ADEQUACY OF SERVICES REPORT

FOR

THE RICHCRAFT GROUP OF COMPANIES
250 PARKDALE AVENUE

CITY OF OTTAWA

PROJECT NO.:11-545

MARCH 2013 – REV 1

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1.0 INTRODUCTION

The Richcraft Group of Companies have retained David Schaeffer Engineering Ltd. (DSEL) to prepare a Adequacy of Services Report in support of their Zoning By-Law Amendment (ZBLA) application.

The subject property is located within the City of Ottawa urban boundary. As illustrated in ***Figure 1***, the subject lands are comprised of 1518 Scott Street, 250/252/254/266/268/272/274 Parkdale Avenue and 9/11/13 Bullman Street. The subject property measures approximately 0.36ha. The existing zoning for the properties is MC12F(2.0) H(19).

Figure 1: Site Location

The proposed development by Richcraft Group of Companies involves the construction of two towers (Towers A & B) with heights of 28 storeys and a 32 storeys. The towers will be residential condominium buildings complete with at grade commercial space and underground parking. The preliminary concept plan prepared by Roderick Lahey Architects Ltd. (RLA) is included in **Drawings / Figures** for reference.

The objective of this report is to provide sufficient detail with respect to the availability of existing site services to support the proposal for Zoning By-Law Amendment (ZBLA).

1.1 Existing Conditions

The existing site areas include ten residential properties consisting of four 2 storey dwellings, four 2½ storey dwellings and two 1½ storey dwellings. The subject properties are predominantly gravel and asphalt parking lots with few grass and treed areas.

Annis O'Sullivan, Vollebekk Ltd, completed a topographical survey on February 6th, 2013. See ***Drawings / Figures*** for a reduction of the site survey.

The existing site area for Tower A will be situated within the existing civic addresses 1518 Scott Street and 250/252/254 Parkdale Avenue. The area has elevations ranging between 62.18m and 61.89m with an approximate slope 0.6% from the south corner to the north corner of the property.

The existing site area for Tower B will be situated within the existing civic addresses 266/268/272/274 Parkdale Avenue and 9/11/13 Bullman Street properties. The area has elevations ranging between 62.01m and 61.88m from the north corner to the south corner of the property.

The subject property has both separated and combined sewers. The following services are located within the right-of-way adjacent to the subject property:

- 300mm dia.sanitary sewer located on Scott Street.
- 1050mm dia. combined sewer located on Scott Street.
- 750mm dia. storm sewer located on Parkdale Avenue tributary to the 1050mm dia. combined sewer on Scott Street.
- 250mm dia. sanitary sewer located on Parkdale Avenue tributary to the 250mm dia. sanitary sewer on Scott Street.
- 200mm dia. watermain located on Parkdale Avenue.
- 152mm dia. watermain located on Scott Street.

1.2 Required Permits / Approvals

The proposed development is subject to the site plan control approval process.

The City of Ottawa must also approve the engineering design drawings and reports prior to the issuance of site plan control.

Stormwater management works require an approval under Section 53 of the Ontario Water Resources because it is part of a combined sewershed (no storm sewer outlet that is not a combined sewer outlet). Stormwater management requires a direct submission to the MOE.

1.3 Pre-consultation

Richcraft Group of Companies conducted an initial pre-consultation with City Staff and DSEL subsequently followed up via e-mail to confirm site specific release rate requirements.

City staff indicated a preference for the proposed development to be serviced from Parkdale Avenue connecting to the existing 203mm dia watermain, 750mm dia storm sewer, and 250mm dia sanitary sewer.

Requirements for Stormwater management were reviewed with the City of Ottawa. The proposed development will be required to attenuate stormwater runoff to the lesser of existing conditions or a City of Ottawa 2-year design storm with a 20 minute Time of Concentration and an equivalent runoff coefficient of 0.40 as determined through the Rational Method.

Correspondence and servicing guidelines checklist are located in ***Appendix A***.

2.0 GUIDELINES, PREVIOUS STUDIES, AND REPORTS

2.1 Existing Studies, Guidelines, and Reports

The following studies were utilized in the preparation of this report.

- **Ottawa Sewer Design Guidelines,**
  City of Ottawa, November 2004.
  (City Standards)

  - **Technical Bulletin ISD-2010-2**
    City of Ottawa, December 15, 2010.
    (*ISD-2010-2*)

  - **Technical Bulletin ISD-2012-1**
    City of Ottawa, January 31, 2012.
    (*ISD-2012-1*)

- **Ottawa Design Guidelines – Water Distribution**
  City of Ottawa, July 2010
  (Water Supply Guidelines)

- **Stormwater Planning and Design Manual,**
  Ministry of the Environment, March 2003.
  (SWMP Design Manual)

- **Ontario Building Code Compendium**
  Ministry of Municipal Affairs and Housing Building Development Branch, January 1, 2010 Update
  (OBC)

- **Phase I Environmental Site Assessment –250, 252, 254 Parkdale Avenue and 1518 Scott Street, Ottawa, Ontario**
  Paterson Group, June 30, 2011
  (ESA)

3.0 WATER SUPPLY SERVICING

3.1 Existing Water Supply Services

The subject property lies within the 1W pressure zone. An existing 203mm dia. watermain is located in the Parkdale Avenue right-of-way. Additionally there is a 152mm dia. watermain located within the Scott Street and Bullman Street right-of-ways. The referred to watermains are both serviced by a 1067mm dia. transmission line located in the Scott Street right-of way.

3.2 Water Supply Servicing Design

It was contemplated to service each tower individually via a 200mm dia. service to the existing 203mm dia. service on Parkdale Avenue.

Table 1 summarizes the ***Water Supply Guidelines*** employed in the preparation of the preliminary water demand estimate.

Table 1
Water Supply Design Criteria

Design Parameter	Value
Residential 1 Bedroom Apartment	1.4 P/unit
Residential 2 Bedroom Apartment	2.1 P/unit
Residential Average Daily Demand	350 L/d/P
Residential Maximum Daily Demand	3.0 x Average Daily *
Residential Maximum Hourly	4.5 x Average Daily *
Commercial Average Daily Demand (Retail)	2.5 L/m^2/d
Commercial Maximum Daily Demand	1.5 x Average Daily
Commercial Maximum Hourly	1.8 x Maximum Daily
Minimum Watermain Size	150mm diameter
Minimum Depth of Cover	2.4m from top of watermain to finished grade

Desired pressure range during normal operating conditions (average day to maximum hour demand)	350kPa and 480kPa
Minimum pressure during normal operating conditions (average day to maximum hour demand)	275kPa
Minimum pressure during fire flow plus max day	140kPa
** Residential Max. Daily and Max. Hourly peaking factors as per MOE Guidelines for Drinking-Water Systems Table 3-3 for 0 to 500 persons.*	

The City of Ottawa was contacted to obtain boundary conditions associated with the estimated water demand as indicated in ***Table 2 and 3***. Correspondence with the City has been included in ***Appendix A***.

Table 2 and 3 summarize the anticipated water supply demand and boundary conditions for the proposed development based on the ***Water SupplyGuidelines***.

Table 2
Water Demand and Boundary Conditions
Proposed Conditions Tower A

Design Parameter	Anticipated Demand[1] (L/min)	Boundary Condition[2] (m H_2O / kPa)	
Average Daily Demand	97.5	52.3	513.1
Max Day + Fire Flow	274.3 + 9000 = 9274.3	47.7	467.9
Peak Hour	416.9	45.8	449.3
1) Water demand calculation per ***Water Supply Guidelines***. See ***Appendix B*** for detailed calculations. 2) Boundary conditions supplied by the City of Ottawa. Assumed ground elevation 62.00m. See ***Appendix B.***			

Table 3
Water Demand and Boundary Conditions
Proposed Conditions Tower B

Design Parameter	Anticipated Demand[1] (L/min)	Boundary Condition[2] (m H_2O / kPa)	
Average Daily Demand	129.5	52.3	513.1
Max Day + Fire Flow	321.6 + 9000 = 9321.6	46.4	455.2
Peak Hour	706.3	45.8	449.3
1) Water demand calculation per ***Water Supply Guidelines***. See ***Appendix B*** for detailed calculations. 2) Boundary conditions supplied by the City of Ottawa. Assumed ground elevation 62.00m. See ***Appendix B.***			

Section 4.2.11 of the City Design guidelines for water distribution provides guidance for determining the method for estimating Fire Demand. As indicated, the requirements for levels of fire protection on private property are covered in the Ontario Building code. Section 7.2.11 of the OBC addresses the installation of water service pipes and fire service mains. Part 3 of the OBC outlines the requirement for Fire Protection, Occupant

Safety, and Accessibility; and sub-section A-3.2.5.7 provides the provisions for fire fighting. Based on trained personnel responding to the emergency, and water supply being delivered through a municipal system, the required minimum provision for water supply shall not be less than 2,700L/min or greater than 9000L/min (OBC Section A.3.2.5.7, Table 2). Therefore, a conservative estimate for the required fire supply is 9000L/min. A certified fire protection system specialist shall be employed to design the building fire suppression system(s) and confirm the actual fire flow demand.

The 'maximum' pressure provided by the city was interpreted as being the pressure at average daily demand conditions. Therefore the pressure at the ground floor level was estimated to be **513.1kPa** at both Tower A and B. The estimated pressure is above the desired range of 350kPa to 480Kpa. The mechanical engineer will be informed that some mechanism of pressure reduction may be necessary.

The City provided minimum pressure. The value provided was assumed to represent the available pressure during peak hour demand. During peak hour demand the simulated pressure at the building service location was found to be ***449.3kPa*** at both Tower A and B. The simulated pressure falls within the desired pressure range during normal operating conditions.

The City simulated available pressure during fire flow and maximum daily flow. The resulting pressure was simulated to be **467.9*kPa*** *at* Tower A and ***455.2kPa*** at Tower B watermain connections, which exceeds the required minimum pressure of **140kPa**.

3.3 Water Supply Conclusion

Anticipated water demand under proposed conditions was submitted to the City of Ottawa for establishing boundary conditions. As demonstrated in ***Table 2 and 3***, the recommended pressure range is respected during Maximum Day plus Fire Flow as well as Peak Hour demands. A pressure check should be conducted at the completion of construction to determine if pressure control is required.

4.0 WASTEWATER SERVICING

4.1 Existing Wastewater Services

Wastewater generated from the existing site ultimately outlets to the West Nepean Collector on Scott Street via the existing 250mm diameter local sanitary sewer that runs parallel within the Scott Street right-of-way. Adjacent to the site are 250mm dia. sanitary sewers that run parallel within the Parkdale Avenue and Bullman Street right-of-way.

As noted in **Section 1.1.**, the existing sites are occupied by ten residences. The proposed site for tower A has 3 homes consisting of 2 single residences and 1 semi-detached duplex. The proposed site for tower B has 7 homes, 4 of which are single

residences. The remaining 3 properties have commercial space on the ground floor and 2-bedroom apartments above.

To estimate wastewater contributions, commercial floor space was estimated using 1k mapping provided by the City. As well, it was assumed that there were three 2-bedroom apartments overtop of the commercial spaces, two duplex residences, and six single family homes. The estimated peak flow wastewater contribution for both tower A and B is **0.24 L/s** and **0.49 L/s**, respectively. The estimated peak flow wastewater contribution for both sites is **0.73 L/s**.

4.2 Wastewater Design

The preliminary wastewater concept consists of connections from Tower A and Tower B sites to the 250mm dia. sanitary sewer located on Parkdale Avenue.

Table 4 summarizes the ***City Standards*** employed in the design of the proposed wastewater sewer system.

Table 4
Wastewater Design Criteria

Design Parameter	Value
Residential 1 Bedroom Apartment	1.4 P/unit
Residential 2 Bedroom Apartment	2.1 P/unit
Average Daily Demand	350 L/d/per
Peaking Factor	Harmon's Peaking Factor. Max 4.0, Min 2.0
Infiltration and Inflow Allowance	0.28L/s/ha
Sanitary sewers are to be sized employing the Manning's Equation	$Q = \frac{1}{n} A R^{2/3} S^{1/2}$
Minimum Sewer Size	200mm diameter
Minimum Manning's 'n'	0.013
Minimum Depth of Cover	2.5m from crown of sewer to grade
Minimum Full Flowing Velocity	0.6m/s
Maximum Full Flowing Velocity	3.0m/s
Extracted from Sections 4 and 6 of the City of Ottawa Sewer Design Guidelines, November 2004.	

Table 5 demonstrates the estimated wastewater flow generation from the proposed site development. Refer to ***Appendix C*** for associated calculations.

Table 5
Summary of Estimated Peak Wastewater Flow

Design Parameter	Tower A Flow (L/s)	Tower B Flow (L/s)	Tower A and B Flow (L/s)
Average Dry Weather Flow Rate	1.69	2.27	3.69
Peak Dry Weather Flow Rate	6.10	8.63	13.82
Peak Wet Weather Flow Rate	6.13	8.70	13.91

The combined contribution from tower A and B amounts to **13.91 L/s**. Refer to ***Appendix C*** for associated calculations.

A calculation sheet was developed to evaluate the capacity of the existing sanitary sewer network, see ***Appendix C***. The most restrictive leg of sewer occurs along the 250 dia. sanitary sewer in the Scott Street right-of-way between Parkdale Avenue and Pinehurst Avenue. It was estimated that the local sanitary sewer system downstream of the site has an available capacity of ***14.99 L/s***, therefore the receiving sewer has capacity to accommodate the estimated **13.91** ***L/s*** peak wastewater flow generated from the proposed development.

4.3 Wastewater Servicing Conclusions

The proposed wastewater design conforms to all relevant City guidelines. Based on a capacity analysis of the local upstream and downstream sewers there is sufficient capacity for the proposed development. The capacity analysis is summarized in the Sanitary Sewer Calculation Sheet and area map located in ***Appendix C***.

5.0 STORMWATER MANAGEMENT

5.1 Existing Stormwater Services

The subject lands are located within Ottawa Central sub-watershed which is under the Rideau Valley Conservation Authority jurisdiction. The existing site is serviced by a 750mm dia. storm sewer located on Parkdale Avenue which is tributary to a 1050mm dia. combined sewer on Scott Street. Adjacent to the site is a 450mm dia. storm sewer that runs parallel within the Bullman Street right-of-way.

As noted in **Section 1.1.**, the existing sites are occupied by ten residences. The proposed sites for tower A and B have 4 and 6 homes on each property, respectively. All of the homes have peaked roofs except the property on the corner of Scott and Parkdale. The subject properties are predominantly gravel and asphalt parking lots with few grass and treed areas.

Taking this into consideration a combined runoff coefficient for each site was obtained by considering the area of the sites are composed of asphalt, hard gravel, rooftops and landscaped areas. The existing sites Time of Concentration were estimated to be 10 minutes.

Furthermore, it was determined that the existing development contained no stormwater management controls for flow attenuation. Therefore, it was assumed that the properties would contribute unattenuated stormwater to the Scott Street combined sewer system.

The estimated pre-development peak flows for the 2, 5, and 100-year are summarized in ***Table 6***:

Table 6
Summary of Existing Peak Storm Flow Rates

City of Ottawa Design Storm	Estimated Peak Flow Rate Tower A (L/s)	Estimated Peak Flow Rate Tower B (L/s)
2-year	19.7	43.9
5-year	26.7	59.6
100-year	57.2	127.6

5.2 Post-development Stormwater Management Target

Stormwater management requirements for the proposed development were reviewed with the City of Ottawa, where the proposed development is required to adhere to the following site criteria:

- Control the release rate to the combined sewer system to the lesser of existing conditions or a City of Ottawa 2-year design storm with a 20 minute Time of Concentration and an equivalent runoff coefficient of 0.40 as determined by the Rational Method.
- Attenuate all storms up to and including the City of Ottawa 100-year design event on site.
- Quality controls are not required for the proposed development as this site discharges to a combined sewer system.

Based on the above the allowable release rate for the proposed development shall be restricted ***6.7 L/s*** for Tower A and ***13.8 L/s*** for Tower B.

5.3 Proposed Stormwater Management System

To meet the stormwater objectives the proposed development may contain a combination of roof top storage and/or cistern storage.

Table 7 and 8 summarize the pre-development release rate, the target flow rate and the post-development flow rates.

Table 7
Stormwater Flow Rate Summary for Tower A

Design Storm Event	Pre-development Release Rate	Target Release Rate	Post-Dev Peak Rate	Estimated Required Storage
	(L/s)	(L/s)	(L/s)	(m^3)
5-year	26.7	6.7	3.5	20.4
100-year	57.2	6.7	6.7	38.6

Table 8
Stormwater Flow Rate Summary for Tower B

Design Storm Event	Pre-development Release Rate	Target Release Rate	Post-Dev Peak Rate	Estimated Required Storage
	(L/s)	(L/s)	(L/s)	(m^3)
5-year	59.6	13.8	7.3	39.6
100-year	127.6	13.8	13.8	74.9

Detailed storage calculations are contained within ***Appendix D***.

5.4 Stormwater Servicing Conclusions

The proposed stormwater management target results in a reduction in peak flow from existing conditions. Quality controls are not required for the proposed development as this site discharges to a combined sewer system.

The proposed stormwater design conforms to all relevant City guidelines and Policies and meets the design objectives.

6.0 COMBINED SEWER SYSTEM FLOW

Under existing conditions, the site contains no stormwater management system for flow attenuation. Therefore the pre-development "design" combined flow was estimated to be approximately **19.94 L/s** and **44.39 L/s** for the Tower A and B site areas, respectively. Pre-development combined flow condition assumes peak wastewater rates during a 2-year storm event.

The post-development combined flow for all storms up to and including a 100-year event will be limited to **12.84 L/s** and **22.46 L/s** for Tower A and B site areas, respectively.

Therefore, based on the proposed stormwater target, the post-development combined flow will be lower than existing conditions by approximately **7.10 L/s** and **21.93 L/s** for Tower A and B site areas, respectively.

7.0 CONCLUSION AND RECOMMENDATIONS

The Richcraft Group of Companies are applying for Zoning By-Law Amendment (ZBLA) for 250 Parkdale Avenue to develop the existing parcel of land into a 28 storey and a 32 storey residential condominium buildings complete with at grade commercial space and underground parking. DSEL was retained to prepare a Adequacy of Services Report in support of their ZBLA.

- The existing 203mm dia. watermain on Parkdale Avenue has sufficient water supply for the proposed building service;
- The recommended pressure range is respected during Maximum Day plus Fire Flow as well as Peak Hour demands;
- The existing 250mm dia. sanitary sewer on Scott Street part of the West Nepean Sewer catchment area has adequate capacity for the wastewater generated from the proposed building;
- Stormwater objectives may be met through retention on the roof top and/or cistern storage;
- The proposed development results in a significant reduction in combined wastewater flow rate.

Prepared by,
David Schaeffer Engineering Ltd.

Reviewed by,
David Schaeffer Engineering Ltd.

Per: Alex P. Mullen, E.I.T.

Per: Adam D. Fobert, P.Eng

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APPENDIX A

Pre-Consultation

4. Development Servicing Study Checklist

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

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

4.1 General Content

N/A	☐	Executive Summary (for larger reports only).
Cover Sheet	☑	Date and revision number of the report.
Appendix D	☑	Location map and plan showing municipal address, boundary, and layout of proposed development.
See Figure 1	☑	Plan showing the site and location of all existing services.
Section 1.0	☑	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 1.3	☑	Summary of Pre-consultation Meetings with City and other approval agencies.
N/A	☐	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 1.0	☑	Statement of objectives and servicing criteria.
Sections 3.0 - WTR, 4.0 - SAN , 5.0 - STM	☑	Identification of existing and proposed infrastructure available in the immediate area.
N/A	☐	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).

N/A ☐ Concept level master grading plan to confirm existing and proposed grades in the development. This is required to confirm the feasibility of proposed stormwater management and drainage, soil removal and fill constraints, and potential impacts to neighbouring properties. This is also required to confirm that the proposed grading will not impede existing major system flow paths.

N/A ☐ 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.

N/A ☐ Proposed phasing of the development, if applicable.

N/A ☐ Reference to geotechnical studies and recommendations concerning servicing.

N/A ☐ All preliminary and formal site plan submissions should have the following information:

- Metric scale
- North arrow (including construction North)
- Key plan
- Name and contact information of applicant and property owner
- Property limits including bearings and dimensions
- Existing and proposed structures and parking areas
- Easements, road widening and rights-of-way
- Adjacent street names

4.2 Development Servicing Report: Water

N/A ☐ Confirm consistency with Master Servicing Study, if available

Section 2.1 ☑ Availability of public infrastructure to service proposed development

Section 2.1 ☑ Identification of system constraints

Section 2.1, 2.2 ☑ Identify boundary conditions

Section 2.3 ☑ Confirmation of adequate domestic supply and pressure

Section 2.2 - OBC not FUS ☑ 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.

N/A ☐ Provide a check of high pressures. If pressure is found to be high, an assessment is required to confirm the application of pressure reducing valves.

N/A ☐ Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design

N/A ☐ Address reliability requirements such as appropriate location of shut-off valves

N/A ☐ Check on the necessity of a pressure zone boundary modification.

Section 2.3 ☑ 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

N/A ☐ 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.

N/A ☐ 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.

Section 2.2 ☑ Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.

N/A ☐ Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.

4.3 Development Servicing Report: Wastewater

Section 3.2 ☑ 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).

N/A ☐ Confirm consistency with Master Servicing Study and/or justifications for deviations.

N/A ☐ Consideration of local conditions that may contribute to extraneous flows that are higher than the recommended flows in the guidelines. This includes groundwater and soil conditions, and age and condition of sewers.

Section 3.1 ☑ Description of existing sanitary sewer available for discharge of wastewater from proposed development.

Section 3.2 ☑ 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)

Appendix C ☑ Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix 'C') format.

N/A ☐ Description of proposed sewer network including sewers, pumping stations, and forcemains.

N/A ☐ Discussion of previously identified environmental constraints and impact on servicing (environmental constraints are related to limitations imposed on the development in order to preserve the physical condition of watercourses, vegetation, soil cover, as well as protecting against water quantity and quality).

N/A ☐ Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.

N/A ☐ Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.

N/A ☐ Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.

N/A ☐ Special considerations such as contamination, corrosive environment etc.

4.4 Development Servicing Report: Stormwater Checklist

Section 4.1 ☑ Description of drainage outlets and downstream constraints including legality of outlets (i.e. municipal drain, right-of-way, watercourse, or private property)

Section 4.1 ☑ Analysis of available capacity in existing public infrastructure.

Drawings and Figures ☑ A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.

Section 4.2 ☑ 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.

N/A ☐ Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.

Section 4.3 ☐ Description of the stormwater management concept with facility locations and descriptions with references and supporting information.

N/A ☐ Set-back from private sewage disposal systems.

N/A ☐ Watercourse and hazard lands setbacks.

N/A ☐ Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.

N/A ☐ Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.

Section 4.3	☑	Storage requirements (complete with calculations) and conveyance capacity for minor events (1:5 year return period) and major events (1:100 year return period).
N/A	☐	Identification of watercourses within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.
Section 4.1 & 4.3	☑	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.
N/A	☐	Any proposed diversion of drainage catchment areas from one outlet to another.
N/A	☐	Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and stormwater management facilities.
N/A	☐	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.
N/A	☐	Identification of potential impacts to receiving watercourses
N/A	☐	Identification of municipal drains and related approval requirements.
Section 4.3	☑	Descriptions of how the conveyance and storage capacity will be achieved for the development.
N/A	☐	100 year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading.
N/A	☐	Inclusion of hydraulic analysis including hydraulic grade line elevations.
N/A	☐	Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.
N/A	☐	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.
N/A	☐	Identification of fill constraints related to floodplain and geotechnical investigation.

4.5 Approval and Permit Requirements: Checklist

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

☑ Conservation Authority as the designated approval agency for modification of floodplain, potential impact on fish habitat, proposed works in or adjacent to a watercourse, cut/fill permits and Approval under Lakes and Rivers Improvement Act. The Conservation Authority is not the approval authority for the Lakes and Rivers Improvement Act. Where there are Conservation Authority regulations in place, approval under the Lakes and Rivers Improvement Act is not required, except in cases of dams as defined in the Act.

☑ Application for Certificate of Approval (CofA) under the Ontario Water Resources Act.

N/A ☐ Changes to Municipal Drains.

N/A ☐ Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation etc.)

4.6 Conclusion Checklist

☑ Clearly stated conclusions and recommendations

☑ Comments received from review agencies including the City of Ottawa and information on how the comments were addressed. Final sign-off from the responsible reviewing agency.

☑ All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario

250 Parkdale Avenue

Preferred servicing should be coming off from Parkdale Avenue which has the following infrastructures:

- *203 mmØ PVC Watermain*
- *750 mmØ Storm Sewer*
- *250 mmØ Sanitary Sewer*

Official Plan ROW Widening is 26.0m for Parkdale Avenue(13.0m centre line of road)
Sight triangle requirement of 5.0m X 5.0m

Overall, we agree in principle with a mixed-use development on this block of land, although we feel that land consolidation with 1530 Scott Street would make for a better project. We are optimistic that through the detailed design stages we can further massage the plan in concert with you and your team to create an exciting development. With this said here are some of our comments from the meeting which will help move this concept forward:

***Items to Consider on your Site Plan**:*

- *Add a row of street trees along Scott St and Parkdale Ave;*
- *Road widening (please have your surveyor confirm):*
  - *Parkdale – 26m or 13m from centerline*
  - *Scott – 26m or 13m from centreline*
- *Corner triangle of 5m x 5m will be required.*
- *Parking along Scott and Parkdale;*
- *Location of parking garage entrance;*
- *Creating a corner feature on the site at Somerset and Breezehill;*
- *Street-oriented units, perhaps townhouses, facing Parkdale;*
- *5m setback of tower from the west property line is too narrow;*
- *3m setback of tower from the south property line is too small.*

***Design Considerations**:*

- *The section of Parkdale north of Scott is planned for high-rise housing. So this building could be a nice punctuation between the high-rise environment to the north, and generally medium profile environment to the south.*
- *More urban design analysis, particularly about the relationship between the existing and possible future buildings and what may unfold around the subject site (i.e. 1530 Scott Street)*
- *The sitting of the building and its relationship with both Scott and Parkdale appears to be quite logically positioned and treated.*
- *The podium scale appears to be right for this context.*
- *Tower should set back from the podium along Parkdale;*
- *The blank wall on the west side requires some explanation.*
- *We encourage the use of curves to reduce the possible negative wind impacts*

Types of Applications

Zoning By-law Amendment
http://ottawa.ca/online_services/forms/ds/Application_for_Zoning_Amendment_en.pdf

Site Plan Control, Manager Approval, Public Consultation
http://ottawa.ca/online_services/forms/ds/Application_for_Site_Plan_Control_en.pdf

***Required Studies/Plans/Reports for the Site Plan Control applications**:*

Please see attached PDF.

Also, because you are within 75m of the LRT line, a Vibration Study will be required.

When submitting your application, please consult the Guide to Preparing Studies and Plans, this is what we will be using when deeming your application complete:
http://ottawa.ca/residents/planning/dev_review_process/guide/index_en.html

Please remember that we do not have a concurrent circulation process, so the number of copies listed on the attached are for Site Plan not Zoning.

For the Zoning circulation, we require an additional 20 copies of both the site plan and landscape plan, unless of course you combine them. Also 11x17 is sufficient for the zoning.

Guidelines to be aware of:

Urban Design Guidelines for High-Rise Housing
http://ottawa.ca/residents/planning/design_plan_guidelines/completed/high_rise_housing/guidelines_high_rise_housing_en.pdf

Wellington Community Design Plan
http://ottawa.ca/residents/public_consult/wellington_cdp/oh_1/cdp_en.html

Gapas, Jerico [Jerico.Gapas@ottawa.ca]
07/12/2011 10:52
Robert Freel
RE: 250 Parkdale/ 79 Lyndale

Hello Robert,

FYI regarding SWM criteria for the following sites:

159-167 Parkdale

Control 5 and 100 year post to 5 and 100 year pre-development
Time of Duration: 20-minutes (I = 70.3mm/hr)
Maximum Equivalent 'C' of 0.5 (Increase C by 25%, to a limit of 1.0, for the 100 yr storm event)
Flows to the storm sewer in excess of the 100-year storm release rate must be detained on site.
Check with RVCA for quality requirements (my guess is 80% TSS removals since it's discharging close to Ottawa River)

250 Parkdale

- 2-yr storm event
- Time of Duration: 20-minutes (I = 52.03 mm/h)
- Maximum Equivalent "C" of 0.4 (Increase C by 25%, to a limit of 1.0, for the 100 yr storm event)
- Flows to the storm sewer, in excess of the 2-year storm release rate -year storm release rate, up to and including the 100-year storm event, must be detained on site.
- Check with RVCA for quality requirements
- MOE C of A will be required

Jerico Gapas, P. Eng.
Project Manager, Infrastructure Approvals Engineer
Development Review - Urban Services Branch
Planning & Growth Management Department
Tel: (613) 580-2424 ext. 14461
Fax (613) 580-6006

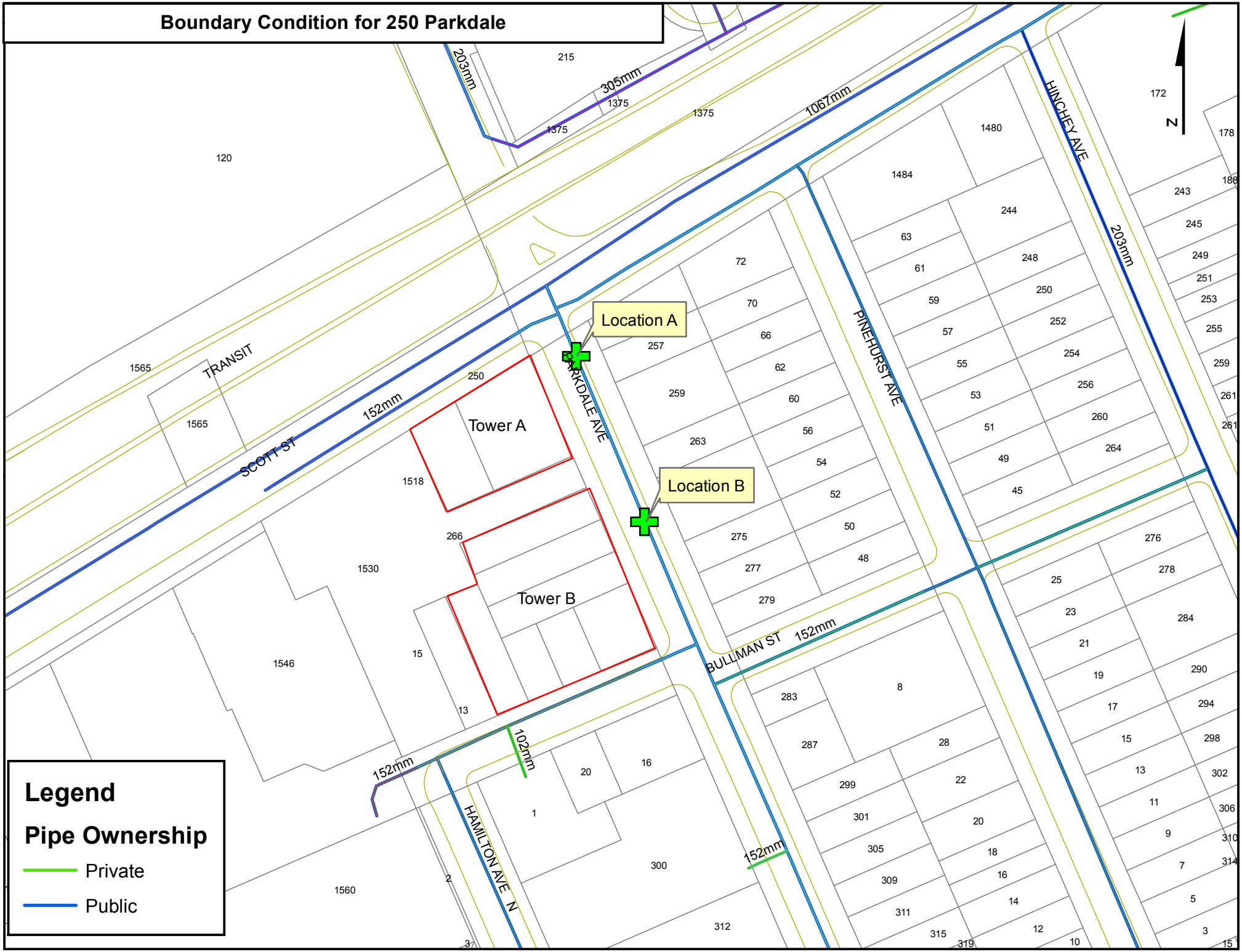
From: Robert Freel [mailto:rfreel@dsel.ca]
Sent: December 07, 2011 10:29 AM
To: Gapas, Jerico
Subject: 250 Parkdale/ 79 Lyndale

Good Morning Jerico,
Just wanted to follow up with our phone conversation yesterday concerning 250 Parkdale and 79 Lyndale. It appears that stormwater from 250 Parkdale would discharge to a combined sewer not to a separated sewer as previously thought. Would it be correct to assume C = 0.4, for a 2yr. at tc = 20min. Also if you could provide the storm requirements for both sites in your response to include in our reports that would be appreciated

Regards,
Bobby Freel, E.I.T.
DSEL

david schaeffer engineering ltd.
120 Iber Road, Unit 203
Stittsville, ON K2S 1E9
Phone:(613) 836-0856 ext. 258
Fax: (613) 836-7183
Email: rfreel@dsel.ca

Boundary Condition for 250 Parkdale



Alex Mullen

From: Wu, John [John.Wu@ottawa.ca]
Sent: Monday, March 04, 2013 11:56 AM
To: Alex Mullen
Subject: RE: 250 Pardale Ave-Watermain boundary conditions
Attachments: image001.png; 250 Parkdale Feb 2013.pdf

Here is the result:

******The following information may be passed on to the consultant, but do NOT forward this e-mail directly.******

The following are boundary conditions, HGL, for hydraulic analysis at 250 Parkdale Ave (see attached PDF for locations).

Max Day + FF (150L/s) at Location A = 109.7m

Max Day + FF (150L/s) at Location B = 108.4m

Min HGL(same for both locations) = 107.8m

Max HGL (same for both locations) = 114.3m

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

Disclaimer: The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation. 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

APPENDIX B

Water Supply

Richcraft Group of Companies
250 Parkdale Ave
Existing Conditions
Tower A

Water Demand Design Flows per Unit Count
City of Ottawa - Water Distribution Guidelines, July 2010

Domestic Demand

Type of Housing	Per / Unit	Units	Pop
Single Family	3.4	2	7
Semi-detached	2.7	2	5
Townhouse	2.7		0
Apartment			0
Bachelor	1.4		0
1 Bedroom	1.4		0
2 Bedroom	2.1		0
3 Bedroom	3.1		0
Average	1.8		0

	Pop	Avg. Daily		Max Day		Peak Hour	
		m^3/d	L/min	m^3/d	L/min	m^3/d	L/min
Total Domestic Demand	12	4.3	3.0	41.2	28.6	62.1	43.1

Institutional / Commercial / Industrial Demand

Property Type	Unit Rate	Units	Avg. Daily m^3/d	Avg. Daily L/min	Max Day m^3/d	Max Day L/min	Peak Hour m^3/d	Peak Hour L/min
Commercial floor space	2.5 $L/m^2/d$		0.00	0.0	0.0	0.0	0.0	0.0
Office	75 $L/9.3m^2/d$		0.00	0.0	0.0	0.0	0.0	0.0
Restaurant*	125 L/seat/d		0.00	0.0	0.0	0.0	0.0	0.0
Industrial - Light	35,000 L/gross ha/d		0.00	0.0	0.0	0.0	0.0	0.0
Industrial - Heavy	55,000 L/gross ha/d		0.00	0.0	0.0	0.0	0.0	0.0
Total I/CI Demand			0.0	0.0	0.0	0.0	0.0	0.0
Total Demand			**4.3**	**3.0**	**41.2**	**28.6**	**62.1**	**43.1**

* Estimated number of seats at 1seat per $9.3m^2$

Richcraft Group of Companies
250 Parkdale Ave
Proposed Conditions
Tower A

Water Demand Design Flows per Unit Count
City of Ottawa - Water Distribution Guidelines, July 2010

Domestic Demand

Type of Housing	Per / Unit	Units	Pop
Single Family	3.4		0
Semi-detached	2.7		0
Townhouse	2.7		0
Apartment			0
Bachelor	1.4		0
1 Bedroom	1.4	124	174
2 Bedroom	2.1	84	177
3 Bedroom	3.1		0
Average	1.8		0

	Pop	Avg. Daily		Max Day		Peak Hour	
		m^3/d	L/min	m^3/d	L/min	m^3/d	L/min
Total Domestic Demand	351	122.9	85.3	368.6	255.9	552.8	383.9

Institutional / Commercial / Industrial Demand

Property Type	Unit Rate	Units	Avg. Daily m^3/d	Avg. Daily L/min	Max Day m^3/d	Max Day L/min	Peak Hour m^3/d	Peak Hour L/min
Commercial floor space	2.5 $L/m^2/d$	240	0.60	0.4	0.9	0.6	1.6	1.1
Office	75 $L/9.3m^2/d$	2,110	17.02	11.8	25.5	17.7	45.9	31.9
Industrial - Light	35,000 L/gross ha/d		0.00	0.0	0.0	0.0	0.0	0.0
Industrial - Heavy	55,000 L/gross ha/d		0.00	0.0	0.0	0.0	0.0	0.0
Total I/CI Demand			17.6	12.2	26.4	18.4	47.6	33.0
Total Demand			**140.5**	**97.5**	**395.0**	**274.3**	**600.4**	**416.9**

Richcraft Group of Companies
250 Parkdale Ave
Existing Conditions
Tower B

Water Demand Design Flows per Unit Count
City of Ottawa - Water Distribution Guidelines, July 2010

Domestic Demand

Type of Housing	Per / Unit	Units	Pop
Single Family	3.4	7	24
Semi-detached	2.7		0
Townhouse	2.7		0
Apartment			0
Bachelor	1.4		0
1 Bedroom	1.4		0
2 Bedroom	2.1		0
3 Bedroom	3.1		0
Average	1.8		0

	Pop	Avg. Daily		Max Day		Peak Hour	
		m^3/d	L/min	m^3/d	L/min	m^3/d	L/min
Total Domestic Demand	24	8.4	5.8	79.8	55.4	120.1	83.4

Institutional / Commercial / Industrial Demand

			Avg. Daily		Max Day		Peak Hour	
Property Type	**Unit Rate**	**Units**	m^3/d	L/min	m^3/d	L/min	m^3/d	L/min
Commercial floor space	2.5 $L/m^2/d$	450	1.13	0.8	1.7	1.2	3.0	2.1
Office	75 $L/9.3m^2/d$		0.00	0.0	0.0	0.0	0.0	0.0
Restaurant*	125 L/seat/d		0.00	0.0	0.0	0.0	0.0	0.0
Industrial - Light	35,000 L/gross ha/d		0.00	0.0	0.0	0.0	0.0	0.0
Industrial - Heavy	55,000 L/gross ha/d		0.00	0.0	0.0	0.0	0.0	0.0
		Total I/CI Demand	1.1	0.8	1.7	1.2	3.0	2.1
		Total Demand	**9.5**	**6.6**	**81.5**	**56.6**	**123.2**	**85.5**

* Estimated number of seats at 1seat per $9.3m^2$

Richcraft Group of Companies
250 Parkdale Ave
Proposed Conditions
Tower B

Water Demand Design Flows per Unit Count
City of Ottawa - Water Distribution Guidelines, July 2010

Domestic Demand

Type of Housing	Per / Unit	Units	Pop
Single Family	3.4		0
Semi-detached	2.7		0
Townhouse	2.7		0
Apartment			0
Bachelor	1.4		0
1 Bedroom	1.4		0
2 Bedroom	2.1		0
3 Bedroom	3.1		0
Average	1.8	291	524

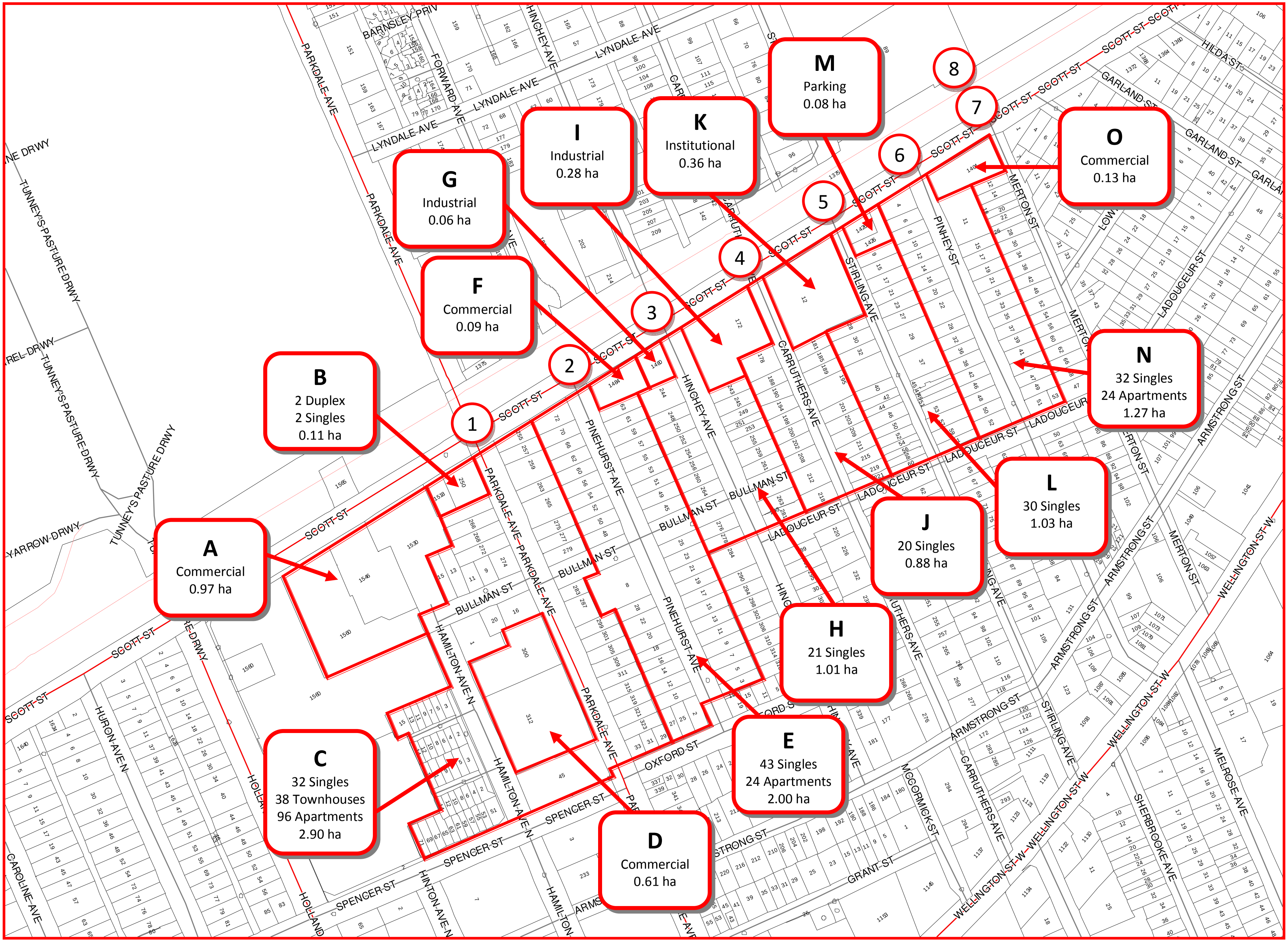
	Pop	Avg. Daily		Max Day		Peak Hour	
		m^3/d	L/min	m^3/d	L/min	m^3/d	L/min
Total Domestic Demand	524	183.4	127.4	458.5	318.4	1008.7	700.5

Institutional / Commercial / Industrial Demand

Property Type	Unit Rate	Units	Avg. Daily m^3/d	Avg. Daily L/min	Max Day m^3/d	Max Day L/min	Peak Hour m^3/d	Peak Hour L/min
Commercial floor space	2.5 $L/m^2/d$	1,243	3.11	2.2	4.7	3.2	8.4	5.8
Office	75 $L/9.3m^2/d$		0.00	0.0	0.0	0.0	0.0	0.0
Industrial - Light	35,000 L/gross ha/d		0.00	0.0	0.0	0.0	0.0	0.0
Industrial - Heavy	55,000 L/gross ha/d		0.00	0.0	0.0	0.0	0.0	0.0
Total I/CI Demand			3.1	2.2	4.7	3.2	8.4	5.8
Total Demand			**186.5**	**129.5**	**463.2**	**321.6**	**1017.1**	**706.3**

APPENDIX C

Wastewater Collection


A
Commercial
0.97 ha
B
2 Duplex
2 Singles
0.11 ha
C
32 Singles
38 Townhouses
96 Apartments
2.90 ha
D
Commercial
0.61 ha
E
43 Singles
24 Apartments
2.00 ha
F
Commercial
0.09 ha
G
Industrial
0.06 ha
H
21 Singles
1.01 ha
I
Industrial
0.28 ha
J
20 Singles
0.88 ha
K
Institutional
0.36 ha
L
30 Singles
1.03 ha
M
Parking
0.08 ha
N
32 Singles
24 Apartments
1.27 ha
O
Commercial
0.13 ha
1
2
3
4
5
6
7
8
SCOTT-ST
PARKDALE-AVE
HAMILTON-AVE-N
PINEHURST-AVE
HINCHEY-AVE
CARRUTHERS-AVE
STIRLING-AVE
PINHEY-ST
MERTON-ST
LADOUCEUR-ST
BULLMAN-ST
OXFORD-ST
SPENCER-ST
ARMSTRONG-ST
WELLINGTON-ST-W
MCCORMICK-ST
GRANT-ST
SHERBROOKE-AVE
MELROSE-AVE
GARLAND-ST
HILDA-ST
LYNDALE-AVE
FORWARD-AVE
BARNSLEY-PRIV
TUNNEY'S-PASTURE-DRWY
YARROW-DRWY
HURON-AVE-N
HINTON-AVE-N
CAROLINE-AVE
HOLLAND

Richcraft Group of Companies
250 Parkdale Ave
Existing Conditions
Tower A and B

Existing Wastewater Design Flows per Unit Count
City of Ottawa Sewer Design Guidelines, 2004

Site Area	0.354	**ha**

Extraneous Flow Allowances

Infiltration / Inflow	**0.10**	**L/s**

Domestic Contributions

Unit Type	Unit Rate	Units	Pop
Single Family	3.4	6	21
Semi-detached and duplex	2.7	2	6
Duplex	2.3		0
Townhouse	2.7		0
Apartment			
Bachelor	1.4		0
1 Bedroom	1.4		0
2 Bedroom	2.1	3	7
3 Bedroom	3.1		0
Average	1.8		0
Total Pop			**34**

Average Domestic Flow	**0.14**	**L/s**
Peaking Factor	**4**	
Peak Domestic Flow	**0.55**	**L/s**

Institutional / Commercial / Industrial Contributions

Property Type	Unit Rate		No. of Units	Avg Wastewater (L/s)
Commercial floor space*	5	$L/m^2/d$	450	0.05
Hospitals	900	L/bed/d		0.00
School	70	L/student/d		0.00
Industrial - Light**	35,000	L/gross ha/d		0.00
Industrial - Heavy**	55,000	L/gross ha/d		0.00

Average I/C/I Flow	**0.05**
Peak Institutional / Commercial Flow	0.08
Peak Industrial Flow**	0.00
Peak I/C/I Flow	**0.08**

** assuming a 12 hour commercial operation*

*** peak industrial flow per City of Ottawa Sewer Design Guidelines Appendix 4B*

Total Estimated Average Dry Weather Flow Rate	**0.19**	**L/s**
Total Estimated Peak Dry Weather Flow Rate	**0.63**	**L/s**
Total Estimated Peak Wet Weather Flow Rate	**0.73**	**L/s**

Richcraft Group of Companies
250 Parkdale Ave
Proposed Conditions
Tower A and B

Wastewater Design Flows per Unit Count
City of Ottawa Sewer Design Guidelines, 2004

Site Area	0.354	**ha**

Extraneous Flow Allowances

Infiltration / Inflow	**0.10**	**L/s**

Domestic Contributions

Unit Type	Unit Rate	Units	Pop
Single Family	3.4		0
Semi-detached and duplex	2.7		0
Townhouse	2.7		0
Stacked Townhouse	2.3		0
Apartment			
Bachelor	1.4		0
1 Bedroom	1.4	124	174
2 Bedroom	2.1	84	177
3 Bedroom	3.1		0
Average	1.8	291	524

Total Pop	**875**	
Average Domestic Flow	**3.54**	**L/s**
Peaking Factor	**3.84**	
Peak Domestic Flow	**13.60**	**L/s**

Institutional / Commercial / Industrial Contributions

Property Type	Unit Rate		No. of Units	Avg Wastewater (L/s)
Commercial floor space*	5	$L/m^2/d$	1,243	0.14
Hospitals	900	L/bed/d		0.00
School	70	L/student/d		0.00
Industrial - Light**	35,000	L/gross ha/d		0.00
Industrial - Heavy**	55,000	L/gross ha/d		0.00

Average I/C/I Flow	**0.14**
Peak Institutional / Commercial Flow	0.22
Peak Industrial Flow**	0.00
Peak I/C/I Flow	**0.22**

** assuming a 12 hour commercial operation*

*** peak industrial flow per City of Ottawa Sewer Design Guidelines Appendix 4B*

Total Estimated Average Dry Weather Flow Rate	**3.69 L/s**
Total Estimated Peak Dry Weather Flow Rate	**13.82 L/s**
Total Estimated Peak Wet Weather Flow Rate	**13.91 L/s**

SANITARY SEWER CALCULATION SHEET

PROJECT: **Richcraft**
LOCATION: **Parkdale**
FILE REF: **11-545**
DATE: **5-Mar-13**

Monitoring Data

Avg. Daily Flow Res.	300	L/p/d	Peak Fact Res. Per Harmons: Min = 0.4 Max =0.6		Infiltration / Inflow	0.5	L/s/ha
Avg. Daily Flow Comm	17,000	L/ha/d	Peak Fact. Comm.	1	Min. Pipe Velocity	0.60	m/s full flowing
Avg. Daily Flow Instit.	10,000	L/ha/d	Peak Fact. Instit.	1	Max. Pipe Velocity	3.00	m/s full flowing
Avg. Daily Flow Indust.	10,000	L/ha/d	Peak Fact. Indust. per MOE graph		Mannings N	0.013	

Location			Residential Area and Population									Commercial		Institutional		Industrial			Infiltration				Pipe Data								
Area ID	Up	Down	Area	Number of Units by type				Pop.	Cumulative Area	Cumulative Pop.	Peak Fact.	Q_{res}	Area	Accu. Area	Area	Accu. Area	Area	Accu. Area	Q_{C+I+I}	Total Area	Accu. Area	Infiltration Flow	Total Flow	DIA	Slope	Length	$A_{hydraulic}$	R	Velocity	Q_{cap}	Q / Q full
			(ha)	Singles	Semi's	Town's	Apt's		(ha)		(-)	(L/s)	(ha)	(ha)	(ha)	(ha)	(ha)	(ha)	(L/s)	(ha)	(ha)	(L/s)	(L/s)	(mm)	(%)	(m)	(m^2)	(m)	(m/s)	(L/s)	(-)
A		1						875.0	0.000	875.0	2.70	8.21		0.00	0.97	0.97		0.00	0.8	0.974	0.974	0.5	9.54	300	0.30		0.071	0.075	0.75	53.0	0.18
B-C-D	1	2	3.01	34	2	38	96	396.0	3.005	1271.0	2.64	11.64	0.61	0.61		0.97		0.00	1.4	3.615	4.589	2.3	15.31	250	0.26		0.049	0.063	0.62	30.3	0.50
E-F	2	3	2.00	43			24	189.0	5.001	1460.0	2.61	13.25	0.09	0.70		0.97		0.00	1.5	2.086	6.675	3.3	18.04	300	0.29		0.071	0.075	0.74	52.1	0.35
G-H-I	3	4	1.01	21				71.0	6.009	1531.0	2.60	13.84		0.70	0.34	1.31		0.00	1.7	1.344	8.019	4.0	19.60	375	0.31		0.110	0.094	0.88	97.6	0.20
J-K	4	5	0.88	20				68.0	6.885	1599.0	2.60	14.41		0.70	0.36	1.67	0.28	0.28	3.0	1.511	9.530	4.8	22.13	375	0.44		0.110	0.094	1.05	116.3	0.19
L-M	5	6	1.03	30				102.0	7.915	1701.0	2.58	15.26	0.08	0.78		1.67		0.28	3.0	1.109	10.639	5.3	23.61	375	0.30		0.110	0.094	0.87	96.0	0.25
N-O	6	7	1.27	32			24	152.0	9.183	1853.0	2.57	16.51		0.78	0.13	1.80		0.28	3.1	1.401	12.040	6.0	25.68	375	3.78		0.110	0.094	3.09	340.9	0.08
	7	8						0.0	9.183	1853.0	2.57	16.51		0.78		1.80		0.28	3.1	0.000	12.040	6.0	25.68	375	0.30		0.110	0.094	0.87	96.0	0.27

Richcraft Group of Companies
250 Parkdale Ave
Existing Conditions
Tower A

Existing Wastewater Design Flows per Unit Count
City of Ottawa Sewer Design Guidelines, 2004

Site Area	0.116	**ha**

Extraneous Flow Allowances

Infiltration / Inflow	**0.03**	**L/s**

Domestic Contributions

Unit Type	Unit Rate	Units	Pop
Single Family	3.4	2	7
Semi-detached and duplex	2.7	2	6
Duplex	2.3		0
Townhouse	2.7		0
Apartment			
Bachelor	1.4		0
1 Bedroom	1.4		0
2 Bedroom	2.1		0
3 Bedroom	3.1		0
Average	1.8		0

Total Pop	**13**	
Average Domestic Flow	**0.05**	**L/s**
Peaking Factor	**4**	
Peak Domestic Flow	**0.21**	**L/s**

Institutional / Commercial / Industrial Contributions

Property Type	Unit Rate		No. of Units	Avg Wastewater (L/s)
Commercial floor space*	5	$L/m^2/d$		0.00
Hospitals	900	L/bed/d		0.00
School	70	L/student/d		0.00
Industrial - Light**	35,000	L/gross ha/d		0.00
Industrial - Heavy**	55,000	L/gross ha/d		0.00

Average I/C/I Flow	**0.00**
Peak Institutional / Commercial Flow	0.00
Peak Industrial Flow**	0.00
Peak I/C/I Flow	**0.00**

** assuming a 12 hour commercial operation*

*** peak industrial flow per City of Ottawa Sewer Design Guidelines Appendix 4B*

Total Estimated Average Dry Weather Flow Rate	**0.05 L/s**
Total Estimated Peak Dry Weather Flow Rate	**0.21 L/s**
Total Estimated Peak Wet Weather Flow Rate	**0.24 L/s**

Richcraft Group of Companies
250 Parkdale Ave
Proposed Conditions
Tower A

Wastewater Design Flows per Unit Count
City of Ottawa Sewer Design Guidelines, 2004

Site Area 0.116 **ha**

Extraneous Flow Allowances

Infiltration / Inflow	**0.03**	**L/s**

Domestic Contributions

Unit Type	Unit Rate	Units	Pop
Single Family	3.4		0
Semi-detached and duplex	2.7		0
Townhouse	2.7		0
Stacked Townhouse	2.3		0
Apartment			
Bachelor	1.4		0
1 Bedroom	1.4	124	174
2 Bedroom	2.1	84	177
3 Bedroom	3.1		0
Average	1.8		0
	Total Pop		**351**

Average Domestic Flow	**1.42**	**L/s**
Peaking Factor	**4.00**	
Peak Domestic Flow	**5.69**	**L/s**

Institutional / Commercial / Industrial Contributions

Property Type	Unit Rate		No. of Units	Avg Wastewater (L/s)
Commercial floor space*	5	$L/m^2/d$	2,350	0.27
Hospitals	900	L/bed/d		0.00
School	70	L/student/d		0.00
Industrial - Light**	35,000	L/gross ha/d		0.00
Industrial - Heavy**	55,000	L/gross ha/d		0.00

Average I/C/I Flow	**0.27**
Peak Institutional / Commercial Flow	0.41
Peak Industrial Flow**	0.00
Peak I/C/I Flow	**0.41**

** assuming a 12 hour commercial operation*

*** peak industrial flow per City of Ottawa Sewer Design Guidelines Appendix 4B*

Total Estimated Average Dry Weather Flow Rate	**1.69 L/s**
Total Estimated Peak Dry Weather Flow Rate	**6.10 L/s**
Total Estimated Peak Wet Weather Flow Rate	**6.13 L/s**

Richcraft Group of Companies
250 Parkdale Ave
Existing Conditions
Tower B

Existing Wastewater Design Flows per Unit Count
City of Ottawa Sewer Design Guidelines, 2004

Site Area		0.238	**ha**

Extraneous Flow Allowances

Infiltration / Inflow	**0.07**	**L/s**

Domestic Contributions

Unit Type	Unit Rate	Units	Pop
Single Family	3.4	4	14
Semi-detached and duplex	2.7		0
Duplex	2.3		0
Townhouse	2.7		0
Apartment			
Bachelor	1.4		0
1 Bedroom	1.4		0
2 Bedroom	2.1	3	7
3 Bedroom	3.1		0
Average	1.8		0

Total Pop	**21**	
Average Domestic Flow	**0.09**	**L/s**
Peaking Factor	**4**	
Peak Domestic Flow	**0.34**	**L/s**

Institutional / Commercial / Industrial Contributions

Property Type	Unit Rate		No. of Units	Avg Wastewater (L/s)
Commercial floor space*	5	$L/m^2/d$	450	0.05
Hospitals	900	L/bed/d		0.00
School	70	L/student/d		0.00
Industrial - Light**	35,000	L/gross ha/d		0.00
Industrial - Heavy**	55,000	L/gross ha/d		0.00

Average I/C/I Flow	**0.05**
Peak Institutional / Commercial Flow	0.08
Peak Industrial Flow**	0.00
Peak I/C/I Flow	**0.08**

** assuming a 12 hour commercial operation*
*** peak industrial flow per City of Ottawa Sewer Design Guidelines Appendix 4B*

Total Estimated Average Dry Weather Flow Rate	**0.14**	**L/s**
Total Estimated Peak Dry Weather Flow Rate	**0.42**	**L/s**
Total Estimated Peak Wet Weather Flow Rate	**0.49**	**L/s**

Richcraft Group of Companies
250 Parkdale Ave
Proposed Conditions
Tower B

Wastewater Design Flows per Unit Count
City of Ottawa Sewer Design Guidelines, 2004

Site Area 0.238 **ha**

Extraneous Flow Allowances

Infiltration / Inflow **0.07 L/s**

Domestic Contributions

Unit Type	Unit Rate	Units	Pop
Single Family	3.4		0
Semi-detached and duplex	2.7		0
Townhouse	2.7		0
Stacked Townhouse	2.3		0
Apartment			
Bachelor	1.4		0
1 Bedroom	1.4		0
2 Bedroom	2.1		0
3 Bedroom	3.1		0
Average	1.8	291	524

Total Pop **524**

Average Domestic Flow **2.12 L/s**

Peaking Factor **3.96**

Peak Domestic Flow **8.41 L/s**

Institutional / Commercial / Industrial Contributions

Property Type	Unit Rate		No. of Units	Avg Wastewater (L/s)
Commercial floor space*	5	$L/m^2/d$	1,243	0.14
Hospitals	900	L/bed/d		0.00
School	70	L/student/d		0.00
Industrial - Light**	35,000	L/gross ha/d		0.00
Industrial - Heavy**	55,000	L/gross ha/d		0.00

Average I/C/I Flow **0.14**

Peak Institutional / Commercial Flow 0.22
Peak Industrial Flow** 0.00
Peak I/C/I Flow **0.22**

** assuming a 12 hour commercial operation*
*** peak industrial flow per City of Ottawa Sewer Design Guidelines Appendix 4B*

Total Estimated Average Dry Weather Flow Rate	**2.27 L/s**
Total Estimated Peak Dry Weather Flow Rate	**8.63 L/s**
Total Estimated Peak Wet Weather Flow Rate	**8.70 L/s**

APPENDIX D

Stormwater Management

Richcraft Group of Companies
250 Parkdale Ave
Existing Conditions
Tower A

Estimated Peak Stormwater Flow Rate
City of Ottawa Sewer Design Guidelines, 2004

Existing Drainage Area Charateristics

Area	0.1160	ha
C	0.80	Rational Method runoff coefficient
t_c	10.0	min

Estimated Peak Flow

	2-year	5-year	100-year	
i	76.8	104.2	178.6	mm/hr
Q	19.7	26.7	57.2	L/s

Stormwater - Proposed Development
City of Ottawa Sewer Design Guidelines, 2004

Target Flow Rate

Area	0.12	ha
C	0.40	Rational Method runoff coefficient
t_c	20.0	min

2-year

i	52.0	mm/hr
Q	6.7	L/s

Estimated Post Development Peak Flow from Unattenuated Areas

Total Area	0.01	ha
C	0.20	Rational Method runoff coefficient

	5-year					100-year				
t_c (min)	i (mm/hr)	Q_{actual} (L/s)	$Q_{release}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)	i (mm/hr)	Q_{actual} (L/s)	$Q_{release}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
20.0	70.3	0.5	0.5	0.0	0.0	120.0	1.0	1.0	0.0	0.0

Estimated Post Development Peak Flow from Attenuated Areas

Total Area	0.10	ha
C	0.90	Rational Method runoff coefficient

	5-year					100-year				
t_c (min)	i (mm/hr)	Q_{actual} (L/s)	$Q_{release}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)	i (mm/hr)	Q_{actual} (L/s)	$Q_{release}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
20	70.3	18.3	3.0	15.3	18.4	120.0	34.8	5.7	29.0	34.9
25	60.9	15.9	3.0	12.9	19.3	103.8	30.1	5.7	24.4	36.6
30	53.9	14.1	3.0	11.0	19.9	91.9	26.6	5.7	20.9	37.6
35	48.5	12.7	3.0	9.6	20.2	82.6	23.9	5.7	18.2	38.2
40	44.2	11.5	3.0	8.5	20.4	75.1	21.8	5.7	16.1	38.5
45	40.6	10.6	3.0	7.6	20.4	69.1	20.0	5.7	14.3	38.6
50	37.7	9.8	3.0	6.8	20.4	64.0	18.5	5.7	12.8	38.4
55	35.1	9.2	3.0	6.1	20.2	59.6	17.3	5.7	11.6	38.1
60	32.9	8.6	3.0	5.6	20.0	55.9	16.2	5.7	10.5	37.7
65	31.0	8.1	3.0	5.1	19.7	52.6	15.3	5.7	9.5	37.2
70	29.4	7.7	3.0	4.6	19.4	49.8	14.4	5.7	8.7	36.5
75	27.9	7.3	3.0	4.2	19.0	47.3	13.7	5.7	8.0	35.8
80	26.6	6.9	3.0	3.9	18.6	45.0	13.0	5.7	7.3	35.1
85	25.4	6.6	3.1	3.6	18.2	43.0	12.5	5.7	6.7	34.3
90	24.3	6.3	3.1	3.3	17.8	41.1	11.9	5.7	6.2	33.4
95	23.3	6.1	3.1	3.0	17.3	39.4	11.4	5.7	5.7	32.5
100	22.4	5.8	3.1	2.8	16.8	37.9	11.0	5.7	5.3	31.5
105	21.6	5.6	3.1	2.6	16.2	36.5	10.6	5.7	4.8	30.5
110	20.8	5.4	3.1	2.4	15.7	35.2	10.2	5.7	4.5	29.5
115	20.1	5.3	3.1	2.2	15.1	34.0	9.9	5.7	4.1	28.4
120	19.5	5.1	3.1	2.0	14.6	32.9	9.5	5.7	3.8	27.4

5-year $Q_{attenuated}$ 3.04 L/s **100-year $Q_{attenuated}$ 5.74 L/s**
5-year Max. Storage Required 20.4 m^3 **100-year Max. Storage Required 38.6 m^3**

Summary of Release Rates and Storage Volumes

Control Area	5-Year Release Rate (L/s)	5-Year Storage (m^3)	100-Year Release Rate (L/s)	100-Year Storage (m^3)
Unattenuated Areas	0.45	0.0	0.97	0.0
Attenutated Areas	3.04	20.4	5.74	38.6
Total	**3.5**	**20.42**	**6.71**	**38.6**

Richcraft Group of Companies
250 Parkdale Ave
Existing Conditions
Tower B

Estimated Peak Stormwater Flow Rate
City of Ottawa Sewer Design Guidelines, 2004

Existing Drainage Area Charateristics

Area	0.2380	ha
C	0.87	Rational Method runoff coefficient
t_c	10.0	min

Estimated Peak Flow

	2-year	5-year	100-year	
i	76.8	104.2	178.6	mm/hr
Q	43.9	59.6	127.6	L/s

Stormwater - Proposed Development
City of Ottawa Sewer Design Guidelines, 2004

Target Flow Rate

Area	0.24	ha
C	0.40	Rational Method runoff coefficient
t_c	20.0	min

2-year

i	52.0	mm/hr
Q	13.8	L/s

Estimated Post Development Peak Flow from Unattenuated Areas

Total Area	0.02	ha
C	0.02	Rational Method runoff coefficient

	5-year					100-year				
t_c (min)	i (mm/hr)	Q_{actual} (L/s)	$Q_{release}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)	i (mm/hr)	Q_{actual} (L/s)	$Q_{release}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
20.0	70.3	0.1	0.1	0.0	0.0	120.0	0.2	0.2	0.0	0.0

Estimated Post Development Peak Flow from Attenuated Areas

Total Area	0.21	ha
C	0.90	Rational Method runoff coefficient

	5-year					100-year				
t_c (min)	i (mm/hr)	Q_{actual} (L/s)	$Q_{release}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)	i (mm/hr)	Q_{actual} (L/s)	$Q_{release}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
20	70.3	37.6	7.1	30.5	36.6	120.0	71.4	13.5	57.8	69.4
25	60.9	32.6	7.1	25.5	38.2	103.8	61.8	13.5	48.3	72.4
30	53.9	28.9	7.1	21.7	39.1	91.9	54.7	13.5	41.1	74.0
35	48.5	26.0	7.2	18.8	39.5	82.6	49.1	13.5	35.6	74.8
40	44.2	23.7	7.2	16.5	39.6	75.1	44.7	13.5	31.2	74.9
45	40.6	21.8	7.2	14.6	39.4	69.1	41.1	13.5	27.6	74.4
50	37.7	20.2	7.2	13.0	39.0	64.0	38.1	13.5	24.5	73.6
55	35.1	18.8	7.2	11.6	38.4	59.6	35.5	13.5	22.0	72.4
60	32.9	17.6	7.2	10.5	37.7	55.9	33.3	13.5	19.7	71.0
65	31.0	16.6	7.2	9.4	36.8	52.6	31.3	13.5	17.8	69.4
70	29.4	15.7	7.2	8.5	35.9	49.8	29.6	13.5	16.1	67.6
75	27.9	14.9	7.2	7.8	34.9	47.3	28.1	13.5	14.6	65.7
80	26.6	14.2	7.2	7.0	33.8	45.0	26.8	13.5	13.2	63.6
85	25.4	13.6	7.2	6.4	32.6	43.0	25.6	13.5	12.0	61.4
90	24.3	13.0	7.2	5.8	31.4	41.1	24.5	13.5	10.9	59.1
95	23.3	12.5	7.2	5.3	30.1	39.4	23.5	13.5	9.9	56.7
100	22.4	12.0	7.2	4.8	28.8	37.9	22.6	13.5	9.0	54.2
105	21.6	11.6	7.2	4.4	27.5	36.5	21.7	13.5	8.2	51.6
110	20.8	11.2	7.2	4.0	26.1	35.2	20.9	13.5	7.4	49.0
115	20.1	10.8	7.2	3.6	24.7	34.0	20.2	13.5	6.7	46.3
120	19.5	10.4	7.2	3.2	23.2	32.9	19.6	13.5	6.0	43.6

5-year $Q_{attenuated}$ **7.16 L/s** **100-year $Q_{attenuated}$** **13.52 L/s**
5-year Max. Storage Required **39.6 m^3** **100-year Max. Storage Required** **74.9 m^3**

Summary of Release Rates and Storage Volumes

Control Area	5-Year Release Rate (L/s)	5-Year Storage (m^3)	100-Year Release Rate (L/s)	100-Year Storage (m^3)
Unattenuated Areas	0.11	0.0	0.24	0.0
Attenutated Areas	7.16	39.6	13.52	74.9
Total	**7.3**	**39.61**	**13.76**	**74.9**

DRAWINGS / FIGURES

TOPOGRAPHICAL PLAN OF

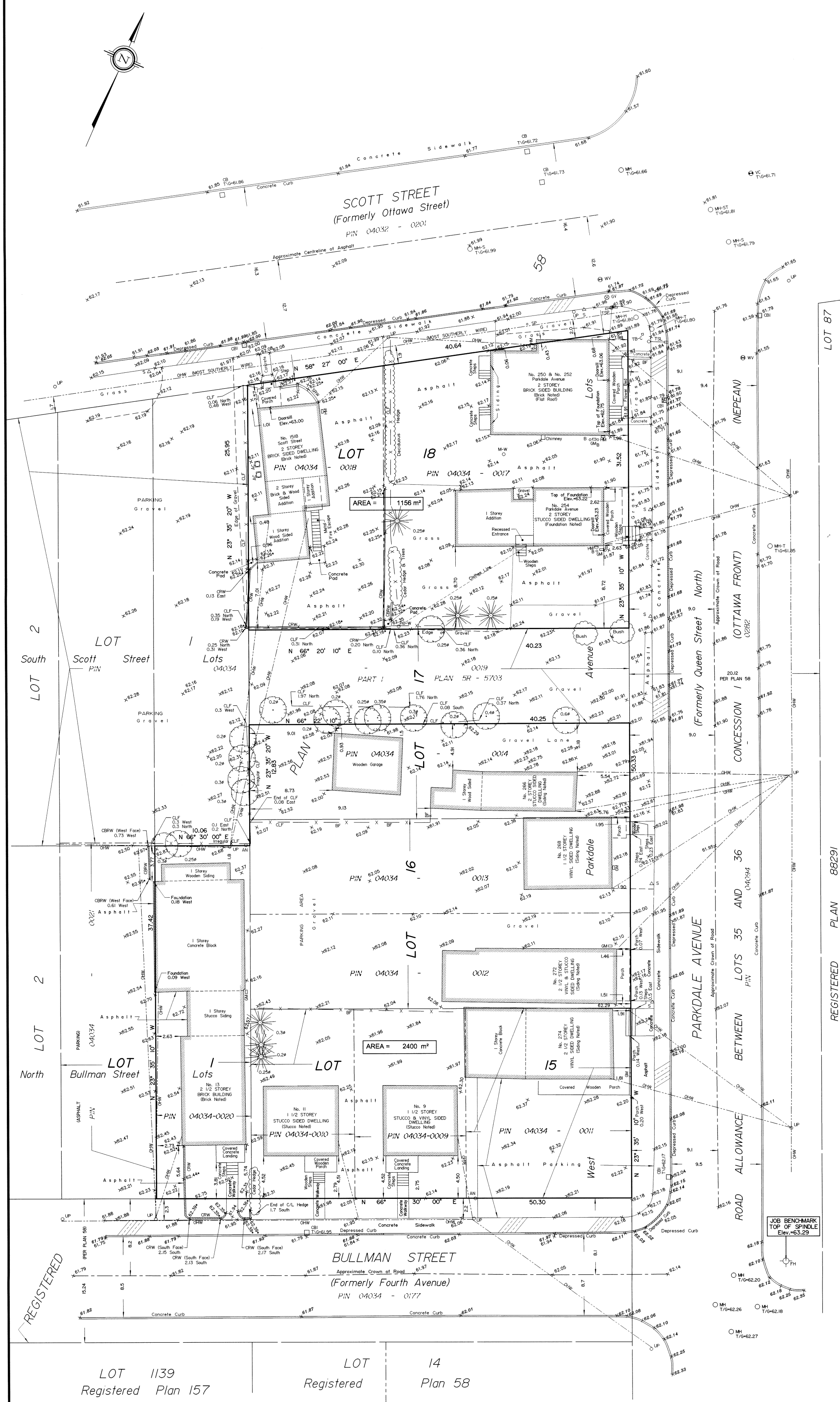
LOTS 15, 16, 18 and PART OF LOT 17 (West Parkdale Avenue) AND PART OF LOT 1 (North Bullman Street) REGISTERED PLAN 58 CITY OF OTTAWA

Prepared by Annis, O'Sullivan, Vollebekk Ltd.

Fieldwork for Lot 18 and North Half of Lot 17, Registered Plan 58 completed August 4, 2011. (AOG File 12222-11)

February 6/2013 — Date

Edward M. Lancaster, O.L.S.



Notes & Legend

	Denotes	
MH-ST	"	Maintenance Hole (Storm Sewer)
MH-S	"	Maintenance Hole (Sanitary)
MH-T	"	Maintenance Hole (Traffic)
MH-H	"	Maintenance Hole (Hydro)
MH	"	Maintenance Hole (Unidentified)
VC	"	Valve Chamber (Watermain)
OHW	"	Overhead Wires
UP	"	Utility Pole
CB	"	Catch Basin
CBI	"	Catch Basin Inlet
WV	"	Water Valve
SP	"	Water Stand Post
T/G	"	Top of Grate
GV	"	Gas Valve
GM	"	Gas Meter
HM	"	Hydro Meter
TB-C	"	Cable Terminal Box
TSP	"	Traffic Signal Post
B	"	Bollard
S	"	Sign
CLF	"	Chain Link Fence
BF	"	Board Fence
SRW	"	Stone Retaining Wall
CRW	"	Concrete Retaining Wall
CBRW	"	Concrete Block Retaining Wall
PO-W	"	Wood Pole
TSL	"	Traffic Light
Ø	"	Diameter
+ 65.00	"	Location of Elevations
+ 65.00*	"	Location of Elevations (Top of Wall)
+ 65.00	"	Location of Elevations (Top of Curb)
C/L	"	Centreline
	"	Property Line
	"	Deciduous Tree
	"	Coniferous Tree
AC	"	Air Conditioner
M-W	"	Monitoring Well

Topographic data was collected under Winter Conditions. Snow cover and ice preclude determining location and elevation of some topographical data that is otherwise visible.

BOUNDARY INFORMATION DERIVED FROM FIELD SURVEY, OFFICE RECORDS AND REGISTRY OFFICE RESEARCH.

ELEVATION NOTES

1. Elevations shown are referred to geodetic datum.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.

UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

Scale 1 : 200

8.0 6.0 4.0 2.0 0 4 8 Metres

Metric

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

Bearings are astronomic, derived from part of the southerly limit of Scott Street shown to be N 58°27'00" E on Reference Plan 4R-6192.

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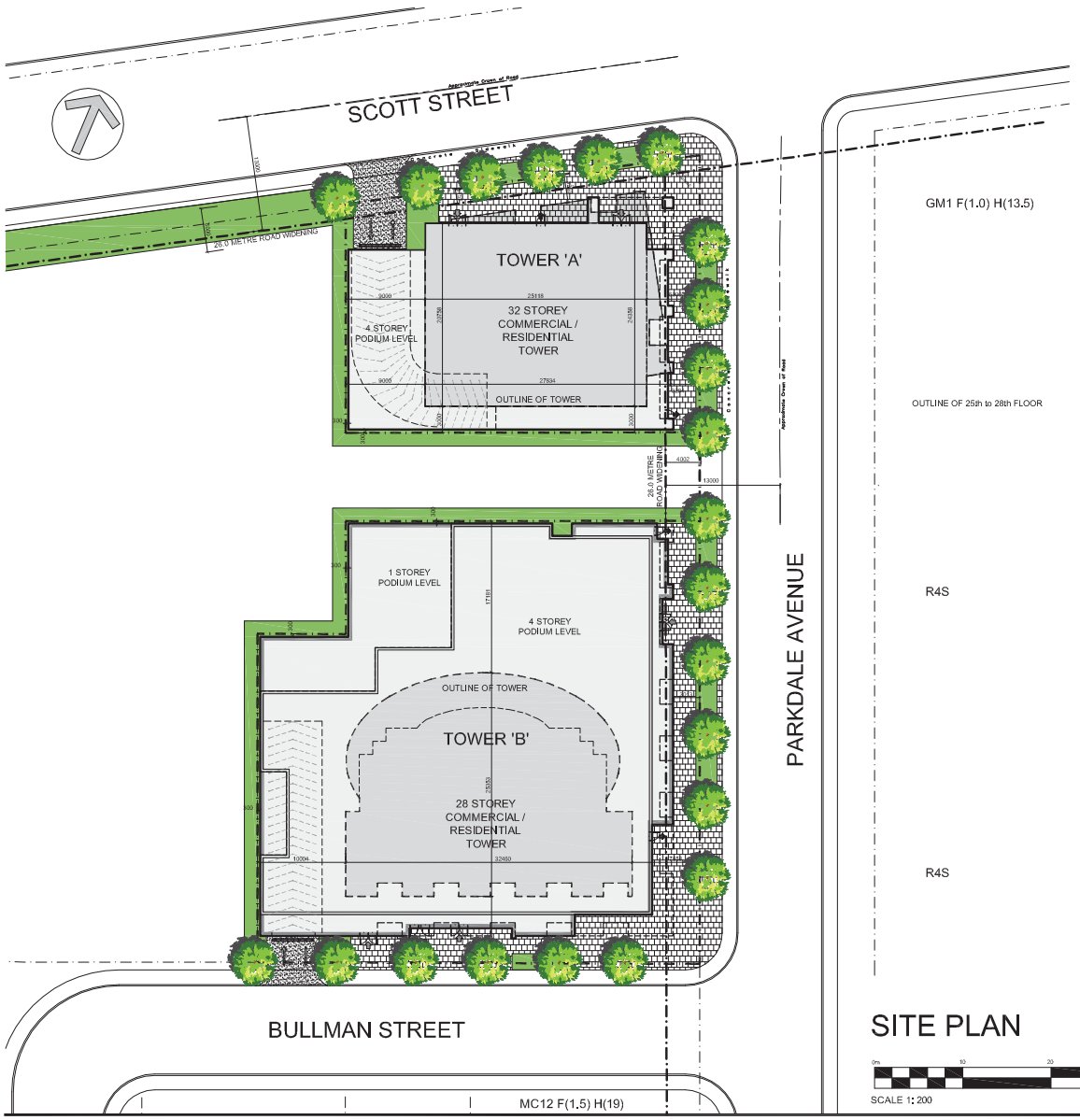
Ontario Land Surveyors

Job No. 13688-13 Richcraft Lts 1 15 To 17 PL 58 T F | ig



SITE PLAN

SCALE 1: 200

TOWER 'A'

PROJECT INFORMATION

ZONING	Zoning By-Law 2008-250	MC12 F(2.0) H(19)
SITE AREA		1,156.57 sq. m. (12,449 sq. ft.)

PROJECT STATISTICS

FLOOR SPACE INDEX		
BUILDING HEIGHT TOWER 'A'		103.0 M

GROSS BUILDING - AREAS
(CITY OF OTTAWA'S DEFINITION)

PARKING LEVEL (TYPICAL)		
GROUND FLOOR		836.0 sq. m. (2,581) sq. ft.
2nd & 3rd FLOOR	2 x 636.6 sq. m. 2 x (6,852) sq. ft.	1,273.2 sq. m. (13,704) sq. ft.
4th FLOOR		525.9 sq. m. (5,661) sq. ft.
TYPICAL FL. (SQUARE)	7 x 382.5 sq. m. 7 x (4,117) sq. ft.	2,677.4 sq. m. (28,819) sq. ft.
TYPICAL FL. (ANGLED)	20 x 430.54 sq. m. 20 x (4,634) sq. ft.	8,610.8 sq. m. (92,686) sq. ft.
PENTHOUSE FLOOR (32)		382.5 sq. m. (4,117) sq. ft.
TOTAL AREA (ABOVE GRADE)		14,304.8 sq. m. (153,976) sq. ft.

UNIT STATISTICS

1 BEDROOM UNIT	124
2 BEDROOM UNIT	84
TOTAL	208
COMMERCIAL RETAIL	239.9 sq. m. (2,582) sq. ft.
COMMERCIAL OFFICE	2,110 sq. m. (22,713) sq. ft.

CAR PARKING

REQUIRED

RESIDENCE	- 0.5 PER UNIT (208 UNITS)	104
VISITOR	- 0.2 PER DWELLING UNIT (AFTER 12 UNITS)	39
COMMERCIAL RETAIL	- 2.5 PER 100m² OF G.F.A.	6
COMMERCIAL OFFICE	- 1.8 PER 100m² OF G.F.A.	38
TOTAL		187

PROVIDED

RESIDENCE	- 0.7 PER UNIT (208 UNITS)	146
VISITOR	- 0.20 PER DWELLING UNIT	
COMMERCIAL RETAIL	- 2.5 PER 100m² OF G.F.A.	
COMMERCIAL OFFICE	- 2.5 PER 100m² OF G.F.A. (VISITOR / COMMERCIAL - SHARED)	44
TOTAL		190

BICYCLE PARKING

REQUIRED

RESIDENCE	- 0.5 PER UNIT (208 UNITS)	104
COMMERCIAL RETAIL	- 1.0 PER 250m² OF G.F.A.	1
COMMERCIAL OFFICE	- 1.0 PER 250m² OF G.F.A.	9
TOTAL		114

PROVIDED

UNDERGROUND	120

TOWER 'B'

PROJECT INFORMATION

ZONING	Zoning By-Law 2008-250	MC12 F(2.0) H(19)
SITE AREA		2,382.3 sq. m. (12,449 sq. ft.)

PROJECT STATISTICS

FLOOR SPACE INDEX		
BUILDING HEIGHT TOWER 'B'		91.0 M

GROSS BUILDING - AREAS
(CITY OF OTTAWA'S DEFINITION)

PARKING LEVEL (TYPICAL)		
GROUND FLOOR		1,243.1 sq. m. (13,381) sq. ft.
2nd & 3rd FLOOR	2 x 1,411.2 sq. m. 2 x (15,190) sq. ft.	2,822.4 sq. m. (30,380) sq. ft.
4th FLOOR		1,249.1 sq. m. (13,445) sq. ft.
TYPICAL FLOOR (5th - 27th)	23 x 563.2 sq. m. 23 x (6,062) sq. ft.	12,953.6 sq. m. (139,426) sq. ft.
PENTHOUSE FLOOR (28)		434.2 sq. m. (4,674) sq. ft.
TOTAL AREA (ABOVE GRADE)		18,702.4 sq. m. (201,311) sq. ft.

UNIT STATISTICS

1 BEDROOM UNIT	
2 BEDROOM UNIT	
TOTAL	291
COMMERCIAL FOOD RETAIL	1,243.1 sq. m. (13,381) sq. ft.

CAR PARKING

REQUIRED

RESIDENCE	- 0.5 PER UNIT (291 UNITS)	146
VISITOR	- 0.2 PER DWELLING UNIT (AFTER 12 UNITS)	56
COMMERCIAL RETAIL	- 2.5 PER 100m² OF G.F.A.	31
TOTAL		233

PROVIDED

RESIDENCE	- 0.7 PER UNIT (291 UNITS)	104
VISITOR	- 0.20 PER DWELLING UNIT	
COMMERCIAL RETAIL	- 2.5 PER 100m² OF G.F.A. (VISITOR / COMMERCIAL - SHARED)	56
TOTAL		260

BICYCLE PARKING

REQUIRED

RESIDENCE	- 0.5 PER UNIT (291 UNITS)	146
COMMERCIAL RETAIL	- 1.0 PER 250m² OF G.F.A.	5
TOTAL		151

PROVIDED

UNDERGROUND	160

RODERICK LAHEY ARCHITECT INC

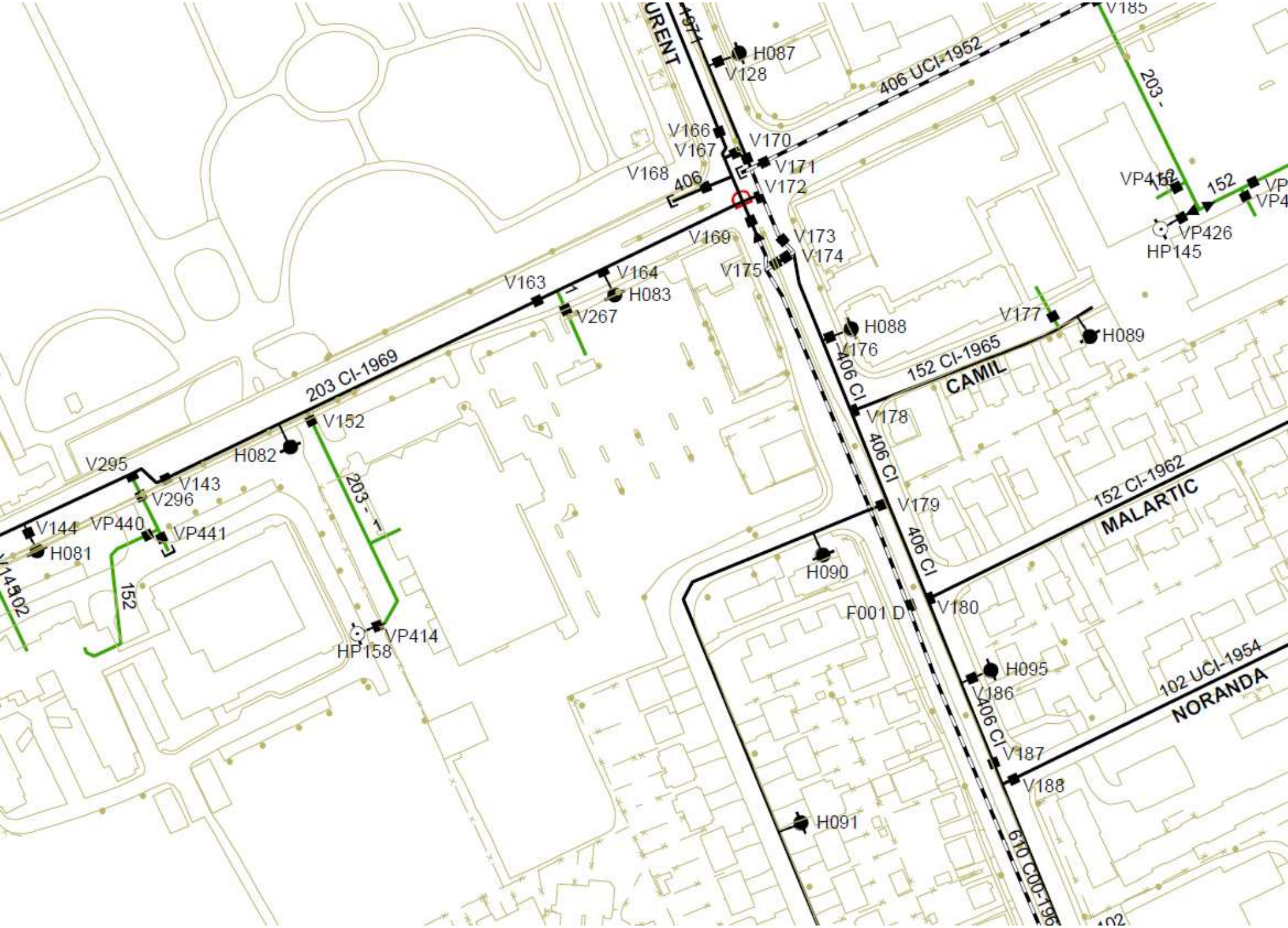
PLOT DATE: Thursday, January 24, 2013

ISSUED FOR URBAN DESIGN REVIEW PANEL

274 PARKDALE AVENUE
OTTAWA ONTARIO

RICHCRAFT™ Group Of Companies


CAMIL
MALARTIC
NORANDA
SA300mm
ST750mm
SA250mm
SA225mm
ST450mm


V185
203 -
406 UCI-1952
H087
V128
V166
V167
V170
V171
V168
406
V172
VP416
152
VP426
HP145
V169
V173
V174
V175
V163
V164
H083
V267
H088
V176
V177
H089
406 CI
152 CI-1965
CAMIL
203 CI-1969
V152
H082
V178
V295
V143
V296
203 - 1
406 CI
V179
152 CI-1962
MALARTIC
V144
VP440
VP441
H081
H090
152
F001 D
V180
VP414
HP158
H095
V186
102 UCI-1954
NORANDA
406 CI
V187
V188
H091
610 CUO-196