REPORT

SITE SERVICING REPORT & EROSION & CONTROL PLAN
RETIREMENT COMPLEX
WEST POINTE VILLAGE DEVELOPMENT

Project: 118197-5.2.2

Prepared for CLARIDGE HOMES
by IBI Group
Revision 2
July 31, 2019

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1 INTRODUCTION

1.1 Scope

IBI Group has been retained by Claridge Homes to provide engineering services for the lands at 164 Maravista Dr. located in Barrhaven (Ward 3-Barrhaven), Ontario. The property is zoned residential R5AH(18) and is legally known as: Block 104 & 105, on Plan 4M-1335, City of Ottawa (Surveyed by Annis, O'Sullivan, Vollebekk Ltd.). Refer to Figure 1, Site Location plan.

1.2 Subject Site

Claridge Homes proposes to construct a 143 unit Retirement Complex on these blocks which are part of their West Point Village Development. The blocks are bounded by Cobble Hill Drive on the east, Chesapeake Crescent to the south, Strandherd Road to the west and Maravista Drive to the north. This report supports the detail site service design for this site plan. A copy of the site plan is included in **Appendix A**.

1.3 Previous Studies

IBI had previously submitted an engineering report and drawings for review by the City, Site Servicing Report Seniors Building West Point Village, Dec 2008, however, due to market conditions the project was put on hold. The Owner has made changes to the site plan to address market conditions, and this servicing report has been prepared to demonstrate that the existing adjacent and downstream infrastructure is capable of accommodating the proposed Retirement Complex.

Design of this project has been undertaken in accordance with the following reports:

- Site Servicing Report, West Point Village, prepared by IBI, January 2008
- Site Servicing Report, Maravista Heights, prepared by IBI, October 2010

1.4 Pre-consultation

Pre-consultation with the City was held June 21, 2018 regarding the proposed development. Notes from this meeting may be found in **Appendix A**.

It should be noted that a pre-consultation with the Ministry of the Environment is not required since this site is serviced by an existing municipal sanitary sewer, storm sewer and SWM facility and falls under the transfer program. When the Servicing Report and drawings are approved the Owner will submit the application to the Ministry of the Environment.

1.5 Geotechnical Consideration

The following geotechnical investigation report has been prepared by Paterson Group Inc., Report GP4557-1 August 1, 2018, Proposed Retirement Building 20 Chesapeake Crescent, Ottawa, Ontario.

The report comments on but is not limited to the following:

- Bedrock is ± 7 to 10 meters below existing grade.
- Overburden consist of layer of fill overlaying a stiff to very stiff brown silty clay, over a firm to stiff grey clay over glacial till.
- Long term groundwater is 3 to 4 meters below existing grade.

J:\118197_WP\Seniors\5.9 Drawings\59civil\current\Figures\FIG 1.0.dwg Layout Name: Figure 1.0

Project Title	Drawing Title	Sheet No.
WESTPOINTE VILLAGE RETIREMENT COMPLEX	LOCATION PLAN	FIGURE 1.0

- Recommends all fill removed from below building and minimum 1 meter below paved area.
- Recommended Pavement Structure:

Car Park Only areas:	50 mm HL3
	150 mm Granular 'A'
	300 mm Granular 'B' Type II
Heavy Truck Area and Access Lanes	40 mm HL3
	50 mm HL8
	150 mm Granular 'A'
	400 mm Granular 'B' Type II

- Grade Raise restriction of 1meter
- Recommends review of grading plan by Geotechnical Engineer

Site Grading, Plan C-200 has been reviewed by the Geotechnical Engineer the plan and Geotechnical Engineer's approval is included in **Appendix A**.

2 WATER DISTRIBUTION

2.1 Existing Conditions

As previously noted, the site is located west of Cobble Hill Drive, and south of Maravista Drive. An existing 200 mm diameter watermain is located within the Maravista Drive right of way and an existing 200 mm watermain is located within the Cobble Hill right of way. The watermains fall within the City of Ottawa's pressure district **"Barrhaven"** which will provide the water supply to the site.

When the 200 mm watermain was constructed along Cobble Hill Drive, a 150 mm diameter service was extended to the property line to service the site. There are two fire hydrants on Maravista Drive adjacent to the site.

2.2 Design Criteria

2.2.1 Water Demands

As noted in Section 1.2, the site is a 143 unit retirement complex. For determining water demands, the site is treated as a 143 unit apartment block. Unit population density and consumption rates are taken from Tables 4.1 and 4.2 of the Ottawa Design Guidelines – Water Distribution and are summarized as follows:

- Average Apartment 1.8 person per unit
- Residential Average Day Demand 350 l/cap/day
- Residential Peak Daily Demand 875 l/cap/day
- Residential Peak Hour Demand 1,925 l/cap/day

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

- Average Day 1.04 l/s
- Maximum Day 2.61 l/s
- Peak Hour 5.73 l/s

2.2.2 System Pressure

The Ottawa Design Guidelines – Water Distribution (WDG001), July 2010, City of Ottawa, Clause 4.2.2 states that the preferred practice for design of a new distribution system is to have normal operating pressures range between 345 kPa (50 psi) and 480 kPa (80 psi) under maximum daily flow conditions. Other pressure criteria identified in Clause 4.2.2 of 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	In accordance with the Ontario Building/Plumbing Code, the maximum pressure should not exceed 552 kPa (80 psi). Pressure reduction controls will be required for buildings where it is not possible/feasible to maintain the system pressure below 552 kPa.

2.2.3 Fire Flow Rates

A calculation using the Fire Underwriting Survey (FUS) method was conducted to determine the fire flow requirement for the site. The building is considered non-combustible construction by the building architect. Results of the analysis provides a maximum fire flow rate of 15,000 l/min or 250 l/s is required which is used in the hydraulic analysis. A copy of the FUS calculation is included in **Appendix B** along with correspondence from the building architect.

2.2.4 Hydraulic Model

The City has provided two boundary conditions on the existing watermains on Cobble Hill Drive adjacent to the site. Connection 1 is at Maravista and Cobble Hill Drives and Connection 2 is at Cobble Hill and Chesapeake Crescent. A copy of the boundary conditions is included in **Appendix B**.

A computer model has been created which includes the boundary conditions and watermains on Maravista Drive, Cobble Hill Drive and Chesapeake Crescent. As the daily water demand for the building is greater than 50 cubic meters per day, a second water connection is required per the City Water Design Guidelines. The existing water service on Cobble Hill Drive will be utilized and a second connection is proposed from Maravista Drive. In the water model, the two connections are represented by Nodes 101 and 103 and the full building water demand is applied to both nodes. There are several existing fire hydrants within 45 meters to the building, two on Maravista Drive, one on Cobble Hill Drive and one on Chesapeake Crescent. In the model they are represented by nodes FH-1 and FH-4.

2.3 Proposed Water Plan

The hydraulic model was run under basic day and peak hour scenarios to determine the maximum and minimum pressures at the building represented by nodes 101 and 103. Pressure is determined at the ground floor for basic day (maximum HGL) and at the top floor for peak hour (minimum HGL). The model is run under maximum day plus fire to evaluate the available fire flows at the existing hydrants represented by nodes FH-1 and FH-4.

Results of the hydraulic analysis are included in **Appendix B** and summarized as follows:

Scenario	**Results**
Basic Day (Max HGL)	577.2 – 580.1 kPa
Peak Hour (Min HGL)	339.4 – 340.6 kPa
Maximum Day + Fire	256.1 – 592.6 l/s

A comparison of the results and design criteria is summarized as follows:

Maximum Pressure	The maximum basic day pressure at the building is 580.1 kPa which exceeds the 552 kPa limit, therefore, pressure reducing control will be required for the building.
Minimum Pressure	The lowest pressure during peak hour conditions at the top floor is 339.4 kPa which exceeds the minimum requirement at 276 kPa.
Fire Flow	The minimum design fire flow at the existing hydrants adjacent to the building is 256.1 l/s which exceeds the required fire flow of 250 l/s.

3 WASTEWATER

3.1 Existing Conditions

The proposed retirement complex is located within the Cobble Hill local truck sewer tributary area which will ultimately outlet to the South Nepean Collector. In the interim until the SNC is fully constructed the Coble Hill trunk discharges to the Tartan Pump Station.

To service the overall development, plus upstream lands, a 450 mm diameter Cobble Hill trunk sanitary sewer was constructed along Cobble Hill Drive. The sanitary tributary area plan 3603-501 Rev. #3 illustrates the original townhouse plan, while 3603-501 Rev. #7 illustrates the proposed Seniors Building. The sanitary sewer design sheet (Rev. #4, May 14, 2008) from the updated servicing report for the subdivision is also included in **Appendix C**. As noted previously, a seniors building was included in the design of the existing sanitary sewer system, a service lateral was constructed off the Cobble Hill sewer to the property line to service this site.

3.2 Design Criteria

The sanitary sewers for the subject site will be based on the City of Ottawa design criteria. It should be noted that the sanitary sewer design for this study incorporates the latest City of Ottawa design parameters identified in Technical Bulletin ISTB-2018-01. Some of the key criteria will include the following:

- Commercial/Institutional flow — 28,000 l/ha/d
- Residential flow — 280 l/c/d
- Peaking factor — 1.5 if ICI in contributing area >20%
1.0 if ICI in contributing area <20%
- Infiltration allowance — 0.33 l/s/ha
- Velocities — 0.60 m/s min. to 3.0 m/s max.

The proposed 143 room Seniors Building is estimated to have a design population of (143 x 1.8) = 257.4 people. For the local sewer (Maravista), the peak factor would be 4.0 for a peak population flow of (4 x 257.4 x 280) = 288,288 l/d or 3.336 l/s. When including infiltration allowance for the 0.54 ha site, the peak flow is 3.514 l/s.

3.3 Recommended Wastewater Plan

The orientation of the building has evolved and the sanitary outlet from the building will now be in the northwest corner; to this end the service will be off Maravista Drive where a 200Ø mm sanitary sewer is located. The existing service off Cobble Hill will be abandoned per City Standards.

The on-site sanitary system will consist of a 200 mm PVC sewer lateral extending from the 200mm main in Maravista Drive to a monitoring MH, then extending to the mechanical room of the proposed building. The existing and proposed sewers capacity to accommodate the retirement complex has been verified using the updated criteria noted above. Appendix C contains a copy of the updated sanitary sewer design sheet for Maravista Dr and the subsequent downstream developments. The design sheets for those existing developments have been modified to reflect the new sewer design criteria and the inclusion of this development, demonstrating the downstream system has able capacity to accommodate the development. Appendix C also contains a copy of the updated sanitary drainage area plan 118197-C-400 and the sanitary sewer design sheet can be found in **Appendix C.** Please refer to the site servicing plan 118197-C-100 and details plan 118197-C-101 for further details.

4 STORMWATER SYSTEM

4.1 Existing Conditions

When the site was originally development in 2008, the stormwater management strategy for the development was based on the standard of the day which was to restrict flow into the sewers to a rate of 85l/s/Ha. This included the use of ICD's in street CB's and rear yard CB's to limit flow into the sewer to 85 l/s Ha. The downstream storm sewer system constructed by DCR Phoenix's West Barrhaven development anticipated additional residential development up to Maravista Drive and the storm sewer system within the DCR site was oversized to accommodate the Claridge Lands including blocks 104 and 105. The Claridge and Phoenix lands were accommodated by a temporary stormwater management pond constructed by DCR Phoenix, that facility was recently decommissioned when the City completed the ultimate Stormwater Management Facility located at Strandherd and McKenna-Casey Drive. With an end of pipe Stormwater Management Facility available for this site no on-site quality control is required.

4.2 Design Criteria

The downstream sewer system was designed under the assumption that blocks 104 and 105 would be servicing street front townhouses. The fronting streets were designed to accommodate flow from the frontages with an assumed C=0.6 and the street CB's were restricted to 85 l/s/Ha. The rear yards were assumed a C=0.6 and the rear yard CB would be restricted to 85 l/s/Ha. Since the supporting infrastructure is relatively new and the design parameters used for the design of the downstream sewers is known, City Staff agreed with the servicing strategy where the yards and drives abutting Maravista Drive and Chesapeake Crescent could drain unrestricted to the respective street sewer system provided the post development 100 yr. AC did not exceed the pre-development 100 yr. AC. The remaining areas (roofs and parking lot) would be required to restrict post development 100 yr. flows to the sewer design criteria for the rear yards, 85 l/s/Ha.

The following illustrates the above strategy has been achieved.

Area Draining to Maravista Drive:

- Pre-development 100 yr. AC from IBI storm tributary Drawing 11141-500 (in **Appendix D**), area of 0.06686 Ha with 100 yr. C = (0.6 x 1.25) AC = 0.0501.
- Post development 100 yr. AC for area 1 on tributary area sketch Figure 2, **Appendix D**:
  - grass - 0.0782 x (0.2 x 1.25) = 0.0195
  - asphalt - 0.034 x (1) = 0.034

    0.0535
- Post development 100 yr. AC = 0.0535 is similar to the pre-development 100 yr. AC = 0.0501.

Area Draining to Chesapeake Crescent:

- Pre-development 100 yr. AC, from IBI storm tributary Drawing 3603-LD-500 in **Appendix D**, area 0.1137 100 yr. C = (0.6 x 1.25) AC = 0.08527.
- Post development 100 yr. AC for area 2, from IBI tributary area sketch Figure 2 in **Appendix D**:
  - grass – 0.0182 x (02. X 1.25) = 0.00455
  - asphalt - 0.0332 x (1) = 0.0332

    0.03775

- Post development 100 yr. AC = 0.0377 is less than pre-development 100 yr. AC = 0.085.
- Combined the Post Development AC for two areas discharging to the street have an AC of 0.0912, which is less than the pre-development AC for the combined area of 0.135.

The above has illustrated that two yards fronting Maravista and Chesapeake have similar post development AC as pre-development design criteria, and as such no negative impact is expected on the downstream sewers from these areas.

As noted previously, the remaining portion of the site would be restricted to the pre-development rear yard area discharge limited of 85 l/s/Ha. IBI storm tributary Drawing 3603-LD-500 noted an area of 0.31 Ha discharging to Cobble Hill storm sewer. To this end, the post development 100 yr. flow would be limited to 0.31 x 85 = 26.35 l/s.

The remaining portion of the site consists of roof (areas 3 &4), parking lot (area 6) and ramp to underground parking (area 5). See Tributary Area Plan 118198-500 in **Appendix D**. The ramp area will drain to a trench train which will flow unrestricted to the storm sewer. The ramp area (area 5) is 0.019 Ha and based on Tc10 min and 100 yr. intensity, the Q unrestricted is 9.43 l/s.

To this end, the remaining areas (3, 4 and 6) would be limited to 26.35 l/s – 9.43 l/s = 16.92 l/s.

The building roof will include an amenity area (area 4) of approximately 0.08 Ha. Runoff from the amenity area will flow unrestricted to the site Stormwater Management tank. The remaining area of the roof (area 3) will be controlled with roof top drains similar to Watts adjustable roof drain, see modified rational method storm design sheet in **Appendix D** for required storage and flow rates, which are summarized below:

Controlled Roof (Area 3)

SECTION	FLOW (l/s)	REQ'D STORAGE (m^3)	PROVIDED STORAGE
A	0.94	16.1	17.16
B	0.94	16.9	17.81
C	0.63	10.52	11.28
D	0.63	4.41	5.89
E	0.63	2.54	4.0
F	0.63	1.32	2.6
G	0.63	1.32	1.82
	5.03		

The total flow from the controlled portion of the roof is 5.03 l/s. The remaining allowable flow for the rest of the site (areas 4 and 6) is 16.92 l/s – 5.03 l/s = 11.89 l/s.

The remaining portion of the site is comprised of the uncontrolled roof area (area 4) 0.08 Ha C=0.9, and the parking lot area (area 6) 0.06 Ha C=0.61. The runoff from these areas will be controlled to limit the total combined flow to the Cobble Hill sewer to a peak of 11.89 l/s. Due to the limited surface area available for surface storage, an underground storage tank will be used to provide the necessary storage to accommodate the controlled discharge to the Cobble Hill storm sewer. Since the site will be using underground storage where the volume is calculated using the modified rational method, the flow rate used in the calculation is 50% of the allowable discharge rate or 11.89 ÷ 2 = 5.945 l/s. The volume of storage to accommodate the 100 yr. rainfall event for the 0.08 Ha of roof and 0.05 Ha of parking lot is 52.36 m^3, see modified rational design sheet in Appendix D. To accommodate this volume, a 10.56 m x 4.75 m x 1.4 m (H) underground storage tank is proposed adjacent to the building, see General Plan C-100 in **Appendix B** for storm sewer layout and details. Flow will be restricted by a Tempest ICD in MH3 to 11.89 l/s at a head of 1.13 m. Based on the above servicing strategy, the proposed development can be

accommodated by the existing storm sewers, see updated storm sewer design sheets in **Appendix D**.

The below table summarizes the controlled and uncontrolled release rates, and the required storage volumes and provided storage volumes.

AREA #	AREA (HA)	AVG C	UNCONTROLLED RELEASE RATE* (L/S)	CONTROLLED RELEASE RATE (L/S)	REQUIRED STORAGE (M^3)	PROVIDED STORAGE (M^3)
1	0.11	0.41	27.98			
2	0.15	0.31	28.85			
3	0.12	0.9		5.03	53.11	60.56
4&6	0.13	0.77		11.89	52.36	60.19
5	0.02	0.84	10.42			

* 100 yr design storm T_c=10 min

5 SEDIMENT AND EROSION CONTROL PLAN

5.1 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
- filter cloths will remain on open surface structure such as manholes and silt bags for catchbasins until these structures are commissioned and put into use;
- silt fence will be installed along the perimeter of the work area.

5.2 Trench Dewatering

Although little groundwater is expected 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.

5.3 Bulkhead Barriers

At the first manhole constructed in the site plan, 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 municipal sewers. The bulkhead will be inspected and maintained including periodic sediment removal as needed.

5.4 Seepage Barriers

The presence of road side ditches along Strandherd Road and the proximity of the Foster Drain necessitates the installation of seepage barriers. These barriers will consist of both the Light Duty Straw Bale Barrier as per OPSD 219.100 or the Light Duty Silt Fence Barrier as per OPSD 219.110 and will be installed in accordance with the attached sediment and erosion control Drawing 118197-C-900 included in **Appendix E**. 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.

5.5 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 should be covered in some fashion to prevent sediment from entering the minor storm sewer system. Until landscaped areas are sodded or until parking lots are asphalted and curbed, all onsite catchbasins and manholes

and directly adjacent offsite street CB's will be outfitted with a geotextile sediment bag. These will stay in place and be maintained during construction until it is appropriate to remove same.

5.6 Stockpile Management

During construction of any development similar to that proposed by Claridge both imported and native soils are stockpiled. Mitigative measures and proper management to prevent these materials entering the sewer systems is needed.

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

The existing topography for the site is very flat with no defined drainage patterns. Consequently surface runoff in any direction is very slow. Contamination of the environment as a result of stockpiling of imported construction materials is generally not a concern. These materials are quickly used and the mitigative measures stated previously, especially the ½ diameter sewer bulkheads and filter fabric in catchbasins and manholes help to manage these concerns.

The parking lot granular materials are not stockpiled on site. They are immediately placed in the roadway and have little opportunity of contamination.

5.7 Catchbasins

All catchbasins within the site plan, either landscape or parking lot, will be constructed with minimum 600 mm deep sumps. These sumps trap pollutants, sand, grit and debris which can be mechanically removed prior to being flushed into the minor pipe system. Both landscape and parking lot catchbasins will be to OPSD 705.01.

6 CONCLUSIONS

Municipal water, wastewater and stormwater systems required to accommodate the proposed development are available to service the Retirement Complex. Prior to construction, existing sewers are to be CCTV inspected to assess sewer condition.

This report has demonstrated sanitary and storm flows from and water supply to the Retirement Complex can be accommodated by the existing infrastructure. Also, the proposed servicing has been designed in accordance with MOE and City of Ottawa current level of service requirements.

The use of lot level controls, conveyance controls and end of pipe controls outlined in the report will result in effective treatment of surface stormwater runoff from the site. Adherence to the sediment and erosion control plan during construction will minimize harmful impacts on surface water.

Final detail design will be subject to governmental approval prior to construction, including but not limited to the following:

- Commence Work Order: City of Ottawa
- ECA (sewers): MOECP
- Watermain approval: City of Ottawa
- Commence Work Order (utilities): City of Ottawa

This report has been prepared in accordance with City of Ottawa Design Guidelines and a copy of the Development Servicing Study Checklist is included in **Appendix E**.

Report prepared by:

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

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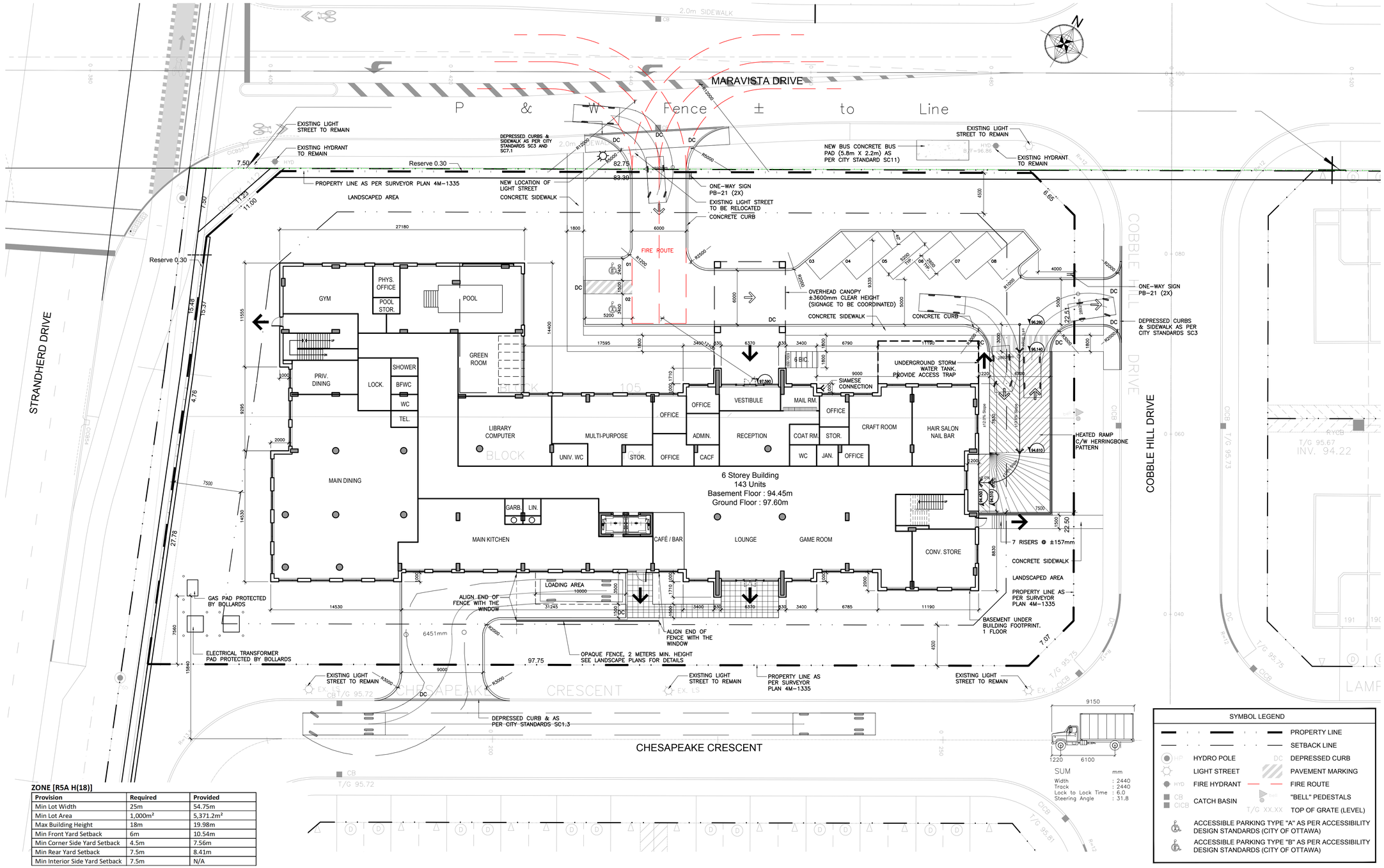
APPENDIX A



ZONE [R5A H(18)]

Provision	Required	Provided
Min Lot Width	25m	54.75m
Min Lot Area	1,000m²	5,371.2m²
Max Building Height	18m	19.98m
Min Front Yard Setback	6m	10.54m
Min Corner Side Yard Setback	4.5m	7.56m
Min Rear Yard Setback	7.5m	8.41m
Min Interior Side Yard Setback	7.5m	N/A

STATISTICS - WESTPOINTE RETIREMENT COMMUNITY

November 29 2018

Floor	Gross Floor Area (s.m.)	Gross Floor Area (s.f.)	Gross Construction Area (s.m.)	Gross Construction Area (s.f.)	Assisted Care	Studio	Studio suite	1 br	1 br + den	2 br	Total units
1st Basement	320,6	3451	2017,7	21718							
TOTAL UNDER GROUND	320,6	3451	2017,7	21718							
Ground Floor	0	0	2021,5	21759							
2nd floor (AC Cognitive)	1237,5	13320	1939,6	20878	32						32
3rd floor (AC Physical)	1208,0	13003	1939,6	20878	30						30
4th floor	1489,7	16035	1874,1	20173		3	5	12	5	2	27
5th floor	1489,7	16035	1874,1	20173		3	5	12	5	2	27
6th floor	1478,7	15917	1874,1	20173		4	5	11	5	2	27
Mech. Penthouse	0	0	260,3	2802							
TOTAL ABOVE GROUND	6903,6	74310	11783,3	126834							
TOTAL	7224,2	77761	13801	148553	62	19	15	35	15	6	143
PERCENTAGE MIX					43,4%	12,3%	18,5%	43,2%	18,5%	7,4%	
GRAND TOTAL					62			81			143

AREA OF SITE:	±5371.2 sq.m.
GROSS FLOOR AREA PROPOSED :	±7224.2 sq.m.
BASEMENT G.F.A.:	±320.6 sq.m.
GROUND FLOOR / G.F.A.:	±0 sq.m.
GROUP C RET. HOME G.F.A. (2nd - 6th FL.)	±6903.6 sq.m.
PRIVATE AMENITY AREA (G.F.A.)	±26.7 sq.m.
COMMUNAL AMENITY AREA (G.F.A.)	±1315.9 sq.m. ***
MED. HEALTH OR PERS. SERV. (G.F.A.)	±90 sq.m.
SITE COVERAGE:	±37.6 %
GROUND PARKING AREA:	±15.7 %
LANDSCAPED AREA (EXCL. PARKING):	±46.7 %
PARKING STALLS:	42 INTERIOR 8 EXTERIOR
PROVIDED BICYCLE STALLS:	30 INTERIOR 6 EXTERIOR
NUMBER OF FLOORS & BUILDING HEIGHT:	6 FLOORS + MECH. ± 19.98 m
DWELLING UNITS :	±143

*** EXCLUDES ROOF TOP AMENITY AREAS

- FOR EXISTING SITE CONDITIONS, SEE SURVEY PLAN BY ANNIS O'SULLIVAN VOLLEBEKK LTD. SUBMITTED SEPARATELY.
- FOR NEW GRADES AND SITE SERVICES, SEE CIVIL ENGINEERING PLAN BY IBI GROUP, SUBMITTED SEPARATELY.
- FOR PROPOSED VEGETATION AND LANDSCAPE INFORMATION, SEE LANDSCAPE ARCHITECTURE PLAN BY JAMES B. LENNOX & ASSOCIATES SUBMITTED SEPARATELY.

NUMBER OF SUITES REQUIRED TO BE BARRIER-FREE

- ON FLOORS 2 & 3, THERE ARE RESPECTIVELY 32 & 30 UNITS. 4 UNITS PER FLOOR ARE REQUIRED TO BE BARRIER-FREE.
- ON FLOORS 4 TO 6, THERE ARE RESPECTIVELY 27 UNITS PER FLOOR. 5 UNITS PER FLOOR ARE REQUIRED TO BE BARRIER-FREE.

ZONING BY-LAW PARKING REQUIREMENT FOR RETIREMENT HOME

	REQUIREMENT	PROPOSED
0.25 per unit	0.25 x 143 = 36	42 interior + 7 exterior
1 per 100 m² of GFA used for medical or personal services	90 m² = 1	1 exterior

ZONING BY-LAW BICYCLES PARKING REQUIREMENT FOR RETIREMENT HOME

	REQUIREMENT	PROPOSED
0.25 per unit	0.25 x 143 = 36	30 int. + 6 ext.

NOTE :
- SNOW STORAGE : SNOW WILL BE HAULED OFF SITE.

SYMBOL LEGEND

- PROPERTY LINE
- SETBACK LINE
- HYDRO POLE
- DEPRESSED CURB
- LIGHT STREET
- PAVEMENT MARKING
- FIRE HYDRANT
- FIRE ROUTE
- CATCH BASIN
- "BELL" PEDESTALS
- T/G XX.XX TOP OF GRATE (LEVEL)
- ACCESSIBLE PARKING TYPE "A" AS PER ACCESSIBILITY DESIGN STANDARDS (CITY OF OTTAWA)
- ACCESSIBLE PARKING TYPE "B" AS PER ACCESSIBILITY DESIGN STANDARDS (CITY OF OTTAWA)

0 1 2 5 10 m

NOTES GÉNÉRALES General Notes

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3. Veuillez aviser l'architecte de toute dimension erreur etou divergences entre ces documents et ceux des autres professionnels. / The architect must be notified of all errors, omissions and discrepancies between these documents and those of other professionals.

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TRANSPORTATION Transportation
IBI Group
333, Preston Street, Suite 400, Ottawa ON K1S 5N4
T 613 225 1311 ibigroup.com

ARCHITECTURE DE PAYSAGE Landscape architect
James B. Lennox & Associates
361, Hinton Avenue South, Ottawa ON K1Y 1A6
T 613 722 5168 jbla.ca

ARPENTEUR Surveyor
Annis O'Sullivan Vollebekk Ltd.
14, Concourse Gate, Suite 500, Nepean ON K2E 7S6
T 613 727 0850 nepean@aovltd.com

CIVIL Civil
IBI Group
333, Preston Street, Suite 400, Ottawa ON K1S 5N4
T 613 225 1311 ibigroup.com

ARCHITECTES Architect
NEUF architect(e)s SENCRL
630, boul. René-Lévesque O. 32e étage, Montréal QC H3B 1S6
T 514 847 1117 NEUFarchitectes.com

SCEAU Seal

ONTARIO ASSOCIATION OF ARCHITECTS
ANDRE COUSINEAU
LICENSE
4544

NEUF
ARCHITECT(E)S

CLIENT Client
RIVERSTONE RETIREMENT COMMUNITIES
CLARIDGE HOMES

OUVRAGE Project
164 Maravista Drive
Westpointe Retirement Home

EMPLACEMENT Location
Ottawa

NO PROJET No.
11864

NO	RÉVISION	DATE (aa.mm.jj)
01	Site Plan Approval	2008.03.26
02	Site Plan Approval	2010.02.04
03	Information	2010.02.04
04	Information	2010.02.16
05	Information	2010.03.16
06	Information	2012.01.25
07	Client's comments	2018.08.29
08	Client's comments	2018.09.05
09	Client's comments	2018.09.06
10	Coordination	2018.09.12
11	Coordination	2018.09.19
12	Client's comments	2018.11.06
13	Coordination	2018.11.27
14	Information	2018.12.04
15	Site Plan Application	2018.12.19
16	Coordination	2019.03.29
17	Revision to Site Plan Application	2019.04.16
18	Revision to Site Plan Application	2019.07.04

DESSINÉ PAR Drawn by: PV
VÉRIFIÉ PAR Checked by: LH

DATE (aa.mm.jj): November 2007
ÉCHELLE Scale: 1:200

TITRE DU DESSIN Drawing Title
Site Plan at Ground Floor

RÉVISION Revision: 18
NO. DESSIN Dwg Number: A050

D07-12-18-0196

I:\P_11800\11864\CAD\11864_A050_Site Plan_20190621.dwg

From: Bernier, John
Sent: July 16, 2018 11:19 AM
To: Vincent Denomme
Cc: jim.burghout@claridgehomes.com
Subject: 24 Chesapeake Crescent - Preconsult

Good morning,

It was nice meeting you for a pre-application consultation (PC2018-0185) on Jun 21st, 2017. The proposal is the continuation from a previous Site Plan Application (D07-12-08-0076) submitted in 2008 for a retirement home at 24 Chesapeake Cres & 164 Maravista Dr. As you noted during the meeting, the project was put on hold on your end after receiving initial comments. The new design includes an additional storey in height and some changes to the site entrance area.

Planning & Design Comments:

1. As the proposal is over 18m, a Minor Variance will be required for the height of the building. Please contact the Committee of Adjustment Planner, Max Walker (Max.Walker@ottawa.ca x23947) to discuss this further.
2. Increase landscaping on entrance loop.
3. Update parking rates and include visitor and accessible parking numbers.
4. Indicate visitor parking spaces.
5. Remove landscaping from Site Plan and include this information on the Landscape Plan.
6. Show nearest fire hydrant on Site Plan.
7. A new Phase One ESA will be required since more than 18 months has passed, and the recommended update period of five years has been exceeded.
8. Please refer to the Accessibility Design Guidelines for guidance on ramp design and parking recommendations.
9. In your design brief please discuss how the urban design guidelines found in the South Nepean Urban Area (Areas 9 & 10) Secondary Plan are being met. Specifically, how is the site's corner achieving these objectives.
10. As there are streets on all sides of the building, please ensure that material and design of all facades respects this condition. West and East elevations are largely blank walls with little interest.
11. Please indicate material proposed on elevation drawings.
12. Attached are outstanding comments from previous the circulation.
13. Include a USB or CD with PDF copies of all plans and report.

Transportation:

14. Follow Traffic Impact Assessment Guidelines – Screening form to start, full Traffic Impact Assessment if any of the triggers on the screening form are satisfied.
    1. Start this process asap.
    2. Applicant advised that their application will not be deemed complete until the submission of the draft step 1-4, including the functional draft RMA package (if applicable) and/or monitoring report (if applicable).

15. Noise Impact Studies required for the following:
    1. Road
    2. Stationary (if there will be any exposed mechanical equipment due to the proximity to neighbouring noise sensitive land uses)
16. On site plan:
    1. Show all details of the roads abutting the site up to and including the adjacent curb; include such items as pavement markings, accesses and/or sidewalks.
    2. Turning templates will be required for all access showing the largest vehicle to access the site; required for internal movements and at all access (entering and exiting and going in both directions).
    3. Show all curb radii measurements; ensure that all curb radii are reduced as much as possible
    4. Show lane/aisle widths.
17. Recommended that the sidewalk be extended to connect to the front entrance.
18. Please include the intent of each access (one-way, two-way). Ensure that you are meeting the policies found within the Private Approach By-law, specifically Section 25.
19. For more information on this please contact Rosanna Baggs (Rosanna.Baggsk@ottawa.ca / ext. 26388).

Engineering Comments:

20. Servicing will be required to conform to the original subdivision design completed by IBI as part of the West Pointe Village Subdivision;
21. Storm, sanitary and water stubs have been provided off Cobble Hill Drive for servicing of the Block;
22. Stormwater runoff coefficients have been assigned as part of the design of the original subdivision;
23. Block was shown as an area of 0.54 ha and institutional for the purposes of calculating sanitary flows as part of the design of the original subdivision;
24. Subdivision watermain was designed to provide required flows for the development;
25. Please provide a request for watermain boundary conditions at your earliest convenience.
26. Should you have any questions or require additional information, please contact Jeff Shillington directly at (613) 580-2424, x16960 or by email at Jeff.Shillington@ottawa.ca)

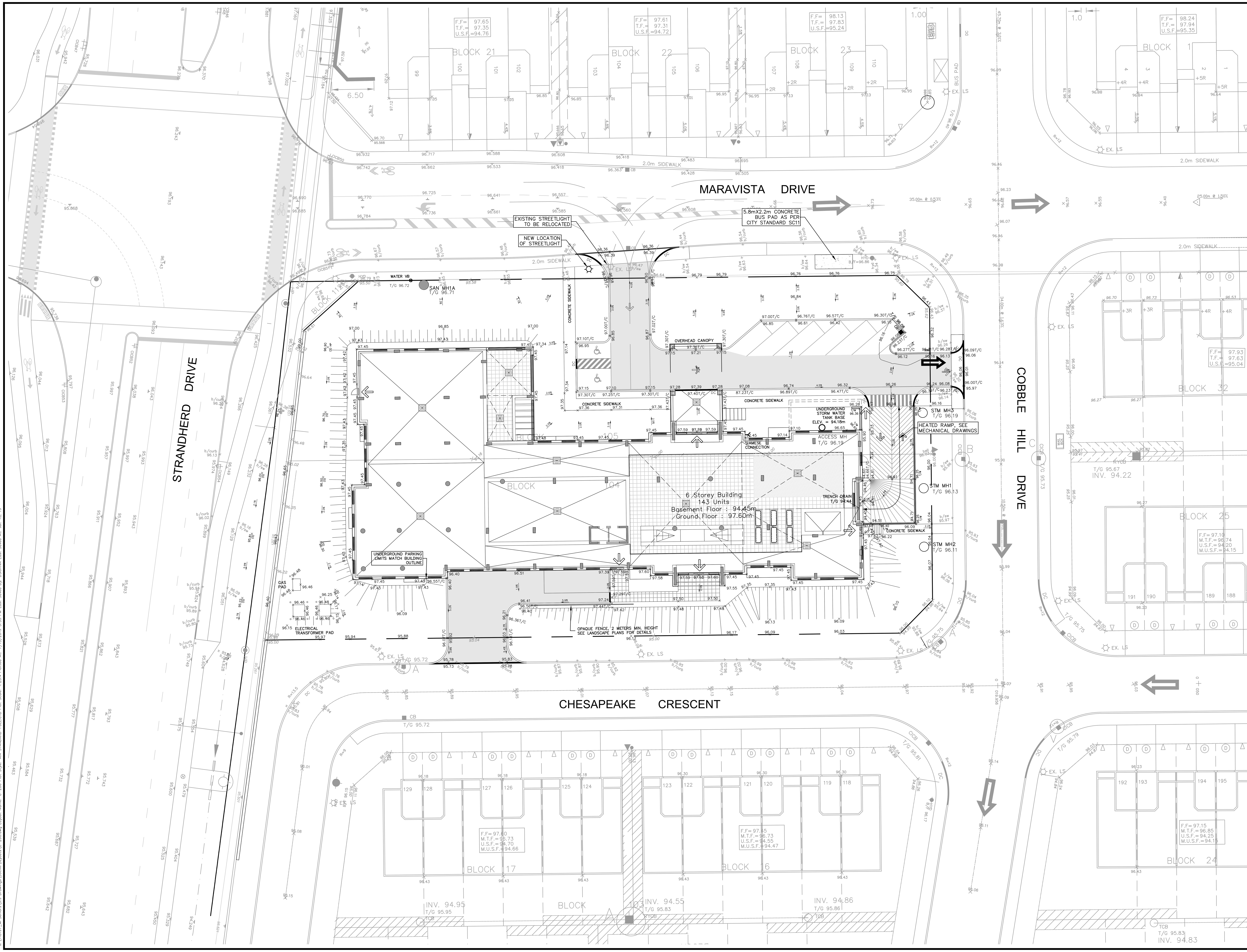
The proposed application will be a Site Plan Control Application (Revision - Manager Approval, Public Consultation), which costs **$20,287.13** (detail regarding fees)

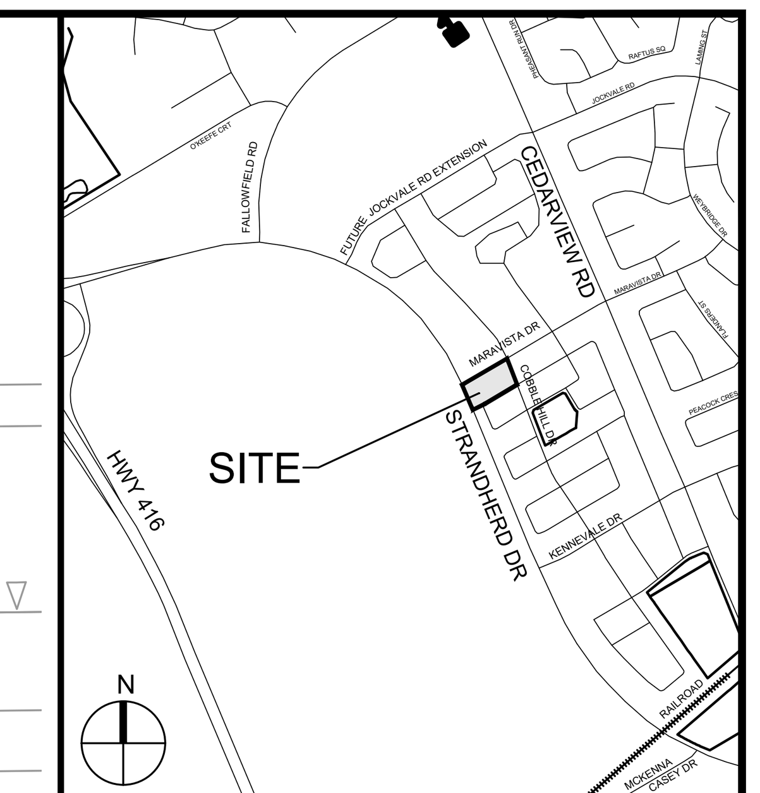
Best regards,

John Bernier
Planner
Development Review South
City of Ottawa | Ville d'Ottawa

☎ 613.580.2424 ext/poste. 21576
ottawa.ca/planning / ottawa.ca/urbanisme

'





KEY PLAN

N.T.S.

NOTES:

1. SEE DRAWING C-101 FOR ADDITIONAL DETAILS, NOTES AND SECTIONS.

No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9			
8			
7			
6			
5			
4			
3	REVISED AS PER CITY COMMENTS AND NEW SITE PLAN	DGY	2019:07:15
2	REVISED AS PER CITY COMMENTS AND NEW SITE PLAN	DGY	2019:04:15
1	ISSUED FOR SPA	DGY	2018:12:12

GÉOTECHNIQUE Geotechnical
Paterson Group
154, Colonnade Road South, Ottawa ON K2E 7J5
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ARCHITECTURE DE PAYSAGE Landscape architect
James B. Lennox & Associates
361, Hinton Avenue South, Ottawa ON K1Y 1A6
T 613 722 5168 jbla.ca

ARPENTEUR Surveyor
Annis O'Sullivan Vollebekk Ltd.
14, Concourse Gate, Suite 500, Nepean ON K2E 7S6
T 613 727 0850 nepean@aovltd.com

ARCHITECTES Architect
NEUF architect(e)s SENCRL
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T 514 847 1117 NEUFarchitectes.com

CLARIDGE HOMES
210, Gladstone Avenue Suite 2000, Ottawa ON K2P 0Y6
T 613 233 6030 claridgehomes.com

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

Project Title
WEST POINTE VILLAGE RETIREMENT COMPLEX
164 MARAVISTA DRIVE, OTTAWA, ON.

LICENSED PROFESSIONAL ENGINEER
D. G. Yannoulopoulos
2019/07/15
PROVINCE OF ONTARIO

Drawing Title
SITE GRADING PLAN

Scale 1:250

Design	Date
RM	SEPT, 2018
Drawn	Checked
DPS	DGY
Project No.	Drawing No.
118197	C-200

CITY PLAN No.#####

CITY FILE No. D07-12-18-0196

patersongroup **memorandum**

consulting engineers

re: **Grading Plan Review**
Barrhaven Retirement Community
164 Maravista Drive, Ottawa, On

to: Claridge Homes - **Mr. Vincent Denomme** - vincent.denomme@claridgehomes.com

cc: IBI Group - **Mr. Demetrius Yannoulopoulos** - Dyannoulopoulos@ibigroup.com

date: July 31, 2019

file: PG4557-MEMO.01 Revision 3

Further to your request, Paterson Group (Paterson) prepared the current memorandum to provide an updated grading plan review for the proposed multi-storey retirement home located on 24 Chesapeake Crescent, in the City of Ottawa. This report should be read in conjunction with our Report PG4557-1 dated August 1, 2018.

Grading Plan Review

Paterson Group has reviewed the following grading plan prepared IBI Group for the aforementioned site:

- ❑ Project No. 118197 - Drawing No. C-200 - Site Grading Plan, Revision 3 dated July 15, 2019.

Based on our review of the above noted grading plan, the majority of the proposed grading is in compliance with our permissible grade raise restrictions. However, minor exceedences were found along the north and northwestern corner of the proposed building. It should be noted that the building is proposed to be constructed over a berm with no significant fill along the perimeter of the building. Also, a basement level is proposed to occupy the entire footprint of the proposed building. It should be noted that the proposed basement level will provide a pressure relief to the underlying soils. Therefore, the proposed grade raises for the aforementioned development are acceptable from a geotechnical perspective. Therefore, lightweight fill is not required from a geotechnical perspective.

For design purposes, the bearing resistance value at SLS of **100 kPa** and a factored bearing resistance value at ULS of **125 kPa** is considered acceptable from a geotechnical perspective for the proposed buildings. These values assume a 0.5 m long term groundwater lowering. Footings designed with the provided bearing resistance value at SLS should have a total and differential settlement of 25 and 20 mm, respectively.

The bearing surface should be verified at the time of construction to determine the appropriate serviceability resistance value.

We trust this memo report is satisfactory for your present requirements.

Best Regards,

Paterson Group Inc.

Faisal I. Abou-Seido, P.Eng

APPENDIX B

BOUNDARY CONDITIONS

Boundary Conditions For: Barrhaven Retirement Community

Date of Boundary Conditions: 2019-Apr-16

Provided Information:

Scenario	Demand	
	L/min	L/s
Average Daily Demand	50.4	0.8
Maximum Daily Demand	126.0	2.1
Peak Hour	277.2	4.6
Fire Flow #1 Demand	10,000	166.7
Fire Flow #2 Demand	15,000	250.0

Number Of Connections: 1

Location:

BOUNDARY CONDITIONS

Results:

Connection #: 1

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	155.4	82.7
Peak Hour	148.3	72.8
Max Day Plus Fire (10,000) L/min	143.0	65.3
Max Day Plus Fire (15,000) L/min	137.8	58.1

[1]Elevation: **96.33 m**

Connection #: 2

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	155.4	83.3
Peak Hour	148.1	73.1
Max Day Plus Fire (10,000) L/min	139.8	61.5
Max Day Plus Fire (15,000) L/min	131.9	50.4

[1]Elevation: **95.90 m**

Notes:

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

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

2) Click or tap here to enter text.

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.

BOUNDARY CONDITIONS

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

IBI GROUP
333 PRESTON STREET
OTTAWA, ON
K1S 5N4

WATERMAIN DEMAND CALCULATION SHEET

PROJECT : BARRHAVEN RETIREMENT COMMUNITY
LOCATION : 24 CHESAPEAKE CRESCENT & 164 MARAVISTA DRIVE

FILE: 118197.5.7
DATE PRINTED: 23-Apr-19
DESIGN: LE

NODE	RESIDENTIAL UNITS SF	RESIDENTIAL UNITS SD & TH	RESIDENTIAL UNITS APT	POP'N	NON-RESIDENTIAL INDTRL (ha.)	NON-RESIDENTIAL COMM. (ha.)	NON-RESIDENTIAL INST. (ha.)	AVERAGE DAILY DEMAND (l/s) Res.	AVERAGE DAILY DEMAND (l/s) Non-res.	AVERAGE DAILY DEMAND (l/s) Total	MAXIMUM DAILY DEMAND (l/s) Res.	MAXIMUM DAILY DEMAND (l/s) Non-res.	MAXIMUM DAILY DEMAND (l/s) Total	MAXIMUM HOURLY DEMAND (l/s) Res.	MAXIMUM HOURLY DEMAND (l/s) Non-res.	MAXIMUM HOURLY DEMAND (l/s) Total	FIRE DEMAND (l/min)
101			143	257				1.04	0.00	1.04	2.61	0.00	2.61	5.73	0.00	5.73	15,000

ASSUMPTIONS

RESIDENTIAL DENSITIES
- Single Family (SF) 3.4 p / p / u
- Semi Detached (SD) & Townhouse (TH) 2.7 p / p / u
- Apartment (APT) 1.8 p / p / u
- Other 66 u / p / ha

AVG. DAILY DEMAND
- Residential 350 l / cap / day
- ICI 50,000 l / ha / day

MAX. DAILY DEMAND
- Residential 875 l / cap / day
- ICI 75,000 l / ha / day

MAX. HOURLY DEMAND
- Residential 1,925 l / cap / day
- ICI 135,000 l / ha / day

FIRE FLOW
- SF, SD, TH & ST 10,000 l / min
- ICI 15,000 l / min

Fire Flow Requirement from Fire Underwriters Survey - Barrhaven Retirement Community

Building

	2005m² x 6	
Floor Area of Largest building	12,030	m^2
Total Floor Area	12,030	m^2

$F = 220C\sqrt{A}$

C	0.8		C =	1.5 wood frame
A	12,030	m^2		1.0 ordinary
				0.8 non-combustible
F	19,304	l/min		0.6 fire-resistive
use	19,500	l/min		

Occupancy Adjustment

		-25%	non-combustible
		-15%	limited combustible
Use	-15%	0%	combustible
		+15%	free burning
Adjustment	-2925 l/min	+25%	rapid burning
Fire flow	16,575 l/min		

Sprinkler Adjustment

		-30%	system conforming to NFPA 13
		-50%	complete automatic system
Use	-30%		
Adjustment	-4973 l/min		

Exposure Adjustment

Building Face	Separation	Charge
north	37	5%
east	37	5%
south	29	10%
west	60+	0%
Total		20%
Adjustment		3,315 l/min
Fire flow		14,918 l/min
Use		**15,000 l/min**
		250 l/s

Separation	Charge
0 to 3m	+25%
3.1 to 10m	+20%
10.1 to 20m	+15%
20.1 to 30m	+10%
30.1 to 45m	+5%

NEUF

ARCHITECT(E)S

April 17th, 2019

Att.:

To whom it may concern
City of Ottawa

Subject: **164 Maravista Drive – Non-combustible Construction**
Ref: Nº 11864

As per the Fire Underwriters Survey's definition, the structural members of the building that will be located on the afore mentioned address is to be of non-combustible construction.

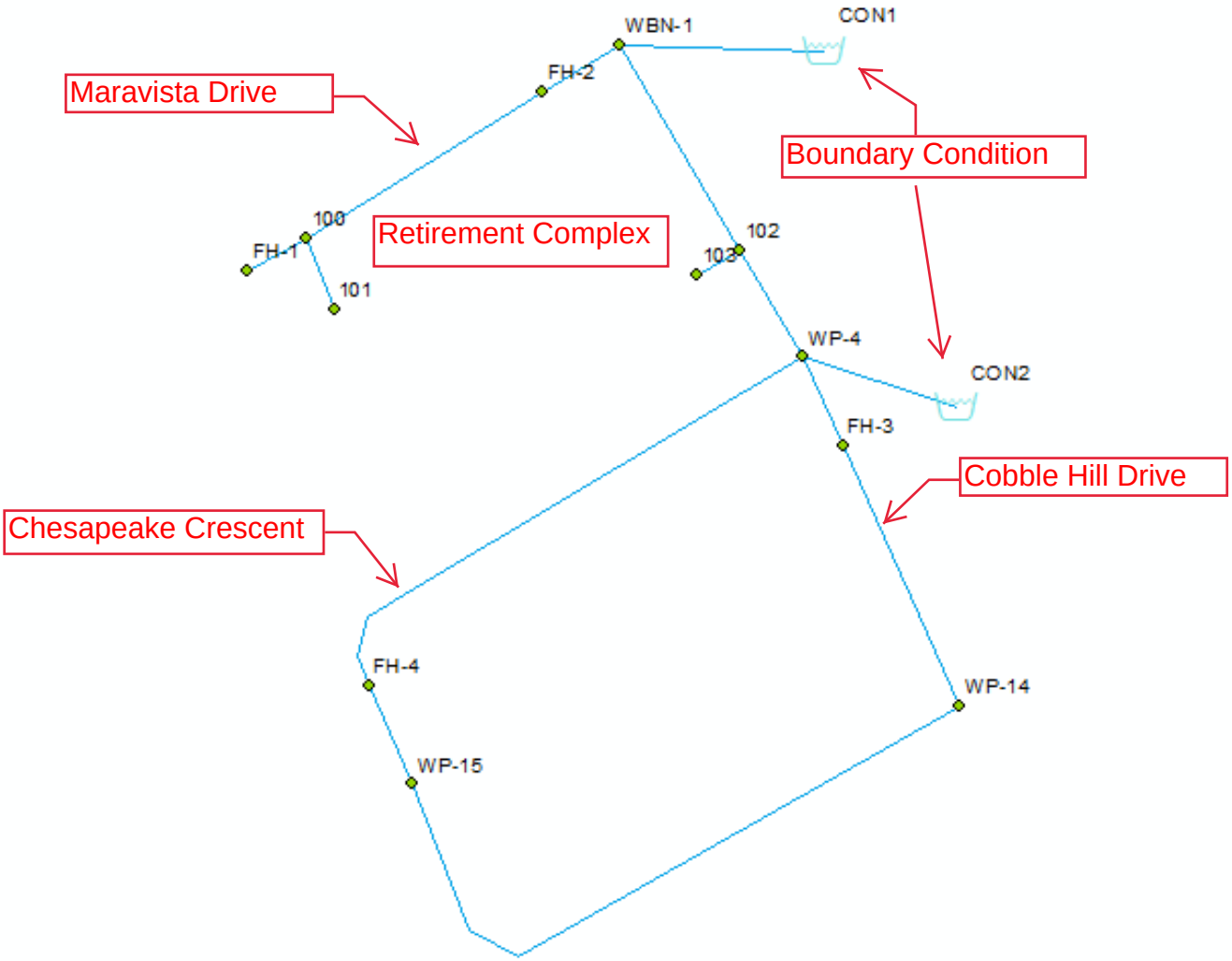
ONTARIO ASSOCIATION OF ARCHITECTS
LUCIEN HADDAD
LICENCE
8286

Lucien Haddad, Partner Architect
NEUF architect(e)s

Cc: Lance Erion, IBI
Demetrius Yannoulopoulos, IBI
Shawn Malhotra, Claridge Homes
Pascal Vendette, NEUF Architect(e)s

NEUFarchitectes.com
T 514 394 1440 F 514 205 6641
630, René-Lévesque O., 32e étage, Montréal (QC) H3B 4Z9
47 Clarence Street, Suite 406, Ottawa (ON) K1N 9K1

WATER MODEL SCHEMATIC



Basic Day (Max HGL) - Junction Report

		ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (kPa)
1	☐	100	0.00	96.50	155.40	577.16
2	☐	101	1.04	96.50	155.40	577.15
3	☐	102	0.00	96.20	155.40	580.11
4	☐	103	1.04	96.20	155.40	580.10
5	☐	FH-1	0.00	96.50	155.40	577.16
6	☐	FH-2	0.00	96.50	155.40	577.17
7	☐	FH-3	0.00	96.05	155.40	581.58
8	☐	FH-4	0.00	96.15	155.40	580.60
9	☐	WBN-1	0.15	96.50	155.40	577.17
10	☐	WP-14	0.20	95.80	155.40	584.03
11	☐	WP-15	0.22	96.15	155.40	580.60
12	☐	WP-4	0.66	96.05	155.40	581.58

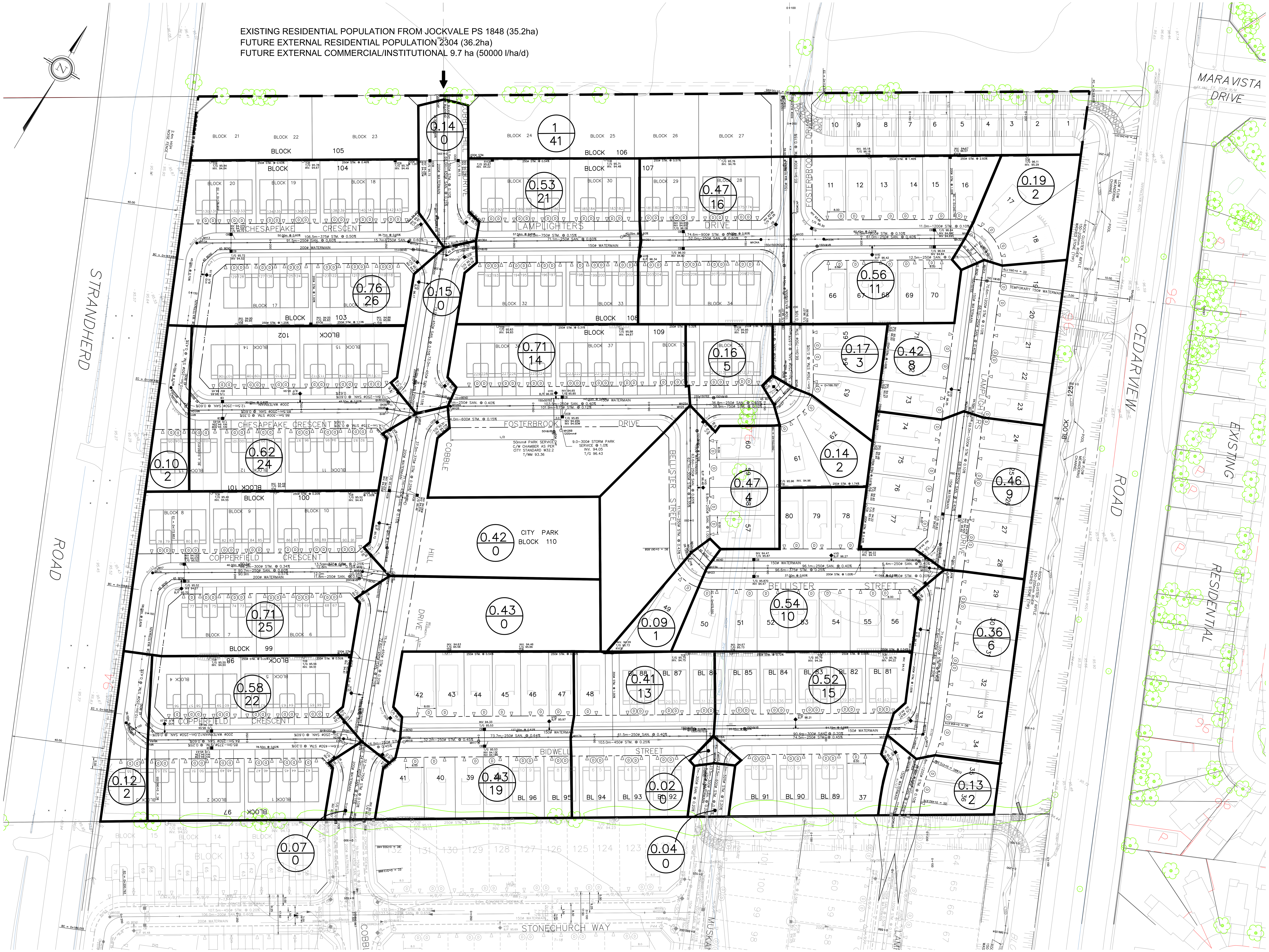
Peak Hour (Min HGL) - Junction Report

		ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (kPa)
1	☐	100	0.00	96.50	148.27	507.35
2	☐	101	5.73	113.50	148.25	340.57
3	☐	102	0.00	96.20	148.14	509.01
4	☐	103	5.73	113.50	148.13	339.36
5	☐	FH-1	0.00	96.50	148.27	507.35
6	☐	FH-2	0.00	96.50	148.29	507.50
7	☐	FH-3	0.00	96.05	148.10	510.05
8	☐	FH-4	0.00	96.15	148.10	509.06
9	☐	WBN-1	0.84	96.50	148.29	507.55
10	☐	WP-14	1.08	95.80	148.10	512.49
11	☐	WP-15	1.20	96.15	148.10	509.06
12	☐	WP-4	3.61	96.05	148.10	510.06

Max Day + Fire - Fireflow Design Report

		ID	Total Demand (L/s)	Available Flow at Hydrant (L/s)	Critical Node ID	Critical Node Pressure (kPa)	Critical Node Head (m)	Design Flow (L/s)	Design Pressure (kPa)	Design Fire Node Pressure (kPa)
1	☐	FH-1	250.00	256.08	FH-1	139.96	110.78	256.08	139.96	139.96
2	☐	FH-2	250.00	592.68	FH-1	139.93	110.78	592.64	139.96	140.00
3	☐	FH-3	250.00	592.58	FH-3	139.96	110.33	592.58	139.96	139.97
4	☐	FH-4	250.00	316.94	FH-4	139.96	110.43	316.94	139.96	139.96
5	☐	WP-14	133.79	357.68	WP-14	139.96	110.08	357.68	139.96	139.96
6	☐	WP-15	133.85	307.44	WP-15	139.96	110.43	307.44	139.96	139.96

APPENDIX C



LEGEND:

SANITARY

0.35 / 7 — AREA IN HECTARES / NUMBER OF UNITS

POPULATION

SINGLE FAMILY = 3.4ppu
TOWNHOUSE = 2.7ppu

No.	REVISIONS	By	Date
13			
12			
11			
10			
9			
8			
7			
6			
5			
4			
3	REVISED AS PER CITY COMMENTS		06/09/28
2	REVISED AS PER CITY COMMENTS	DGY	06/08/31
1	REVISE AS PER CITY COMMENTS	DGY	06/07/18
0	ISSUED FOR REVIEW	DGY	06/04/18

CLARIDGE HOMES

IBI GROUP
1770 Woodward Drive
Suite 100
Ottawa, Ontario
Canada K2C 0P8
Tel (613)225-1311
FAX (613)225-9868

Project Title

CLARIDGE HOMES
WEST POINTE VILLAGE

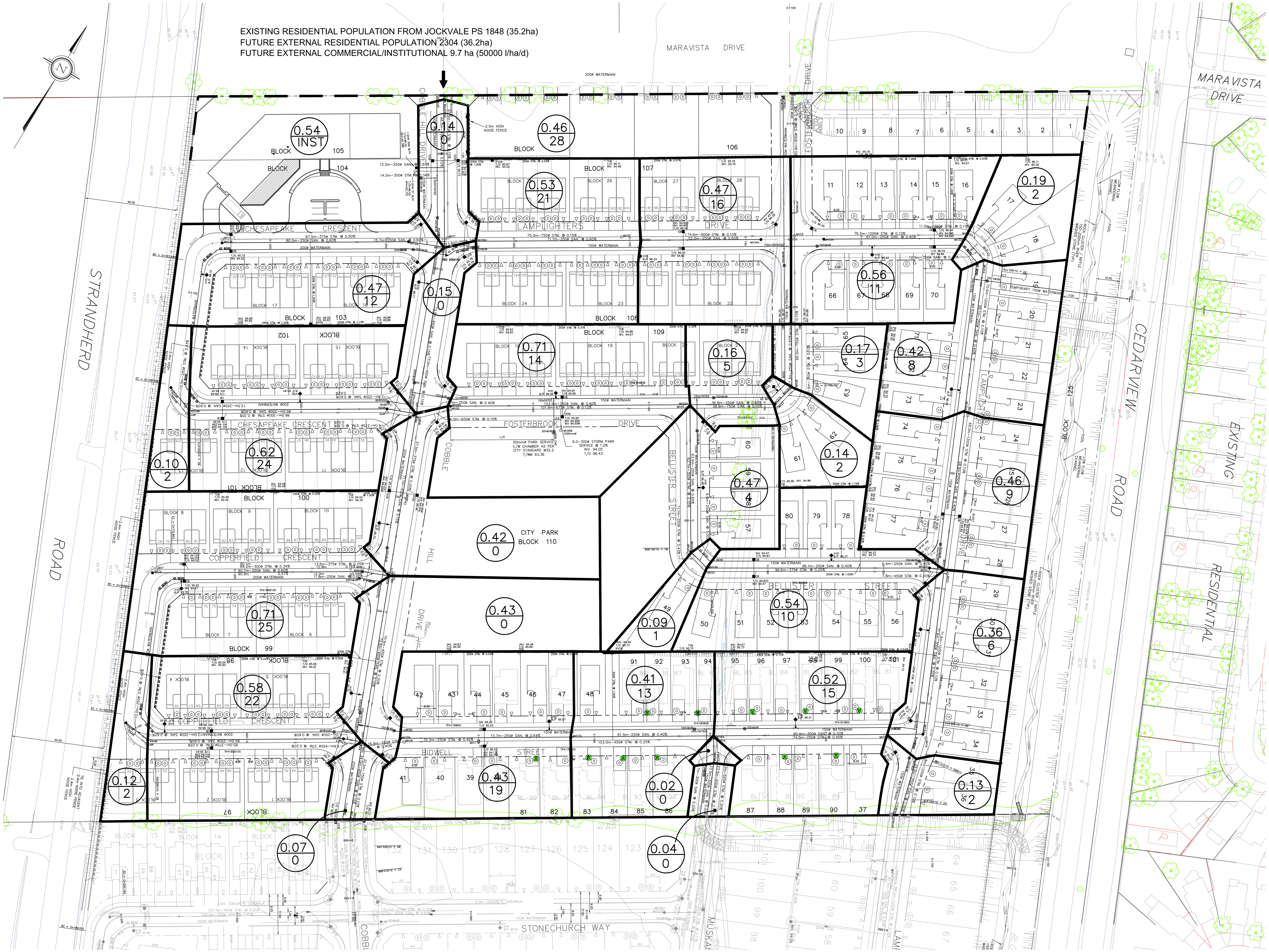
LICENSED PROFESSIONAL ENGINEER
D. G. Yannoulopoulos
PROVINCE OF ONTARIO

Drawing Title

SANITARY DRAINAGE
AREA PLAN

Scale 1:750

Design	D.G.Y.	Date	APR. 2006
Drawn	D.P.S.	Checked	D.G.Y.
Project No.	3603-LD	Drawing No.	501



LEGEND:

SANITARY

0.35 — AREA IN HECTARES

7 — NUMBER OF UNITS

POPULATION

SINGLE FAMILY = 3.4ppu
TOWNHOUSE = 2.7ppu

⊗ SERVICE TO BE REMOVED WATERMAIN BLANKED AT MAIN

No.	REVISIONS	By	Date
13			
12			
11			
10			
9			
8			
7	REVISED AS PER CITY COMMENTS	DGY	08/10/08
6	REVISE BLOCK AND LOT NO'S	DGY	08/05/02
5	ADD RETIREMENT HOME	DGY	08/01/29
4	DELETE TOWNS BLK 104–105 FOR RETIREMENT HOME	DGY	07/10/01
3	REVISED AS PER CITY COMMENTS	DGY	06/09/28
2	REVISED AS PER CITY COMMENTS	DGY	06/08/31
1	REVISE AS PER CITY COMMENTS	DGY	06/07/18
0	ISSUED FOR REVIEW	DGY	06/04/18

CLARIDGE HOMES

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

Project Title

CLARIDGE HOMES
WEST POINTE VILLAGE

LICENSED PROFESSIONAL ENGINEER
D. G. Yannoulopoulos
PROVINCE OF ONTARIO

Drawing Title

SANITARY DRAINAGE AREA PLAN

Scale 1:750

Design	D.G.Y.	Date	APR. 2006
Drawn	D.P.S.	Checked	D.G.Y.
Project No.	3603-LD	Drawing No.	501

CCL/IBI
1770 WOODWARD DRIVE
OTTAWA, ONTARIO
K2C OP8

SANITARY SEWER DESIGN SHEET

PROJECT : WEST POINTE VILLAGE
City of Ottawa
DEVELOPER : CLARIDGE HOMES

JOB #: 3603-LD
DATE: 21-Apr-06
DESIGN: DY

	LOCATION			INDIVIDUAL					CUM. RES. FLOW			CUM. COM. & INST. FLOW			INFILTRATION			TOTAL	PROPOSED SEWER					
	STREET	FROM MH	TO MH	RESID. UNITS Singles Semis	RESID. UNITS Towns	FUTURE RES AREA (Ha)	POP.	COM. INST. (Ha)	POP.	PEAK FACT.	PEAK FLOW (l/s)	AREA (Ha)	PEAK FACT.	PEAK FLOW (l/s)	INCR. AREA (Ha)	CUM. AREA (Ha)	FLOW (l/s)	DESIGN FLOW (l/s)	CAP. l/s	PIPE (mm)	LGTH. (m)	SLOPE %	VEL. (full) m/s	AVAIL. CAP. (%)
	existing to be connected from Jockvale PS						1848		1848	3.61	27.37	0.0	1.50	0.00	35.20	35.20	9.86	37.23						
	future development		blkhd			36.20	2304	9.70	2304	3.54	33.41	9.7	1.50	8.44	45.90	45.90	12.85	54.70						
	Future Marivista Dr.		blkhd	10	18		83		83	4.00	1.35	0.0	1.50	0.00	0.48	0.48	0.13	1.49						
	(Claridge portion only)																							
	Cobble Hill Drive	blkhh	11A					0.54	4235	3.31	57.49	10.2	1.50	8.91	0.68	82.26	23.03	89.43	115.25	450	66.0	0.15	0.70	22.41%
	Chesapeake Cres.	13A	12A		12		32		32	4.00	0.53	0.0	1.50	0.00	0.47	0.47	0.13	0.66	48.04	250	80.5	0.60	0.95	98.62%
		12A	11A						32	4.00	0.53	0.0	1.50	0.00	0.00	0.47	0.13	0.66	48.04	250	15.7	0.60	0.95	98.62%
	Lamplighters Drive	34A	35A		16		43		43	4.00	0.71	0.0	1.50	0.00	0.47	0.47	0.13	0.84	48.04	250	52.0	0.60	0.95	98.25%
	Lamplighters Drive	35A	36A		21		57		100	4.00	1.64	0.0	1.50	0.00	0.53	1.00	0.28	1.92	48.04	250	71.1	0.60	0.95	96.01%
	Lamplighters Drive	36A	11A						100	4.00	1.64	0.0	1.50	0.00	0.00	1.00	0.28	1.92	48.04	250	13.8	0.60	0.95	96.01%
	Cobble Hill Drive	11A	8A						4367	3.30	59.07	10.2	1.50	8.91	0.15	83.88	23.49	91.46	115.25	450	73.0	0.15	0.70	20.64%
	Chesapeake Cres.	100A	10A		2		5		5	4.00	0.09	0.0	1.50	0.00	0.10	0.10	0.03	0.12	48.04	250	12.5	0.60	0.95	99.76%
		10A	9A		24		65		70	4.00	1.15	0.0	1.50	0.00	0.62	0.72	0.20	1.35	48.04	250	85.5	0.60	0.95	97.18%
		9A	8A						70	4.00	1.15	0.0	1.50	0.00	0.00	0.72	0.20	1.35	48.04	250	12.8	0.60	0.95	97.18%
	Fosterbrook Dr	29A	28A	3			10		10	4.00	0.17	0.0	1.50	0.00	0.17	0.17	0.05	0.21	50.01	250	27.3	0.65	0.99	99.57%
		28A	27A	2			7		17	4.00	0.28	0.0	1.50	0.00	0.14	0.31	0.09	0.37	50.01	250	10.3	0.65	0.99	99.27%
		27A	25A		5		14		31	4.00	0.50	0.0	1.50	0.00	0.16	0.47	0.13	0.63	50.01	250	36.8	0.65	0.99	98.74%
	Bellister St.	23A	24A	1			3		3	4.00	0.06	0.0	1.50	0.00	0.09	0.09	0.03	0.08	62.02	250	9.8	1.00	1.22	99.87%
		24A	25A	4			14		17	4.00	0.28	0.0	1.50	0.00	0.47	0.56	0.16	0.44	50.01	250	63.6	0.65	0.99	99.13%
	Fosterbrook Dr	25A	26A		14		38		85	4.00	1.40	0.0	1.50	0.00	0.71	1.74	0.49	1.89	39.22	250	103.5	0.40	0.77	95.19%
		26A	8A						85	4.00	1.40	0.0	1.50	0.00	0.00	1.74	0.49	1.89	39.22	250	15.1	0.40	0.77	95.19%
	Cobble Hill Drive	8A	5A						4522	3.29	60.91	10.2	1.50	8.91	0.42	86.76	24.29	94.11	115.25	450	71.1	0.15	0.70	18.34%
	Cooperfield Cres.	7A	6A		25		68		68	4.00	1.11	0.0	1.50	0.00	0.71	0.71	0.20	1.31	48.04	250	90.7	0.60	0.95	97.28%
		6A	5A						68	4.00	1.11	0.0	1.50	0.00	0.00	0.71	0.20	1.31	48.04	250	11.8	0.60	0.95	97.28%
	Cobble Hill Drive	5A	2A						4590	3.28	61.71	10.2	1.50	8.91	0.43	87.90	24.61	95.23	115.25	450	72.6	0.15	0.70	17.37%
	Cooperfield Cres.	40A	4A		2		5		5	4.00	0.09	0.0	1.50	0.00	0.12	0.12	0.03	0.12	48.04	250	12.0	0.60	0.95	99.75%
		4A	3A		22		59		65	4.00	1.06	0.0	1.50	0.00	0.58	0.70	0.20	1.26	48.04	250	84.5	0.60	0.95	97.38%
		3A	2A						65	4.00	1.06	0.0	1.50	0.00	0.00	0.70	0.20	1.26	48.04	250	8.2	0.60	0.95	97.38%
	Cobble Hill Drive	2A	1A/STUB						4655	3.27	62.48	10.2	1.50	8.91	0.07	88.67	24.83	96.21	115.25	450	34.0	0.15	0.70	16.52%
existing	*Cobble Hill Drive*	*STUB*	*102A*				*0*		*4655*	*3.27*	*62.48*	*10.2*	*1.50*	*8.91*	*0.00*	*88.67*	*24.83*	*96.21*	*115.25*	*450*	*41.3*	*0.15*	*0.70*	*16.52%*
existing	*Prem Circle*	*100A*	*102A*		*22*		*59*		*59*	*4.00*	*0.97*	*0.0*	*1.50*	*0.00*	*0.73*	*0.73*	*0.20*	*1.18*	*26.49*	*200*	*99.0*	*0.60*	*0.82*	*95.55%*
existing	*Stonechurch Lane*	*101A*	*102A*	*21*			*71*		*71*	*4.00*	*1.17*	*0.0*	*1.50*	*0.00*	*1.07*	*1.07*	*0.30*	*1.47*	*26.49*	*200*	*133.5*	*0.60*	*0.82*	*94.45%*
existing	*Cobble Hill Drive*	*102A*	*110A*				*0*		*4786*	*3.26*	*64.01*	*10.2*	*1.50*	*8.91*	*0.12*	*90.59*	*25.37*	*98.29*	*115.25*	*450*	*80.6*	*0.15*	*0.70*	*14.72%*

Where Q = average daily per capita flow (350 l/cap.d.) or (0.0041l/sec./cap)
I = Unit of peak extraneous flow (0.28 l/sec/ha)
M = Peaking factor = Harmon Peaking Factor , M = 1+(14/(4+P^0.5)) , where P = population in thousands
Q(p) = Peak population flow (l/s)
Q(i) = peak extraneous flow (l/s)
Population Density = 3.4 per single family and semi-detached residential unit, 2.7 per Townhnouse unit
Commercial, Office Space and School - Average flow 50,000 l/ha/day (0.58 l/s/ha) with Peaking Factor = 1.5

Revisions: #4, May 14, 2008

CCL/IBI
1770 WOODWARD DRIVE
OTTAWA, ONTARIO
K2C OP8

SANITARY SEWER DESIGN SHEET

PROJECT : WEST POINTE VILLAGE
City of Ottawa
DEVELOPER : CLARIDGE HOMES

JOB #: 3603-LD
DATE: 21-Apr-06
DESIGN: DY

	LOCATION			INDIVIDUAL					CUM. RES. FLOW			CUM. COM. & INST. FLOW			INFILTRATION			TOTAL	PROPOSED SEWER					
	STREET	FROM MH	TO MH	RESID. UNITS Singles Semis	Towns	FUTURE RES AREA (Ha)	POP.	COM. INST. (Ha)	POP.	PEAK FACT.	PEAK FLOW (l/s)	AREA (Ha)	PEAK FACT.	PEAK FLOW (l/s)	INCR. AREA (Ha)	CUM. AREA (Ha)	FLOW (l/s)	DESIGN FLOW (l/s)	CAP. l/s	PIPE (mm)	LGTH. (m)	SLOPE %	VEL. (full) m/s	AVAIL. CAP. (%)
	Lamplighter Dr.	**33A**	**32A**	**11**			**37**		**37**	**4.00**	**0.61**	**0.0**	**1.50**	**0.00**	**0.56**	**0.56**	**0.16**	**0.77**	**39.22**	**250**	**61.0**	**0.40**	**0.77**	**98.04%**
		32A	**31A**	**2**			**7**		**44**	**4.00**	**0.72**	**0.0**	**1.50**	**0.00**	**0.19**	**0.75**	**0.21**	**0.93**	**39.22**	**250**	**12.5**	**0.40**	**0.77**	**97.62%**
		31A	**30A**	**8**			**27**		**71**	**4.00**	**1.17**	**0.0**	**1.50**	**0.00**	**0.42**	**1.17**	**0.33**	**1.50**	**39.22**	**250**	**66.1**	**0.40**	**0.77**	**96.18%**
		30A	**21A**	**9**			**31**		**102**	**4.00**	**1.67**	**0.0**	**1.50**	**0.00**	**0.46**	**1.63**	**0.46**	**2.13**	**39.22**	**250**	**68.9**	**0.40**	**0.77**	**94.57%**
	Bellister St.	**23A**	**22A**	**10**			**34**		**34**	**4.00**	**0.56**	**0.0**	**1.50**	**0.00**	**0.54**	**0.54**	**0.15**	**0.71**	**39.22**	**250**	**96.1**	**0.40**	**0.77**	**98.19%**
		22A	**21A**						**34**	**4.00**	**0.56**	**0.0**	**1.50**	**0.00**	**0.01**	**0.55**	**0.15**	**0.71**	**39.22**	**250**	**6.4**	**0.40**	**0.77**	**98.18%**
	Lamplighter Dr.	**21A**	**19A**	**6**			**20**		**156**	**4.00**	**2.56**	**0.0**	**1.50**	**0.00**	**0.30**	**2.48**	**0.69**	**3.26**	**45.09**	**300**	**71.6**	**0.20**	**0.62**	**92.77%**
	Bidwell St	**19A**	**16A**	**13**			**44**		**201**	**4.00**	**3.29**	**0.0**	**1.50**	**0.00**	**0.55**	**3.03**	**0.85**	**4.14**	**45.09**	**300**	**90.4**	**0.20**	**0.62**	**90.82%**
	Bidwell St	**18A**	**17A**	**12**			**41**		**41**	**4.00**	**0.67**	**0.0**	**1.50**	**0.00**	**0.43**	**0.43**	**0.12**	**0.79**	**49.61**	**250**	**73.7**	**0.64**	**0.98**	**98.41%**
		17A	**16A**	**13**			**44**		**85**	**4.00**	**1.39**	**0.0**	**1.50**	**0.00**	**0.38**	**0.81**	**0.23**	**1.62**	**39.22**	**250**	**61.5**	**0.40**	**0.77**	**95.87%**
	Muskan St.	**16A**	**15A**						**286**	**4.00**	**4.68**	**0.0**	**1.50**	**0.00**	**0.02**	**3.86**	**1.08**	**5.76**	**45.09**	**300**	**11.7**	**0.20**	**0.62**	**87.22%**
		15A	**EX107A**						**286**	**4.00**	**4.68**	**0.0**	**1.50**	**0.00**	**0.04**	**3.90**	**1.09**	**5.77**	**45.09**	**300**	**23.5**	**0.20**	**0.62**	**87.19%**
existing	*Muskan Street*	*107A*	*108A*	*11*			*37*		*323*	*4.00*	*5.30*	*0.0*	*1.50*	*0.00*	*9.12*	*13.02*	*3.64*	*8.94*	*45.09*	*300*	*116.5*	*0.20*	*0.62*	*80.17%*
existing	*Muskan Street*	*108A*	*109A*	*2*			*7*		*330*	*4.00*	*5.41*	*0.0*	*1.50*	*0.00*	*0.16*	*13.18*	*3.69*	*9.10*	*45.09*	*300*	*9.7*	*0.20*	*0.62*	*79.82%*
existing	*Muskan Street*	*109A*	*110A*	*19*			*65*		*394*	*4.00*	*6.47*	*0.0*	*1.50*	*0.00*	*0.98*	*14.16*	*3.96*	*10.43*	*45.09*	*300*	*124.4*	*0.20*	*0.62*	*76.87%*
existing	*Prem Circle*	*103A*	*104A*		*8*		*22*		*22*	*4.00*	*0.35*	*0.0*	*1.50*	*0.00*	*0.30*	*0.30*	*0.08*	*0.44*	*26.49*	*200*	*53.0*	*0.60*	*0.82*	*98.35%*
existing	*Prem Circle*	*104A*	*105A*		*2*		*5*		*27*	*4.00*	*0.44*	*0.0*	*1.50*	*0.00*	*0.02*	*0.32*	*0.09*	*0.53*	*39.22*	*250*	*12.1*	*0.40*	*0.77*	*98.64%*
existing	*Prem Circle*	*105A*	*106A*		*4*		*11*		*38*	*4.00*	*0.62*	*0.0*	*1.50*	*0.00*	*0.04*	*0.36*	*0.10*	*0.72*	*39.22*	*250*	*22.4*	*0.40*	*0.77*	*98.16%*
existing	*Prem Circle*	*106A*	*110A*		*16*		*43*	*0.62*	*81*	*4.00*	*1.33*	*0.6*	*1.50*	*0.54*	*0.99*	*1.35*	*0.38*	*2.25*	*34.00*	*250*	*92.1*	*0.30*	*0.67*	*93.39%*
existing	*Cobble Hil Drive*	*110A*	*114A*		*9*		*24*		*5285*	*3.22*	*69.83*	*10.9*	*1.50*	*9.45*	*0.40*	*106.50*	*29.82*	*109.10*	*115.25*	*450*	*86.0*	*0.15*	*0.70*	*5.34%*
existing	*Moffatt Pond*	*Stub*	*112A*		*31*		*84*		*84*	*4.00*	*1.37*	*0.0*	*1.50*	*0.00*	*1.09*	*1.09*	*0.31*	*1.68*	*21.63*	*200*		*0.40*	*0.67*	*92.24%*
existing	*Cobble Hil Drive*	*112A*	*113A*		*11*		*30*		*113*	*4.00*	*1.86*	*0.0*	*1.50*	*0.00*	*0.43*	*1.52*	*0.43*	*2.29*	*31.01*	*250*	*80.6*	*0.25*	*0.61*	*92.63%*
existing	*Moffatt Pond*	*Stub*	*113A*		*34*		*92*		*92*	*4.00*	*1.51*	*0.0*	*1.50*	*0.00*	*1.37*	*1.37*	*0.38*	*1.89*	*21.63*	*200*		*0.40*	*0.67*	*91.27%*
existing	*Cobble Hil Drive*	*113A*	*114A*		*23*		*62*		*267*	*4.00*	*4.38*	*0.0*	*1.50*	*0.00*	*0.89*	*3.78*	*1.06*	*5.44*	*31.01*	*250*	*100.3*	*0.25*	*0.61*	*82.45%*
existing	*KENNEVALE*	*114A*	*111A*		*13*		*35*		*5553*	*3.20*	*72.91*	*10.9*	*1.50*	*9.45*	*0.19*	*110.47*	*30.93*	*113.28*	*132.98*	*450*	*92.7*	*0.20*	*0.81*	*14.81%*
existing	*KENNEVALE*	*111A*	*STUB*		*16*		*43*		*5553*	*3.20*	*72.91*	*10.9*	*1.50*	*9.45*	*0.12*	*110.59*	*30.96*	*113.32*	*132.98*	*450*	*59.0*	*0.20*	*0.81*	*14.79%*

Revisions: #4, May 14, 2008

CCL/IBI
1770 WOODWARD DRIVE
OTTAWA, ONTARIO
K2C OP8

SANITARY SEWER DESIGN SHEET

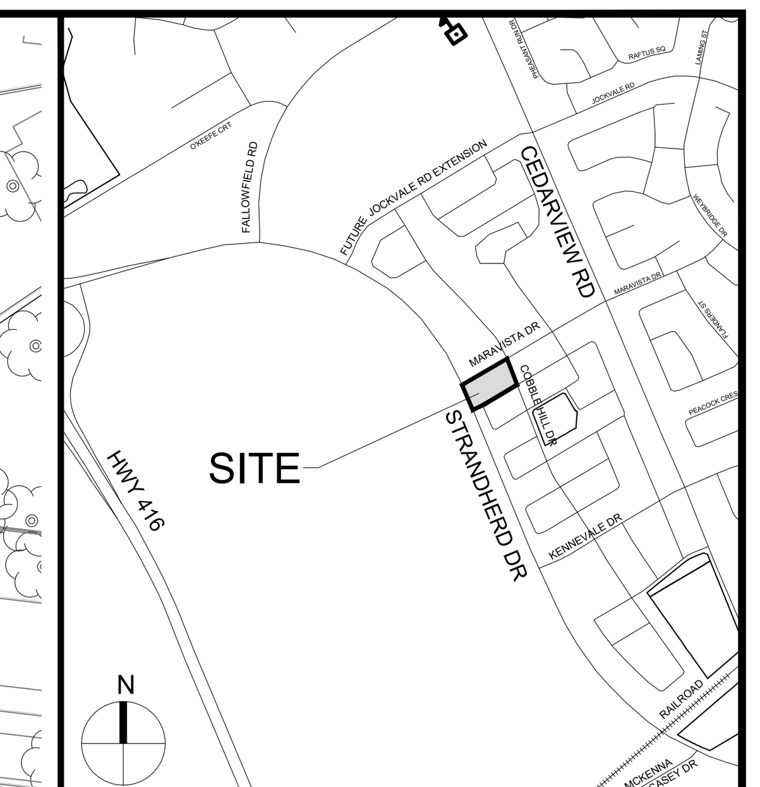
PROJECT : WEST POINTE VILLAGE
City of Ottawa
DEVELOPER : CLARIDGE HOMES

JOB #: 3603-LD
DATE: 21-Apr-06
DESIGN: DY

	LOCATION			INDIVIDUAL					CUM. RES. FLOW			CUM. COM. & INST. FLOW			INFILTRATION			TOTAL	PROPOSED SEWER					
	STREET	FROM MH	TO MH	RESID. UNITS Singles Semis	RESID. UNITS Towns	FUTURE RES AREA (Ha)	POP.	COM. INST. (Ha)	POP.	PEAK FACT.	PEAK FLOW (l/s)	AREA (Ha)	PEAK FACT.	PEAK FLOW (l/s)	INCR. AREA (Ha)	CUM. AREA (Ha)	FLOW (l/s)	DESIGN FLOW (l/s)	CAP. l/s	PIPE (mm)	LGTH. (m)	SLOPE %	VEL. (full) m/s	AVAIL. CAP. (%)
	Interim Outlet																							
	Population flow from future development lands is not included in interim outlet																							
existing	*KENNEVALE*	*114A*	*115A*				*0*		*1401*	*3.70*	*21.25*	*0.6*	*1.50*	*0.54*	*0.00*	*28.89*	*8.09*	*29.88*	*45.09*	*300*	*83.0*	*0.20*	*0.62*	*33.74%*
existing	*KENNEVALE*	*150A*	*115B*	*6*			*20*		*20*	*4.00*	*0.33*	*0.0*	*1.50*	*0.00*	*0.53*	*0.53*	*0.15*	*0.48*	*34.21*	*200*	*61.5*	*1.00*	*1.06*	*98.59%*
existing	*KENNEVALE*	*115B*	*115A*	*0*			*0*		*20*	*4.00*	*0.33*	*0.0*	*1.50*	*0.00*	*0.00*	*0.53*	*0.15*	*0.48*	*48.38*	*200*	*4.5*	*2.00*	*1.49*	*99.00%*
existing	*AMAR LANE*	*143A*	*144A*	*15*			*51*		*51*	*4.00*	*0.84*	*0.0*	*1.50*	*0.00*	*0.82*	*0.82*	*0.23*	*1.07*	*26.49*	*200*	*105.0*	*0.60*	*0.82*	*95.98%*
existing	*AMAR LANE*	*144A*	*115A*	*5*			*17*		*68*	*4.00*	*1.12*	*0.0*	*1.50*	*0.00*	*0.32*	*1.14*	*0.32*	*1.43*	*26.49*	*200*	*50.0*	*0.60*	*0.82*	*94.59%*
existing	*KENNEVALE*	*115A*	*119A*	*7*			*24*		*1513*	*3.68*	*22.80*	*0.6*	*1.50*	*0.54*	*0.39*	*30.95*	*8.66*	*32.01*	*45.09*	*300*	*125.1*	*0.20*	*0.62*	*29.02%*
	Lamplighters Drive	**190A**	**EX116A**	**2**			**7**		**7**	**4.00**	**0.11**	**0.0**	**1.50**	**0.00**	**0.18**	**0.18**	**0.05**	**0.16**	**34.21**	**200**	**25.6**	**1.00**	**1.06**	**99.53%**
existing	*Lamplighters Drive*	*116A*	*117A*	*15*			*51*		*58*	*4.00*	*0.95*	*0.0*	*1.50*	*0.00*	*0.73*	*0.91*	*0.25*	*1.20*	*31.01*	*250*	*82.5*	*0.25*	*0.61*	*96.12%*
existing	*Lamplighters Drive*	*117A*	*118A*	*19*			*65*		*122*	*4.00*	*2.01*	*0.0*	*1.50*	*0.00*	*0.92*	*1.83*	*0.51*	*2.52*	*31.01*	*250*	*120.0*	*0.25*	*0.61*	*91.87%*
existing	*Lamplighters Drive*	*118A*	*119A*				*0*		*122*	*4.00*	*2.01*	*0.0*	*1.50*	*0.00*	*0.00*	*1.83*	*0.51*	*2.52*	*17.12*	*200*	*9.6*	*0.25*	*0.53*	*85.28%*
existing	*Lamplighters Drive*	*142A*	*123A*	*4*			*14*		*14*	*4.00*	*0.22*	*0.0*	*1.50*	*0.00*	*0.37*	*0.37*	*0.10*	*0.33*	*26.49*	*200*	*63.1*	*0.60*	*0.82*	*98.77%*
existing	*Lamplighters Drive*	*123A*	*122A*	*3*			*10*		*24*	*4.00*	*0.39*	*0.0*	*1.50*	*0.00*	*0.30*	*0.67*	*0.19*	*0.58*	*31.01*	*250*	*78.0*	*0.25*	*0.61*	*98.14%*
existing	*Lamplighters Drive*	*122A*	*121A*	*5*			*17*		*41*	*4.00*	*0.67*	*0.0*	*1.50*	*0.00*	*0.43*	*1.10*	*0.31*	*0.98*	*31.01*	*250*	*78.0*	*0.25*	*0.61*	*96.85%*
existing	*Lamplighters Drive*	*121A*	*119A*	*0*			*0*		*41*	*4.00*	*0.67*	*0.0*	*1.50*	*0.00*	*0.00*	*1.10*	*0.31*	*0.98*	*31.01*	*250*	*11.5*	*0.25*	*0.61*	*96.85%*
existing	*KENNEVALE*	*119A*	*120A*				*0*		*1676*	*3.64*	*25.04*	*0.6*	*1.50*	*0.54*	*0.11*	*33.99*	*9.52*	*35.10*	*45.09*	*300*	*37.4*	*0.20*	*0.62*	*22.17%*
existing	*KENNEVALE*	*120A*	*EX.*				*0*		*1676*	*3.64*	*25.04*	*0.6*	*1.50*	*0.54*	*0.16*	*34.15*	*9.56*	*35.14*	*45.09*	*300*	*79.4*	*0.20*	*0.62*	*22.07%*

Where Q = average daily per capita flow (350 l/cap.d.) or (0.0041l/sec./cap)
I = Unit of peak extraneous flow (0.28 l/sec/ha)
M = Peaking factor = Harmon Peaking Factor , M = 1+(14/(4+P^0.5)) , where P = population in thousands
Q(p) = Peak population flow (l/s)
Q(i) = peak extraneous flow (l/s)
Population Density = 3.4 per single family and semi-detached residential unit, 2.7 per Towhnhouse unit
Commercial, Office Space and School - Average flow 50,000 l/ha/day (0.58 l/s/ha) with Peaking Factor = 1.5

Revisions: #4, May 14, 2008



KEY PLAN
N.T.S.

NOTES :

1. SEE DRAWING C-101 FOR ADDITIONAL DETAILS, NOTES AND SECTIONS.

No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9			
8			
7			
6			
5			
4			
3	REVISED AS PER CITY COMMENTS AND NEW SITE PLAN	DGY	2019:07:15
2	REVISED AS PER CITY COMMENTS AND NEW SITE PLAN	DGY	2019:04:10
1	ISSUED FOR SPA	DGY	2018:12:12

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ibigroup.com

Project Title

WEST POINTE VILLAGE RETIREMENT COMPLEX
164 MARAVISTA DRIVE, OTTAWA, ON.

LICENSED PROFESSIONAL ENGINEER
D. G. Yannoulopoulos
2019/07/15
PROVINCE OF ONTARIO

N

Drawing Title

SANITARY DRAINAGE AREA PLAN

Scale	1:750
Design: RM	Date: SEPT. 2018
Drawn: DPS	Checked: DGY
Project No.: 118197	Drawing No.: C-400

CITY FILE No. D07-12-18-0196 CITY PLAN No.#####

IBI GROUP

IBI Group

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

Ulitmate Servicing
Including External Sources

SANITARY SEWER ASBUILTS

PROJECT: Maravista Heights
LOCATION: CITY OF OTTAWA
CLIENT: DCR Phoenix

LOCATION			RESIDENTIAL									INSTITUTIONAL COMMERCIAL INDUSTRIAL							INFILTRATION ALLOWANCE			TOTAL FLOW	PROPOSED SEWER DESIGN						
			UNIT TYPES					POPULATION		CUMULATIVE FLOW		AREA (ha)																
Street	From MH	To MH	Singles	Semis	Towns	Apt	Area (Ha.)	INDIV.	CUM.	Peaking Factor	Peak Flow (l/s)	INSTITUTION Indiv	INSTITUTION Cumm.	COMMERCIAL Indiv	COMMERCIAL Cumm.	INDUSTRIAL Indiv	INDUSTRIAL Cumm.	Pk. Flow (l/s)	Incr. Area (Ha.)	Cum. Area (Ha.)	Flow (l/s)	(l/s)	Capacity (l/s)	Pipe Size (mm)	Length (M)	Slope (%)	Velocity(f) M/sec	Avail. Cap. L/s	Avail. Cap. (%)
Popplewell Cres	136A	135A			7		0.26	18.9	18.9	4.00	0.25							0.00	0.26	0.26	0.09	0.34	26.50	200	46.58	0.60	0.8	26.16	98.73
Popplewell Cres	135A	134A			7		0.30	18.9	37.8	4.00	0.49							0.00	0.30	0.56	0.18	0.67	28.42	200	79.68	0.69	0.9	27.75	97.63
Popplewell Cres	134A	133A			2		0.10	5.4	43.2	4.00	0.56							0.00	0.10	0.66	0.22	0.78	22.44	200	9.23	0.43	0.7	21.66	96.53
Popplewell Cres	133A	131A			17		0.52	45.9	89.1	4.00	1.16							0.00	0.52	1.18	0.39	1.55	30.60	200	75.29	0.80	0.9	29.05	94.94
From Claridge WPV4 (Node 10)									**3183.4**		**35.29**		**10.30**		**9.33**		**1.01**	**12.30**		**83.59**	**26.50**	**72.08**						
Cobble Hill Dr	131A	137A			11		0.64	29.7	3302.2	3.41	36.46		10.30		9.33		1.01	12.30	0.64	85.41	28.19	76.95	107.24	450	86.90	0.13	0.7	30.29	28.25
Cobble Hill Dr	137A	138A			17		0.54	45.9	3348.1	3.40	36.91		10.30		9.33		1.01	12.30	0.54	85.95	28.36	77.58	107.24	450	61.70	0.13	0.7	29.66	27.66
Cobble Hill Dr	138A	139A			5		0.18	13.5	3361.6	3.40	37.04		10.30		9.33		1.01	12.30	0.18	86.13	28.42	77.77	142.64	450	34.12	0.23	0.9	64.87	45.48
Popplewell Cres	141A	140A			1		0.12	2.7	2.7	4.00	0.04							0.00	0.12	0.12	0.04	0.08	31.17	200	8.42	0.83	1.0	31.09	99.74
Popplewell Cres	140A	139A			21		0.57	56.7	59.4	4.00	0.77							0.00	0.57	0.69	0.23	1.00	26.50	200	83.77	0.60	0.8	25.50	96.24
Cobble Hill Dr	139A	100A			6		0.28	16.2	3437.2	3.39	37.78		10.30		9.33		1.01	12.30	0.28	87.10	28.74	78.83	126.19	450	79.17	0.18	0.8	47.36	37.53
From Claridge WPV4 (Node 12)									**10.2**		**0.09**									**0.19**	**0.06**	**0.19**						
Bamburgh Way	114A	113A	14				0.87	47.6	57.8	4.00	0.75							0.00	0.87	1.06	0.35	1.10	32.83	250	107.09	0.28	0.6	31.73	96.65
Bamburgh Way	113A	112A	1				0.08	3.4	61.2	4.00	0.79							0.00	0.08	1.14	0.38	1.17	30.39	250	16.64	0.24	0.6	29.22	96.16
Bamburgh Way	112A	111A	4				0.29	13.6	74.8	4.00	0.97							0.00	0.29	1.43	0.47	1.44	36.70	250	66.03	0.35	0.7	35.26	96.07
Bretby Cres	129A	128A	6				0.39	20.4	20.4	4.00	0.26							0.00	0.39	0.39	0.13	0.39	26.06	200	63.30	0.58	0.8	25.67	98.51
Bretby Cres	128A	127A	7				0.46	23.8	44.2	4.00	0.57							0.00	0.46	0.85	0.28	0.85	19.66	200	58.41	0.33	0.6	18.81	95.67
Bretby Cres	127A	126A	1				0.14	3.4	47.6	4.00	0.62							0.00	0.14	0.99	0.33	0.95	20.24	200	11.48	0.35	0.6	19.29	95.32
Bretby Cres	126A	125A	6				0.35	20.4	68.0	4.00	0.88							0.00	0.35	1.34	0.44	1.32	35.09	250	43.10	0.32	0.7	33.77	96.23
Bretby Cres	125A	111A	3				0.18	10.2	78.2	4.00	1.01							0.00	0.18	1.52	0.50	1.51	35.64	250	24.38	0.33	0.7	34.13	95.76
Bamburgh Way	111A	115A	1				0.14	3.4	156.4	4.00	2.03							0.00	0.14	3.09	1.02	3.05	48.06	250	34.84	0.60	0.9	45.01	93.65
Bamburgh Way	115A	116A	3				0.20	10.2	166.6	4.00	2.16							0.00	0.20	3.29	1.09	3.25	65.36	250	27.93	1.11	1.3	62.11	95.03
Bamburgh Way	116A	117A	2				0.14	6.8	173.4	4.00	2.25							0.00	0.14	3.43	1.13	3.38	57.20	250	18.88	0.85	1.1	53.82	94.09
Bamburgh Way	117A	118A	1				0.10	3.4	176.8	4.00	2.29							0.00	0.10	3.53	1.16	3.45	71.55	250	27.83	1.33	1.4	68.10	95.17
Bretby Cres	122A	121A	4				0.61	13.6	13.6	4.00	0.18							0.00	0.61	0.61	0.20	0.38	27.59	200	39.81	0.65	0.9	27.21	98.62
Bretby Cres	121A	120A	9				0.41	30.6	44.2	4.00	0.57							0.00	0.41	1.02	0.34	0.91	23.71	200	50.35	0.48	0.7	22.80	96.18
Bretby Cres	120A	119A	2				0.17	6.8	51.0	4.00	0.66							0.00	0.17	1.19	0.39	1.05	33.35	200	14.72	0.95	1.0	32.30	96.84
Bretby Cres	119A	118A	0				0.00	0.0	51.0	4.00	0.66							0.00	0.00	1.19	0.39	1.05	26.28	200	25.25	0.59	0.8	25.23	95.99
Bamburgh Way	118A	123A	9				0.55	30.6	258.4	4.00	3.35							0.00	0.55	5.27	1.74	5.09	31.63	250	61.63	0.26	0.6	26.54	83.91
Bamburgh Way	123A	102A	9				0.50	30.6	289.0	4.00	3.75							0.00	0.50	5.77	1.90	5.65	30.39	250	73.14	0.24	0.6	24.74	81.39
Maravista Dr	105A	103A*	9				1.87	30.6	30.6	4.00	0.40							0.00	1.87	1.87	0.62	1.02	26.50	200	94.22	0.60	0.8	25.48	96.16
Maravista Dr	103A	102A	1		8		0.45	25.0	55.6	4.00	0.72							0.00	0.45	2.32	0.77	1.49	36.70	250	95.10	0.35	0.7	35.21	95.95
Maravista Dr	102A	100A			14		0.47	37.8	382.4	4.00	4.96							0.00	0.47	8.56	2.82	7.78	56.17	300	83.33	0.31	0.8	48.39	86.14
Site Plan	Bldg	1A				143	0.54	257.4	257.4	4.00	3.34							0.00	0.54	0.54	0.18	3.52	48.39	200	11.20	2.00	1.5	44.87	92.73
Site Plan	1A	101A/100A						0.0	257.4	4.00	3.34							0.00	0.00	0.54	0.18	3.52	48.39	200	11.50	2.00	1.5	44.87	92.73
Maravista Dr	101A	100A			12		0.50	32.4	289.8	4.00	3.76							0.00	0.50	1.04	0.34	4.10	29.23	200	93.61	0.73	0.9	25.13	85.96
Cobble Hill Dr	100A	EX						0.0	4109.4	3.32	44.25	0.56	10.86		9.33		1.01	12.58	0.56	97.26	32.10	88.92	118.97	450	12.50	0.16	0.7	30.05	25.26
To Claridge WPV (Node 9)									**4109.4**		**44.25**		**10.86**		**9.33**			**12.58**		**97.26**	**32.10**	**88.92**						

Designed: E.I.

Checked: D.Y.

revised flow rates per New City Standards	12-Dec-18	
Issued for Master servicing report March 2012	Mar 2012	
REVISION	**DATE**	

Dwg Reference:	File Ref:	Date:	Sheet No.
25330 - figure 3	25330 - 5.7	2011-08-10	1

Population Per Unit: 3.4 For Singles
2.7 Townhouses/Semis
1.8 Apartments
90.0 Low/Medium Density (90 ppHa)
Avg. Per Capita Flow Rate: 280 l/day
Residential Peaking Factor: Harmon Formula = 1+(14/(4+P^0.5)) where P = pop'n in thousands

* includes SWM pond area

ICI Rates		Peak Factor
Institution	28000 l/ha/day	1.5
Commercial	28000 l/ha/day	1.5
Industrial	35000 l/ha/day	Moe Guidelines
		6.75

Infiltration Allowance: 0.33 l/sec/Ha

Assumed pipe roughness coefficier 0.013

Issued for Servicing Report January 2013

CCL/IBI
1770 WOODWARD DRIVE
OTTAWA, ONTARIO
K2C OP8

SANITARY SEWER DESIGN SHEET
PROJECT : WEST POINTE VILLAGE
City of Ottawa
DEVELOPER : CLARIDGE HOMES

Ulitmate Servicing Including External Sources

JOB #: 3603-LD
DATE: 21-Apr-06
DESIGN: DY

LOCATION			INDIVIDUAL					CUM. RES. FLOW			CUM. COM. & INST. FLOW			INFILTRATION			TOTAL	PROPOSED SEWER					
STREET	FROM MH	TO MH	RESID. UNITS Singles Semis	RESID. UNITS Towns	FUTURE RES AREA (Ha)	POP.	COM. INST. (Ha)	POP.	PEAK FACT.	PEAK FLOW (l/s)	AREA (Ha)	PEAK FACT.	PEAK FLOW (l/s)	INCR. AREA (Ha)	CUM. AREA (Ha)	FLOW (l/s)	DESIGN FLOW (l/s)	CAP. l/s	PIPE (mm)	LGTH. (m)	SLOPE %	VEL. (full) m/s	AVAIL. CAP. (%)
From DCR Phoenix Maravista Heights (Node 9)								**4109**			**21.2**				**97.26**		**88.92**						
Cobble Hill Drive	*blkhh*	*11A*						*4109*	*3.32*	*44.24*	*21.2*	*1.50*	*10.30*	*0.14*	*97.40*	*32.14*	*86.69*	*115.25*	*450*	*66.0*	*0.15*	*0.70*	*24.78%*
Chesapeake Cres.	*13A*	*12A*		*12*		*32*		*32*	*4.00*	*0.42*	*0.0*	*1.50*	*0.00*	*0.52*	*0.52*	*0.17*	*0.59*	*48.04*	*250*	*91.5*	*0.60*	*0.95*	*98.77%*
	12A	*11A*						*32*	*4.00*	*0.42*	*0.0*	*1.50*	*0.00*	*0.00*	*0.52*	*0.17*	*0.59*	*48.04*	*250*	*15.7*	*0.60*	*0.95*	*98.77%*
Lamplighters Drive	*34A*	*35A*		*16*		*43*		*43*	*4.00*	*0.56*	*0.0*	*1.50*	*0.00*	*0.47*	*0.47*	*0.16*	*0.71*	*48.04*	*250*	*52.0*	*0.60*	*0.95*	*98.51%*
Lamplighters Drive	*35A*	*36A*		*21*		*57*		*100*	*4.00*	*1.29*	*0.0*	*1.50*	*0.00*	*0.53*	*1.00*	*0.33*	*1.62*	*48.04*	*250*	*71.1*	*0.60*	*0.95*	*96.62%*
Lamplighters Drive	*36A*	*11A*						*100*	*4.00*	*1.29*	*0.0*	*1.50*	*0.00*	*0.00*	*1.00*	*0.33*	*1.62*	*48.04*	*250*	*13.8*	*0.60*	*0.95*	*96.62%*
Cobble Hill Drive	*11A*	*8A*						*4242*	*3.31*	*45.50*	*21.2*	*1.50*	*10.30*	*0.15*	*99.07*	*32.69*	*88.49*	*115.25*	*450*	*73.0*	*0.15*	*0.70*	*23.22%*
Chesapeake Cres.	*100A*	*10A*		*2*		*5*		*5*	*4.00*	*0.07*	*0.0*	*1.50*	*0.00*	*0.10*	*0.10*	*0.03*	*0.10*	*48.04*	*250*	*12.5*	*0.60*	*0.95*	*99.79%*
	10A	*9A*		*24*		*65*		*70*	*4.00*	*0.91*	*0.0*	*1.50*	*0.00*	*0.62*	*0.72*	*0.24*	*1.15*	*48.04*	*250*	*85.5*	*0.60*	*0.95*	*97.61%*
	9A	*8A*						*70*	*4.00*	*0.91*	*0.0*	*1.50*	*0.00*	*0.00*	*0.72*	*0.24*	*1.15*	*48.04*	*250*	*12.8*	*0.60*	*0.95*	*97.61%*
Fosterbrook Dr	*29A*	*28A*	*3*			*10*		*10*	*4.00*	*0.13*	*0.0*	*1.50*	*0.00*	*0.17*	*0.17*	*0.06*	*0.19*	*50.01*	*250*	*27.3*	*0.65*	*0.99*	*99.62%*
	28A	*27A*	*2*			*7*		*17*	*4.00*	*0.22*	*0.0*	*1.50*	*0.00*	*0.14*	*0.31*	*0.10*	*0.32*	*50.01*	*250*	*10.3*	*0.65*	*0.99*	*99.35%*
	27A	*25A*		*5*		*14*		*31*	*4.00*	*0.40*	*0.0*	*1.50*	*0.00*	*0.16*	*0.47*	*0.16*	*0.55*	*50.01*	*250*	*36.8*	*0.65*	*0.99*	*98.90%*
Bellister St.	*23A*	*24A*	*0*			*0*		*0*	*4.00*	*0.00*	*0.0*	*1.50*	*0.00*	*0.09*	*0.09*	*0.03*	*0.03*	*62.02*	*250*	*9.8*	*1.00*	*1.22*	*99.95%*
	24A	*25A*	*4*			*14*		*14*	*4.00*	*0.18*	*0.0*	*1.50*	*0.00*	*0.47*	*0.56*	*0.18*	*0.36*	*50.01*	*250*	*63.6*	*0.65*	*0.99*	*99.28%*
Fosterbrook Dr	*25A*	*26A*		*14*		*38*		*82*	*4.00*	*1.06*	*0.0*	*1.50*	*0.00*	*0.71*	*1.74*	*0.57*	*1.64*	*39.22*	*250*	*103.5*	*0.40*	*0.77*	*95.83%*
	26A	*8A*						*82*	*4.00*	*1.06*	*0.0*	*1.50*	*0.00*	*0.00*	*1.74*	*0.57*	*1.64*	*39.22*	*250*	*15.1*	*0.40*	*0.77*	*95.83%*
Cobble Hill Drive	*8A*	*5A*						*4394*	*3.30*	*46.93*	*21.2*	*1.50*	*10.30*	*0.42*	*101.95*	*33.64*	*90.87*	*115.25*	*450*	*71.1*	*0.15*	*0.70*	*21.15%*
Cooperfield Cres.	*7A*	*6A*		*25*		*68*		*68*	*4.00*	*0.87*	*0.0*	*1.50*	*0.00*	*0.71*	*0.71*	*0.23*	*1.11*	*48.04*	*250*	*90.7*	*0.60*	*0.95*	*97.69%*
	6A	*5A*						*68*	*4.00*	*0.87*	*0.0*	*1.50*	*0.00*	*0.00*	*0.71*	*0.23*	*1.11*	*48.04*	*250*	*11.8*	*0.60*	*0.95*	*97.69%*
Cobble Hill Drive	*5A*	*2A*						*4461*	*3.29*	*47.56*	*21.2*	*1.50*	*10.30*	*0.43*	*103.09*	*34.02*	*91.88*	*115.25*	*450*	*72.6*	*0.15*	*0.70*	*20.27%*
Cooperfield Cres.	*40A*	*4A*		*2*		*5*		*5*	*4.00*	*0.07*	*0.0*	*1.50*	*0.00*	*0.12*	*0.12*	*0.04*	*0.11*	*48.04*	*250*	*12.0*	*0.60*	*0.95*	*99.77%*
	4A	*3A*		*22*		*59*		*65*	*4.00*	*0.84*	*0.0*	*1.50*	*0.00*	*0.58*	*0.70*	*0.23*	*1.07*	*48.04*	*250*	*84.5*	*0.60*	*0.95*	*97.77%*
	3A	*2A*						*65*	*4.00*	*0.84*	*0.0*	*1.50*	*0.00*	*0.00*	*0.70*	*0.23*	*1.07*	*48.04*	*250*	*8.2*	*0.60*	*0.95*	*97.77%*
Cobble Hill Drive	*2A*	*1A/STUB*						*4526*	*3.28*	*48.17*	*21.2*	*1.50*	*10.30*	*0.07*	*103.86*	*34.27*	*92.75*	*115.25*	*450*	*34.0*	*0.15*	*0.70*	*19.53%*
To DCR Phoenix West Barrhaven Ph 1 (Node 7)								**4526**		**48.17**	**21.2**		**10.30**		**103.86**	**34.27**	**92.75**						
Lamplighter Dr.	*33A*	*32A*	*11*			*37*		*37*	*4.00*	*0.48*	*0.0*	*1.50*	*0.00*	*0.56*	*0.56*	*0.18*	*0.67*	*39.22*	*250*	*61.0*	*0.40*	*0.77*	*98.29%*
	32A	*31A*	*2*			*7*		*44*	*4.00*	*0.57*	*0.0*	*1.50*	*0.00*	*0.39*	*0.95*	*0.31*	*0.89*	*39.22*	*250*	*12.5*	*0.40*	*0.77*	*97.74%*
	31A	*30A*	*8*			*27*		*71*	*4.00*	*0.93*	*0.0*	*1.50*	*0.00*	*0.62*	*1.57*	*0.52*	*1.44*	*39.22*	*250*	*66.1*	*0.40*	*0.77*	*96.32%*
	30A	*21A*	*9*			*31*		*102*	*4.00*	*1.32*	*0.0*	*1.50*	*0.00*	*0.66*	*2.23*	*0.74*	*2.06*	*39.22*	*250*	*68.9*	*0.40*	*0.77*	*94.75%*
Bellister St.	*23A*	*22A*	*11*			*37*		*37*	*4.00*	*0.48*	*0.0*	*1.50*	*0.00*	*0.55*	*0.55*	*0.18*	*0.67*	*39.22*	*250*	*96.1*	*0.40*	*0.77*	*98.30%*
	22A	*21A*						*37*	*4.00*	*0.48*	*0.0*	*1.50*	*0.00*	*0.01*	*0.56*	*0.19*	*0.67*	*39.22*	*250*	*6.4*	*0.40*	*0.77*	*98.29%*
Lamplighter Dr.	*21A*	*19A**	*6*			*20*		*160*	*4.00*	*2.07*	*0.0*	*1.50*	*0.00*	*0.49*	*3.28*	*1.08*	*3.15*	*45.09*	*300*	*71.6*	*0.20*	*0.62*	*93.01%*
Bidwell St	*19A*	*16A*	*12*			*41*		*201*	*4.00*	*2.60*	*0.0*	*1.50*	*0.00*	*0.52*	*3.81*	*1.26*	*3.86*	*45.09*	*300*	*90.4*	*0.20*	*0.62*	*91.45%*
Bidwell St	*18A*	*17A*	*12*			*41*		*41*	*4.00*	*0.53*	*0.0*	*1.50*	*0.00*	*0.43*	*0.43*	*0.14*	*0.67*	*49.61*	*250*	*73.7*	*0.64*	*0.98*	*98.65%*
	17A	*16A*	*9*			*31*		*71*	*4.00*	*0.93*	*0.0*	*1.50*	*0.00*	*0.41*	*0.84*	*0.28*	*1.20*	*39.22*	*250*	*61.5*	*0.40*	*0.77*	*96.93%*
Muskan St.	*16A*	*15A*						*272*	*4.00*	*3.53*	*0.0*	*1.50*	*0.00*	*0.02*	*4.66*	*1.54*	*5.06*	*45.09*	*300*	*11.7*	*0.20*	*0.62*	*88.77%*
	15A	*EX107A*						*272*	*4.00*	*3.53*	*0.0*	*1.50*	*0.00*	*0.04*	*4.70*	*1.55*	*5.08*	*45.09*	*300*	*23.5*	*0.20*	*0.62*	*88.74%*
To DCR Phoenix West Barrhaven Ph1 (Node 8)								**272**		**3.53**			**0.00**		**4.70**	**1.55**	**5.08**						
Lamplighters Drive	*190A*	*EX116A*	*2*			*7*		*7*	*4.00*	*0.09*	*0.0*	*1.50*	*0.00*	*0.17*	*0.17*	*0.06*	*0.14*	*34.21*	*200*	*25.6*	*1.00*	*1.06*	*99.58%*
To DCR Phoenix West Barrhaven Ph1 (Node 16)								**7**		**0.09**			**0.00**		**0.17**	**0.06**	**0.14**						

Where Q = average daily per capita flow (280 l/cap.d.) or (0.00324l/sec./cap)
I = Unit of peak extraneous flow (0.33 l/sec/ha)
M = Peaking factor = Harmon Peaking Factor , M = 1+(14/(4+P^0.5)) , where P = population in thousands
Q(p) = Peak population flow (l/s)
Q(i) = peak extraneous flow (l/s)
Population Density = 3.4 per single family and semi-detached residential unit, 2.7 per Towhnhouse unit
Commercial, Office Space and School - Average flow 28,000 l/ha/day (0.324 l/s/ha) with Peaking Factor = 1.5

* includes Foster drain area

Issued for Servicing Report January 2013
revised flow rates per New City Standards Dec 2018

IBI GROUP

Ulitmate Servicing
Including External Sources

SANITARY SEWER DESIGN SHEET

PROJECT : CONCEPTUAL SITE SERVICING STUDY
LOCATION : WEST BARRHAVEN
DEVELOPER : TARTAN-AIRTH-DCR PHOENIX III LANDS

JOB #: 11141
DATE: 18-Dec-06
DESIGN: JIM

DCR Phoenix Phase I Site

ULITMATE SERVICING TO SOUTH NEPEAN COLLECTOR

LOCATION			INDIVIDUAL					CUM. RES. FLOW			CUM. COM. & INST. FLOW			INFILTRATION			TOTAL	PROPOSED SEWER					
STREET	FROM MH	TO MH	RESID. UNITS Singles Semis	RESID. UNITS Towns	Area (Ha)	POP.	COM. INST. (Ha)	POP.	PEAK FACT.	PEAK FLOW (l/s)	AREA (Ha)	PEAK FACT.	PEAK FLOW (l/s)	INCR. AREA (Ha)	CUM. AREA (Ha)	FLOW (l/s)	DESIGN FLOW (l/s)	CAP. l/s	PIPE (mm)	LGTH. (m)	SLOPE %	VEL. (full) m/s	AVAIL. CAP. (%)
From Claridge West Pointe Village (Node 7)								**4526**		**48.17**	**21.20**		**10.30**		**103.86**	**34.27**	**92.75**						
COBBLE HILL DRIVE	STUB	102A		0		0		4526	3.28	48.17	21.20	1.00	6.87	0.08	103.94	34.30	89.34	115.25	450	41.3	0.15	0.70	22.48%
PREM CIRCLE	100A	102A		22		59		59	4.00	0.77	0.00	1.50	0.00	0.73	0.73	0.24	1.01	31.55	200	106.0	0.85	0.97	96.80%
STONECHURCH DR.	101A	102A	21			71		71	4.00	0.93	0.00	1.50	0.00	1.07	1.07	0.35	1.28	27.60	200	133.5	0.65	0.85	95.37%
COBBLE HILL DRIVE	102A	110A				0		4657	3.27	49.39	21.20	1.00	6.87	0.12	105.86	34.93	91.19	115.25	450	80.6	0.15	0.70	20.87%
From Claridge West Pointe Village (Node 8)								**272.0**		**3.53**	**0.00**		**0.00**		**4.70**	**1.55**	**5.08**						
MUSKAN STREET	107A	108A	11			37		309	4.00	4.01	0.00	1.50	0.00	0.62	5.32	1.76	5.77	45.09	300	116.5	0.20	0.62	87.21%
	108A	109A	2			7		316	4.00	4.10	0.00	1.50	0.00	0.16	5.48	1.81	5.91	45.09	300	9.7	0.20	0.62	86.90%
	109A	110A	19			65		381	4.00	4.94	0.00	1.50	0.00	0.98	6.46	2.13	7.07	45.09	300	124.4	0.20	0.62	84.33%
PREM CIRCLE	103A	104A		8		22		22	4.00	0.28	0.00	1.50	0.00	0.30	0.30	0.10	0.38	26.49	200	57.0	0.60	0.82	98.57%
	104A	105A		0		0		22	4.00	0.28	0.00	1.50	0.00	0.03	0.33	0.11	0.39	39.22	250	12.1	0.40	0.77	99.01%
	105A	106A		0		0		22	4.00	0.28	0.00	1.50	0.00	0.04	0.37	0.12	0.40	39.22	250	22.4	0.40	0.77	98.97%
(Node 6)	106A	110A		24		65	0.30	86	4.00	1.12	0.30	1.50	0.26	0.98	1.35	0.45	1.83	50.01	250	92.1	0.65	0.99	96.35%
COBBLE HILL DRIVE (node 5)	110A	114A		9		24		5148	3.23	53.93	21.50	1.00	6.97	0.40	114.07	37.64	98.54	115.25	450	86.0	0.15	0.70	14.50%
From DCR Phoenix Phase 3 (Node 5A)								**96.7**		**1.25**	**0.00**		**0.00**		**0.94**	**0.26**	**1.51**						
COBBLE HILL DRIVE	112A	113A		18		49		145	4.00	1.88	0.00	1.50	0.00	0.50	1.44	0.48	2.36	31.01	250	78.0	0.25	0.61	92.40%
COBBLE HILL DRIVE	113A	10A		13		35		180	4.00	2.34	0.00	1.50	0.00	0.31	1.75	0.58	2.92	31.01	250	44.0	0.25	0.61	90.60%
From DCR Phoenix Phase 3 (Node 5B)								**224**		**2.91**	**0.00**		**0.00**		**1.64**	**0.46**	**3.37**						
COBBLE HILL DRIVE	10A	114A		6		16		421	4.00	5.45	0.00	1.50	0.00	0.20	3.59	1.18	6.64	31.01	250	56.0	0.25	0.61	78.60%
(Node 5) To SNC																							
KENNEVALE	114A	111A		14		38		5607	3.20	58.11	21.50	1.00	6.97	0.38	118.04	38.95	104.02	132.98	450	92.7	0.20	0.81	21.77%
KENNEVALE (Node 4)	111A	100		8		21.60		5629	3.20	58.30	21.50	1.00	6.97	0	118.38	39.07	104.33	132.98	450	59.0	0.20	0.81	21.54%

Where Q = average daily per capita flow (280 l/cap.d.) or (0.00324l/sec./cap)
I = Unit of peak extraneous flow (0.33 l/sec/ha)
M = Peaking factor = Harmon Peaking Factor , M = 1+(14/(4+P^0.5)) , where P = population in thousands
Q(p) = Peak population flow (l/s)
Q(i) = peak extraneous flow (l/s)

Population Density = 3.4 per single or semi
2.7 per townhouse

ICI rate 28,000 l/day/ha Peaked at 1.5

Issued for Master servicing report March 2012
revised flow rates per New City Standards Dec 2018

IBI GROUP

Ulitmate Servicing
Including External Sources

SANITARY SEWER DESIGN SHEET
PROJECT : CONCEPTUAL SITE SERVICING STUDY
LOCATION : WEST BARRHAVEN
DEVELOPER : TARTAN-AIRTH-DCR PHOENIX III LANDS

DCR Phoenix Phase I Site

FLOW CALCULATION TO KENNEVALE SEWER AND VESTA STREET SEWER

LOCATION			INDIVIDUAL					CUM. RES. FLOW			CUM. COM. & INST. FLOW			INFILTRATION			TOTAL	PROPOSED SEWER					
STREET	FROM MH	TO MH	RESID. UNITS Singles Semis	RESID. UNITS Towns	FUTURE RES AREA (Ha)	POP.	COM. INST. (Ha)	POP.	PEAK FACT.	PEAK FLOW (l/s)	AREA (Ha)	PEAK FACT.	PEAK FLOW (l/s)	INCR. AREA (Ha)	CUM. AREA (Ha)	FLOW (l/s)	DESIGN FLOW (l/s)	CAP. l/s	PIPE (mm)	LGTH. (m)	SLOPE %	VEL. (full) m/s	AVAIL. CAP. (%)
AMAR LANE	143A	144A	15			51		51	4.00	0.66	0.00	1.50	0.00	0.82	0.82	0.27	0.93	26.49	200	105.0	0.60	0.82	96.48%
	144A	115A	5			17		68	4.00	0.88	0.00	1.50	0.00	0.32	1.14	0.38	1.26	26.49	200	50.0	0.60	0.82	95.25%
KENNEVALE	114A	115A	8			27		27	4.00	0.35	0.00	1.50	0.00	0.53	0.53	0.17	0.53	28.64	200	85.0	0.70	0.88	98.16%
KENNEVALE	115A	119A	5			17		112	4.00	1.45	0.00	1.50	0.00	0.39	2.06	0.68	2.13	45.09	300	125.1	0.20	0.62	95.27%
From Claridge West Pointe Village (Node 16)								**6.8**		**0.09**	**0.00**		**0.00**		**0.17**	**0.06**	**0.14**						
LAMPLIGHTERS DR	116A	117A	15			51		58	4.00	0.75	0.0	1.50	0.00	0.94	1.11	0.37	1.12	26.49	200	120.0	0.60	0.82	95.79%
	117A	118A	19			65		122	4.00	1.59	0.0	1.50	0.00	1.22	2.33	0.77	2.36	26.49	200	82.5	0.60	0.82	91.11%
	118A	119A				0		122	4.00	1.59	0.0	1.50	0.00	0.00	2.33	0.77	2.36	41.90	200	9.6	1.50	1.29	94.38%
COBBLE HILL DRIVE	142A	123A	4			14		14	4.00	0.18	0.00	1.50	0.00	0.37	0.37	0.12	0.30	26.49	200	63.1	0.60	0.82	98.87%
LAMPLIGHTERS	123A	122A	3			10	0.61	24	4.00	0.31	0.61	1.50	0.30	1.11	1.48	0.49	1.09	24.19	200	78.0	0.50	0.75	95.48%
	122A	121A	5			17		41	4.00	0.53	0.61	1.50	0.30	0.63	2.11	0.70	1.52	24.19	200	78.0	0.50	0.75	93.71%
	121A	119A				0		41	4.00	0.53	0.61	1.50	0.30	0.00	2.11	0.70	1.52	34.21	200	11.5	1.00	1.06	95.55%
KENNEVALE	119A	120A				0		275	4.00	3.57	0.61	1.50	0.30	0.11	6.61	2.18	6.05	45.09	300	37.4	0.20	0.62	86.59%
Outlet To Kennevale Road Sewer (Node 15)								**275**	4.00	**4.52**	**0.61**	1.50	**0.30**	0.16	**6.77**	**2.23**	**7.05**	45.09	300	79.4	0.20	0.62	84.37%

Where Q = average daily per capita flow (280 l/cap.d.) or (0.00324l/sec./cap)
I = Unit of peak extraneous flow (0.33 l/sec/ha)
M = Peaking factor = Harmon Peaking Factor , M = 1+(14/(4+P^0.5)) , where P = population in thousands
Q(p) = Peak population flow (l/s)
Q(i) = peak extraneous flow (l/s)

Population Density = 3.4 per single or semi
2.7 per townhouse
ICI rate 28,000 l/day/ha Peaked at 1.5

Issued for Servicing Report January 2013
revised flow rates per New City Standards Dec 2018

IBI GROUP

IBI Group

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

Ulitmate Servicing
Including External Sources

SANITARY SEWER DESIGN SHEET

PROJECT: West Barrhaven Phase 3
LOCATION: City of Ottawa
CLIENT: DCR/Phoenix Group of Companies

LOCATION			RESIDENTIAL									INSTITUTIONAL COMMERCIAL INDUSTRIAL							INFILTRATION ALLOWANCE			TOTAL FLOW	PROPOSED SEWER DESIGN						
			UNIT TYPES					POPULATION		CUMULATIVE FLOW		AREA (ha)																
Street	From MH	To MH	Singles	Semis	Towns	Stacked	Area (Ha.)	INDIV.	CUM.	Peaking Factor	Peak Flow (l/s)	INSTITUITION Indiv	INSTITUITION Cumm.	COMMERCIAL Indiv	COMMERCIAL Cumm.	INDUSTRIAL Indiv	INDUSTRIAL Cumm.	Pk. Flow (l/s)	Incr. Area (Ha.)	Cum. Area (Ha.)	Flow (l/s)	(l/s)	Capacity (l/s)	Pipe Size (mm)	Length (M)	Slope (%)	Velocity(f) M/sec	Avail. Cap. L/s	Avail. Cap. (%)
Simran Private	15A	14A			10		0.18	27.0	27.0	4.00	0.35							0.00	0.18	0.18	0.05	0.40	27.59	200	55.0	0.65	0.85	27.19	98.55%
Simran Private	14A	13A					0.02	0.0	27.0	4.00	0.35							0.00	0.02	0.20	0.06	0.41	27.59	200	13.9	0.65	0.85	27.18	98.53%
Simran Private	13A	12A			14		0.27	37.8	64.8	4.00	0.84							0.00	0.27	0.47	0.13	0.97	33.98	250	50.0	0.30	0.67	33.01	97.14%
Simran Private	12A	11A			9		0.15	24.3	89.1	4.00	1.16							0.00	0.15	0.62	0.17	1.33	33.98	250	40.7	0.30	0.67	32.65	96.08%
Sadar Private	19A	20A			21		0.40	56.7	56.7	4.00	0.74							0.00	0.40	0.40	0.11	0.85	27.59	200	77.0	0.65	0.85	26.74	96.91%
Sadar Private	20A	21A			4		0.12	10.8	67.5	4.00	0.88							0.00	0.12	0.52	0.15	1.03	27.59	200	13.9	0.65	0.85	26.56	96.28%
Sadar Private	21A	11A			18		0.29	48.6	116.1	4.00	1.51							0.00	0.29	0.89	0.25	1.76	33.98	250	61.1	0.30	0.67	32.22	94.82%
Simran Private	11A	10A			7		0.13	18.9	224.1	4.00	2.91							0.00	0.13	1.64	0.46	3.37	33.98	250	57.4	0.30	0.67	30.61	90.08%
To West Barrhaven Ph 1 (Node 5B)									**224.1**		**2.91**							**0.00**		**1.64**	**0.46**	**3.37**							
Simran Private	16A	17A			9		0.18	24.3	24.3	4.00	0.32							0.00	0.18	0.18	0.05	0.37	27.59	200	28.5	0.65	0.85	27.22	98.66%
Simran Private	17A	18A			2		0.05	5.4	29.7	4.00	0.39							0.00	0.05	0.23	0.06	0.45	27.59	200	15.3	0.65	0.85	27.14	98.35%
Moffatt Pond Court	18A	*EX 112A*	7		16		0.71	67.0	96.7	4.00	1.25							0.00	0.71	0.94	0.26	1.51	42.98	250	110.0	0.48	0.85	41.47	96.48%
To West Barrhaven Ph 1 (Node 5A)									**97**		**1.25**							**0.00**		**0.94**	**0.26**	**1.51**							

Designed: LME

Checked:

REVISION	DATE
revised flow rates per New City Standards	12-Dec-18
Issued for Master servicing report March 2012	Mar 2012

Dwg Reference:	File Ref:	Date:	Sheet No.
3761-501	3761.5.7	2009-07-06	1 of 1

Population Per Unit: 3.4 For Singles
2.7 Townhouses/Semis

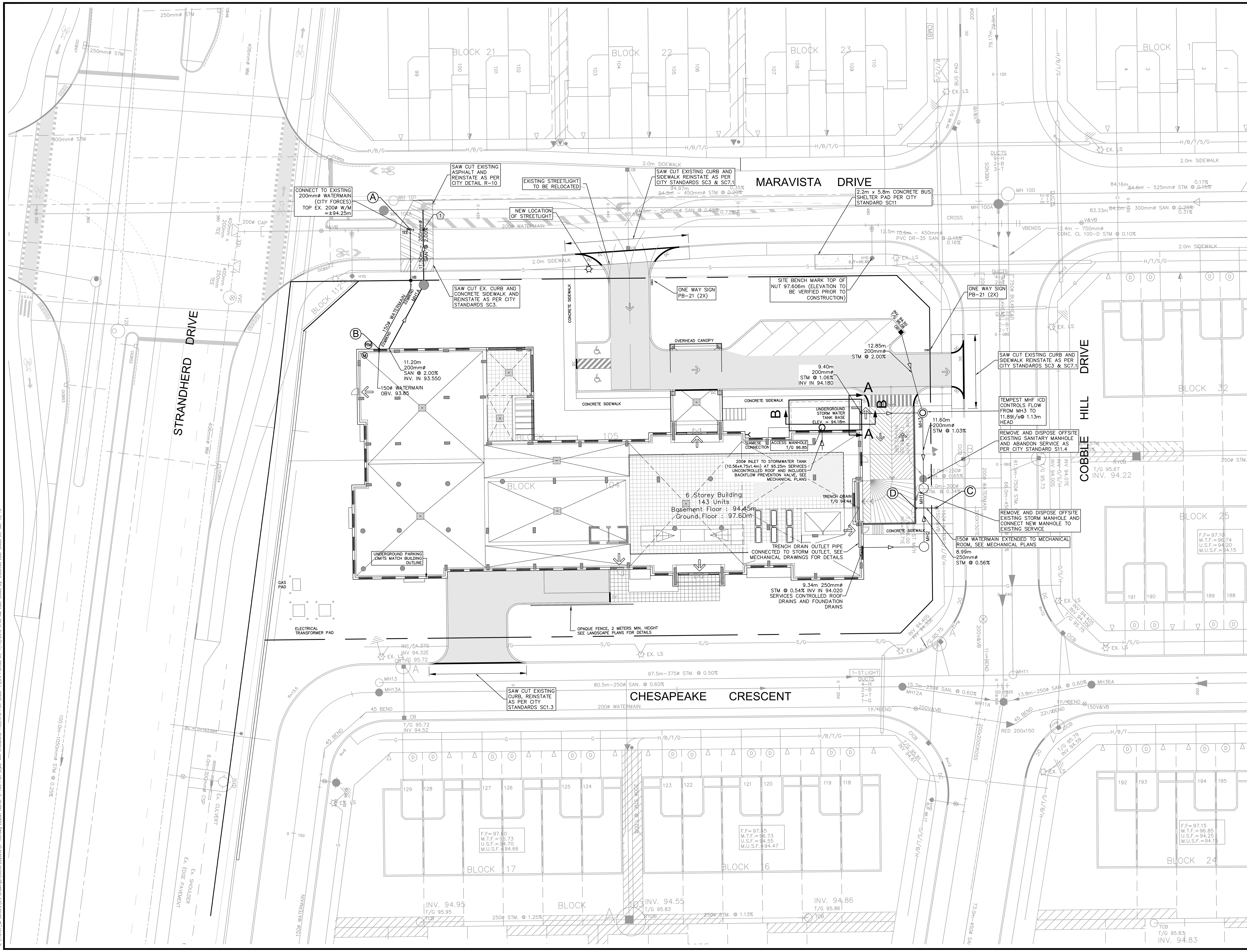
Avg. Per Capita Flow Rate: 280 l/day
Residential Peaking Factor: Harmon Formula = 1+(14/(4+P^0.5)) where P = pop'n in thousands

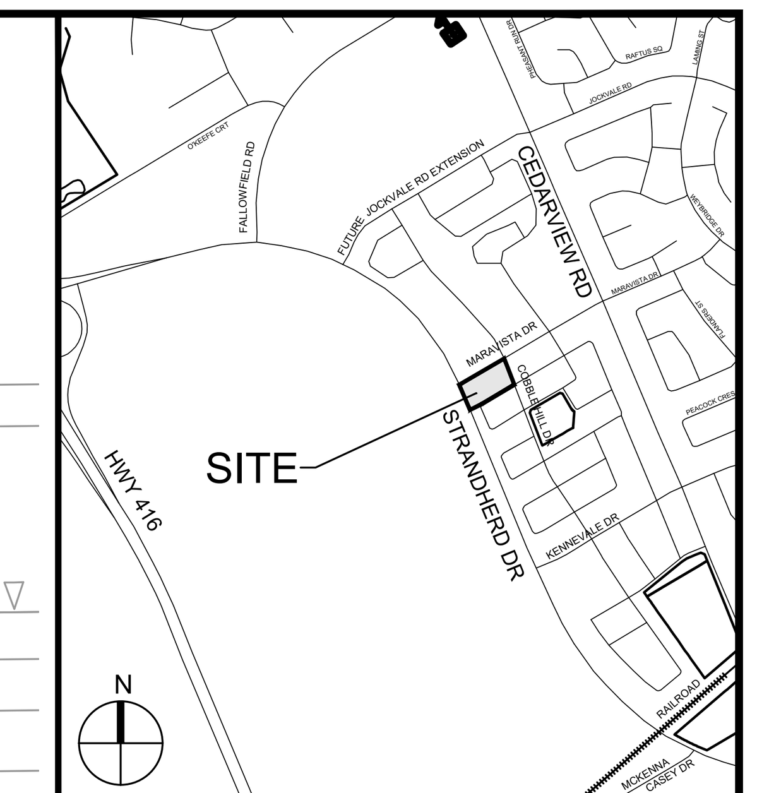
ICI Rates		Peak Factor
Institution	28000 l/ha/day	1.5
Commercial	28000 l/ha/day	1.5
Industrial	35000 l/ha/day	Moe Guidelines

Infiltration Allowance: 0.33 l/sec/Ha

Assumed pipe loss ceofficient = 0.013

Issued for Servicing Report January 2013





KEY PLAN

N.T.S.

NOTES:

1. SEE DRAWING C-101 FOR ADDITIONAL DETAILS, NOTES AND SECTIONS.

No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9			
8			
7			
6			
5			
4			
3	REVISED AS PER CITY COMMENTS AND NEW SITE PLAN	DGY	2019:07:15
2	REVISED AS PER CITY COMMENTS AND NEW SITE PLAN	DGY	2019:04:15
1	ISSUED FOR SPA	DGY	2018:12:12

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Project Title

WEST POINTE VILLAGE RETIREMENT COMPLEX

164 MARAVISTA DRIVE, OTTAWA, ON.

LICENSED PROFESSIONAL ENGINEER
D. G. Yannoulopoulos
2019/07/15
PROVINCE OF ONTARIO

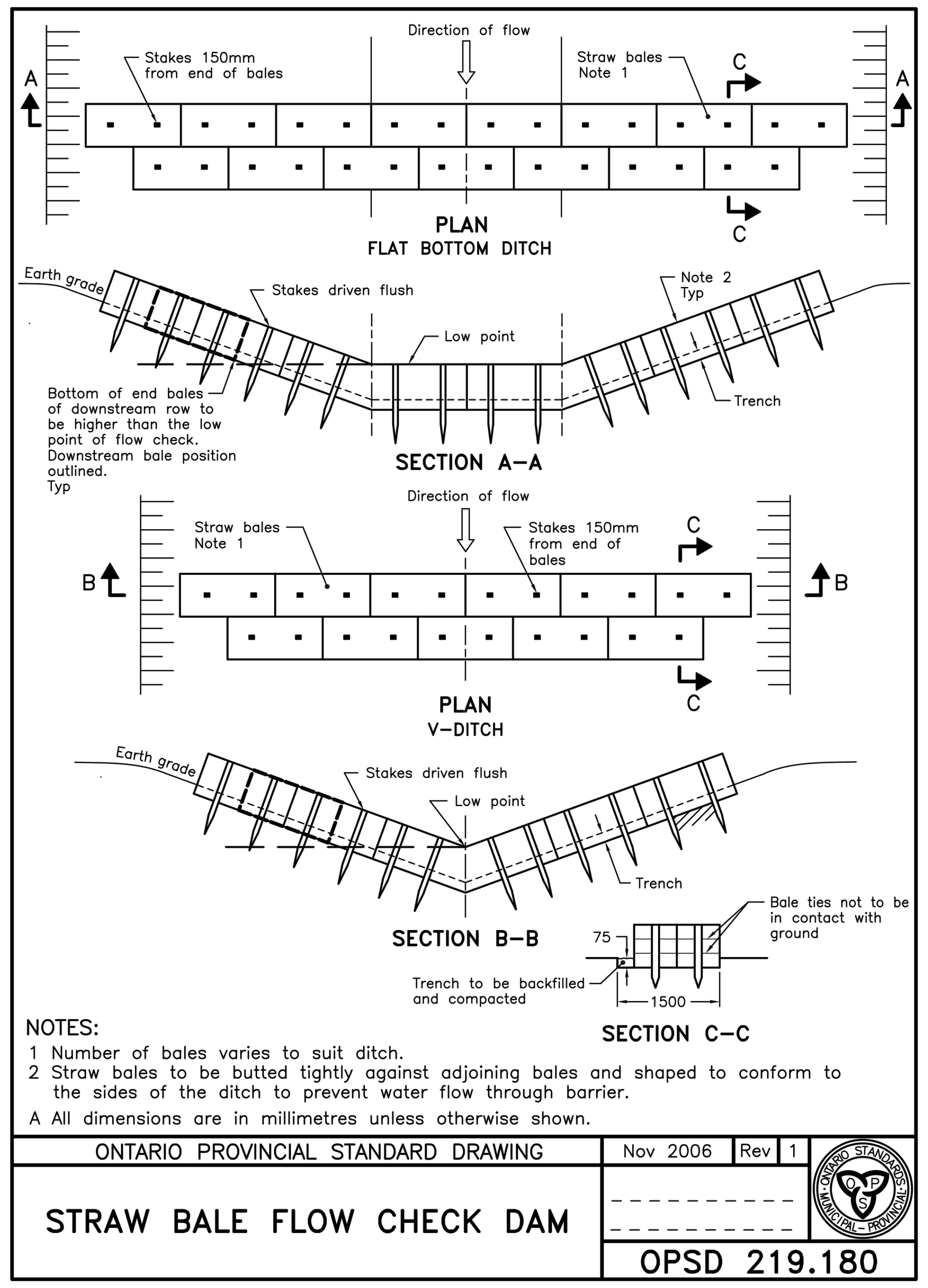
N

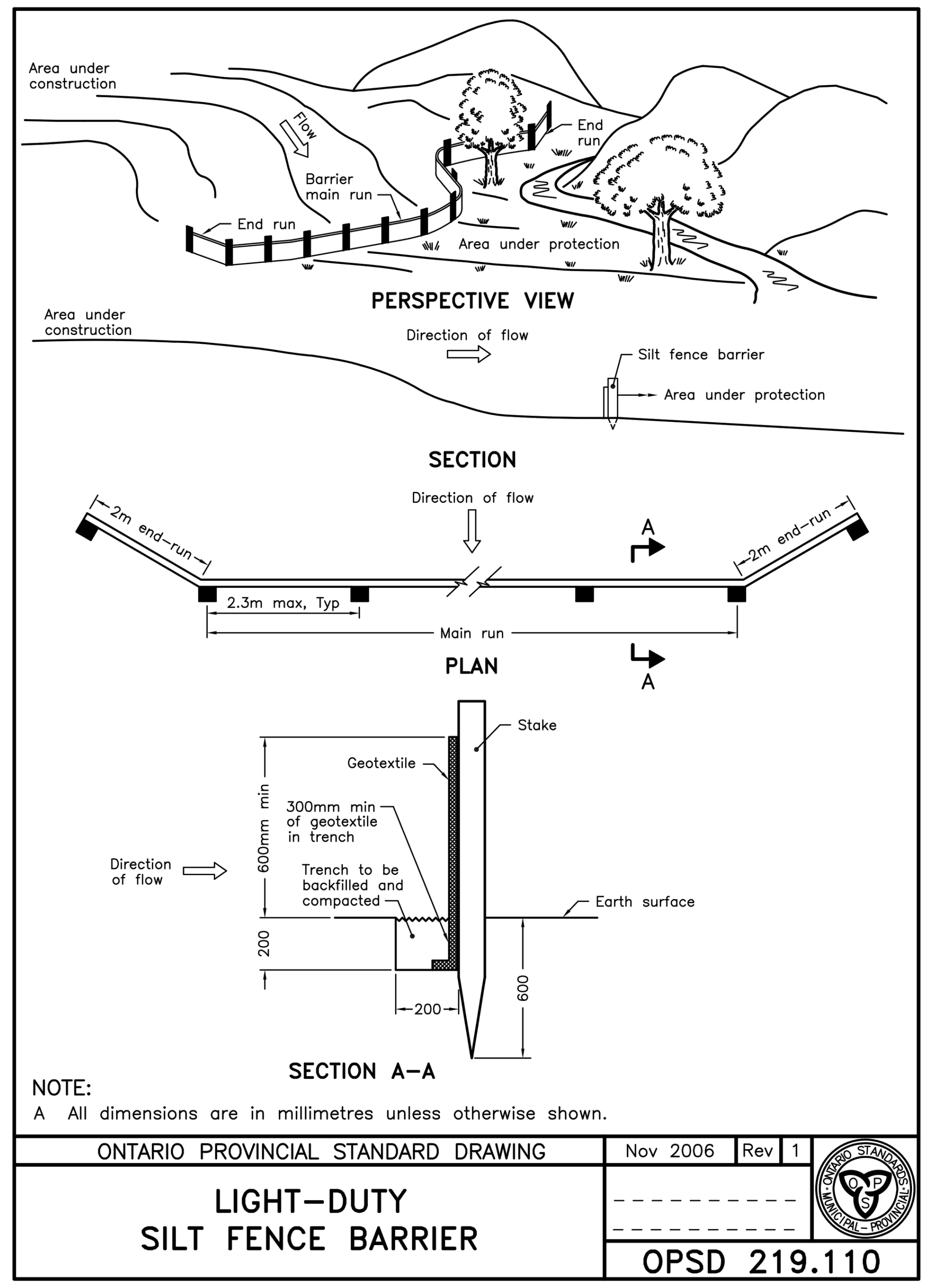
Drawing Title

SITE SERVICING PLAN

Scale	1:250
Design: RM	Date: SEPT. 2018
Drawn: DPS	Checked: DGY
Project No.: 118197	Drawing No.: C-100

CITY FILE No. D07-12-18-0196 CITY PLAN No.#####





PROPOSED SWALE C/W FLOW DIRECTION	
PROPOSED DITCH C/W FLOW DIRECTION AND SLOPE	
SLOPE C/W FLOW DIRECTION	
MAJOR OVERLAND FLOW ROUTE	
104.62	PROPOSED SPOT GRADE
104.40 (S)	PROPOSED SWALE GRADE
104.50 (S)HP	PROPOSED SWALE HIGH POINT
104.60 / 103.59	LOT CORNER GRADE C/W EXISTING GROUND
86.45 EX	TIE INTO EXISTING GRADE
96.79	FULL STATIC PONDING GRADE
	RETAINING WALL
105.30 T/W	TOP OF RETAINING WALL
103.50 B/W	PROPOSED BOTTOM OF RETAINING WALL
	TERRACING 3:1 MAXIMUM UNLESS NOTED OTHERWISE
	PRELIMINARY ROOF DRAIN LOCATION
	ONE WAY TRAFFIC SIGN (PB–21)
	TRAFFIC DIRECTION
MH3A	EXISTING SANITARY MANHOLE
MH3	EXISTING STORM MANHOLE
CB T/G 99.76	EXISTING STREET CATCHBASIN
CICB G/G 99.76	EXISTING CURB INLET CATCHBASIN
V&VB	EXISTING VALVE AND VALVE BOX
V&C	EXISTING VALVE AND CHAMBER
HYD B/F 100.56	EXISTING HYDRANT
	EXISTING BARRIER CURB
D.C.	EXISTING DEPRESSED BARRIER CURB
	EXISTING CONCRETE SIDEWALK
	250mmØ SUBDRAIN
	SIAMESE CONNECTION (IF REQUIRED)
M	METER
RM	REMOTE METER
PRV	PRESSURE REDUCING VALVE
A	WATERMAIN IDENTIFICATION
1	PIPE CROSSING IDENTIFICATION
	INLET CONTROL DEVICE LOCATION
	PROTECTIVE BOLLARD
	HEAVY DUTY ASPHALT / FIRE ROUTE
MH3A	SANITARY MANHOLE
MH3	STORM MANHOLE
CB T/G 99.76	CATCHBASIN c/w TOP OF GRATE
RYCB T/G 99.76	REAR YARD CATCHBASIN c/w GUTTER GRADE
ECB T/G 100.25	REAR YARD "END" CATCHBASIN C/W TOP OF GRATE 300ø)
CBMH T/G 101.55	CATCHBASIN MANHOLE c/w TOP OF GRATE
V&VB	VALVE AND VALVE BOX
V&C	VALVE AND CHAMBER
HYD B/F 100.56	HYDRANT c/w BOTTOM OF FLANGE ELEVATION
D.C.	DEPRESSED BARRIER CURB AS PER SC1.1
	BARRIER CURB AND GUTTER AS PER SC1.2
	MOUNTABLE CURB AS PER SC1.3
	PROPOSED CONCRETE SIDEWALK
	PROPOSED CHAIN LINK SLIDING GATE
	PROPOSED CHAIN LINK FENCE
	CLAY DYKES PER S8
F.F.E.=106.30	PROPOSED BUILDING FINISHED FLOOR ELEVATION
U.S.F.=104.30	PROPOSED UNDERSIDE OF FOOTING ELEVATION
	PROPOSED TRANSFORMER

WATERMAIN SCHEDULE

	STATION	DESCRIPTION	FINISHED GRADE	TOP OF WATERMAIN	AS–BUILT WATERMAIN
A	0+000.00	CONNECT TO EXISTING 200ø – 200x150TEE	EX.±96.65		EX.±94.25
	0+007.75	150ø V&VB	96.75	94.35	
	0+009.00	22 ½° BEND	96.78	94.38	
	0+019.15	22 ½° BEND	97.45	93.85	
B	0+019.55	BUILDING	97.45	93.85	
C	0+000.00	CONNECT TO EXISTING 150ø V&VB	EX.±96.05		EX.±93.50
	0+001.50	45° VERTICAL BEND	95.93	93.50	
	0+002.00	45° VERTICAL BEND	94.71	93.00	
D	0+003.19	BUILDING	94.51	93.00	

STORM STRUCTURE TABLE

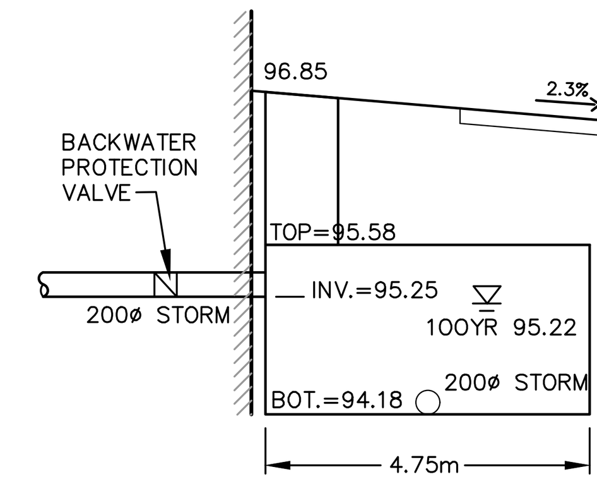
NAME	RIM ELEV.	INVERT IN	INVERT IN AS–BUILT	INVERT OUT	INVERT OUT AS–BUILT	DESCRIPTION
MH1	96.13	NW93.860 SE93.860		NE93.710		1200ø OPSD 701.010
MH2	96.11	SW93.970		NW93.910		1200ø OPSD 701.010
MH3	96.19	NW94.240 SW94.080		SE93.980		1200ø OPSD 701.010

Sanitary STRUCTURE TABLE

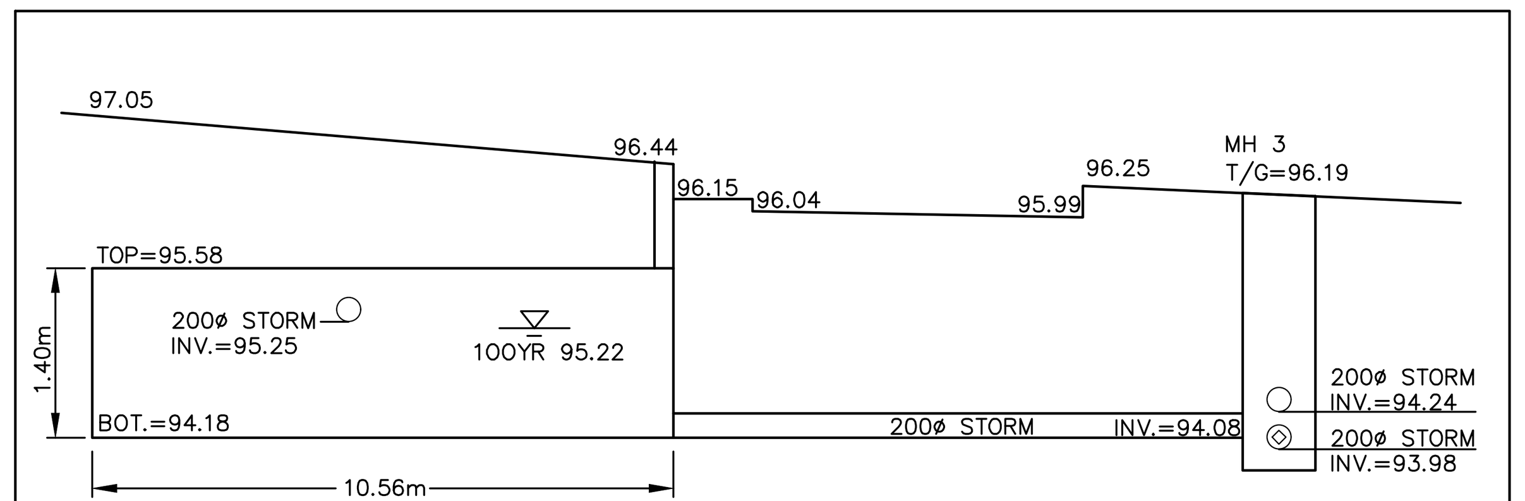
NAME	RIM ELEV.	INVERT IN	INVERT IN AS–BUILT	INVERT OUT	INVERT OUT AS–BUILT	DESCRIPTION
MH1A	96.71	S93.326		NW93.300		1200ø OPSD 701.010

CROSSING SCHEDULE

1	200ø SAN 0.70M CLEARANCE UNDER 200ø W/M



SECTION A–A
N.T.S.



SECTION B–B
N.T.S.

ROAD STRUCTURE **

CAR ONLY PARKING AREAS:

50mm WEAR COURSE – HL–3 OR SUPERPAVE 12.5 ASPHALTIC CONCRETE
150mm BASE – OPSS GRANULAR "A" CRUSHED STONE
300mm SUBBASE – OPSS GRANULAR "B" TYPE II
ON APPROVED SUBGRADE

HEAVY TRUCK PARKING AREAS AND ACCESS LANES:

40mm WEAR COURSE – HL–3 OR SUPERPAVE 12.5 ASPHALTIC CONCRETE
50mm BINDER COURSE – HL–8 OR SUPERPAVE 19.0 ASPHALTIC CONCRETE
150mm BASE COURSE – OPSS GRANULAR "A" CRUSHED STONE
400mm SUBBASE – OPSS GRANULAR "B" TYPE II
ON APPROVED SUBGRADE

** REFER TO GEOTECHNICAL REPORT BY PATERSON GROUP PG4557–1 DATED AUG. 1, 2018

ROAD STRUCTURE EXISTING ROADS

EXISTING MARAVISTA DRIVE AND COBBLE HILL DRIVE (11.0m) :

50mm HL3
50mm HL4
50mm HL
150mm GRANULAR "A"
600mm GRANULAR "B"

EXISTING CHESAPEAKE CRESCENT (8.5m) :

50mm HL3
50mm HL4
150mm GRANULAR "A"
375mm GRANULAR "B"

DRAWING NOTES

1.0 GENERAL

1.1 CONTRACTOR TO VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.

1.2 DO NOT SCALE DRAWINGS.

1.3 CONTRACTOR TO REPORT ALL DISCOVERIES OF ERRORS, OMISSIONS OR DISCREPANCIES TO THE ARCHITECT OR DESIGN ENGINEER AS APPLICABLE.

1.4 USE ONLY THE LATEST REVISED DRAWINGS OR THOSE THAT ARE MARKED "ISSUED FOR CONSTRUCTION".

1.5 ALL CONSTRUCTION SHALL COMPLY WITH CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS.

1.6 THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS AND SPECIFICATIONS.

1.7 FOR LEGAL SURVEY INFORMATION REFER TO REGISTERED PLAN.

1.8 REFER TO SITE PLAN (DRAWING NO A050) BY NEUF ARCHITECTS.

1.09 CONTRACTOR TO IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES AS IDENTIFIED IN THE EROSION AND SEDIMENT CONTROL PLAN TO THE SATISFACTION OF THE CITY OF OTTAWA, PRIOR TO UNDERTAKING ANY SITE ALTERATIONS (FILLING, GRADING, REMOVAL OF VEGETATION, ETC.). DURING ALL PHASES OF THE SITE PREPARATION AND CONSTRUCTION THE MEASURES ARE TO BE MAINTAINED TO THE SATISFACTION OF THE ENGINEER AND CITY OF OTTAWA IN ACCORDANCE WITH THE BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL. SHOULD ANY ADDITIONAL MEASURES BE REQUIRED TO ADDRESS FIELD CONDITIONS THEY SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER OR THE CITY OF OTTAWA. SUCH ADDITIONAL MEASURES MAY INCLUDE BUT NOT BE LIMITED TO INSTALLATION OF FILTER CLOTHS ACROSS MANHOLE AND CATCHBASIN LIDS TO PREVENT SEDIMENT FROM ENTERING THE STRUCTURE AND INSTALLATION AND MAINTENANCE OF A LIGHT DUTY SILT FENCE BARRIER AS REQUIRED.

1.10 ALL IRON WORK ELEVATIONS SHOWN ARE APPROXIMATE AND ARE SUBJECT TO MINOR ADJUSTMENTS AS DETERMINED BY THE ENGINEER.

1.11 ALL CONCRETE CURBS AND SIDEWALKS TO CONFORM TO O.P.S. AND CONSTRUCTED TO CITY STANDARDS. ALL ONSITE CURBS TO BE BARRIER TYPE, WITH DEPRESSIONS AS NOTED.

1.12 ALL CONCRETE SHALL BE "NORMAL PORTLAND CEMENT" IN ACCORDANCE WITH O.P.S.S. 1350 AND SHALL ACHIEVE A MINIMUM STRENGTH OF 30MPa AT 28 DAYS.

1.13 ALL CONSTRUCTION TRAFFIC TO ACCESS SITE FROM MARAVISTA DRIVE.

1.14 FOR GEOTECHNICAL REPORT SEE GEOTECHNICAL INVESTIGATION BY PATERSON GROUP PG4557-1 DATED AUG. 1 2018.

1.15 CONTRACTOR TO PROTECT EXISTING INFRASTRUCTURE AND PROPERTY SUCH AS TREES, PARKING METERS, SIDEWALKS, CURBS, ASPHALT, AND STREET SIGNS FROM DAMAGE DURING CONSTRUCTION. CONTRACTOR TO PAY THE COST TO REINSTATE OR REPLACE ANY DAMAGED INFRASTRUCTURE OR PROPERTY TO THE SATISFACTION OF THE CITY.

1.16 THE POSITION OF POLE LINES, CONDUITS, WATERMAIN, SEWERS, AND OTHER UNDERGROUND AND ABOVEGROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK THE CONTRACTOR SHALL INFORM ITSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, SHALL PROTECT ALL UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

1.17 CONTRACTOR TO SUPPLY SUITABLE FILL MATERIAL WHERE REQUIRED TO ROUGH GRADE THE SITE. ALL IMPORTED FILL MATERIAL TO BE CERTIFIED AS ACCEPTABLE BY THE GEOTECHNICAL ENGINEER.

1.18 CONTRACTOR TO HAUL EXCESS MATERIAL OFFSITE AS NECESSARY TO GRADE SITE TO MEET THE PROPOSED GRADES. ALL EXCESS MATERIAL TO BE HAULED OFFSITE AND DISPOSED OF AT AN APPROVED DUMP SITE. SHOULD THE CONTRACTOR DISCOVER ANY HAZARDOUS MATERIAL, CONTRACTOR IS TO NOTIFY ENGINEER. ENGINEER TO DETERMINE APPROPRIATE DISPOSAL METHOD/LOCATION.

1.19 FILL MATERIAL WITHIN THE PARKING LOT AND BUILDING PAD AREAS, AND SUPPORTING BUILDING FOUNDATIONS SHALL BE COMPACTED TO 98% STANDARD MODIFIED PROCTOR DENSITY AND TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER.

1.20 ALL COMPACTION METHODS TO BE PERFORMED TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER TO INCLUDE BUT NOT BE LIMITED TO THE THICKNESS OF LIFTS, AND COMPACTION EQUIPMENT USED.

1.21 ALL DISTURBED BOULEVARDS TO BE REINSTATED WITH SOD ON 100mm TOPSOIL.

1.22 UTILITY DUCTS TO BE INSTALLED PRIOR TO ROAD BASE CONSTRUCTION.

1.23 CLAY SEALS TO BE INSTALLED WHERE INDICATED ON THE DRAWINGS OR AS APPROVED AND DIRECTED BY THE GEOTECHNICAL ENGINEER ALL IN ACCORDANCE WITH CITY OF OTTAWA STANDARDS AND SPECIFICATIONS.

1.24 SITE BENCH MARK TOP OF NUT ON HYDRANT AT INTERSECTION OF MARAVISTA AND COBBLE HILL DRIVE SUPPLIED BY IBI, SHOULD BE VERIFIED PRIOR TO CONSTRUCTION. (SEE DRAWING C-100 FOR LOCATION)

2.0 SANITARY

2.1 ALL SANITARY SEWER MAINS TO BE CSA CERTIFIED, BELL AND SPIGOT TYPE. ONLY FACTORY FITTINGS TO BE USED. SEWER TO BE INSTALLED AS PER OSPD 1005.01. SANITARY SEWER MATERIALS TO BE:
200mmØ AND SMALLER - PVC DR 35

2.2 ALL SANITARY MAINTENANCE HOLES TO BE 1.2m DIAMETER AS PER CITY OF OTTAWA STANDARDS COMPLETE WITH BENCHING, RUNGS, FRAME AND COVER, DROP PIPES AND LANDINGS WHERE NEEDED.

2.3 SANITARY MANHOLE COVERS TO BE CITY OF OTTAWA STD. S25 (MOD. OPSD. 401.020). SANITARY MANHOLE COVER TO BE CLOSED COVER TYPE, AS PER CITY STANDARD S24.

2.4 SANITARY SEWER LEAKAGE TEST AND CCTV INSPECTION SHALL BE COMPLETED AS PER CITY SPECIFICATIONS PRIOR TO INSTALLATION OF BASE COURSE ASPHALT.

2.5 ANY SANITARY SEWER WITH LESS THAN 2.0m COVER REQUIRES THERMAL INSULATION AS PER CITY OF OTTAWA STANDARD W22, OR AS APPROVED BY THE ENGINEER.

2.6 CONNECTION TO THE EXISTING SANITARY SEWER TO BE INCLUDED IN THE COST FOR SANITARY SEWER INSTALLATION. THIS INCLUDES REINSTATEMENT OF ROAD CUTS TO CITY STANDARDS.

3.0 STORM

3.1 ALL STORM SEWERS TO BE CSA CERTIFIED, BELL AND SPIGOT TYPE. ALL STORM SEWERS TO BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS. ONLY FACTORY FITTINGS TO BE USED. STORM SEWER MATERIALS TO BE : 375mmØ AND SMALLER - PVC DR 35.

3.2 ALL STORM MAINTENANCE HOLES TO BE SIZED IN ACCORDANCE WITH THE PLANS AND AS PER CITY OF OTTAWA STANDARDS COMPLETE WITH BENCHING, RUNGS, AND FRAME AND COVER.

3.3 STORM MH COVERS TO BE OPEN TYPE, AS PER CITY STANDARD S24, FRAMES TO BE PER CITY OF OTTAWA STD. S25. CONTRACTOR TO INSTALL FILTER FABRIC UNDER STORM MH COVER UNTIL SODDING IS COMPLETE.

3.4 STORM MAINTENANCE HOLES TO BE OPSD, SIZE AS SPECIFIED, TAPER TOP.

3.5 ALL CATCH BASINS TO BE AS PER OPSD 705.010, FRAME & FISH TYPE GRATE AS PER CITY OF OTTAWA STD. S19.1.

3.6 150mm DIAMETER SOCK-WRAPPED PERFORATED PVC SUBDRAINS 3.0m IN LENGTH ALONG CURB LINE OF CB TO BE INSTALLED.

3.7 ANY STORM SEWER WITH LESS THAN 2.0m COVER REQUIRES THERMAL INSULATION AS PER CITY OF OTTAWA STANDARD W22, OR AS APPROVED BY THE ENGINEER.

3.8 CONNECTION TO THE EXISTING STORM SEWER TO BE INCLUDED IN THE COST FOR STORM SEWER INSTALLATION. THIS INCLUDES REINSTATEMENT OF ROAD CUT TO CITY STANDARDS.

3.9 CONTRACTOR TO PROVIDE IPEX-TEMPEST MHF ICD'S SHOP DRAWINGS, OR EQUIVALENT, FOR ENGINEERS REVIEW PRIOR TO ORDERING ICD'S.

4.0 WATER

4.1 ALL WATERMAINS TO BE PVC DR 18, WITH MINIMUM COVER OF 2.4m AND INSTALLED PER CITY OF OTTAWA STANDARDS. ALL DOMESTIC WATER SERVICES ARE TO BE 150mmØ.

4.2 THRUST BLOCKS TO BE INSTALLED AT ALL BENDS, TEES, AND CAPS ALL AS PER OPSD 1103.01 AND 1103.02.

4.3 CONTRACTOR TO CONDUCT PRESSURE AND LEAKAGE TESTING OF ALL WATERMAINS AND DISINFECT AND CHLORINATE ALL WATERMAINS TO THE SATISFACTION OF M.O.E. AND THE CITY OF OTTAWA.

4.4 TRACER WIRE TO BE INSTALLED ALONG THE FULL LENGTH OF WATERMAIN AND ATTACHED TO EACH MAIN STOP AS PER CITY OF OTTAWA STANDARDS W36.

4.5 ALL COMPONENTS OF THE WATER DISTRIBUTION SYSTEM SHALL BE CATHODICALLY PROTECTED AS PER CITY OF OTTAWA STANDARDS W40 & W42.

4.6 ALL VALVES & VALVE BOXES AND ASSEMBLIES SHALL BE INSTALLED AS PER CITY OF OTTAWA STANDARDS W24.

4.7 ANY WATERMAIN WITH LESS THAN 2.4m COVER REQUIRES THERMAL INSULATION AS PER CITY OF OTTAWA STANDARD W22, OR AS APPROVED BY THE ENGINEER.

4.8 CONTRACTOR IS RESPONSIBLE FOR ACQUIRING THE WATER PERMIT FROM THE CITY OF OTTAWA AND PAYMENT OF ANY FEES ASSOCIATED WITH SECURING THE WATER PERMIT. OWNER IS RESPONSIBLE FOR REIMBURSING THE CONTRACTOR FOR THE ACTUAL COST OF ACQUIRING THE WATER PERMIT.

4.9 CONNECTION TO EXISTING WATERMAIN TO BE INCLUDED IN THE COST FOR THE WATERMAIN INSTALLATION. THIS COST INCLUDES REINSTATEMENT OF ROAD CUTS TO CITY STANDARDS.

5.0 PARKING LOT AND WORK IN PUBLIC RIGHTS OF WAY

5.1 CONTRACTOR TO REINSTATE ROAD CUTS PER CITY OF OTTAWA STANDARD R-10.

5.2 THE CONTRACTOR SHALL PREPARE A TRAFFIC MANAGEMENT PLAN FOR REVIEW AND APPROVAL BY THE CITY OF OTTAWA. CONTRACTOR TO MAINTAIN TRAFFIC FLOW DURING THE ENTIRE CONSTRUCTION PERIOD. MAINTENANCE OF ROAD CUTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. PROVISION OF FLAGMEN, DETOURS AS NECESSARY, BARRICADES AND SIGNS TO THE FULL SATISFACTION OF THE ENGINEER AND ROAD AUTHORITY SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

5.3 CONTRACTOR TO PREPARE SUBGRADE, INCLUDING PROOFROLLING, TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER PRIOR TO THE COMMENCEMENT OF PLACEMENT OF GRANULAR B MATERIAL.

5.4 FILL TO BE PLACED AND COMPACTED PER THE GEOTECHNICAL REPORT REQUIREMENTS.

5.5 CONTRACTOR TO SUPPLY, PLACE AND COMPACT GRANULAR B MATERIAL IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOETCHNICAL ENGINEER. CONTRACTOR TO PROVIDE ENGINEER WITH SAMPLES OF GRANULAR B MATERIAL FOR TESTING AND CERTIFICATION FROM THE GEOTECHNICAL ENGINEER THAT THE MATERIAL MEETS THE GRADATION REQUIREMENTS SPECIFIED IN THE GEOTECHNICAL REPORT.

5.6 GRANULAR A MATERIAL TO BE PLACED ONLY UPON APPROVAL BY THE GEOTECHNICAL ENGINEER OF GRANULAR B PLACEMENT.

5.7 CONTRACTOR TO SUPPLY, PLACE AND COMPACT GRANULAR A MATERIAL IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOETCHNICAL ENGINEER. CONTRACTOR TO PROVIDE ENGINEER WITH SAMPLES OF GRANULAR A MATERIAL FOR TESTING AND CERTIFICATION FROM THE GEOTECHNICAL ENGINEER THAT THE MATERIAL MEETS THE GRADATION REQUIREMENTS SPECIFIED IN THE GEOTECHNICAL REPORT.

5.8 ASPHALT MATERIAL TO BE PLACED ONLY UPON APPROVAL BY THE GEOTECHNICAL ENGINEER OF GRANULAR A PLACEMENT.

5.9 CONTRACTOR TO SUPPLY, PLACE AND COMPACT ASPHALT MATERIAL IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER. CONTRACTOR TO PROVIDE ENGINEER WITH SAMPLES OF ASPHALT MATERIAL FOR TESTING AND CERTIFICATION FROM THE GEOTECHNICAL ENGINEER THAT THE MATERIAL MEETS THE REQUIREMENTS SPECIFIED IN THE GEOTECHNICAL REPORT.

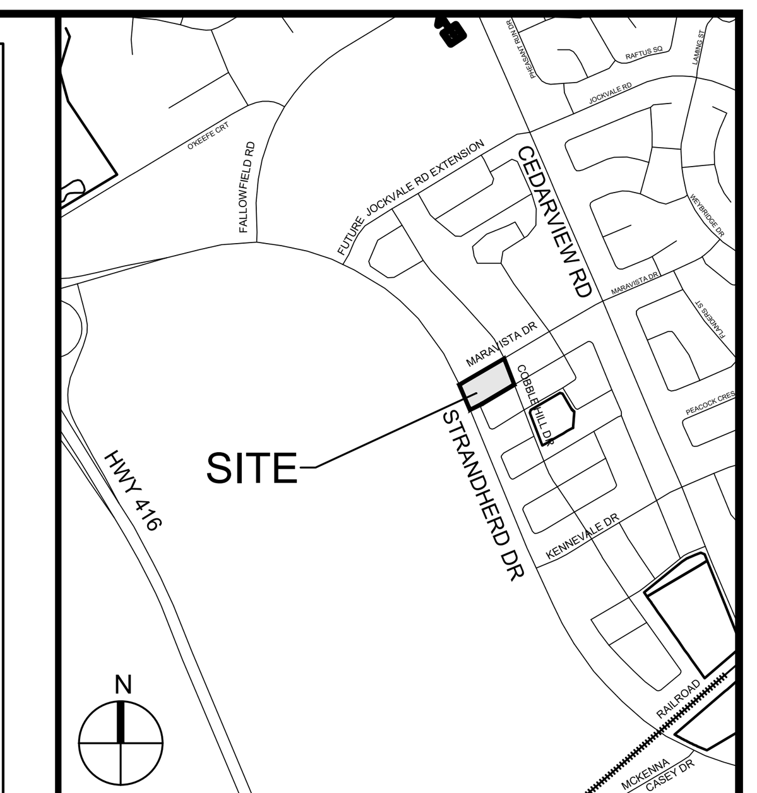
5.10 CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING LINE AND GRADE IN ACCORDANCE WITH THE PLANS, AND FOR PROVIDING THE ENGINEER WITH VERIFICATION PRIOR TO PLACEMENT.

5.11 DITCHES DISTURBED DURING CULVERT INSTALLATION AND GRADING OPERATIONS ARE TO BE REINSTATED TO THEIR ORIGINAL CONDITION AND FLOWLINE GRADES.

5.12 EXISTING WEST SIDE ROAD DITCH ALONG STRANDHERD DRIVE TO BE REALIGNED AS PER THE GRADING PLAN. ADJACENT AREAS BETWEEN ROAD SIDE DITCH AND SIDE YARD LOT TO BE RE GRADED AS PER THE GRADING PLAN. ALL RE GRADED AREAS IN EXISTING PUBLIC RIGHTS OF WAY AND ANY OTHER DISTURBED AREAS IN EXISTING PUBLIC RIGHTS OF WAY ARE TO BE FINISHED WITH SOD ON 100mm TOPSOIL.

5.13 ALL EXCESS MATERIAL TO BE HAULED OFFSITE AND DISPOSED OF AT AN APPROVED DUMP SITE. SHOULD THE CONTRACTOR DISCOVER ANY HAZARDOUS MATERIAL, CONTRACTOR IS TO NOTIFY ENGINEER. ENGINEER TO DETERMINE APPROPRIATE DISPOSAL METHOD/LOCATION.

5.14 PAVEMENT STRUCTURE (MATERIAL TYPES AND THICKNESSES) FOR HEAVY DUTY AND LIGHT DUTY AREAS TO BE AS SPECIFIED IN THE GEOTECHNICAL REPORT AND SHOWN ON THE PLANS.



KEY PLAN
N.T.S.

NOTES:
1. SEE DRAWING C–101 FOR ADDITIONAL DETAILS, NOTES AND SECTIONS.

No.	REVISIONS	By	Date
14			
13			
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3	REVISED AS PER CITY COMMENTS AND NEW SITE PLAN	DGY	2019:07:15
2	REVISED AS PER CITY COMMENTS AND NEW SITE PLAN	DGY	2019:04:15
1	ISSUED FOR SPA	DGY	2018:12:12

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Project Title
WEST POINTE VILLAGE RETIREMENT COMPLEX
164 MARAVISTA DRIVE, OTTAWA, ON.

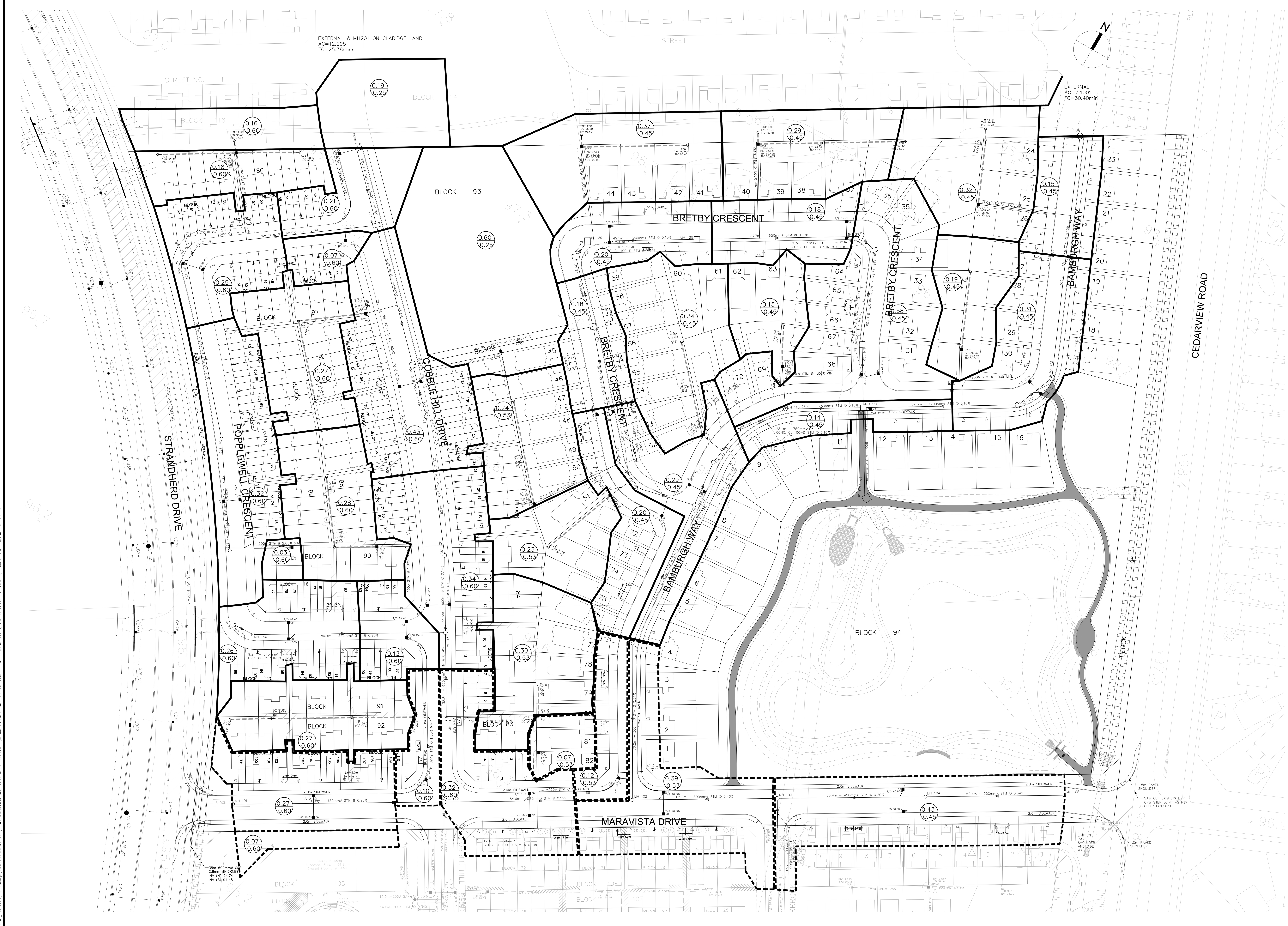
LICENSED PROFESSIONAL ENGINEER
D. G. Yannoulopoulos
2019/07/15
PROVINCE OF ONTARIO

Drawing Title
SITE DETAILS

Scale	N.T.S.
Design: RM	Date: SEPT, 2018
Drawn: DPS	Checked: DGY
Project No.: 118197	Drawing No.: C-101

CITY FILE No. D07-12-18-0196 CITY PLAN No.#####

APPENDIX D



LEGEND:

AREA IN HECTARES (0.40)

RUNOFF COEFFICIENT (0.6)

MAJOR STORM ROUTE

DRAINAGE AREA CONTRIBUTING TO MARAVISTA POND.

DRAINAGE AREA CONTRIBUTING TO INTERIM POND.

RUNOFF COEFFICIENT

0.25–PARK AND OPEN SPACE

0.45–SINGLES

0.53–COMBINED SINGLES AND TOWNS

0.60–TOWNS

0.80–COMMERCIAL AND INSTITUTIONAL

NOTE:

SEE RESPECTIVE SERVICING PLAN (11141–100) FOR SEWER AND SLOPES.

No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9			
8	REVISED AS PROJECT #118197	DGY	18:12:12
7	REVISED AS PER CITY COMMENTS	DGY	11:01:11
6	REVISED PER NEW TOWNHOUSE LAYOUT	DGY	10:12:07
5	REVISED AS PER CITY COMMENTS	DGY	10:05:20
4	REVISED AS PER NEW DRAFT PLAN OF SUBDIVISION	DGY	10:02:26
3	REVISED AS PER RVCA AND HYDRO COMMENTS	DGY	09:12:18
2	REVISED FOR UPSTREAM CONCEPT	DGY	09:10:20
1	ISSUED FOR CITY REVIEW	DGY	09:09:22

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Project Title

MARAVISTA HEIGHTS

LICENSED PROFESSIONAL ENGINEER D. G. Yannoulopoulos 2018/12/12 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER L.E.IRELAND 100138261 PROVINCE OF ONTARIO

Drawing Title

STORM DRAINAGE PLAN

Scale 1:750

Design	Date
D.G.Y.	JULY 2009
Drawn	Checked
E.H.	D.G.Y.
Project No.	Drawing No.
11141	500

1	Area (Ha.)	C
Grass	0.0782	0.2
Asphalt	0.0340	0.9
Total	0.1122	0.41

2	Area (Ha.)	C
Grass	0.1253	0.2
Asphalt	0.0225	0.9
Total	0.1478	0.31

3	Area (Ha.)	C
Grass	0.00	0.2
Asphalt	0.1244	0.9
Total	0.1244	0.90

4	Area (Ha.)	C
Grass	0.00	0.2
Asphalt	0.0778	0.9
Total	0.0778	0.90

5	Area (Ha.)	C
Grass	0.0016	0.2
Asphalt	0.0178	0.9
Total	0.0194	0.84

6	Area (Ha.)	C
Grass	0.0242	0.2
Asphalt	0.0338	0.9
Total	0.0580	0.61

MARAVISTA DRIVE

2.0m SIDEWALK

CONCRETE SIDEWALK

OVERHEAD CANOPY

UNDERGROUND STORM WATER TANK BASE ELEV. = 94.18m

SIAMESE CONNECTION

ALL SEASON LAWN

TRENCH DRAIN T/G 94.44

6 Storey Building
143 Units
Basement Floor : 94.45m
Ground Floor : 97.60m

SHUFFLEBOARD

GAS PAD

ELECTRICAL TRANSFORMER PAD

BLOCK 112

BLOCK 105

BLOCK 104

STRANDHERD DRIVE

COBBLE HILL DRIVE

EX. LS

T/G 95.67
INV. 94.22

T/G 95.73

191

190

T/G 95.75

T/G 95.72

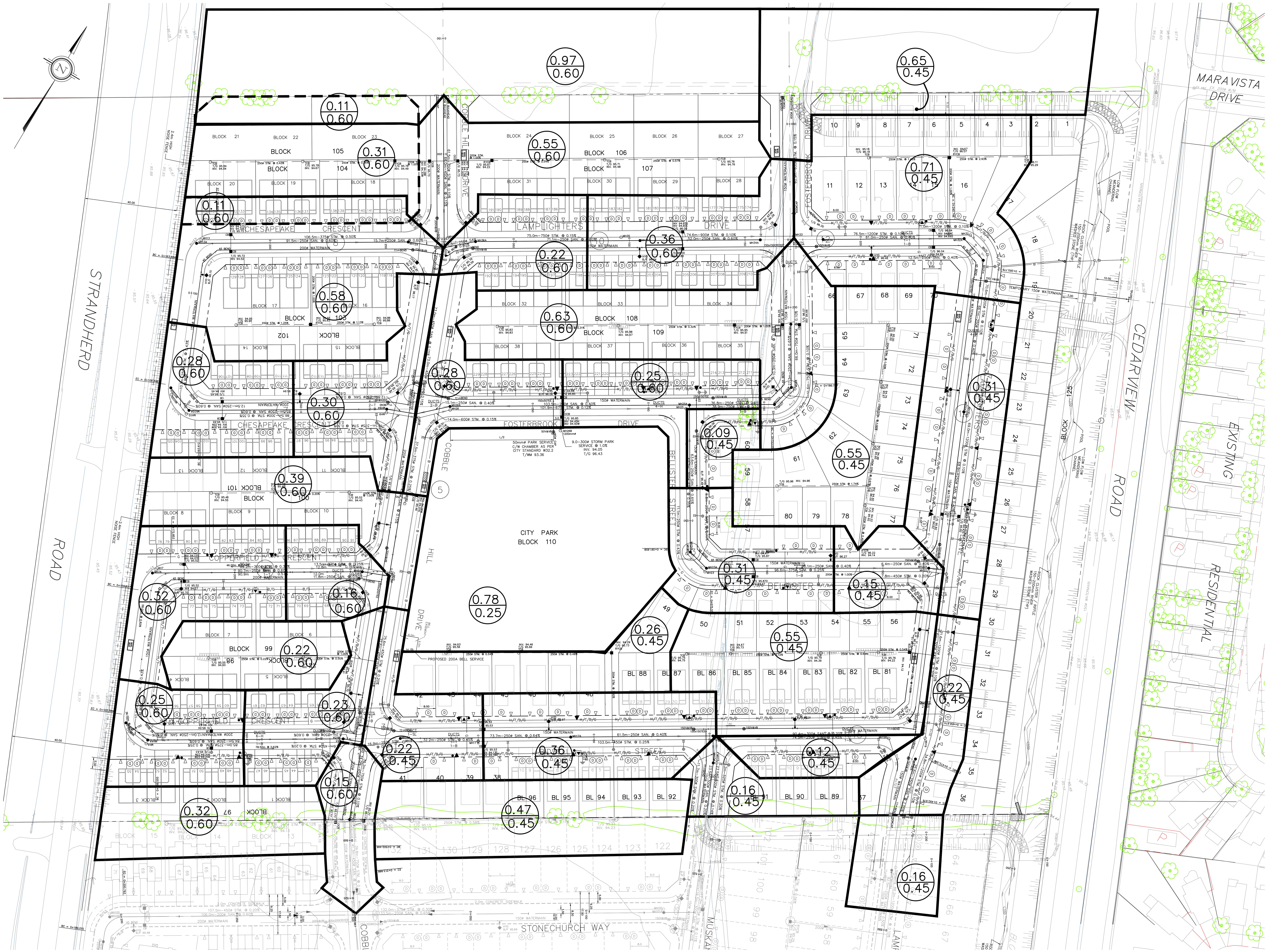
T/G 95.79

T/G 95.81

CHESAPEAKE CRESCENT

J:\118197_WPSeniors\5.9 Drawings\59civil\current\Figures\FIG 2.0.dwg Layout Name: Figure 2.0 Plot Scale: 1:5.13 Plotted At: 4/11/2019 Last Saved By: dsiurna Last Saved At: Apr. 11, 19

Scale	Project Title	Drawing Title	Sheet No.
N.T.S.	WESTPOINTE VILLAGE RETIREMENT COMPLEX	STORM DRAINAGE AREAS	FIGURE 2.0



LEGEND :

0.55	AREA IN HECTARES
0.45	RUNOFF COEFFICIENT
➜	MAJOR STORM DIRECTION

No.	REVISIONS	By	Date
13			
12			
11			
10			
9			
8			
7			
6			
5			
4	REVISED PER PROJECT #118197	DGY	18/12/12
3	REVISED AS PER CITY COMMENTS	DGY	06/09/28
2	REVISED AS PER CITY COMMENTS	DGY	06/08/31
1	REVISE AS PER CITY COMMENTS	DGY	06/07/18
0	ISSUED FOR REVIEW	DGY	06/04/18

CLARIDGE HOMES

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Project Title

CLARIDGE HOMES WEST POINTE VILLAGE

LICENSED PROFESSIONAL ENGINEER
D. G. Yannoulopoulos
2018/12/12
PROVINCE OF ONTARIO

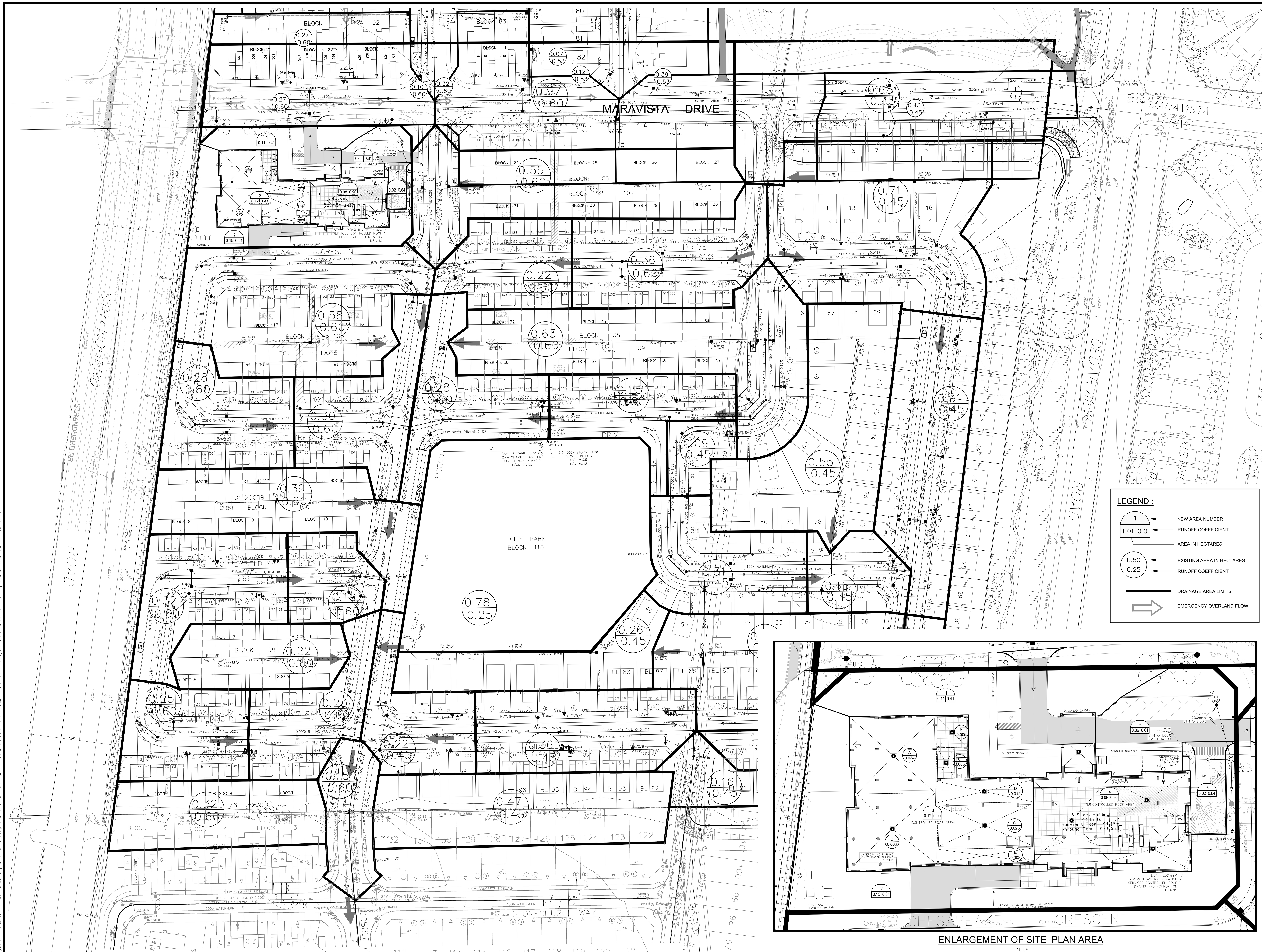
N

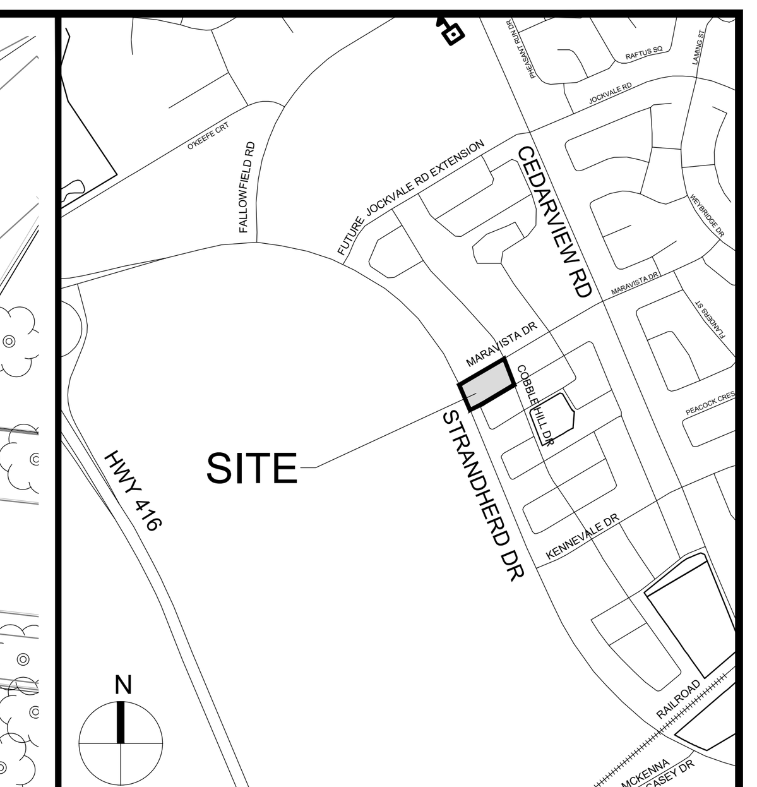
Drawing Title

STORM DRAINAGE AREA PLAN

Scale
1:750

Design	Date
D.G.Y.	APR. 2006
Drawn	**Checked**
D.P.S.	D.G.Y.
Project No.	**Drawing No.**
3603-LD	500





KEY PLAN
N.T.S.

NOTES :
1. SEE DRAWING C-101 FOR ADDITIONAL DETAILS, NOTES AND SECTIONS.

No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9			
8			
7			
6			
5			
4			
3	REVISED AS PER CITY COMMENTS AND NEW SITE PLAN	DGY	2019:07:15
2	REVISED AS PER CITY COMMENTS AND NEW SITE PLAN	DGY	2019:04:15
1	ISSUED FOR SPA	DGY	2018:12:12

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Project Title
WEST POINTE VILLAGE RETIREMENT COMPLEX
164 MARAVISTA DRIVE, OTTAWA, ON.

LICENSED PROFESSIONAL ENGINEER
D. G. Yannoulopoulos
2019/07/15
PROVINCE OF ONTARIO

Drawing Title
STORM DRAINAGE AREA PLAN

Scale
1:750

Design	Date
RM	SEPT, 2018
Drawn	Checked
DPS	DGY
Project No.	Drawing No.
118197	C-500

CITY FILE No. D07-12-18-0196 CITY PLAN No.#####

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PROJECT:	WPV RC
DATE:	14/12/2018
FILE:	118197-5.7
REV #:	1
DESIGNED BY:	A.Z.
CHECKED BY:	D.Y.

STORMWATER MANAGEMENT

Formulas and Descriptions

i_{2yr} = 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 (based on 85 L/s/Ha)

A_{site} = 0.31 Ha

$Q_{restricted}$ = 26.35 L/s

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

C = 1.00
T_c = 10 min
i_{100yr} = 178.56 mm/hr
$A_{uncontrolled}$ = 0.019 Ha

$Q_{uncontrolled}$ = 9.43 L/s

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

$Q_{max\ allowable}$ = 16.92 L/s

MODIFIED RATIONAL METHOD (100-Year, 5-Year & 2-Year Ponding)

Drainage Area	***roof a***				
Area (Ha)	0.034				
C =	1.00	Restricted Flow Q_r (L/s)=		0.94	
100-Year Ponding					
T_c Variable (min)	***i_{100yr} (mm/hour)***	***Peak Flow Q_p=2.78xCi_{100yr}A (L/s)***	***Q_r (L/s)***	***Q_p-Q_r (L/s)***	***Volume 100yr (m^3)***
82	44.15	4.21	0.94	3.27	16.100
84	43.34	4.14	0.94	3.20	16.105
86	42.57	4.06	0.94	3.12	**16.107**
88	41.83	3.99	0.94	3.05	16.107
90	41.11	3.92	0.94	2.98	16.104

Storage (m^3)				
Overflow	**Required**	**Surface**	**Sub-surface**	**Balance**
0.00	16.11	17.16	0.00	0.00

Drainage Area	***roof a***				
Area (Ha)	0.034				
C =	0.90	Restricted Flow Q_r (L/s)=		0.94	
5-Year Ponding					
T_c Variable (min)	***i_{5yr} (mm/hour)***	***Peak Flow Q_p=2.78xCi_{5yr}A (L/s)***	***Q_r (L/s)***	***Q_p-Q_r (L/s)***	***Volume 5yr (m^3)***
45	40.63	3.49	0.94	2.55	6.88
47	39.38	3.38	0.94	2.44	6.88
48	38.78	3.33	0.94	2.39	**6.88**
49	38.21	3.28	0.94	2.34	6.88
51	37.12	3.19	0.94	2.25	6.88

Storage (m^3)				
Overflow	**Required**	**Surface**	**Sub-surface**	**Balance**
0.00	6.88	17.16	0.00	0.00

Drainage Area	***roof a***				
Area (Ha)	0.034				
C =	0.90	Restricted Flow Q_r (L/s)=		0.94	
2-Year Ponding					
T_c Variable (min)	***i_{2yr} (mm/hour)***	***Peak Flow Q_p=2.78xCi_{2yr}A (L/s)***	***Q_r (L/s)***	***Q_p-Q_r (L/s)***	***Volume 2yr (m^3)***
35	36.06	3.10	0.94	2.16	4.53
37	34.70	2.98	0.94	2.04	4.53
38	34.06	2.92	0.94	1.98	**4.53**
39	33.45	2.87	0.94	1.93	4.52
41	32.30	2.77	0.94	1.83	4.51

Storage (m^3)				
Overflow	**Required**	**Surface**	**Sub-surface**	**Balance**
0.00	4.53	17.16	0.00	0.00

* Assume roof top storage of 150mm over 100% of flat roof

Drainage Area	roof b
Area (Ha)	0.036
C =	1.00
Restricted Flow Q_r (L/s)=	0.94

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)
86	42.57	4.21	0.94	3.27	16.899
88	41.83	4.14	0.94	3.20	16.903
89	41.47	4.11	0.94	3.17	**16.904**
90	41.11	4.07	0.94	3.13	16.904
92	40.42	4.00	0.94	3.06	16.903

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	16.90	17.81	0.00	0.00

* Assume roof top storage of 150mm over 100% of flat roof

Drainage Area	roof b
Area (Ha)	0.036
C =	0.90
Restricted Flow Q_r (L/s)=	0.94

5-Year Ponding

T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 5yr (m^3)
45	40.63	3.62	0.94	2.68	7.24
47	39.38	3.51	0.94	2.57	7.24
48	38.78	3.46	0.94	2.52	**7.25**
49	38.21	3.40	0.94	2.46	7.25
51	37.12	3.31	0.94	2.37	7.24

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	7.25	17.81	0.00	0.00

Drainage Area	roof b
Area (Ha)	0.036
C =	0.90
Restricted Flow Q_r (L/s)=	0.94

2-Year Ponding

T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 2yr (m^3)
35	36.06	3.21	0.94	2.27	4.77
37	34.70	3.09	0.94	2.15	4.78
38	34.06	3.04	0.94	2.10	**4.78**
39	33.45	2.98	0.94	2.04	4.78
41	32.30	2.88	0.94	1.94	4.77

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	4.78	17.81	0.00	0.00

Drainage Area	roof c
Area (Ha)	0.023
C =	1.00
Restricted Flow Q_r (L/s)=	0.63

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)
84	43.34	2.72	0.63	2.09	10.520
86	42.57	2.67	0.63	2.04	10.520
87	42.20	2.65	0.63	2.02	**10.519**
88	41.83	2.62	0.63	1.99	10.518
90	41.11	2.58	0.63	1.95	10.515

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	10.52	11.28	0.00	0.00

* Assume roof top storage of 150mm over 100% of flat roof

Drainage Area	roof c
Area (Ha)	0.023
C =	0.90
Restricted Flow Q_r (L/s)=	0.63

5-Year Ponding

T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 5yr (m^3)
45	40.63	2.29	0.63	1.66	4.49
47	39.38	2.22	0.63	1.59	4.49
48	38.78	2.19	0.63	1.56	**4.49**
49	38.21	2.16	0.63	1.53	4.49
51	37.12	2.09	0.63	1.46	4.48

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	4.49	11.28	0.00	0.00

Drainage Area	roof c
Area (Ha)	0.023
C =	0.90
Restricted Flow Q_r (L/s)=	0.63

2-Year Ponding

T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 2yr (m^3)
33	37.54	2.12	0.63	1.49	2.95
35	36.06	2.03	0.63	1.40	2.95
36	35.37	2.00	0.63	1.37	**2.95**
37	34.70	1.96	0.63	1.33	2.95
39	33.45	1.89	0.63	1.26	2.94

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	2.95	11.28	0.00	0.00

Drainage Area	roof d
Area (Ha)	0.012
C =	1.00
Restricted Flow Q_r (L/s)=	0.63

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)
41	73.83	2.42	0.63	1.79	4.400
43	71.35	2.34	0.63	1.71	4.405
44	70.18	2.30	0.63	1.67	**4.406**
45	69.05	2.26	0.63	1.63	4.406
47	66.91	2.19	0.63	1.56	4.404

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	4.41	5.89	0.00	0.00

* Assume roof top storage of 150mm over 100% of flat roof

Drainage Area	roof d
Area (Ha)	0.012
C =	0.90
Restricted Flow Q_r (L/s)=	0.63

5-Year Ponding

T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 5yr (m^3)
22	66.15	1.95	0.63	1.32	1.74
24	62.54	1.84	0.63	1.21	1.75
25	60.90	1.80	0.63	1.17	**1.75**
26	59.35	1.75	0.63	1.12	1.75
28	56.49	1.67	0.63	1.04	1.74

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	1.75	5.89	0.00	0.00

overflows to: 0

Drainage Area	roof d
Area (Ha)	0.012
C =	0.90
Restricted Flow Q_r (L/s)=	0.63

2-Year Ponding

T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 2yr (m^3)
16	59.50	1.75	0.63	1.12	1.08
18	55.49	1.64	0.63	1.01	1.09
19	53.70	1.58	0.63	0.95	**1.09**
20	52.03	1.53	0.63	0.90	1.08
22	49.02	1.45	0.63	0.82	1.08

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	1.09	5.89	0.00	0.00

overflows to: 0

Drainage Area	roof e
Area (Ha)	0.008
C =	1.00
Restricted Flow Q_r (L/s)=	0.63

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)
28	96.27	2.14	0.63	1.51	2.539
30	91.87	2.04	0.63	1.41	2.544
31	89.83	2.00	0.63	1.37	**2.544**
32	87.89	1.95	0.63	1.32	2.543
34	84.27	1.87	0.63	1.24	2.538

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	2.54	4.00	0.00	0.00

* Assume roof top storage of 150mm over 100% of flat roof

Drainage Area	roof e
Area (Ha)	0.008
C =	0.90
Restricted Flow Q_r (L/s)=	0.63

5-Year Ponding

T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 5yr (m^3)
14	86.93	1.74	0.63	1.11	0.93
16	80.46	1.61	0.63	0.98	0.94
17	77.61	1.55	0.63	0.92	**0.94**
18	74.97	1.50	0.63	0.87	0.94
20	70.25	1.41	0.63	0.78	0.93

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	0.94	4.00	0.00	0.00

Drainage Area	roof e
Area (Ha)	0.008
C =	0.90
Restricted Flow Q_r (L/s)=	0.63

2-Year Ponding

T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 2yr (m^3)
10	76.81	1.54	0.63	0.91	0.54
12	69.89	1.40	0.63	0.77	0.55
13	66.93	1.34	0.63	0.71	**0.55**
14	64.23	1.29	0.63	0.66	0.55
16	59.50	1.19	0.63	0.56	0.54

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	0.55	4.00	0.00	0.00

Drainage Area	roof f
Area (Ha)	0.005
C =	1.00
Restricted Flow Q_r (L/s)=	0.63

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)
17	132.63	1.92	0.63	1.29	1.313
19	123.87	1.79	0.63	1.16	1.323
20	119.95	1.73	0.63	1.10	**1.325**
21	116.30	1.68	0.63	1.05	1.324
23	109.68	1.59	0.63	0.96	1.319

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	1.32	2.60	0.00	0.00

* Assume roof top storage of 150mm over 100% of flat roof

Drainage Area	roof f
Area (Ha)	0.005
C =	0.90
Restricted Flow Q_r (L/s)=	0.63

5-Year Ponding

T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 5yr (m^3)
8	116.11	1.51	0.63	0.88	0.42
10	104.19	1.36	0.63	0.73	0.44
11	99.19	1.29	0.63	0.66	**0.44**
12	94.70	1.23	0.63	0.60	0.43
14	86.93	1.13	0.63	0.50	0.42

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	0.44	2.60	0.00	0.00

Drainage Area	roof f
Area (Ha)	0.005
C =	0.90
Restricted Flow Q_r (L/s)=	0.63

2-Year Ponding

T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 2yr (m^3)
5	103.57	1.35	0.63	0.72	0.22
7	90.66	1.18	0.63	0.55	0.23
8	85.46	1.11	0.63	0.48	**0.23**
9	80.87	1.05	0.63	0.42	0.23
11	73.17	0.95	0.63	0.32	0.21

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	0.23	2.60	0.00	0.00

Drainage Area	roof g
Area (Ha)	0.005
C =	1.00
Restricted Flow Q_r (L/s)=	0.63

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)
17	132.63	1.92	0.63	1.29	1.311
19	123.87	1.79	0.63	1.16	1.321
20	119.95	1.73	0.63	1.10	**1.322**
21	116.30	1.68	0.63	1.05	1.322
23	109.68	1.58	0.63	0.95	1.316

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	1.32	1.82	0.00	0.00

* Assume roof top storage of 150mm over 70% of flat roof

Drainage Area	roof g
Area (Ha)	0.005
C =	0.90
Restricted Flow Q_r (L/s)=	0.63

5-Year Ponding

T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 5yr (m^3)
8	116.11	1.51	0.63	0.88	0.42
10	104.19	1.35	0.63	0.72	0.43
11	99.19	1.29	0.63	0.66	**0.43**
12	94.70	1.23	0.63	0.60	0.43
14	86.93	1.13	0.63	0.50	0.42

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	0.43	1.82	0.00	0.00

Drainage Area	roof g
Area (Ha)	0.005
C =	0.90
Restricted Flow Q_r (L/s)=	0.63

2-Year Ponding

T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 2yr (m^3)
5	103.57	1.35	0.63	0.72	0.21
7	90.66	1.18	0.63	0.55	0.23
8	85.46	1.11	0.63	0.48	**0.23**
9	80.87	1.05	0.63	0.42	0.23
11	73.17	0.95	0.63	0.32	0.21

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	0.23	1.82	0.00	0.00

Drainage Area	4 & 6		
Area (Ha)	0.136		
C =	0.97	Restricted Flow Q_r (L/s)=	5.94

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)
50	63.95	23.39	5.94	17.45	52.34
52	62.14	22.73	5.94	16.78	52.36
53	61.28	22.41	5.94	16.47	**52.36**
54	60.44	22.10	5.94	16.16	52.36
56	58.83	21.52	5.94	15.57	52.33

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	52.36	0.00	53.60	0.00

Drainage Area	4 & 6		
Area (Ha)	0.136		
C =	0.78	Restricted Flow Q_r (L/s)=	5.94

5-Year Ponding

T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 5yr (m^3)
13	90.63	26.52	5.94	20.57	16.05
15	83.56	24.45	5.94	18.50	16.65
16	80.46	23.54	5.94	17.60	**16.89**
17	77.61	22.71	5.94	16.76	17.10
19	72.53	21.22	5.94	15.28	17.41

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	16.89	0.00	53.60	0.00

Drainage Area	4 & 6		
Area (Ha)	0.136		
C =	0.78	Restricted Flow Q_r (L/s)=	5.94

2-Year Ponding

T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 2yr (m^3)
9	80.87	23.66	5.94	17.72	9.57
11	73.17	21.41	5.94	15.46	10.21
12	69.89	20.45	5.94	14.51	**10.44**
13	66.93	19.58	5.94	13.64	10.64
15	61.77	18.07	5.94	12.13	10.91

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	10.44	0.00	53.60	0.00

Total roof Restricted Flow Q_r (L/s)=	5.03
Allowable=	16.92
available for SWM tank	11.89
design flow based on 50%	5.94

IBI GROUP

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

STORM SEWER ASBUILTS

PROJECT: MARAVISTA HEIGHTS
LOCATION: CITY OF OTTAWA
CLIENT: DCR PHOENIX

LOCATION			AREA (Ha)								RATIONAL DESIGN FLOW					SEWER DATA						
STREET	FROM MH	TO MH	C= 0.25	C= 0.45	C= 0.53	C= 0.41	C= 0.60	C= 0.80	INDIV. 2.78AC	ACCUM. 2.78AC	INLET (min.)	TIME IN PIPE	TOTAL (min.)	I (mm/Hr)	PEAK FLOW (L/s)	CAP. (L/s)	LENGTH (M)	PIPE (mm)	SLOPE (%)	VEL. (M/s)	AVAIL. CAP. (L/s)	AVAIL. CAP. (%)
Claridge - 21m Collector - external	103	132					0.25		0.42	30.22	20.36	0.64	21.00	51.46	**1,555.10**	**3,006.23**	52.07	1650	0.10	1.4	1,451.13	48.27%
Popplewell Crescent	141	140							0.00	0.00	10.00	0.18	10.18	76.81	**0.00**	**89.61**	8.46	375	0.24	0.8	89.61	100.00%
Popplewell Crescent	140	139					0.39		0.65	0.65	10.18	1.62	11.80	76.12	**49.48**	**101.81**	86.74	375	0.31	0.9	52.33	51.40%
Cobble Hill	142	139			0.30		0.27		0.89	0.89	10.00	0.78	10.78	76.81	**68.36**	**248.08**	39.52	600	0.15	0.9	179.73	72.45%
Cobble Hill	139	138					0.34		0.57	2.11	11.80	0.71	12.50	70.53	**148.81**	**230.86**	33.53	600	0.13	0.8	82.05	35.54%
Cobble Hill	138	137					0.28		0.47	2.58	12.50	1.23	13.73	68.36	**176.38**	**316.20**	63.11	675	0.13	0.9	139.82	44.22%
Cobble Hill	137	131					0.43		0.72	3.30	13.73	0.36	14.09	64.93	**214.27**	**506.20**	23.69	750	0.19	1.1	291.94	57.67%
Popplewell Crescent	136	135					0.35		0.58	0.58	10.00	1.03	11.03	76.81	**44.55**	**93.26**	50.39	375	0.26	0.8	48.71	52.23%
Popplewell Crescent	135	134					0.25		0.42	1.00	11.03	1.59	12.61	73.07	**73.07**	**139.55**	80.94	450	0.22	0.9	66.47	47.63%
Popplewell Crescent	134	133							0.00	1.00	12.61	0.17	12.79	68.04	**68.04**	**151.70**	9.58	450	0.26	0.9	83.66	55.15%
Popplewell Crescent	133	132					0.39		0.65	1.65	12.79	1.34	14.13	67.54	**111.44**	**286.61**	79.13	600	0.20	1.0	175.17	61.12%
Cobble Hill	132	131					0.27		0.45	32.32	21.00	0.76	21.76	50.48	**1,631.54**	**3,154.11**	65.30	1650	0.11	1.4	1,522.58	48.27%
park	131	130	0.77						0.54	36.16	21.76	1.01	22.77	49.36	**1,784.98**	**3,006.23**	82.40	1650	0.10	1.4	1,221.25	40.62%
Bretby Crescent	130	143							0.00	36.16	22.77	0.40	23.16	47.97	**1,734.50**	**3,006.23**	32.47	1650	0.10	1.4	1,271.73	42.30%
Bretby Crescent	143	129							0.00	36.16	23.16	0.07	23.23	47.44	**1,715.48**	**3,006.23**	5.58	1650	0.10	1.4	1,290.75	42.94%
Bretby Crescent	129	128	0.20	0.49					0.75	36.91	23.23	0.60	23.83	47.35	**1,747.78**	**3,006.23**	49.00	1650	0.10	1.4	1,258.45	41.86%
Bretby Crescent	128	127		0.52					0.65	37.56	23.83	0.91	24.74	46.58	**1,749.72**	**3,006.23**	74.21	1650	0.10	1.4	1,256.51	41.80%
Bretby Crescent	127	126							0.00	37.56	24.74	0.10	24.84	45.47	**1,708.01**	**3,006.23**	7.98	1650	0.10	1.4	1,298.22	43.18%
Bretby Crescent	126	125							0.00	37.56	24.84	0.51	25.35	45.36	**1,703.64**	**3,006.23**	41.62	1650	0.10	1.4	1,302.59	43.33%
Bretby Crescent	125	111		0.58					0.73	38.29	25.35	0.33	25.68	44.76	**1,714.02**	**3,006.23**	27.08	1650	0.10	1.4	1,292.21	42.98%
Bamburgh Way	123	118							0.00	0.00	10.00	1.34	11.34	76.81	**0.00**	**42.97**	68.36	250	0.48	0.8	42.97	100.00%
Bretby Crescent	130	120		0.18					0.23	0.23	10.00	1.07	11.07	76.81	**17.67**	**157.44**	61.68	450	0.28	1.0	139.78	88.78%
Bretby Crescent	120	119			0.47				0.69	0.92	11.07	0.29	11.36	72.92	**67.09**	**148.74**	15.87	450	0.25	0.9	81.65	54.90%
Bretby Crescent	119	118		0.20					0.25	1.17	11.36	0.44	11.81	71.94	**84.17**	**162.86**	26.40	450	0.30	1.0	78.69	48.32%
Bamburgh Way	118	117		0.29					0.36	1.53	11.81	0.37	12.18	70.50	**107.86**	**264.14**	20.00	600	0.17	0.9	156.28	59.17%
Bamburgh Way	117	116		0.34					0.43	1.96	12.18	0.29	12.47	69.35	**135.93**	**401.90**	19.13	675	0.21	1.1	265.97	66.18%
Bamburgh Way	116	115							0.00	1.96	12.47	0.38	12.85	68.47	**134.20**	**449.65**	22.70	750	0.15	1.0	315.46	70.16%
Bamburgh Way	115	111		0.15					0.19	2.15	12.85	0.76	13.61	67.35	**144.80**	**348.41**	34.82	750	0.09	0.8	203.61	58.44%
Claridge - Street 4 - external	120	114							0.00	15.91	23.39	0.26	23.65	47.14	**750.06**	**1,286.53**	16.98	1200	0.10	1.1	536.48	41.70%
Bamburgh Way	114	113		0.32				0.30	0.90	16.81	23.65	1.61	25.26	46.81	**786.95**	**1,286.53**	106.75	1200	0.10	1.1	499.58	38.83%
Bamburgh Way	113	112		0.31					0.39	17.20	25.26	0.28	25.54	44.86	**771.59**	**1,286.53**	18.52	1200	0.10	1.1	514.95	40.03%
Bamburgh Way	112	111		0.33					0.41	17.61	25.54	1.06	26.60	44.54	**784.33**	**1,286.53**	69.83	1200	0.10	1.1	502.20	39.04%
SWM Block	111	110							0.00	58.05	26.60	0.30	26.90	43.37	**2,517.85**	**5,752.63**	39.73	1800	0.23	2.2	3,234.78	56.23%
AREAS DRAINING TO EXISTING INTERIM SWM POND																						
Maravista	101	100				0.11	0.37		0.74	0.74	10.00	1.48	11.48	76.81	**56.84**	**175.99**	94.97	450	0.35	1.1	119.16	67.71%
Maravista	103	102			0.39				0.57	0.57	10.00	1.13	11.13	76.81	**43.78**	**70.63**	65.38	300	0.49	1.0	26.85	38.02%
Bamburgh Way	123	102			0.12				0.18	0.18	10.00	1.32	11.32	76.81	**13.82**	**65.38**	70.87	300	0.42	0.9	51.55	78.85%
Maravista	102	100			0.07		0.32		0.64	1.39	15.00	1.69	16.69	61.77	**85.86**	**185.02**	84.16	525	0.17	0.8	99.17	53.60%
Cobble Hill	100	EX CAP							0.00	2.13	16.69	0.31	17.00	58.04	**123.62**	**402.22**	16.20	750	0.12	0.9	278.60	69.27%
Maravista	105	104		0.00					0.00	0.00	10.00	1.32	11.32	76.81	**0.00**	**57.93**	62.91	300	0.33	0.8	57.93	100.00%
Maravista	104	103		0.43					0.54	0.54	11.32	1.35	12.67	72.08	**38.92**	**132.98**	65.78	450	0.20	0.8	94.06	70.73%
Fosterbrook	103	EX CAP							0.00	0.54	12.67	0.79	13.47	67.86	**36.65**	**362.49**	59.00	600	0.32	1.2	325.85	89.89%

Designed: E.I.

Checked: D.Y.

Revision	Date
Updated to reflect Claridge Seniors block	April 2019
Updated to reflect Claridge detail design	July 2012

Dwg. Reference: 25330 - Figure 5
File Ref: 25330 - 5.7
Date: August 10, 2011
Sheet No: 1 of 1

Q = 2.78AIC, 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)0.81]

Mannings Coefficient (n) = 0.013

CCL/IBI
1770 WOODWARD DRIVE
OTTAWA, ONTARIO
K2C OP8

STORM SEWER DESIGN SHEET

PROJECT : WEST POINTE VILLAGE
CITY OF OTTAWA
DEVELOPER : CLARIDGE

JOB #: 3603-LD
DATE: 21-Apr-06
DESIGN: DY

LOCATION			AREA (Ha.)							DESIGN FLOW					SEWER DATA						
STREET	FROM MH	TO MH	C= 0.45	C= 0.84	C= 0.31	C= 0.90	C= 0.60	INDIV. 2.78AC	ACCUM. 2.78AC	INLET (min.)	TIME IN PIPE	TOTAL	I (mm/Hr)	PEAK FLOW (l/s)	CAP. (l/s)	PIPE (mm)	LENGTH (M)	SLOPE (%)	n	VEL. (M/s)	AVAIL. CAP. (%)
		STUB							2.13			17.00									
COBBLE HILL	STUB	11		0.02		0.20	0.61	1.56	3.69	17.00	1.27	18.27	57.42	212.1	367.3	750	61.5	0.10	0.013	0.81	42.2%
CHESAPEAKE CRES.	13	11			0.15		0.58	1.24	1.24	15.00	1.43	16.43	61.77	76.5	129.3	375	97.5	0.50	0.013	1.13	40.9%
LAMPLIGHTER DR	11	35					0.22	0.37	5.30	18.27	1.27	19.54	54.99	291.4	449.8	750	75.0	0.15	0.013	0.99	35.2%
LAMPLIGHTER DR	35	33					0.36	0.60	5.90	19.54	1.37	20.91	52.78	311.4	597.2	900	74.6	0.10	0.013	0.91	47.9%
FOSTERBROOK DR.	STUB	33	0.65					0.81	0.81	15.00	1.19	16.19	61.77	50.2	248.1	600	60.9	0.15	0.013	0.85	79.8%
CHESAPEAKE CRES.	100	10						0.00	0.00	10.00	0.22	10.22	76.81	0.0	40.7	250	10.5	0.43	0.013	0.80	100.0%
CHESAPEAKE CRES.	10	9					0.28	0.47	0.47	10.22	1.76	11.98	75.98	35.5	59.7	300	86.5	0.35	0.013	0.82	40.5%
CHESAPEAKE CRES.	9	8					0.30	0.50	0.97	11.98	0.27	12.25	69.96	67.7	100.2	375	14.1	0.30	0.013	0.88	32.4%
COBBLE HILL	80	8					0.39	0.65	0.65	10.00	0.78	10.78	76.81	50.0	91.5	375	37.5	0.25	0.013	0.80	45.4%
FOSTERBROOK DR.	8	26					0.28	0.47	2.09	12.25	0.28	12.52	69.13	144.1	248.1	600	14.0	0.15	0.013	0.85	41.9%
FOSTERBROOK DR.	26	25					0.25	0.42	2.50	12.52	2.07	14.59	68.31	170.9	303.8	675	101.9	0.12	0.013	0.82	43.7%
BELLISTER ST	24	25						0.00	0.00	10.00	1.28	11.28	76.81	0.0	59.7	300	62.7	0.35	0.013	0.82	100.0%
FOSTERBROOK DR.	25	27	0.09					0.11	2.61	14.59	0.81	15.39	62.76	164.1	367.3	750	38.9	0.10	0.013	0.81	55.3%
FOSTERBROOK DR.	27	28						0.00	2.61	15.39	0.24	15.63	60.86	159.1	367.3	750	11.6	0.10	0.013	0.81	56.7%
FOSTERBROOK DR.	28	33					0.63	1.05	3.67	15.63	1.37	17.00	60.31	221.1	367.3	750	66.0	0.10	0.013	0.81	39.8%
LAMPLIGHTER DR	33	32	0.73					0.91	11.29	20.91	1.16	22.07	50.61	571.5	1,286.2	1200	76.5	0.10	0.013	1.10	55.6%
LAMPLIGHTER DR	32	31						0.00	11.29	22.07	0.17	22.23	48.93	552.5	1,286.2	1200	11.0	0.10	0.013	1.10	57.0%
LAMPLIGHTER DR	31	30						0.00	11.29	22.23	1.07	23.30	48.70	549.9	1,286.2	1200	70.6	0.10	0.013	1.10	57.2%
LAMPLIGHTER DR	30	21	0.31					0.39	11.68	23.30	1.04	24.34	47.26	552.1	1,286.2	1200	69.0	0.10	0.013	1.10	57.1%
BELLISTER ST	24	23						0.00	0.00	10.00	0.23	10.23	76.81	0.0	40.7	250	11.1	0.43	0.013	0.80	100.0%
BELLISTER ST	23	22	0.86					1.08	1.08	15.00	2.01	17.01	61.77	66.5	91.5	375	96.6	0.25	0.013	0.80	27.3%
BELLISTER ST	22	21	0.15					0.19	1.26	17.01	0.16	17.17	57.40	72.5	133.0	450	7.8	0.20	0.013	0.81	45.5%
LAMPLIGHTER DR	21	19	0.55					0.69	13.63	24.34	1.08	25.43	45.95	626.4	1,286.2	1200	71.6	0.10	0.013	1.10	51.3%
LAMPLIGHTER DR	19	116	0.38					0.48	14.11	25.43	0.53	25.95	44.67	630.2	1,286.2	1200	34.8	0.10	0.013	1.10	51.0%

Q = 2.78AIC, 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)^0.81) Where T = inlet time in minutes
C = Runoff Coefficient

Revisions: # 7, April 22 2019, Seniors Block

CCL/IBI
1770 WOODWARD DRIVE
OTTAWA, ONTARIO
K2C OP8

STORM SEWER DESIGN SHEET

PROJECT : WEST POINTE VILLAGE
CITY OF OTTAWA
DEVELOPER : CLARIDGE

JOB #: 3603-LD
DATE: 21-Apr-06
DESIGN: DY

LOCATION			AREA (Ha.)							DESIGN FLOW					SEWER DATA						
STREET	FROM MH	TO MH	C= 0.45	C= 0.25	C= 0.65	C= 0.75	C= 0.60	INDIV. 2.78AC	ACCUM. 2.78AC	INLET (min.)	TIME IN PIPE	TOTAL	I (mm/Hr)	PEAK FLOW (l/s)	CAP. (l/s)	PIPE (mm)	LENGTH (M)	SLOPE (%)	n	VEL. (M/s)	AVAIL. CAP. (%)
COOPERFIELD CRES.	7	6					0.32	0.53	0.53	10.00	1.84	11.84	76.81	41.0	58.8	300	89.2	0.34	0.013	0.81	30.3%
COOPERFIELD CRES.	6	5					0.16	0.27	0.80	11.84	0.28	12.13	70.38	56.4	91.5	375	13.5	0.25	0.013	0.80	38.4%
COBBLE HILL	5	2					0.22	0.37	1.17	12.13	1.56	13.68	69.51	81.2	133.0	450	75.6	0.20	0.013	0.81	39.0%
COOPERFIELD CRES.	40	4						0.00	0.00	10.00	0.21	10.21	76.81	0.0	40.7	250	10.0	0.43	0.013	0.80	100.0%
COOPERFIELD CRES.	4	3					0.25	0.42	0.42	10.21	1.77	11.97	76.02	31.7	91.5	375	85.0	0.25	0.013	0.80	65.3%
COOPERFIELD CRES.	3	2					0.23	0.38	0.80	11.97	0.20	12.17	69.97	56.0	133.0	450	9.6	0.20	0.013	0.81	57.9%
BIDWELL ST	17	18						0.00	0.00	10.00	0.65	10.65	76.81	0.0	41.6	250	32.2	0.45	0.013	0.82	100.0%
BIDWELL ST	18	2						0.00	0.00	10.65	0.34	11.00	74.38	0.0	41.6	250	16.9	0.45	0.013	0.82	100.0%
COBBLE HILL	2	1/STUB	0.23					0.29	2.26	13.68	0.67	14.35	65.07	146.8	367.3	750	32.2	0.10	0.013	0.81	60.0%
EXISTING COBBLE HILL	1/STUB	102	0.47				0.47	1.37	3.63	14.35	0.82	15.17	63.35	229.8	367.3	750	39.8	0.10	0.013	0.81	37.4%
BIDWELL ST	17	16	0.62	0.78				1.32	1.32	10.00	1.90	11.90	76.81	101.2	148.7	450	103.0	0.25	0.013	0.91	31.9%
BIDWELL ST	190	16	0.12					0.15	0.15	10.00	1.51	11.51	76.81	11.5	41.6	250	74.5	0.45	0.013	0.82	72.3%
MUSKAN ST	16	15						0.00	1.47	11.90	0.19	12.08	70.22	103.1	200.6	525	10.2	0.20	0.013	0.90	48.6%
MUSKAN ST	15	14/107						0.00	1.47	12.08	0.48	12.56	69.63	102.2	239.7	600	23.5	0.14	0.013	0.82	57.4%

Q = 2.78AIC, 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)^0.81) Where T = inlet time in minutes
C = Runoff Coefficient

Revisions: # 7, April 22 2019, Seniors Block

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STORM SEWER DESIGN SHEET

WEST POINTE VILLAGE RETIREMENT COMPLEX
164 MARAVISTA DR, OTTAWA
CLARIDGE HOMES

LOCATION				AREA (Ha)														RATIONAL DESIGN FLOW												SEWER DATA								
STREET	AREA ID	FROM	TO	C= 0.25	C= 0.29	C= 0.28	C= 0.37	C= 0.50	C= 0.61	C= 0.75	C= 0.73	C= 0.77	C= 0.79	C= 0.80	C= 0.82	C= 0.84	C= 0.87	C= 0.90	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 (L/s)	DESIGN FLOW (L/s)	CAPACITY (L/s)	LENGTH (m)	PIPE SIZE (mm) DIA	W	H	SLOPE (%)	VELOCITY (m/s)	AVAIL CAP (2yr) (L/s)	(%)
	6	CB1	MH3						0.06									0.10	0.10	10.00	0.14	10.14	76.81	104.19	122.14	178.56	7.81	10.60	12.43	18.17		7.81	48.39	12.85	200			2.00	1.492	40.57	83.85%
	4	STM Tank	MH3														0.08	0.20	0.20	10.00	0.14	10.14	76.81	104.19	122.14	178.56	15.37	20.86	24.45	35.74		15.37	35.23	9.40	200			1.06	1.086	19.85	56.36%
		MH3	MH1															0.00	0.30	10.14	0.18	10.32	76.26	103.44	121.25	177.25	23.02	31.23	36.61	53.51		23.02	34.73	11.60	200			1.03	1.071	11.70	33.70%
	3, 5	Bldg	MH2													0.02		0.12	0.35	0.35	10.00	0.17	10.17	76.81	104.19	122.14	178.56	26.65	36.15	42.38	61.95		26.65	45.59	9.34	250			0.54	0.900	18.94	41.55%
		MH2	MH1																0.00	0.35	10.17	0.16	10.34	76.15	103.29	121.08	176.99	26.42	35.84	42.01	61.41		26.42	46.43	8.99	250			0.56	0.916	20.01	43.09%
		MH1	*EX sewer*																	*0.65*	*10.34*	*0.29*	*10.63*	75.54	102.45	120.09	175.54	49.01	66.47	77.92	113.90		49.01	*58.82*	*14.00*	*300*			*0.34*	*0.806*	*9.81*	*16.68%*

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

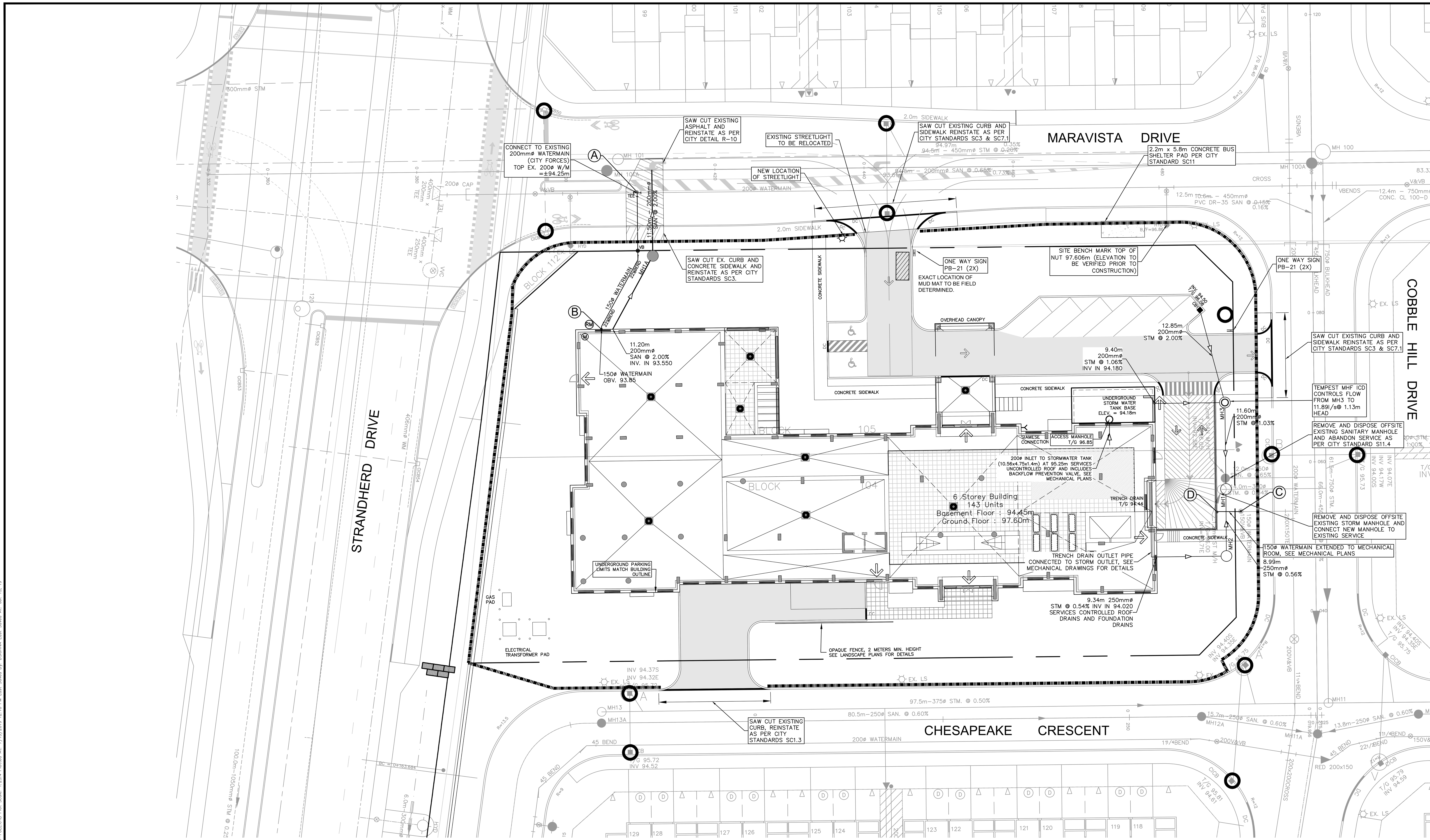
Notes:
1. Mannings coefficient (n) = 0.013

Designed: AZ
Checked: DY
Dwg. Reference: 118197-500

No.	Revision	Date
1.	Submission No. 2	April 22 2019

File Reference: 118197-5.7
Date: April 22 2019
Sheet No: 1 of 1

APPENDIX E



NOTES:

1. 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.
2. STRAW BALE SEDIMENT TRAPS TO BE CONSTRUCTED IN EXISTING ROAD SIDE DITCHES. TRAPS TO REMAIN AND BE MAINTAINED UNTIL VEGETATION IS ESTABLISHED.
3. SILT SACK CATCHBASIN INSERTS TO BE PLACED UNDER COVER OF ALL CATCHBASINS. SILT SACK IN STREET CB'S AND MANHOLES TO REMAIN UNTIL BASE COURSE ASPHALT IS LAID. ALL CATCHBASINS TO BE REGULARLY INSPECTED AND CLEANED, AS NECESSARY, UNTIL SOD AND CURBS ARE CONSTRUCTED.
4. 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.
5. THE SDIMENT AND EROSION CONTROL MEASUREMENTS MAY BE MODIFIED IN THE FIELD AT THE DISCRETION OF THE CITY OF OTTAWA SITE INSPECTOR OR CONSERVATION AUTHORITY.

LEGEND :

- LIGHT DUTY SILT FENCE AS PER OPSD-219.110
- STRAW BALE CHECK DAM AS PER OPSD-219.180
- SILT SACK CATCHBASIN INSERT PLACED UNDER CB OR MH COVER
- TEMPORARY MUD MAT 0.15m THICK 50mm CLEAR STONE ON NON WOVEN FILTER CLOTH (15.00 x 7.00)

THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATER COURSE, DURING CONSTRUCTION ACTIVITIES. THIS INCLUDES LIMITING THE AMOUNT OF EXPOSED SOIL, USING FILTER CLOTH UNDER THE GRATES OF MANHOLES AND INSTALLING SILT FENCES, SILT SACKS AND OTHER EFFECTIVE SEDIMENT TRAPS. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES AND/OR MAINTAIN THEM THAT THEY MAY BE SUBJECT TO PENALTIES IMPOSED BY APPLICABLE REGULATORY AGENCIES.

KEY PLAN
N.T.S.

NOTES:
1. SEE DRAWING C-101 FOR ADDITIONAL DETAILS, NOTES AND SECTIONS.

No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9			
8			
7			
6			
5			
4			
3	REVISED AS PER CITY COMMENTS AND NEW SITE PLAN	DGY	2019:07:15
2	REVISED AS PER CITY COMMENTS AND NEW SITE PLAN	DGY	2019:04:15
1	ISSUED FOR SPA	DGY	2018:12:12

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Project Title
WEST POINTE VILLAGE
RETIREMENT COMPLEX
164 MARAVISTA DRIVE, OTTAWA, ON.

LICENSED PROFESSIONAL ENGINEER
D. G. Yannoulopoulos
2019/07/15
PROVINCE OF ONTARIO

Drawing Title
EROSION AND SEDIMENTATION CONTROL PLAN

Scale	1:250
Design: RM	Date: SEPT. 2018
Drawn: DPS	Checked: DGY
Project No.: 118197	Drawing No.: C-900

CITY PLAN No.#####
CITY FILE No. D07-12-18-0196

WESTPOINTE VILLAGE SENIORS BUILDING

Development Servicing Study Checklist

4.1 General Content

☐ Executive Summary – *Not applicable*

☐ Date and revision number of the report – *On cover*

☐ Location map and plan showing municipal address, boundary, and layout of proposed development – *key map Figure 1and Site Plan A050 – Appendix A*

☐ Plan showing the site and location of all existing services – *Drawing C-100 – Appendix B*

☐ 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 – *Section 1 and Site Plan A050*

☐ Summary of Pre-consultation Meetings with City and other approval agencies – *Section 1*

☐ 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 – *Section 1*

☐ Statement of objectives and servicing criteria – *Section 1*

☐ Identification of existing and proposed infrastructure available in the immediate area – *Water Section 2; Sanitary; Section 3, Storm Section 4*

☐ 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) – *Not applicable*

☐ 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 – *Not applicable*

☐ Proposed phasing of the development, if applicable – *Not applicable*

☐ Reference to geotechnical studies and recommendations concerning servicing – *Section 1*

☐ 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

– *See detail drawings*

4.2 Development Servicing Report: Water

- ☐ Confirm consistency with Master Servicing Study, if available – *Section 2*
- ☐ Availability of public infrastructure to service proposed development – *Section 2*
- ☐ Identification of system constraints – *Section 2*
- ☐ Identify boundary conditions – *Section 2*
- ☐ Confirmation of adequate domestic supply and pressure – *Section 2*
- ☐ 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 – *Section 2*
- ☐ Provide a check of high pressures. If pressure is found to be high, an assessment is required to confirm the application of pressure decuding valves – *Section 2*
- ☐ Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design – *Not applicable*
- ☐ Address reliability requirements such as appropriate location of shut-off valves – *Section 2*
- ☐ Check on the necessity of a pressure zone boundary modification – *Not applicable*
- ☐ 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 – *Section 2*
- ☐ 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 – *Section 2*
- ☐ 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 – *Not required.*
- ☐ Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines – *Section 2*
- ☐ Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference – *Section 2*

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 – *Section 3*
- ☐ Confirm consistency with Master Servicing Study and/or justifications for deviations – *Section 3*
- ☐ Consideration of local conditions that may contriburte 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 – *Not applicable*
- ☐ Description of existing sanitary sewer available for discharge of wastewater from proposed development – *Section 3*
- ☐ 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) – *Section 3*
- ☐ Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix 'C') format – *Section 3*
- ☐ Description of proposed sewer network including sewers, pumping stations, and forcemains – *Section 3*
- ☐ Discussion of previously identified environmental constraints and impact on servicing (environmental constrains are related to imitations 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) – *Not applicable*
- ☐ Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development – *Section 3*
- ☐ Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity – *Not applicable*
- ☐ Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding – *Not applicable*
- ☐ Special considerations such as contamination, corrosive environment etc – *Not applicable*

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) – *Section 4*
- ☐ Analysis of available capacity in existing public infrastructure – *Section 4*
- ☐ A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern – *Drawing C-400*

- ☐ 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 – *Section 4*

- ☐ Water quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements – *Section 4*

- ☐ Description of the stormwater management concept with facility locations and descriptions with references and supporting information – *Section 4*

- ☐ Set-back from private sewage disposal systems – *Not applicable*

- ☐ Watercourse and hazard lands setbacks – *Not applicable*

- ☐ Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed – *Section 1*

- ☐ Confirm consistency with subwatershed and Master Servicing Study, if applicable study exists – *Section 4*

- ☐ Storage requirements (complete with calculations) and conveyance capacity for minor events (1:5 year return period) and major events (1:100 year return period) – *Section 4*

- ☐ Identification of watercourses within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals – *Not applicable*

- ☐ 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 – *Section 4*

- ☐ Any proposed diversion of drainage catchment areas from one outlet to another – *Not applicable*

- ☐ Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and stormwater management facilities – *Section 4*

- ☐ 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 – *Not applicable*

- ☐ Identification of potential impacts to receiving watercourses – *Not applicable*

- ☐ Identification of municipal drains and related approval requirements – *Not applicable*

- ☐ Descriptions of how the conveyance and storage capacity will be achieved for the development – *Section 4*

- ☐ 100 year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading – *Section 4*

- ☐ Inclusion of hydraulic analysis including hydraulic grade line elevations – *Not applicable*

- ☐ Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors – *Section 5*

☐ 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 – *Not applicable*

☐ Identification of fill constraints related to floodplain and geotechnical investigation – *Not applicable*

4.5 Approval and Permit Requirements: Checklist

☐ 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 or defined in the Act. – *Not applicable*

☐ Application for Certificate of Approval (CofA) under the Ontario Water Resources Act - *Section 1*

☐ Changes to Municipal Drains – *Not applicable*

☐ Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation – *Not applicable*

4.6 Conclusion Checklist

☐ Clearly stated conclusions and recommendations - *Section 6*

☐ 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 – *See reply letter from Owner*

☐ All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario - *Section 6*