300
norr.com

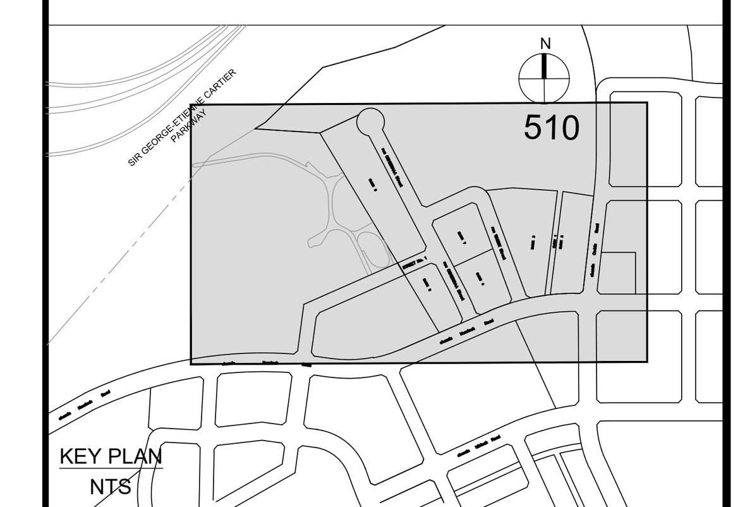
LEGEND :

S317 — AREA NUMBER

0.60 — RUNOFF COEFFICIENT

0.06 — AREA IN HECTARES

← PROPOSED SERVICE LATERAL LOCATION



No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9	REVISED CB180 TO CICB180 AND ADDED NEW LID BASE	J.I.M.	2023:11:03
8	REVISED PER GRDD PLAN	J.I.M.	2023:08:17
7	ISSUED FOR CONSTRUCTION	J.I.M.	2023:07:24
6	ISSUED FOR RFP	J.I.M.	2023:02:28
5	SUBMISSION NO. 5 FOR CITY REVIEW	J.I.M.	2023:01:31
4	SUBMISSION NO. 4 FOR CITY REVIEW	J.I.M.	2022:09:23
3	SUBMISSION NO. 3 FOR CITY REVIEW	J.I.M.	2021:12:10
2	SUBMISSION NO. 2 FOR CITY REVIEW	J.I.M.	2020:07:08
1	SUBMISSION NO. 1 FOR CITY REVIEW	J.I.M.	2018:12:20

CANADA LANDS COMPANY
SOCIÉTÉ IMMOBILIÈRE DU CANADA
100 Queen Street
Ottawa,On
K1P 1J9

IBI GROUP
400 – 333 Preston Street
Ottawa ON K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

Project Title

WATERIDGE VILLAGE AT ROCKCLIFFE

PHASE 4

LICENSED PROFESSIONAL ENGINEER
J. I. MOFFATT
2023/11/03
PROVINCE OF ONTARIO

N

Drawing Title

STORM DRAINAGE AREA PLAN

Scale

1:1000

Design	Date
J.I.M.	JUNE 2020
Drawn	**Checked**
M.M.	A.C.
Project No.	**Drawing No.**
118863	510

D07-16-15-0003_P4

#17063

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

Formulas and Descriptions

i_{5yr} = 1:2 year Intensity = 732.951 / (T_c+6.199)$^{0.810}$
i_{5yr} = 1:5 year Intensity = 998.071 / (T_c+6.053)$^{0.814}$
i_{100yr} = 1:100 year Intensity = 1735.688 / (T_c+6.014)$^{0.820}$
T_c = Time of Concentration (min)
C = Average Runoff Coefficient
A = Area (Ha)
Q = Flow = 2.78CiA (L/s)

Maximum Allowable Release Rate

Restricted Flowrate ($Q_{restricted}$ = Based on Wateridge Village report)

Based on Wateridge Village report

$Q_{restricted}$ =	120.00 L/s

Uncontrolled Release ($Q_{uncontrolled}$ = 2.78*C*i_{100yr} *$A_{uncontrolled}$)

UNC1+UNC2

C =	0.5625	(0.45 x 1.25 for 100 year)
T_c =	10	min
i_{100yr} =	178.56	mm/hr
$A_{uncontrolled}$ =	0.078	Ha
$Q_{uncontrolled}$ =	21.84	L/s

UNC3

C =	0.3125	(0.25 x 1.25 for 100 year)
T_c =	10	min
i_{100yr} =	178.56	mm/hr
$A_{uncontrolled}$ =	0.02	Ha
$Q_{uncontrolled}$ =	3.10	L/s

UNC4

C =	1.00	(0.90 x 1.25 for 100 year)
T_c =	10	min
i_{100yr} =	178.56	mm/hr
$A_{uncontrolled}$ =	0.015	Ha
$Q_{uncontrolled}$ =	7.45	L/s

CB1

C =	0.84	(0.67 x 1.25 for 100 year)
T_c =	10	min
i_{100yr} =	178.56	mm/hr
$A_{uncontrolled}$ =	0.09	Ha
$Q_{uncontrolled}$ =	37.53	L/s

AD1

C =	1.00	(0.90 x 1.25 for 100 year)
T_c =	10	min
i_{100yr} =	178.56	mm/hr
$A_{uncontrolled}$ =	0.03	Ha
$Q_{uncontrolled}$ =	14.89	L/s

Maximum Allowable Release Rate ($Q_{max\ allowable}$ = $Q_{restricted}$ - $Q_{uncontrolled}$)

$Q_{max\ allowable}$ =	125.14 L/s

SWM Statistics of Modified Site Areas

Controlled	Area	ICD Flow
BLDA	0.183	30.000
Sum	**0.18**	**30.00**
Uncontrolled	**Area**	**Flow**
UNC1+UNC2	0.078	21.84
UNC3+UNC4	0.035	10.55
CB1	0.090	37.53
AD1	0.030	14.89
Sum	**0.23**	**84.80**
Total Sum	**0.42**	**114.803**
Allowable		**120.00**
		TRUE

MODIFIED RATIONAL METHOD (100-Year, 5-Year Ponding)

Drainage Area	***BLDA***		
Area (Ha)	0.183	Restricted Flow ICD $_{Actual}$ (L/s)=	30.00
C =	1.00	Restricted Flow $Q_{r\ for\ swm\ calc}$ (L/s)=	30.00

50% reduction if sub-surface storage

100-Year Ponding						**100-Year +20% Ponding**		
T_c Variable (min)	***i_{100yr} (mm/hour)***	***Peak Flow Q_p=2.78x$C i_{100yr}$ A (L/s)***	***Q_r (L/s)***	***Q_p-Q_r (L/s)***	***Volume 100yr (m^3)***	***100YRQ_p 20% (L/s)***	***Qp - Qr (L/s)***	***Volume 100+20 (m^3)***
13	155.11	78.91	30.00	48.91	38.15			
14	148.72	75.66	30.00	45.66	38.36			
15	142.89	72.70	30.00	42.70	**38.43**	87.24	57.24	**51.51**
16	137.55	69.98	30.00	39.98	38.38			
17	132.63	67.47	30.00	37.47	38.22			

Storage (m^3)					100+20		
Overflow	**Required**	**Surface**	**Sub-surface**	**Balance**	**Overflow**	**Required**	**Balance**
0.00	38.43	68.50	0	0.00	0.00	51.51	0.00
		convert to flow with peak Tc (L/s)		0.00	convert to flow with peak Tc (L/s)		0.00

overflows to: off site

Drainage Area	***BLDA***		
Area (Ha)	0.183		
C =	0.90	Restricted Flow Q_r (L/s)=	30.00

5-Year Ponding					
T_c Variable (min)	***i_{5yr} (mm/hour)***	***Peak Flow Q_p=2.78x$C i_{5yr}$ A (L/s)***	***Q_r (L/s)***	***Q_p-Q_r (L/s)***	***Volume 5yr (m^3)***
6	131.57	60.24	30.00	30.24	10.89
7	123.30	56.46	30.00	26.46	11.11
8	116.11	53.16	30.00	23.16	**11.12**
9	109.79	50.27	30.00	20.27	10.95
10	104.19	47.71	30.00	17.71	10.62

Storage (m^3)				
Overflow	**Required**	**Surface**	**Sub-surface**	**Balance**
0.00	11.12	68.50	0	0.00

overflows to: off site

Chetrar, Anton

From: Ghasri, Mahsa
Sent: Tuesday, October 31, 2023 1:59 PM
To: Chetrar, Anton
Cc: Labadie, Samantha; Cave, Doug; Black, Meghan
Subject: RE: Wateridge Phase 4 - Block 5, 6, 4

Hey Anton,

Block 5 (B180A in our report) is restricted to 120l/s, Block 6 (B191 is our report) is restricted at 162 l/s, and Block 4 & 7 (B322 in our report) to 200l/s. The downstream segment for overflow is to Kijigong Terrace (B191B), out of the site to the north, and Winisik Street (B190B), respectively.

Please note that we do not account for any on site storages for blocks within Waterdige.

Thank you

Mahsa Ghasri P.Eng
Water Resources Engineer
Arcadis Professional Services (Canada) Inc.
Suite 500, 333 Preston Street | Ottawa | ON | K1S 5N4 | Canada
T: +1 613 225 1311 ext 64079
www.arcadis.com

Please note my new email address and update for your records.

From: Chetrar, Anton <anton.chetrar@arcadis.com>
Sent: Tuesday, October 31, 2023 1:36 PM
To: Ghasri, Mahsa <mahsa.ghasri@arcadis.com>
Cc: Labadie, Samantha <samantha.labadie@arcadis.com>; Cave, Doug <doug.cave@arcadis.com>; Black, Meghan <meghan.black@arcadis.com>
Subject: Wateridge Phase 4 - Block 5, 6, 4

Hi Mahsa,

As discussed, we are looking to obtain the stormwater criteria for blocks 5, 6 and 4 used for the design of Wateirdge Phase 4.

Let us know if you have any questions.

Thanks,
Anton Chetrar P.Eng
Civil Engineer
Arcadis Professional Services (Canada) Inc.
Suite 500, 333 Preston Street | Ottawa | ON | K1S 5N4 | Canada

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M: +1 613 882 8197
www.arcadis.com

Please note my new email address and update for your records.

DRAINAGE AREA ID	AREA (HA)	D/S SEGMENT ID	XPSWMM NODE ID	IMP RATIO [TP (H)]	SEGMENT LENGTH (M)	SUBCATCHMENT WIDTH (M)	AVAILABLE STATIC PONDING (M^3)
S191	0.063	S192	MH191	0.71	59	118	0
S192	0.148	S193	MH192	0.71	69	137	0
S193	0.126	DITCH	MH193	0.71	39	78	0.12
P191	1.176	NORTH(3)	MH192	0.20	133	266	0
B180A	0.418	S191B	MH190	0.86	47	95	0(1)
B191	1.166	NORTH(3)	MH193	0.86	132	263	0(1)
B9	0.12	S176D	MH305	0.07	151	302	0(1)
S180A	0.118	S190	MH180	0.71	57	115	7
Relevant Existing Phase 1A							
S176D	0.13	DS142(2)	MH176	0.76	95	95	2.60
S176E	0.09	DS142(2)	MH176	0.76	80	80	0
S180	0.16	DNCC(4)	MH180	0.76	68	68	0

(1) Assumed ponding volume
(2) Existing Phase 1B
(3) North towards existing SWM facility
(4) West to future phase

Table 5.3 Minor Flow Capture

DRAINAGE AREA ID	CONTINUOUS/ SAG(1),(2)	ROAD TYPE	MINOR SYSTEM DESIGN TARGET	GENERATED FLOW ON INDIVIDUAL SEGMENT FOR MINOR SYSTEM DESIGN TARGET (DDSWMM SIMULATION) (L/S)	ICD (L/S)	NOTE
Phase 4						
B340A	Block	N/A	5	144	204	Minor system restriction for future development block
S319	Sag	22m Row, 8.5m asphalt	5	26	38	
B319	Block	N/A	100	398	490	Minor system restriction for future development block
S320	Continuous	22m Row, 8.5m asphalt	5	32	12	CB on continuous grade, capture in downstream sag
S322	Continuous	22m Row, 8.5m asphalt	5	30	25	CB on continuous grade, capture in downstream sag
B322	Block	N/A	5	200	200	Minor system restriction for future development block
S190	Sag	22m Row, 8.5m asphalt	5	17	76	
S190A	Continuous	22m Row, 8.5m asphalt	5	21	24	CB on continuous grade, capture in downstream sag

DRAINAGE AREA ID	CONTINUOUS/ SAG[1],[2]	ROAD TYPE	MINOR SYSTEM DESIGN TARGET	GENERATED FLOW ON INDIVIDUAL SEGMENT FOR MINOR SYSTEM DESIGN TARGET (DDSWMM SIMULATION) (L/S)	ICD (L/S)	NOTE
S190B	Sag	22m Row, 8.5m asphalt	5	19	24	
S191A	Sag	22m Row, 8.5m asphalt	5	7	63	
S191B	Continuous	22m Row, 8.5m asphalt	5	19	19	CB on continuous grade, capture in downstream sag
S191	Continuous	22m Row, 8.5m asphalt	5	23	19	
S192	Continuous	22m Row, 8.5m asphalt	5	25	12	
S193	Sag	22m Row, 8.5m asphalt	5	21	86	
P191	Park	N/A	5	22	24	
B180A	Block	N/A	5	145	120	Minor system restriction for future development block
B191	Block	N/A	5	162	162	Minor system restriction for future development block
B9	Park	N/A	5	12	0	No CBs located in this green space block
S180A	Sag	22m Row, 8.5m asphalt	5	21	25	
Relevant Existing Phase 1A						
S176D	Sag	26m Row, 9.5m asphalt	5		37	Replacing existing ICDs
S176E	Continuous	26m Row, 9.5m asphalt	5		11.4	ICD(s) installed
S180	Continuous	26m Row, 9.5m asphalt	5		16.3	ICD(s) installed

(1) Capture on continuous grade is limited to capacity of grate
(2) The minor flow restriction has been increased in sags to allow full capture of overflow from upstream segments on continuous grade during the design storm event without ponding.

5.4.3 Results of Hydrological Modeling

5.4.3.1 Street Segment Storage

The storage available on-site storage and the results of the DDSWMM major system evaluation for the design storm are presented in **Table 5.4**. The ponding plan for the subject site is presented in **Appendix F** on **Drawings 601.** The DDSWMM output files are presented in **Appendix F**.

WATTS®	Adjustable Accutrol Weir Tag: _____	Adjustable Flow Control for Roof Drains

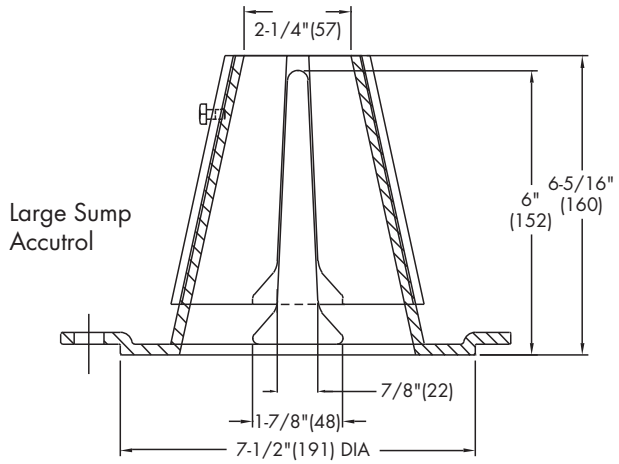
ADJUSTABLE ACCUTROL (for Large Sump Roof Drains only)

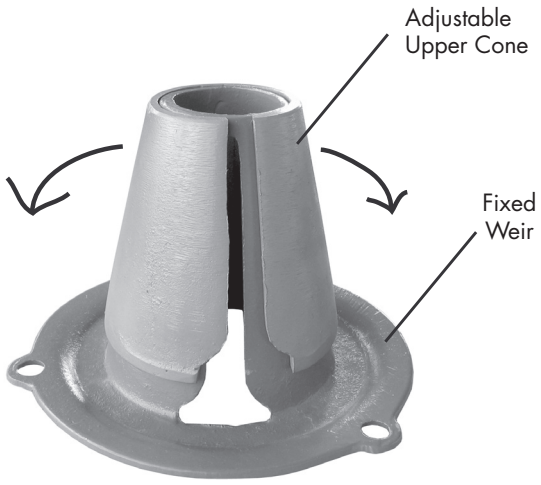
For more flexibility in controlling flow with heads deeper than 2", Watts Drainage offers the Adjustable Accutrol. The Adjustable Accutrol Weir is designed with a single parabolic opening that can be covered to restrict flow above 2" of head to less than 5 gpm per inch, up to 6" of head. To adjust the flow rate for depths over 2" of head, set the slot in the adjustable upper cone according to the flow rate required. Refer to Table 1 below.
Note: Flow rates are directly proportional to the amount of weir opening that is exposed.

EXAMPLE:

For example, if the adjustable upper cone is set to cover 1/2 of the weir opening, flow rates above 2"of head will be restricted to 2-1/2 gpm per inch of head.

Therefore, at 3"of head, the flow rate through the Accutrol Weir that has 1/2 the slot exposed will be:
[5 gpm (per inch of head) x 2 inches of head] + 2-1/2 gpm (for the third inch of head) = 12-1/2 gpm.





1/2 Weir Opening Exposed Shown Above

TABLE 1. Adjustable Accutrol Flow Rate Settings

Weir Opening Exposed	1"	2"	3"	4"	5"	6"
	Flow Rate (gallons per minute)					
Fully Exposed	5	10	15	20	25	30
3/4	5	10	13.75	17.5	21.25	25
1/2	5	10	12.5	15	17.5	20
1/4	5	10	11.25	12.5	13.75	15
Closed	5	5	5	5	5	5

Job Name _____ Contractor _____

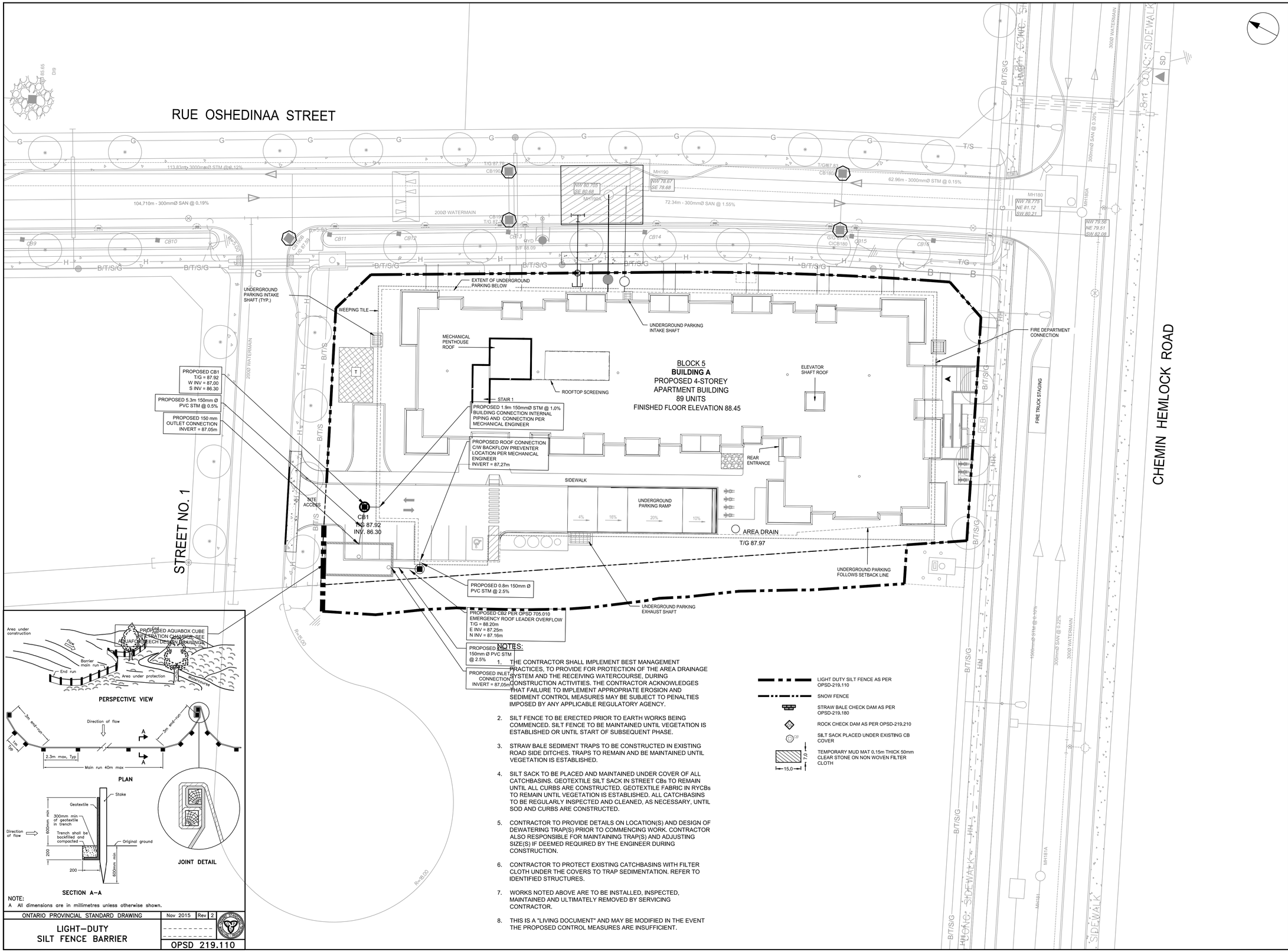
Job Location _____ Contractor's P.O. No. _____

Engineer _____ Representative _____

WATTS®
A Watts Water Technologies Company

USA: Tel: (800) 338-2581 • Fax: (828) 248-3929 • Watts.com
Canada: Tel: (905) 332-4090 • Fax: (905) 332-7068 • Watts.ca
Latin America: Tel: (52) 81-1001-8600 • Fax: (52) 81-8000-7091 • Watts.com

APPENDIX E



NOTES:

1. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
2. SILT FENCE TO BE ERECTED PRIOR TO EARTH WORKS BEING COMMENCED. SILT FENCE TO BE MAINTAINED UNTIL VEGETATION IS ESTABLISHED OR UNTIL START OF SUBSEQUENT PHASE.
3. STRAW BALE SEDIMENT TRAPS TO BE CONSTRUCTED IN EXISTING ROAD SIDE DITCHES. TRAPS TO REMAIN AND BE MAINTAINED UNTIL VEGETATION IS ESTABLISHED.
4. SILT SACK TO BE PLACED AND MAINTAINED UNDER COVER OF ALL CATCHBASINS. GEOTEXTILE SILT SACK IN STREET CBs TO REMAIN UNTIL ALL CURBS ARE CONSTRUCTED. GEOTEXTILE FABRIC IN RYCBs TO REMAIN UNTIL VEGETATION IS ESTABLISHED. ALL CATCHBASINS TO BE REGULARLY INSPECTED AND CLEANED, AS NECESSARY, UNTIL SOD AND CURBS ARE CONSTRUCTED.
5. CONTRACTOR TO PROVIDE DETAILS ON LOCATION(S) AND DESIGN OF DEWATERING TRAP(S) PRIOR TO COMMENCING WORK. CONTRACTOR ALSO RESPONSIBLE FOR MAINTAINING TRAP(S) AND ADJUSTING SIZE(S) IF DEEMED REQUIRED BY THE ENGINEER DURING CONSTRUCTION.
6. CONTRACTOR TO PROTECT EXISTING CATCHBASINS WITH FILTER CLOTH UNDER THE COVERS TO TRAP SEDIMENTATION. REFER TO IDENTIFIED STRUCTURES.
7. WORKS NOTED ABOVE ARE TO BE INSTALLED, INSPECTED, MAINTAINED AND ULTIMATELY REMOVED BY SERVICING CONTRACTOR.
8. THIS IS A "LIVING DOCUMENT" AND MAY BE MODIFIED IN THE EVENT THE PROPOSED CONTROL MEASURES ARE INSUFFICIENT.

- LIGHT DUTY SILT FENCE AS PER OPSD-219.110
- SNOW FENCE
- STRAW BALE CHECK DAM AS PER OPSD-219.180
- ROCK CHECK DAM AS PER OPSD-219.210
- SILT SACK PLACED UNDER EXISTING CB COVER
- TEMPORARY MUD MAT 0.15m THICK 50mm CLEAR STONE ON NON WOVEN FILTER CLOTH (15,0 × 7,0)

NOTE:
A All dimensions are in millimetres unless otherwise shown.

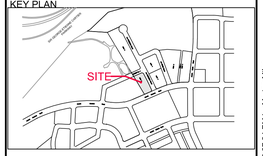
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
LIGHT–DUTY SILT FENCE BARRIER		OPSD 219.110

CLIENT
ROHIT GROUP
15 FITZGERALD ROAD, NEPEAN, ON

ISSUES

No.	DESCRIPTION	DATE
1	SUBMISSION NO.1 FOR CITY REVIEW	2023-12-08
2	SUBMISSION NO.2 FOR CITY REVIEW	2024-03-04
3	SUBMISSION NO.3 FOR CITY REVIEW	2024-05-01
4	NEW SITE PLAN	2024-08-07
5		
6		
7		
8		

KEY PLAN



1:250 0 2.5 7.5 12.5m

SEAL

PRIME CONSULTANT

ARCADIS
333 Preston Street - Suite 500
Ottawa ON K1S 5N4 Canada
tel 613 225 1311
www.arcadis.com

PROJECT
WATERIDGE VILLAGE
AT ROCKCLIFFE
PHASE 4 - BLOCK 5

PROJECT NO: 143934	
DRAWN BY: **M.M.**	CHECKED BY: **D.C.**
PROJECT MGR: **D.C.**	APPROVED BY: **A.C.**

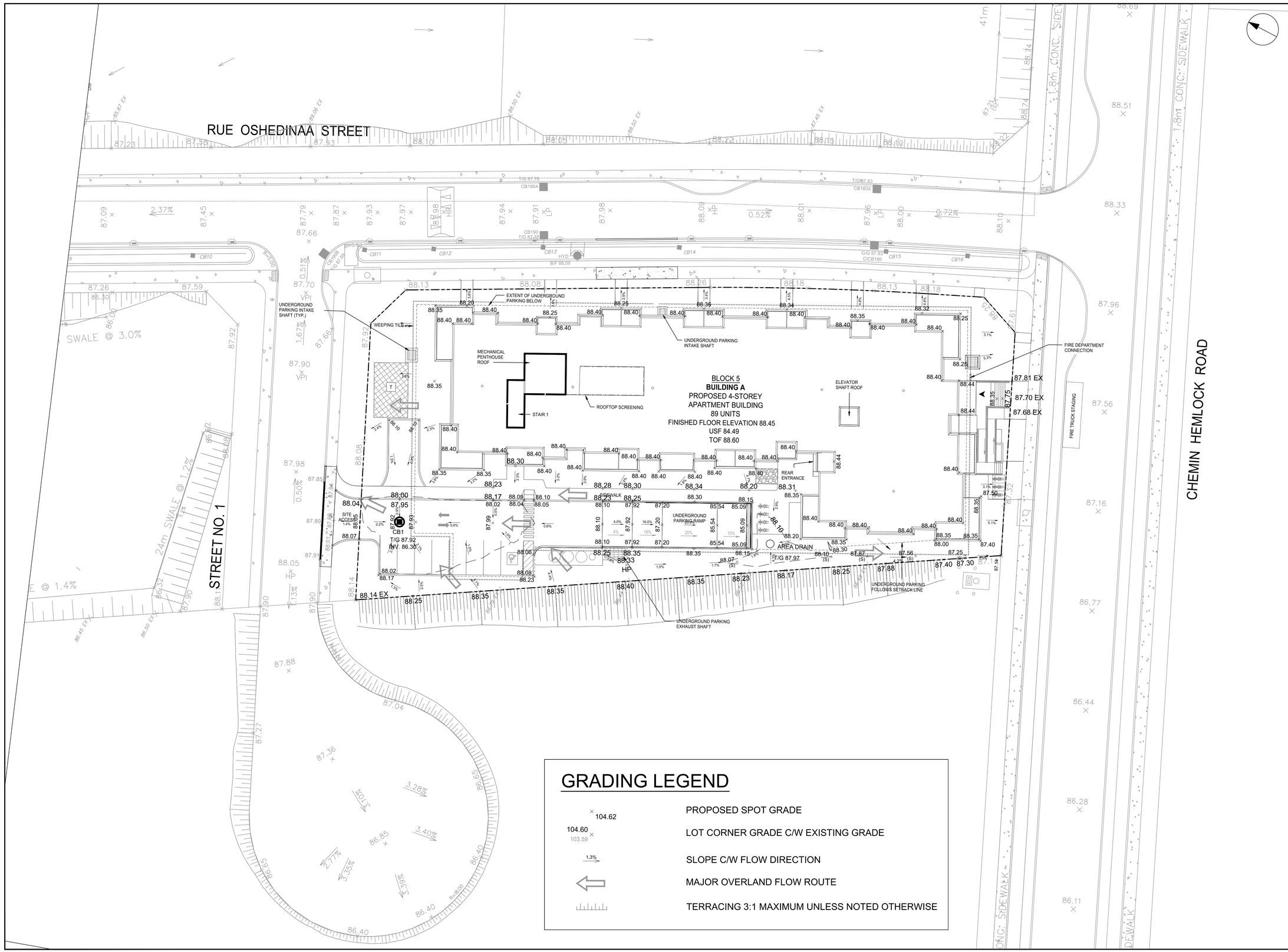
SHEET TITLE
SEDIMENT AND EROSION
CONTROL PLAN

SHEET NUMBER	ISSUE
C-900	4

SCALE CHECK 10mm 1 m

19178 D07-12-24-0090

File Location: J:\143934_Block_5_Ph_4\7.0_Production\7.03_Design\04_Civil\Sheets\C-900 EROSION AND SEDIMENT CONTROL PLAN.dwg Last Saved: January 30, 2024, by MMilne Plotted: Wednesday, August 7, 2024 2:07:34 PM by Marian Milne



GRADING LEGEND

104.62	PROPOSED SPOT GRADE
104.60 / 103.59	LOT CORNER GRADE C/W EXISTING GRADE
1.3%	SLOPE C/W FLOW DIRECTION
	MAJOR OVERLAND FLOW ROUTE
	TERRACING 3:1 MAXIMUM UNLESS NOTED OTHERWISE

CLIENT

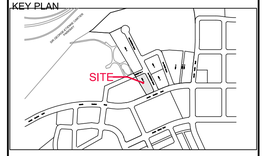
ROHIT GROUP

15 FITZGERALD ROAD, NEPEAN, ON

ISSUES

No.	DESCRIPTION	DATE
1	ISSUED FOR CLIENT REVIEW	2023-11-22
2	SUBMISSION NO.1 FOR CITY REVIEW	2023-12-08
3	SUBMISSION NO.2 FOR CITY REVIEW	2024-03-04
4	SUBMISSION NO.3 FOR CITY REVIEW	2024-05-01
5	NEW SITE PLAN	2024-08-07
6		
7		
8		

KEY PLAN



1:250 0 2.5 7.5 12.5m

SEAL

CONFIRM PRIME CONSULTANT

ARCADIS

333 Preston Street - Suite 500
Ottawa ON K1S 5N4 Canada
tel 613 225 1311
www.arcadis.com

PROJECT

WATERIDGE VILLAGE
AT ROCKCLIFFE

PHASE 4 - BLOCK 5

PROJECT NO: 143934	
DRAWN BY: **M.M.**	CHECKED BY: **D.C.**
PROJECT MGR: **D.C.**	APPROVED BY: **A.C.**

SHEET TITLE

GRADING PLAN

SHEET NUMBER	ISSUE
C-200	5

SCALE CHECK 10mm 1cm

19178 D07-12-24-0090

File Location: J:\143934_Block_5_Ph_4\7.0_Production\7.03_Design\04_Civil\Sheets\C-200 GRADING PLAN.dwg Last Saved: August 7, 2024 by MMilne Plotted: Wednesday, August 7, 2024 2:05:43 PM by Marian Milne

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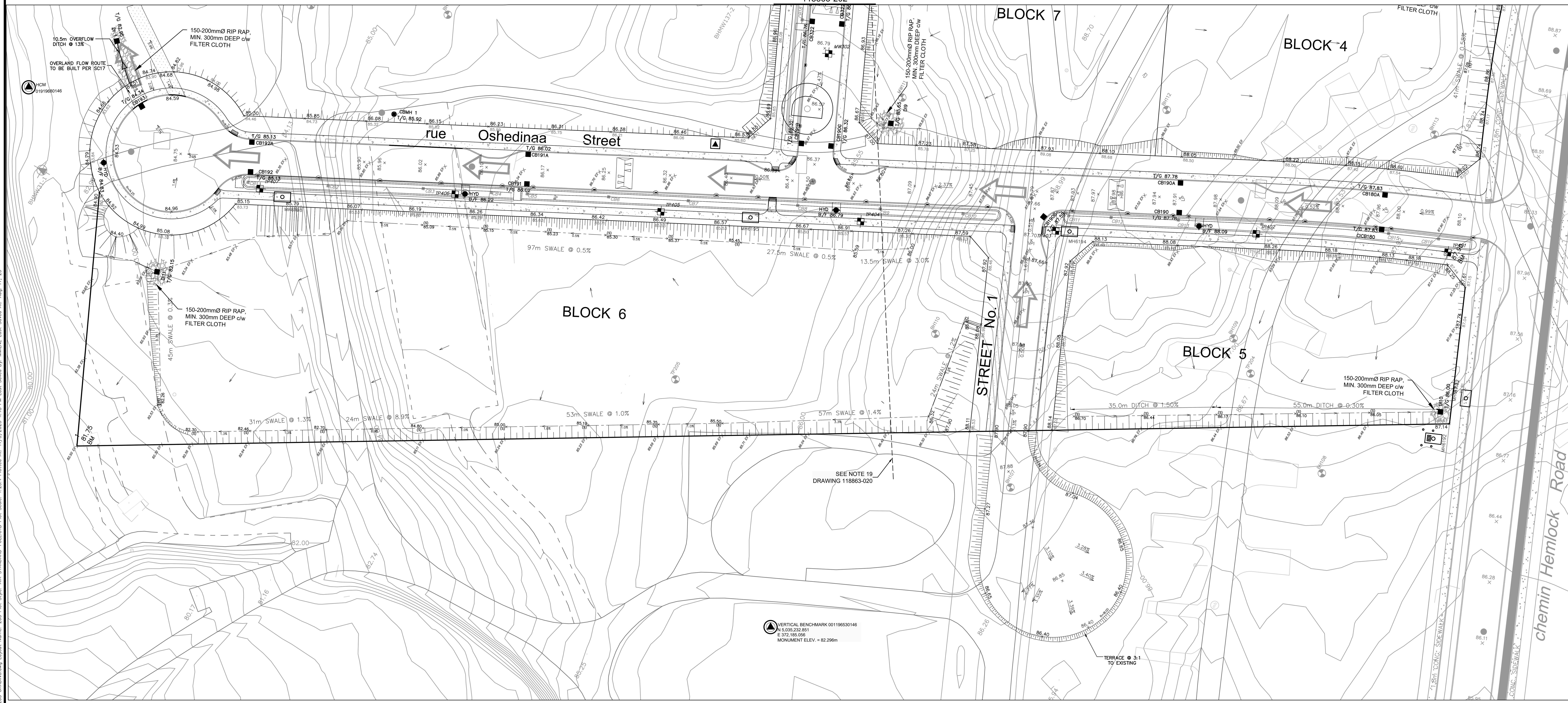
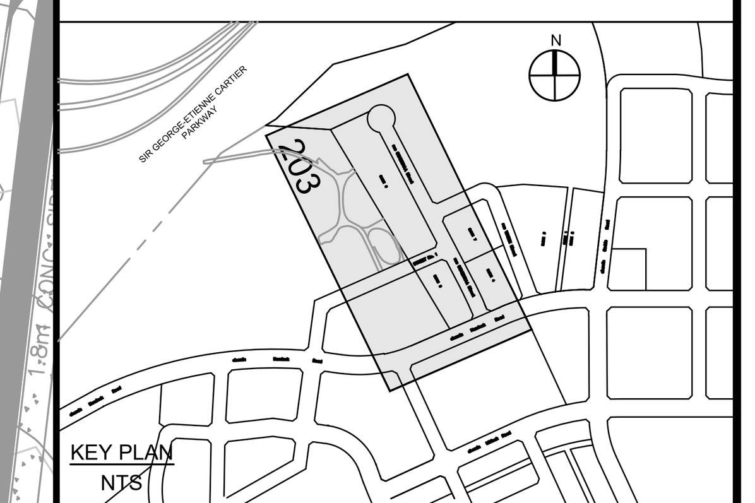
118863-202



TEMPORARY TURNING CIRCLE
(18m R)
50mm BASE COURSE
150mm GRANULAR 'A'
375mm GRANULAR 'B'



KEY PLAN
NTS

No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9	REVISED CB180 TO CICB180 AND ADDED NEW LID BASE	J.I.M.	2023:11:03
8	REVISED PER GRDD PLAN	J.I.M.	2023:08:17
7	ISSUED FOR CONSTRUCTION	J.I.M.	2023:07:24
6	ISSUED FOR RFP	J.I.M.	2023:02:28
5	SUBMISSION NO. 5 FOR CITY REVIEW	J.I.M.	2023:01:31
4	SUBMISSION NO. 4 FOR CITY REVIEW	J.I.M.	2022:09:23
3	SUBMISSION NO. 3 FOR CITY REVIEW	J.I.M.	2021:12:10
2	SUBMISSION NO. 2 FOR CITY REVIEW	J.I.M.	2020:07:08
1	SUBMISSION NO. 1 FOR CITY REVIEW	J.I.M.	2018:12:20

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Ottawa,On
K1P 1J9

IBI GROUP
400 – 333 Preston Street
Ottawa ON K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

Project Title

WATERIDGE VILLAGE AT ROCKCLIFFE
PHASE 4

LICENSED PROFESSIONAL ENGINEER
J. I. MOFFATT
2023/11/03
PROVINCE OF ONTARIO

Drawing Title

GRADING PLAN

Scale
1:500

Design	Date
J.I.M.	JUNE 2020
Drawn	**Checked**
M.M.	A.C.
Project No.	**Drawing No.**
118863	203

D07-16-15-0003_P4

#17063