FUNCTIONAL SERVICING REPORT

FOR

1445/1451 WELLINGTON STREET

CITY OF OTTAWA

PROJECT NO.: 13-680

NOVEMBER 2013 – REV 1

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1.0 INTRODUCTION

David Schaeffer Engineering Limited (DSEL) has been retained to prepare a Functional Servicing Report in support of the application for Zoning By-law Amendment (ZBLA) and Site Plan Control (SPC) at both 1445 and 1451 Wellington Street.

The subject property is located within the City of Ottawa urban boundary. As illustrated in ***Figure 1***, the subject property is located at of the intersection of Island Park Drive and Wellington Street.

Figure 1: Site Location

The subject property is comprised of 1445 and 1451 Wellington Street and currently contains an existing 1-storey commercial building and a restaurant located in a converted 2-storey single family home. The remainder of the property is comprised of paved parking lot. The subject property measures approximately ***0.184ha***. Under the

City of Ottawa Zoning By-law the existing lands are currently designated Traditional Mainstreet (TM11).

The proposed ZBLA and SPC would allow for the development of a residential condominium building complete with ground level retail/restaurant space and underground parking.

The proposed residential component is comprised of a 12-storey-114 unit tower with a podium level. The proposed retail/restaurant component is comprised of 255m^2 of ground floor retail space and a 182-seat, 240m^2 restaurant. A copy of the conceptual site plan is included in ***Drawings/Figures***.

The objective of this report is to provide sufficient detail to demonstrate that the proposed re-zoning and development is supported by existing municipal services.

1.1 Existing Conditions

Municipal services as indicated below are available within the respective right-of-ways.

Watermains:

- 300mm diameter local watermain located service within Wellington Street

Storm Sewers:

- 675mm diameter local sewer located within Wellington Street

Sanitary Sewers:

- 250mm diameter local sewer located within Wellington Street

1.2 Required Permits / Approvals

Development of the site is subject to the City of Ottawa Planning and development approvals process. The City of Ottawa must approve detailed engineering design drawings and reports prepared to support the proposed development plan.

1.3 Pre-consultation

Pre-consultation with relevant parties, including the City of Ottawa was conducted via email for the proposed development.

Pre-consultation correspondence, along with the servicing guidelines checklist, is located in ***Appendix A***.

2.0 GUIDELINES, PREVIOUS STUDIES, AND REPORTS

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

- **Ottawa Sewer Design Guidelines,**
  City of Ottawa, October 2012.
  (City Standards)

  - **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)

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

- **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)

- **Water Supply for Public Fire Protection**
  Fire Underwriters Survey, 1999.
  (FUS)

- **Geotechnical Investigation**
  Paterson Group Inc, PG2961-1R,
  October 3, 2013
  (Geotech Report)

3.0 WATER SUPPLY SERVICING

3.1 Existing Water Supply Services

The subject property lies within the City of Ottawa 1W pressure zone, as shown by the Pressure Zone map included in ***Appendix B***.

The site is currently serviced via two connections from the existing 300mm diameter local watermain located within the Wellington Street right-of-way. Details are shown by the existing conditions plan ***EX-1*** included with this report.

3.2 Water Supply Servicing Design

It is proposed that the development be serviced via an independent 200mm diameter water service connection to the existing 300mm watermain within Wellington Street. Servicing details are illustrated by ***SSGP-1*** included with this report.

An existing municipally owned hydrant is located at the intersection of Island Park Drive and Wellington Street.

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

Table 1 Water Supply Design Criteria

Design Parameter	Value
Residential Average Apartment	1.8 P/unit
Residential Average Daily Demand	350 L/d/P
Residential Maximum Daily Demand**	3.6 x Average Daily
Residential Maximum Hourly**	5.4 x Average Daily
Minimum Watermain Size	150mm diameter
Restaurant	125 L/seat/d
Commercial floor space	2.5 $L/m^2/d$
Commercial Maximum Daily Demand	1.5 x Average Daily
Commercial Maximum Hourly	1.8 x Maximum Daily
Minimum Depth of Cover	2.4m from top of watermain to finished grade
During Peak Hourly Demand desired operating pressure is within	350kPa and 480kPa
During normal operating conditions pressure must not drop below	275kPa
During fire flow operating pressure must not drop below	140kPa
Daily average based on Appendix 4-A from **City Standards* ***Residential Max. Daily and Max. Hourly peaking factors per MOE Guidelines for Drinking-Water Systems Table 3-3 for 0 to 500 persons.* *-Table updated to reflect ISD-2010-2*	

Table 2 summarizes the anticipated water demand and associated boundary conditions for the proposed development based on the ***Water Supply Guidelines***.

Table 2 Water Demand and Boundary Conditions

Design Parameter	Anticipated Water Demand[1] (L/min)	Boundary Condition[2] (m H_2O / kPa)
Average Daily Demand	62.7	- / -
Max Day + Fire Flow	191.5 + 6,000 = 6,191.5	- / -
Peak Hour	294.5	- / -

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 __m. See ***Appendix A.***

Fire flow requirements are to be determined in accordance with Local Guidelines (***FUS***), City of Ottawa ***Water Supply Guidelines***, and the Ontario Building Code. For the proposed development, the ***FUS*** estimates that approximately ***6000L/s*** in addition to maximum daily demand is required for fire protection. A certified fire protection system specialist shall be employed to design the building fire suppression system(s) and confirm the actual fire flow demand. Detailed calculations are provided in ***Appendix B***.

The City of Ottawa was contacted to obtain boundary conditions associated with the estimated water demand as indicated in ***Table 2***. No response had been received at the time of publication. Correspondence with the City is included in ***Appendix B***.

3.3 Water Supply Conclusion

Anticipated water demand under proposed conditions was submitted to the City of Ottawa for establishing boundary conditions. Boundary conditions were not available at the time of publication.

The proposed design conforms to the relevant City of Ottawa ***Water Supply Guidelines***.

4.0 WASTEWATER SERVICING

4.1 Existing Wastewater Services

Sanitary flow from the site is tributary to Cave Creek Collector. The sanitary sewer within Wellington Street directs flow east along Wellington Street to Carleton Avenue, sanitary flow is then directed north along Carleton Avenue, then east along Scott Street outletting to the Cave Creek Collector, as shown by the Sanitary and Storm Collection System maps in ***Drawings/Figures***.

A sanitary analysis was conducted for the local municipal sanitary sewers located across the frontage of the subject property in order to assess the available capacity. The analysis was conducted from the intersection of Wellington Street Island Park Drive to the intersection of Carleton Avenue and Garrison Street, as shown by the sanitary drainage plan ***SAN-1*** in ***Appendix C***.

Based on the sanitary analysis, ***29.6L/s*** of residual capacity is available within the local Wellington Street sanitary sewer. Detailed calculations are included in ***Appendix C***.

4.2 Wastewater Design

It is proposed that the development be serviced via an independent 200mm diameter service connection to the existing 250mm diameter sanitary sewer within Wellington Street. Servicing details are illustrated by ***SSGP-1***.

Table 3 summarizes the ***City Standards*** employed in the design of the proposed wastewater sewer system.

Table 3 Wastewater Design Criteria

Design Parameter	Value
Residential Average Apartment	1.8 P/unit
Residential Average Daily Demand	350 L/d/P
Peaking Factor	Harmon's Peaking Factor. Max 4.0, Min 2.0
Restaurant	125 L/seat/d
Commercial floor space	5 L/m^2/d
Commercial Peaking Factor	1.5
Infiltration and Inflow Allowance	0.28L/s/ha
Sanitary sewers are to be sized employing the Manning's Equation	$Q = \frac{1}{n} AR^{2/3} S^{1/2}$
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
Daily average based on Appendix 4-A from **City Standards* *-Extracted from Sections 4 and 6 of the City of Ottawa Sewer Design Guidelines, November 2004.*	

Table 4 summarizes the anticipated wastewater flow for the subject property. See ***Appendix C*** for associated calculations.

Table 4 Anticipated Wastewater Conditions

Design Parameter	Total Flow (L/s)
Total Estimated Average Dry Weather Flow Rate	1.07
Total Estimated Peak Dry Weather Flow Rate	3.53
Total Estimated Peak Wet Weather Flow Rate	3.59

The anticipated peak wastewater flow generated from the Wellington Street development to the local sanitary sewer system and ultimately the Cave Creek Trunk Collector is estimated to be ***3.59L/s***. Refer to **Appendix C** for associated calculations.

Based on the sanitary analysis ***29.6L/s*** of available capacity exists within the sanitary sewers located adjacent to the subject property. The proposed development is estimated to generate ***3.59L/s***; it is therefore anticipated that sufficient sanitary sewer capacity is available within the local sewers.

4.3 Wastewater Servicing Conclusions

The proposed development results in an estimated wastewater flow to the Wellington Street sanitary sewer of ***3.59L/s***. Flow from the proposed development is tributary to the Cave Creek Trunk Collector.

The proposed wastewater design conforms to the relevant City of Ottawa Sewer Design Guidelines.

5.0 STORMWATER MANAGEMENT

5.1 Existing Stormwater Services

Stormwater runoff from the subject property is tributary to the City of Ottawa sewer system located within the Ottawa Central sub-watershed. As such, approvals for proposed development within this area are under the approval authority of the City of Ottawa.

Flows that influence the watershed in which the subject property is located are further reviewed by the principal authority. The subject property is located within the Rideau River watershed, and is therefore subject to review by the Rideau Valley Conservation Authority (RVCA).

The existing site does not appear to contain any controls for stormwater runoff. Runoff from the existing site is directed to the existing municipal sewers. Stormwater is tributary to the Ottawa River via the municipal storm sewer system approximately 2.4 km downstream of the site, as shown by the Sanitary and Storm Collection System maps in ***Drawings/Figures***.

The estimated pre-development peak flows for the historical 2, 5, and 100-year storm events are summarized in ***Table 5***, detailed calculations are included in ***Appendix D***.

Table 5 Summary of Existing Peak Storm Flow Rates

City of Ottawa Design Storm	Estimated Peak Flow Rate (L/s)
2-year	35.3
5-year	47.9
100-year	102.7

5.2 Post-development Stormwater Management Targets

Stormwater management requirements for the proposed development are based on consultation with the City of Ottawa and the relevant ***Sewer Design Guidelines***. It has been established that the following criteria apply:

- Allowable release rate of ***26.6L/s*** for the site based on a Rational Method Coefficient of 0.5, employing the City of Ottawa IDF parameters for a 5-year storm with a time of concentration equal to 10 minutes.
- All storms up to and including the City of Ottawa 100-year design event are to be attenuated on site.
- Quality controls are not anticipated to be required for the development based on experience with this type of development. The runoff from the site is primarily roof runoff, which is considered 'clean'.

Consultation with the City of Ottawa is included in ***Appendix A***.

5.3 Stormwater Management System

In order to achieve the allowable post-development stormwater runoff release rate established in ***Section 5.2*** above, the proposed development will employ a cistern storage system.

The proposed stormwater management design is proposed to consist of a storm service connecting to the existing 675mm diameter storm sewer within Wellington Street.

Stormwater runoff captured will be directed internally to a storage cistern system located in within the building.

Unattenuated flow will flow overland to the existing catchbasins located along Wellington Street. Unattenuated areas will be compensated for in areas with controls. Servicing details are illustrated by ***SSGP-1*** in ***Drawings/Figures***.

Table 6 shows the estimated storage required to attenuate the site to the established release rate taking into account that a portion of the site will be release uncontrolled. Stormwater drainage areas are shown by ***SWM-1*** along with detailed calculations included in ***Appendix D***.

Table 6 summarizes the release rates and on site storage required to meet established target release rates.

Table 6 Summary of Release Rates and Estimated Storage – Phase 1

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	3.9	0.0	7.4	0.0
Attenuated Areas	10.1	23.5	19.2	44.5
Total	**14.0**	**23.5**	**26.6**	**44.5**

Table Notes: 1. Release rate calculated using the critical time of concentration as established by City of Ottawa pre-consultation and Sewer Design Guidelines.
2. Total release rate calculated using attenuated areas + unattenuated areas.

To attenuate stormwater runoff under the proposed conditions from the 100-year storm to the 5-year release rate of ***26.6L/s*** approximately ***45m^3*** of storage will be required. Detailed sizing and calculations are provided in ***Appendix D***.

5.4 Stormwater Servicing Conclusions

Post development stormwater runoff will be restricted to the allowable target for storm events up to and including the 1:100 year storm. To attenuate stormwater runoff from the 100-year storm to the 5-year release rate of ***26.6L/s*** approximately ***45m^3*** of storage will be provided. The proposed stormwater design conforms to all relevant City guidelines and policies for approval.

6.0 UTILITIES

Gas, Hydro and Telecommunications services currently exist within the Wellington Street right-of-way. Utility servicing will need to be coordinated with the individual utility companies prior to site development.

7.0 EROSION AND SEDIMENT CONTROL

Soil erosion occurs naturally and is a function of soil type, climate and topography. The extent of erosion losses is exaggerated during construction where vegetation has been removed and the top layer of soil becomes agitated.

Prior to topsoil stripping, earthworks or underground construction, erosion and sediment controls will be implemented and will be maintained throughout construction.

Silt fence will be installed around the perimeter of the site and will be cleaned and maintained throughout construction. Silt fence will remain in place until the working areas have been stabilized and re-vegetated.

Catch basins will have filter fabric installed under the grate during construction to protect from silt entering the storm sewer system.

A mud mat will be installed at the construction access in order to prevent mud tracking onto adjacent roads.

Erosion and sediment controls must be in place during construction. The following recommendations to the contractor will be included in contract documents.

- Limit extent of exposed soils at any given time.
- Re-vegetate exposed areas as soon as possible.
- Minimize the area to be cleared and grubbed.
- Protect exposed slopes with plastic or synthetic mulches.
- Install silt fence to prevent sediment from entering existing ditches.
- No refueling or cleaning of equipment near existing watercourses.
- Provide sediment traps and basins during dewatering.
- Install filter cloth between catch basins and frames.
- Plan construction at proper time to avoid flooding.

Establish material stockpiles away from watercourses, so that barriers and filters may be installed.

The contractor will, at every rainfall, complete inspections and guarantee proper performance. The inspection is to include:

- Verification that water is not flowing under silt barriers.
- Clean and change filter cloth at catch basins.

8.0 CONCLUSION AND RECOMMENDATIONS

David Schaeffer Engineering Limited (DSEL) has been retained to prepare a Functional Servicing Report in support of the application for Zoning By-law Amendment (ZBLA) and Site Plan Control (SPC) at both 1445 and 1451 Wellington Street. The preceding report outlines the following:

- Anticipated water demand under proposed conditions was submitted to the City of Ottawa for establishing boundary conditions, no response was received at the time of publication;
- Based on the sanitary analysis conducted adequate capacity is available within the local sanitary sewer system to accommodate the proposed development;
- The post-development stormwater release rate has been calculated to be ***26.6L/s*** based on consultation with the City of Ottawa, resulting in a significant reduction in stormwater release to the municipal storm sewer from existing conditions;
- It is anticipated that approximately ***45m^3*** of stormwater retention volume will be required to meet the release criteria;
- Gas, Hydro and telecommunication services exist within the adjacent right-of-ways.

Prepared by,
David Schaeffer Engineering Ltd.

Per: Robert D. Freel, E.I.T.

Prepared by,
David Schaeffer Engineering Ltd.

Per: Adam D. Fobert, P.Eng.

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APPENDIX A

Pre-Consultation

DEVELOPMENT SERVICING STUDY CHECKLIST

13-680 06/11/2013

4.1 General Content

☐	Executive Summary (for larger reports only).	N/A
☒	Date and revision number of the report.	Report Cover Sheet
☒	Location map and plan showing municipal address, boundary, and layout of proposed development.	Drawings/Figures
☒	Plan showing the site and location of all existing services.	Drawings/Figures
☒	Development statistics, land use, density, adherence to zoning and official plan, and reference to applicable subwatershed and watershed plans that provide context to applicable subwatershed and watershed plans that provide context to which individual developments must adhere.	Section 1.0
☒	Summary of Pre-consultation Meetings with City and other approval agencies.	Section 1.3
☒	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 2.0
☒	Statement of objectives and servicing criteria.	Section 1.0
☒	Identification of existing and proposed infrastructure available in the immediate area.	Sections 1.1,3.1, 4.1, 5.1
☐	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	Drawings/Figures

4.2 Development Servicing Report: Water

☐	Confirm consistency with Master Servicing Study, if available	N/A
☒	Availability of public infrastructure to service proposed development	Section 3.1
☒	Identification of system constraints	Section 3.1
☒	Identify boundary conditions	Section 3.1, 3.2
☒	Confirmation of adequate domestic supply and pressure	Section 3.3

*Extracted from the City of Ottawa-Servicing Study Guidelines for Development Applications

☒	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 3.2
☐	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	N/A
☒	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 3.2, 3.3
☐	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.	N/A
☒	Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.	Section 3.2
☐	Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.	N/A

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 4.2
☐	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.	N/A
☒	Description of existing sanitary sewer available for discharge of wastewater from proposed development.	Section 4.1
☒	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 4.2
☒	Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix 'C') format.	Section 4.2, Appendix C
☐	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

*Extracted from the City of Ottawa-Servicing Study Guidelines for Development Applications

☐	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.	N/A

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 5.1
☒	Analysis of available capacity in existing public infrastructure.	Section 5.1,5.3
☒	A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.	Drawings/Figures
☒	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 5.2
☒	Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.	Section 5.2
☒	Description of the stormwater management concept with facility locations and descriptions with references and supporting information	Section 5.3
☐	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.	Appendix A
☐	Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.	N/A
☒	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 5.3
☐	Identification of watercourses within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.	N/A
☒	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 5.1, 5.3
☐	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.	N/A

*Extracted from the City of Ottawa-Servicing Study Guidelines for Development Applications

☒	Descriptions of how the conveyance and storage capacity will be achieved for the development.	Section 5.3
☐	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.	Section 7.0
☐	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.	N/A

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 ct. 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.	Section 5.1
☐	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.)	N/A

4.6 Conclusion Checklist

☒	Clearly stated conclusions and recommendations	Section 8.0
☐	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	

*Extracted from the City of Ottawa-Servicing Study Guidelines for Development Applications

From: Katherine Grechuta
Sent: April 22, 2013 3:55 PM
To: 'Khash Khalili'; Sam Mizrahi; Mahdi Tajbakhsh
Cc: 'Alan Cohen'; Ted Fobert; 'rlahey@rodericklahey.ca'; 'Jonny Cracower'
Subject: FW: Meeting Notes for 1445 and 1451 Wellington St. West Pre-application

Attachments: Study and Plan List - 1445 and 1451 Wellington St. W - April 12 2013.pdf; Community Associations - 15C_15J.pdf

Good afternoon Khash, Sam, Mahdi and Jonny,

Please find below a summary of comments from the City's Planner following our April 12th meeting. Having reviewed the meeting minutes, they appear consistent with my recollection of the meeting. Please let me know if your recollection is different.

The email also contains an attachment identifying all of the required studies that need to be submitted in support of the application. We would be happy to recommend a number of consultants to complete the required studies if you would find that helpful.

The City has also provided a list of Community Associations and other groups in the neighbourhood that have an interest in the area. We have met with two of the groups identified- Wellington Village Community Association and Hintonburg Community Association. Please let me know if you would like meet with the other three groups. It may be worthwhile to meet with the Wellington Village BIA and the Champlain Park Community Association. The Champlain Park Community Association is located north of Scott Street and east of Island Park Drive so they may take an interest in this application. This is an active community association that to date has mostly focused on low-rise infill development in their neighbourhood.

My goal this week is to provide you with summary notes from the meetings we have had to date.

Please let me know if you have any questions/concerns in the meantime.

Regards,
Katherine.

Katherine Grechuta MCIP, RPP, LEED AP
Planner

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From: Nguyen, Hieu [mailto:Hieu.Nguyen@ottawa.ca]
Sent: April 22, 2013 12:28 PM
To: Katherine Grechuta
Cc: White, Joshua
Subject: Meeting Notes for 1445 and 1451 Wellington St. West Pre-application

Hi Katherine,

Following up on our pre-consultation meeting for 1445 and 1451 Wellington St. West Street, I have attached the required studies and plans list for a combined Zoning By-law Amendment (minor), Site Plan Control (public consultation, manager approved), and/or Official Plan Amendment applications. I have also provided an overview of items that we discussed during the meeting as well as follow-up comments on the proposal. The comments are based on the presentation package sent April 10th via email and specifically the 12 and 9-storey option as well as 9 and 6-storey option.

Please note that these pre-application comments are valid for one year. If you submit a development application(s) after this time, you may be required to meet for another pre-consultation meeting.

Planning Comments

1. The sites are designated 'Traditional Mainstreet' in the Official Plan and is within the study area of the Wellington Street West Community Design Plan (2011) and Secondary Plan (2011).
2. The site is currently zoned TM11, which is the Wellington Street Subzone.
3. The Secondary Plan and CDP identify locations where additional height, from 6 storeys to a maximum of 9 storeys, may be considered. 1451 Wellington St. W is identified a candidate site. 1445 is zoned for a maximum of 6 storeys and is not identified as a site for additional height. A Zoning By-law Amendment application would be required for the height increase request for 9 storeys on either property, and an Official Plan Amendment (OPA) would be required for more than 9 storeys on 1451 Wellington and more than 6 storeys on 1445 Wellington.
4. Community benefits collected under Section 37 would apply – if only the Zoning By-law Amendment is being pursued, it would be specific to the policy under Section 11.3.2 (1) of the Secondary Plan: *Redevelopment at 1451 Wellington Street shall require the west façade of a new building to be integrated with a redesigned, City-owned public open space located at the northwest corner of Island Park Drive and Wellington Street, at the base of Rockhurst Avenue, to provide an animated place for people to meet or rest at the western gateway to the corridor.*
5. Note that additional community benefits under Section 37 would be applicable for any additional height being considered above what is identified in the Secondary Plan.

Urban Design

6. The properties would be subject to Design Review Panel as it is along a Traditional Mainstreet . Meeting schedule and submission timelines are found here: http://ottawa.ca/en/city-hall/planning-and-development/how-develop-property/panel-meeting-schedule
7. The podium should be a maximum of 3 storeys, 2 may be even more appropriate.
8. A 3-metre setback at the corner is required as per the CDP and zoning. The purpose of the setback is to contribute to the public realm and existing public right-of-way area on the west side of the property. The ground floor of the proposed development should be programmed to encourage pedestrian activity and integration with this public space such as the idea that was presented about having a cafe or deli with outdoor seating.
9. The step back at the upper floors is to consider mitigating the shadow and privacy impacts to the neighbouring properties, particularly to the rear of the site, where there are single detached homes.

10. The 12 and 9-storey option is considered overwhelming in the context of the area and the 9 and 6-storey option in keeping with the CDP. The adjacent property to the east of the properties, is a recent development and is a 6 storey mixed use building and in keeping with the policies of the CDP and Secondary Plan.

Engineering Comments

11. Services along Wellington:
    - Water main: 305 Ductile Iron Installed 2005
    - Sanitary Sewer: 250 mm PVC installed 2005
    - Storm Sewer: 675 Concrete installed 2005
12. Storm water management: The allowable flow from this site will be based off of a C Value of 0.5 and a 5 year storm and you will be required to hold up to a 100 year storm on site.
13. As the site will be moving to a more sensitive land use, from commercial to residential, a Record of Site Condition will be required.

Transportation Comments

14. The proposed access to the site should be at the easterly end of the property.
15. Wellington Street is an arterial road with a ROW protection of 20.0 metres.
16. The parking area at the westerly end of the property encroaches into the Rockhurst Road ROW and is to be removed and the area reinstated.

Pre-consultation

17. It is great that you have already conducted some consultation work and I believe you either had or are having a meeting with 5 local community associations soon. I have attached the list of the registered community associations in the area in case you require their contact information. If you haven't done so yet, you should also formally meet with Councillor Hobbs before submission to discuss the finalized proposal.

Comments from the Rideau Valley Conservation Authority

18. *If they are connecting their stormwater to the service along the Wellington Street frontage – stormwater travels less than 1,400 metres to outlet on Ottawa River. Ask the consultant to contact me, quality recommendation (if any) will depend on nature of development.*

RVCA contact info:
Jocelyn Chandler M.Pl. MCIP, RPP.
Planner, RVCA
613.692.3571 x1137
jocelyn.chandler@rvca.ca

The CDP, which is a recent plan, has reviewed the study area to determine which locations should be considered for additional height and what the maximum height should be if redevelopment occurred. Part of the evaluation was balancing intensification and community compatibility, which the combined 12 and 9 storey option at this location (or within the CDP) was not supported. Therefore, an OPA would require sound rationale and strong support by many stakeholders, including community members, community associations, and the Councillors of the Planning Committee to support a change in the policy direction of the CDP and Secondary Plan.

In terms of the contamination found on site and cost of remediation as part of the rationale for the increased

height (to 12 storeys on 1451 Wellington and to 9 storeys on 1445 Wellington), this is an common issue found in the Urban Area and even in the vicinity of the site for other developments and alone, does not warrant a sufficient basis for the increased height proposal under an OPA.

The Planning Department is supportive of the 9 and 6 storey option as it is in keeping with the vision of the Wellington Street West CDP. Since the CDP has been introduced, developments in the study area have been in keeping with the vision, policies, and guidelines of the CDP, Secondary Plan, and associated zoning.

If you have any questions or comments, please feel free to contact me.

Hieu

Hieu Nguyen, MCIP, RPP
Development Review, Urban Area
Planning and Growth Management
110 Laurier Avenue West, 4th Floor
Ottawa, ON K1P 1J1

T: 613-580-2424 ext. 26936 | F: 613-560-6006 | E: hieu.nguyen@ottawa.ca

APPENDIX B

Water Supply

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

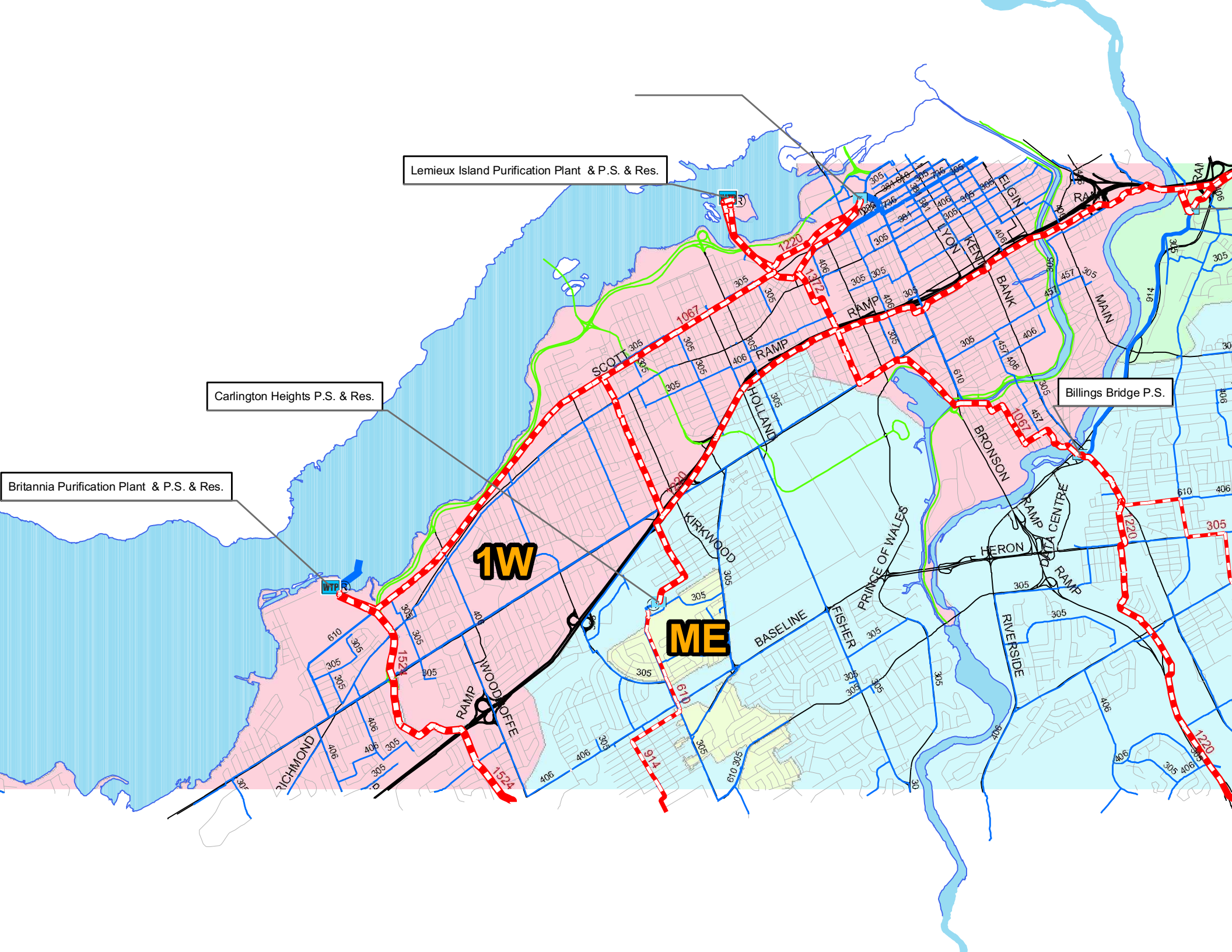
Domestic Demand

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	70	98
2 Bedroom	2.1	44	93
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	191	66.9	46.4	240.7	167.1	361.0	250.7

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 $L/m^2/d$	255	0.64	0.4	1.0	0.7	1.7	1.2
Restaurant	125 L/seat/d	182	22.75	15.8	34.1	23.7	61.4	42.7
		Total I/CI Demand	23.4	16.2	35.1	24.4	63.1	43.9
		Total Demand	**90.2**	**62.7**	**275.7**	**191.5**	**424.1**	**294.5**


Lemieux Island Purification Plant & P.S. & Res.
Carlington Heights P.S. & Res.
Britannia Purification Plant & P.S. & Res.
Billings Bridge P.S.
1W
ME
SCOTT
RAMP
HOLLAND
KIRKWOOD
BASELINE
FISHER
PRINCE OF WALES
HERON
RIVERSIDE
BRONSON
BANK
MAIN
ELGIN
LYON
KENT
WOODROFFE
RICHMOND
1220
1372
1067
1524
914
610
305
406
457

Robert Freel

From: Robert Freel <rfreel@dsel.ca>
Sent: November-05-13 12:11 PM
To: 'White, Joshua'
Subject: 1145/1451 Wellington St -Watermain boundary conditions

Good afternoon Josh,

We would like to request water boundary conditions for 1145/1451 Wellington St site using the following proposed development demands:

1. Location of Service / Street Number: 1145/1451 Wellington St

2. Type of development and the amount of fire flow required for the proposed development:

- Proposed development is a residential building with ground level retail/restaurant and underground parking. The residential tower is a 12 storeys -114 unit condo building.
- It is anticipated that the development will be services from the existing 300mm diameter watermain within Wellington Street.
- Based on FUS, it is anticipated that a maximum fire flow of 6000 L/min will be required.

3.

	L/min	L/s
Avg. Daily	62.7	1.04
Max Day	191.5	3.19
Peak Hour	294.5	4.91

It you have any questions please feel free to contact me.

Thanks,

Bobby Freel, EIT.

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

1445/1451 WELLINGTON ST. Date NOV 8, 2013

FUS

- STRUCTURE → REINFORCED CONCRETE → FIRE RESISTIVE
  GROUP C
- SPRINKLERED
- RESTAURANT → 182 people
- 1BED → 70 UNITS } RESIDENTIAL
- 2BED → 44 UNITS }
- RETAIL → 255 m²

1.) $F = 220\,C\sqrt{A}$ $C = 0.6$

A = 25% Ground Floor + 2nd Floor
+ 25% 3rd Floor
= 25% (978 m²) + 1196 m² +
25% (1196 m²)
= 1740 m²

$F = 220(0.6)\sqrt{1740\ m^2}$ => 5521.96 L/min
=> 6000 L/min

2.) ASSUME LIMITED COMBUSTIBLE −15%

=> 5100.0 L/min

3.) SPRINKLERED WITH FULLY SUPERVISED SYSTEM −50% (5100.0 L/min)

Date

$\Rightarrow -2550$ L/min

4.) BUILDING SEPERATION

NORTH SIDE $< 3m \Rightarrow +25\%$
EAST SIDE $< 3m \Rightarrow +25\%$
SOUTH SIDE $\sim 21m \Rightarrow +10\%$
WEST SIDE $\sim 25m \Rightarrow +10\%$

70%

$= 70\% (5100.0 \text{ L/min})$
$\Rightarrow +3570.0$ L/min

TOTAL $\Rightarrow$ 6120 L/min
$\Rightarrow$ 6000 L/min (nearest 1,000 L/min)

APPENDIX C

Wastewater Collection

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

Site Area 0.184 **ha**

Extraneous Flow Allowances

Infiltration / Inflow	**0.05**	**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	70	98
2 Bedroom	2.1	44	93
3 Bedroom	3.1		0
Average	1.8		0

Total Pop	**191**	
Average Domestic Flow	**0.77**	**L/s**
Peaking Factor	**4.00**	
Peak Domestic Flow	**3.09**	**L/s**

Institutional / Commercial / Industrial Contributions

Property Type	**Unit Rate**		**No. of Units**	**Avg Wastewater (L/s)**
Commercial floor space*	5	$L/m^2/d$	255	0.03
Restaurant	125	L/seat/d	182	0.26
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	**0.29**
Peak Institutional / Commercial Flow	0.44
Peak Industrial Flow**	0.00
Peak I/C/I Flow	**0.44**

** 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	**1.07 L/s**
Total Estimated Peak Dry Weather Flow Rate	**3.53 L/s**
Total Estimated Peak Wet Weather Flow Rate	**3.59 L/s**

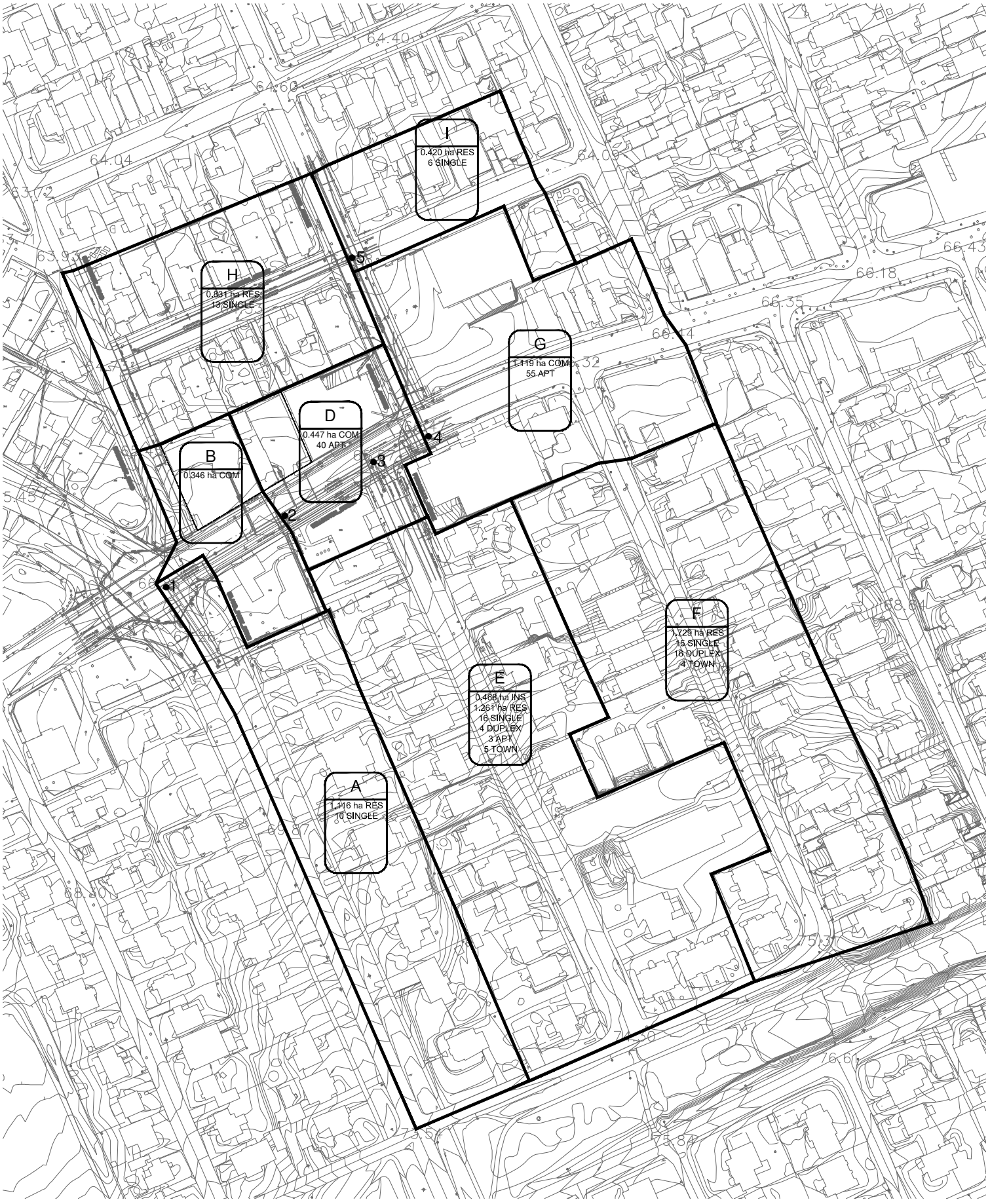
SANITARY SEWER CALCULATION SHEET

PROJECT: **Mizrahi Developments**
LOCATION: **1445-1451 Wellington Street- Ottawa**
FILE REF: **13-680**
DATE: **06-Jun-13**

DESIGN PARAMETERS

Avg. Daily Flow Res.	350	L/p/d	Peak Fact Res. Per Harmons: Min = 2.0, Max =4.0	Infiltration / Inflow	0.28 L/s/ha
Avg. Daily Flow Comm	50,000	L/ha/d	Peak Fact. Comm. 1.5	Min. Pipe Velocity	0.60 m/s full flowing
Avg. Daily Flow Instit.	50,000	L/ha/d	Peak Fact. Instit. 1.5	Max. Pipe Velocity	3.00 m/s full flowing
Avg. Daily Flow Indust	35,000	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				Pop.	Cumulative		Peak.	Q_{res}	Area	Accu.	Area	Accu.	Area	Accu.	Q_{C+I+I}	Total	Accu.	Infiltration	Total	DIA	Slope	Length	$A_{hydraulic}$	R	Velocity	Q_{cap}	Q / Q full	$Q_{residual}$
				by type					Area	Pop.	Fact.			Area		Area		Area		Area	Area	Flow	Flow								
			(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,B	1	2	1.116	10				34.0	1.116	34.0	4.00	0.55	0.35	0.35		0.00		0.00	0.3	1.462	1.462	0.409	1.26	250	0.27	55.2	0.049	0.063	0.63	30.9	0.04	29.6
C,D	2	3	1.261	16	4	5	43	156.0	2.377	190.0	4.00	3.08	0.45	0.79		0.00	0.47	0.47	1.1	2.176	3.638	1.019	5.16	250	0.80	42.0	0.049	0.063	1.08	53.2	0.10	48.0
	3	4	0.000					0.0	2.377	190.0	4.00	3.08		0.79		0.00		0.47	1.1	0.000	3.638	1.019	5.16	250	0.77	24.0	0.049	0.063	1.06	52.2	0.10	47.0
F,G	4	5	1.729	15	16	4	55	204.0	4.106	394.0	4.00	6.38	1.12	1.91		0.00		0.47	2.0	2.848	6.486	1.816	10.24	250	1.96	78.3	0.049	0.063	1.70	83.3	0.12	73.0
H,I	5		1.251	19				65.0	5.357	459.0	3.99	7.42		1.91		0.00		0.47	2.0	1.251	7.737	2.166	11.63	250	0.48	76.0	0.049	0.063	0.84	41.2	0.28	29.6



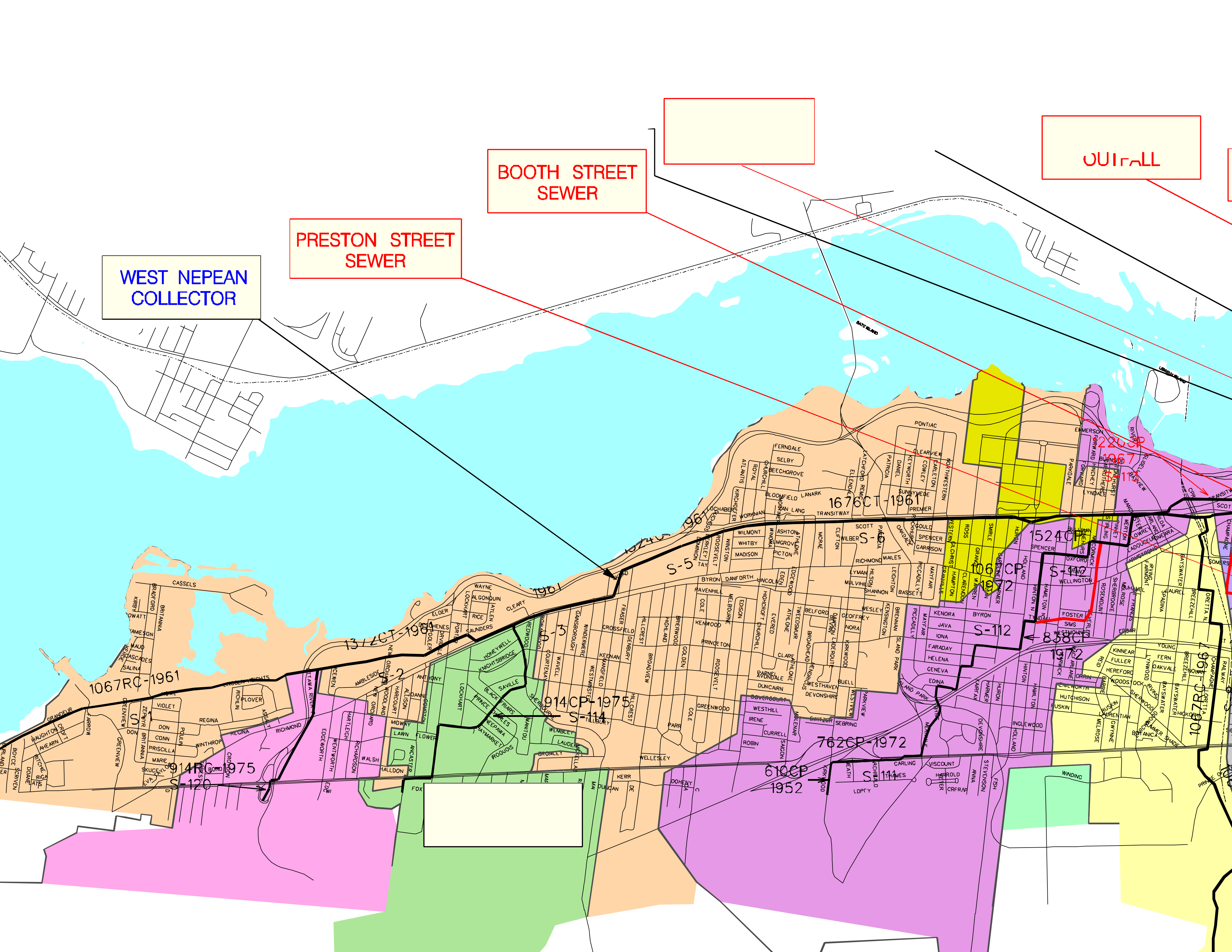
david schaeffer engineering ltd
SMART SUBDIVISIONS™

120 Iber Road Unit 203
Stittsville, Ontario, K2S 1E9
Tel. (613) 836-0856
Fax. (613) 836-7183
www.DSEL.ca

1445/1451 WELLINGTON STREET
SANITARY ANALYSIS

PROJ NO.:	13-680
DRAWN BY:	RDF
DATE:	2013-06-06
SCALE:	1:2000
FIGURE NO.:	SAN-1

z:\projects\13-680_1445-1451 - wellington street\b_design\b2_drawings\b2-2_main (dsel)\2013-06_base\cad\2013-06-04_608_base.dwg



WEST NEPEAN COLLECTOR
PRESTON STREET SEWER
BOOTH STREET SEWER
1067RC-1961
S-1
914RC-1975
S-120
1372CT-1961
S-2
S-3
914CP-1975
S-114
S-5
762CP-1972
610CP 1952
S-111
1676CT-1961
S-6
1524CP
1067CP 1972
S-112
858CT 1972
1067RC 1967

APPENDIX D

Stormwater Management

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

Existing Drainage Area Charateristics

Area	0.184	ha
C	0.90	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	35.3	47.9	102.7	L/s

Note:
C value for the 100-year storm is increased by 25%, to a maximum of 1.0 per Ottawa Sewer Design Guidelines (5.4.5.2.1)

Mizrahi Developments
1445/1451 Wellington Street
Proposed Conditions

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

Target Flow Rate

Area 0.184 ha
C 0.50 Rational Method runoff coefficient
t_c 10.0 min

5-year
i 104.2 mm/hr
Q 26.6 L/s

Estimated Post Development Peak Flow from Unattenuated Areas

Total Area 0.015 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)
10.0	104.2	3.9	3.9	0.0	0.0	178.6	7.4	7.4	0.0	0.0

Note:
C value for the 100-year storm is increased by 25%, to a maximum of 1.0 per Ottawa Sewer Design Guidelines (5.4.5.2.1)

Estimated Post Development Peak Flow from Attenuated Areas

Total Area 0.169 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)
10	104.2	44.0	10.1	33.9	20.4	178.6	83.8	19.2	64.6	38.8
15	83.6	35.3	10.1	25.2	22.7	142.9	67.1	19.2	47.9	43.1
20	70.3	29.7	10.1	19.6	23.5	120.0	56.3	19.2	37.1	44.5
25	60.9	25.7	10.1	15.6	23.4	103.8	48.8	19.2	29.6	44.3
30	53.9	22.8	10.1	12.6	22.8	91.9	43.1	19.2	23.9	43.1
35	48.5	20.5	10.1	10.4	21.7	82.6	38.8	19.2	19.6	41.1
40	44.2	18.7	10.2	8.5	20.4	75.1	35.3	19.2	16.1	38.6
45	40.6	17.2	10.2	7.0	18.9	69.1	32.4	19.2	13.2	35.7
50	37.7	15.9	10.2	5.7	17.2	64.0	30.0	19.2	10.8	32.5
55	35.1	14.8	10.2	4.7	15.4	59.6	28.0	19.2	8.8	29.0
60	32.9	13.9	10.2	3.7	13.5	55.9	26.2	19.2	7.1	25.4
65	31.0	13.1	10.2	2.9	11.4	52.6	24.7	19.2	5.5	21.6
70	29.4	12.4	10.2	2.2	9.3	49.8	23.4	19.2	4.2	17.6
75	27.9	11.8	10.2	1.6	7.2	47.3	22.2	19.2	3.0	13.5
80	26.6	11.2	10.2	1.0	4.9	45.0	21.1	19.2	1.9	9.3
85	25.4	10.7	10.2	0.5	2.6	43.0	20.2	19.2	1.0	5.0
90	24.3	10.3	10.2	0.1	0.3	41.1	19.3	19.2	0.1	0.6
95	23.3	9.8	10.2	0.0	0.0	39.4	18.5	19.2	0.0	0.0
100	22.4	9.5	10.2	0.0	0.0	37.9	17.8	19.2	0.0	0.0
105	21.6	9.1	10.2	0.0	0.0	36.5	17.1	19.2	0.0	0.0
110	20.8	8.8	10.2	0.0	0.0	35.2	16.5	19.2	0.0	0.0

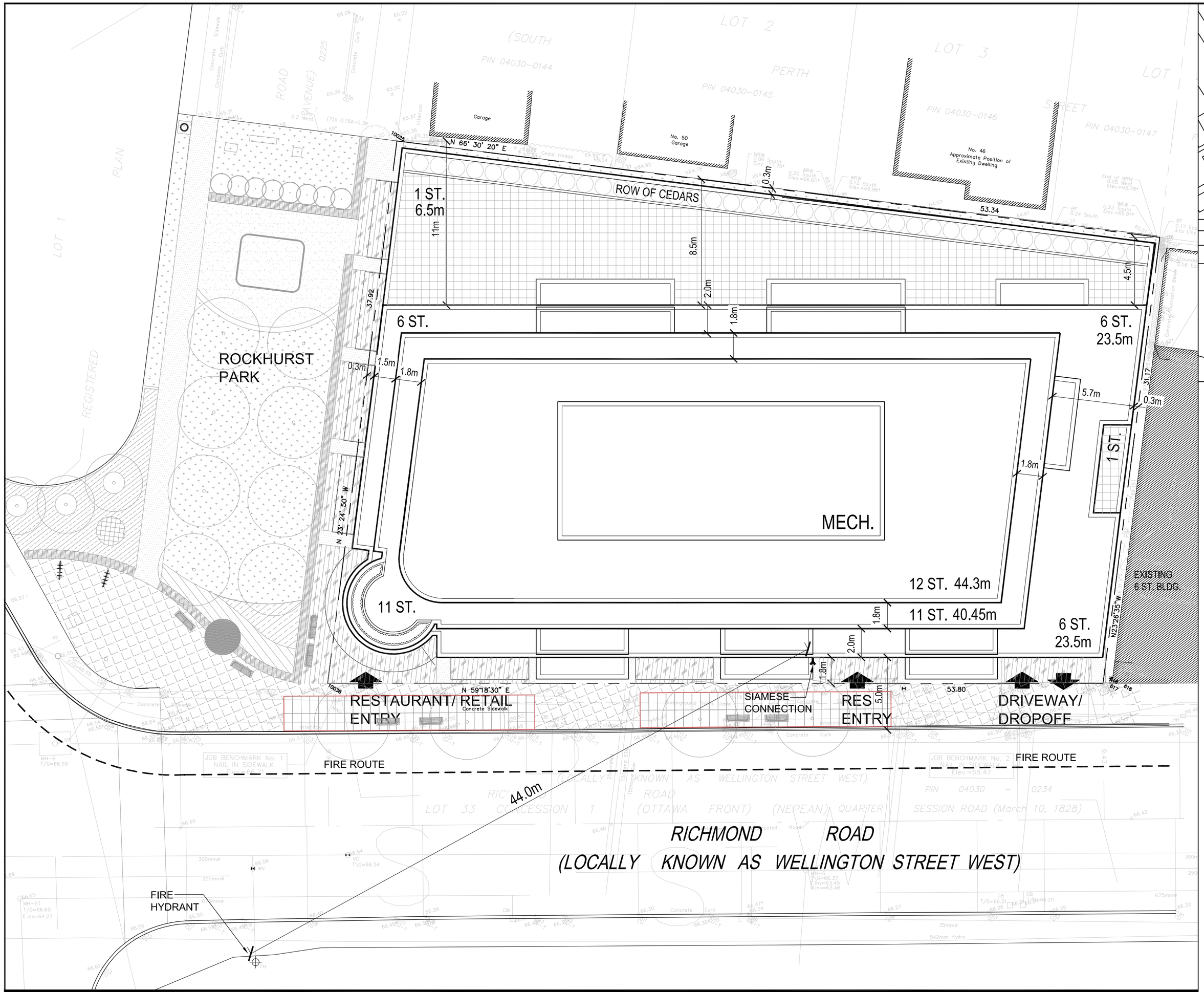
Note:
C value for the 100-year storm is increased by 25%, to a maximum of 1.0 per Ottawa Sewer Design Guidelines (5.4.5.2.1)

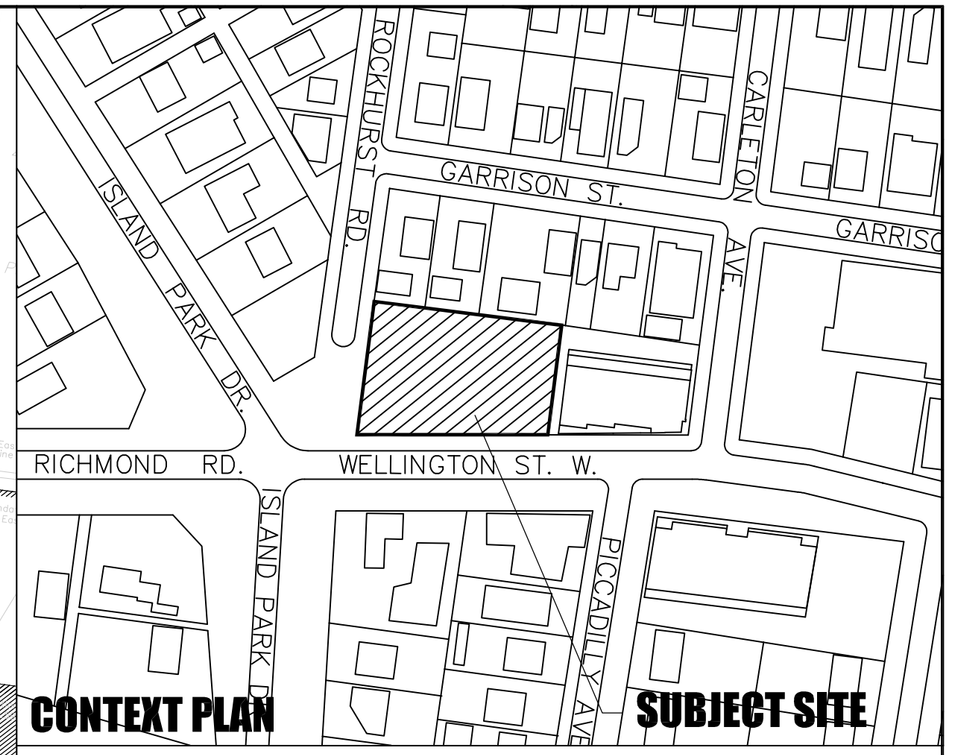
5-year $Q_{attenuated}$ **10.11 L/s** **100-year $Q_{attenuated}$** **19.19 L/s**
5-year Max. Storage Required **23.5 m^3** **100-year Max. Storage Required** **44.5 m^3**

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	3.9	0.0	7.4	0.0
Attenutated Areas	10.1	23.5	19.2	44.5
Total	**14.0**	**23.5**	**26.6**	**44.5**

DRAWINGS / FIGURES





SITE STATISTICS

Proposed Use: Residential Building with Retail/Restaurant Use at Grade

Site Area: 1,843 sm (4.55 acre)

SURVEY INFORMATION:
BOUNDARY AND TOPOGRAPHIC SURVEY OF
ALL OF LOT 1,2,3 AND PART OF LOT 4
NORTH RICHMOND ROAD
REGISTERED PLAN 145
CITY OF OTTAWA
PREPARED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
APRIL 12, 2013

Proposed GFA : 11,675 sm*
Residential: 11,180 sm
Non-Residential: 495 sm
FSI: 6.3

Proposed Residential Units: 114
1B - 70, 2B - 44 (Subject to Market)

Indoor/ Outdoor Amenity Required: 114 units x 6sm/unit = 684 sm
Indoor/ Outdoor Amenity Provided: 1950 sm

Total Parking Required: 90 Spaces
114 Units @0.5 spaces/unit = 57 resident
Residential Visitor Parking Required(@0.2 spaces/unit): 23
2 Accessible Spaces
7 spaces for 240sm of Restaurant
3 spaces for 255sm of Retail

Total Parking Provided: 147 Spaces
114 residential,
23 residential visitor.
2 accessible spaces
7 restaurant spaces, 3 retail spaces
provided within 3.5 levels of underground parking

Proposed Height: As Shown*
* Excludes Parapets & Mech.

Bike Parking Spaces Required: 59
114 units @0.5 Bike Parking Spaces/unit = 57 spaces
1 per 250sm Retail/Restaurant = 2 spaces
Bike Spaces Provided: 59

Setbacks:
North: 0.3 m
South:1.8 m
East: 0.3 m
West: 0.3 m

NOTES:
1. FOR LANDSCAPE INFORMATION - REFER TO DRAWINGS PREPARED BY FOTENN DESIGN
2. FOR GRADING AND SERVICING INFORMATION - REFER TO DRAWINGS PREPARED BY DSEL ENGINEERING
3. FOR AUTOTURNS - REFER TO DRAWINGS PREPARED BY DELCAN
4. FOR INTAKE & EXHAUST VENTS - REFER TO GROUND FLOOR PLAN
5. THE BUILDING WILL BE SPRINKLERED
6. THE TYPE G LOADING SPACE WILL BE CONSTRUCTED OF AL LEAST 200mm REINFORCED CONCRETE.

N

1451 WELLINGTON AVE, OTTAWA, ONTARIO

SITE PLAN, CONTEXT PLAN

ISSUED FOR REZONING/SITEPLAN APPROVAL NOV 01- 2013

PROJECT NO. 31643
SCALE 1:250

PAGE+STEELE
IBI GROUP ARCHITECTS

1

TOPOGRAPHICAL PLAN OF

ALL OF LOT 1, 2, 3 AND PART OF LOT 4 **North Richmond Road** REGISTERED PLAN 145 CITY OF OTTAWA

Prepared by Annis, O'Sullivan, Vollebekk Ltd.

Scale 1 : 150

6 4.5 3.0 1.5 0 3 6 Metres

Metric

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

Apr. 12, 2013
Date

E.H. Herweyer O.L.S.

Notes & Legend

Denotes		
	-	Deciduous Tree
	-	Coniferous Tree
FH	-	Fire Hydrant
WV	-	Water Valve
MH-ST	-	Maintenance Hole (Storm Sewer)
MH-S	-	Maintenance Hole (Sanitary)
MH-B	-	Maintenance Hole (Bell Telephone)
MH-T	-	Maintenance Hole (Traffic)
VC	-	Valve Chamber (Watermain)
ST	-	Underground Storm Sewer
S	-	Underground Sanitary Sewer
W	-	Underground Water
P	-	Underground Power
G	-	Underground Gas
T	-	Underground Traffic
OHW	-	Overhead Wires
CB	-	Catch Basin
CBI	-	Catch Basin Inlet
GM	-	Gas Meter
HH	-	Handhole
B	-	Bollard
S	-	Sign
BF	-	Board Fence
MF	-	Metal Fence
HR	-	Hand Rail
CRW	-	Concrete Retainingg Wall
SRW	-	Stone Retaining Wall
PO-M	-	Metal Pole
PO-W	-	Wooden Pole
UP	-	Utility Pole
AN	-	Anchor
LS	-	Light Standard
AC	-	Air Conditioner
Ø	-	Diameter
+ 65.00	-	Location of Elevations
+ 65.00*	-	Location of Elevations (Top of Curb/Retaining Wall)
T/G	-	Top of Grate
C/L	-	Centreline
Inv.	-	Invert
	-	Property Line
WRW	-	Wooden Retaining Wall
MC	-	Movable Curb

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.
4. Underground utility services and inverts are taken from City of Ottawa Engineering Drawings E-06-12, 055042-12 Sheet 12 of 39 and 055042-13 Sheet 13 of 39.

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

SITE AREA = 1843 m²

BOUNDARY INFORMATION COMPILED FROM SURVEY RECORDS

ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
14 Concourse Gate, Suite 500
Nepean, Ont. K2E 7S6
Phone: (613) 727-0850 / Fax: (613) 727-1079
Email: Nepean@ovvltd.com

Ontario Land Surveyors

Job No. 13877-13 Mizrahi Lts 1-4 Pl. 145 T. F.

LEGEND

- PROPOSED CURB INLET CATCHBASIN
- PROPOSED ROADSIDE CATCHBASIN
- PROPOSED CATCHBASIN/MANHOLE
- PROPOSED MANHOLE WITH PVC BASIN
- PROPOSED CATCH BASIN MANHOLE AS PER S28
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED WATERMAIN
- 426 66.17 CIVIC ADDRESS/BASEMENT ELEVATION
- EXISTING SANITARY SERVICE CONNECTION AS PER CCTV INSPECTION
- EXISTING WATER SERVICE CONNECTION

BOREHOLE LEGEND

- ASPHALTIC CONCRETE
- BEDROCK
- CRUSHED STONE
- SILTY SAND
- GLACIAL TILL
- BH 1 BOREHOLE BY PATERSON GROUP LTD. (REPORT No. PG0452-1) DEC. 15, 2004

AS-BUILT

REGISTERED PROFESSIONAL ENGINEER
R.S. CEBRYK
PROVINCE OF ONTARIO

NOVATECH ENGINEERING CONSULTANTS LTD.
ENGINEERS & PLANNERS
Suite 200, 240 Michael Cowpland Drive
Kanata, Ontario, Canada
K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Email: novainfo@novatech-eng.com

NO.	REVISIONS	BY	DATE
1.	PRELIMINARY DESIGN CIRCULATION	DHI	OCT.25,04
2.	FINAL DESIGN CIRCULATION	DHI	MAY 2,05
3.	ISSUED FOR M.O.E. APPROVAL	DHI	MAY 2,05
4.	ISSUED FOR TENDER	DHI	MAY 10,05
5.	ISSUED FOR CONSTRUCTION	DHI	JUNE 6,05
6.	SAN MH 2 RELOCATED	RSC	APR. 4, 06
7.	SERVICE CONNECTIONS TO 93 RICHMOND ROAD	RSC	JUN 19/06
8.	AS BUILT	RSC	DEC 22,06

NOTE:
The location of the utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned.
The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage

RICHMOND ROAD
REHABILITATION
KIRKWOOD AVENUE TO WESTERN AVENUE

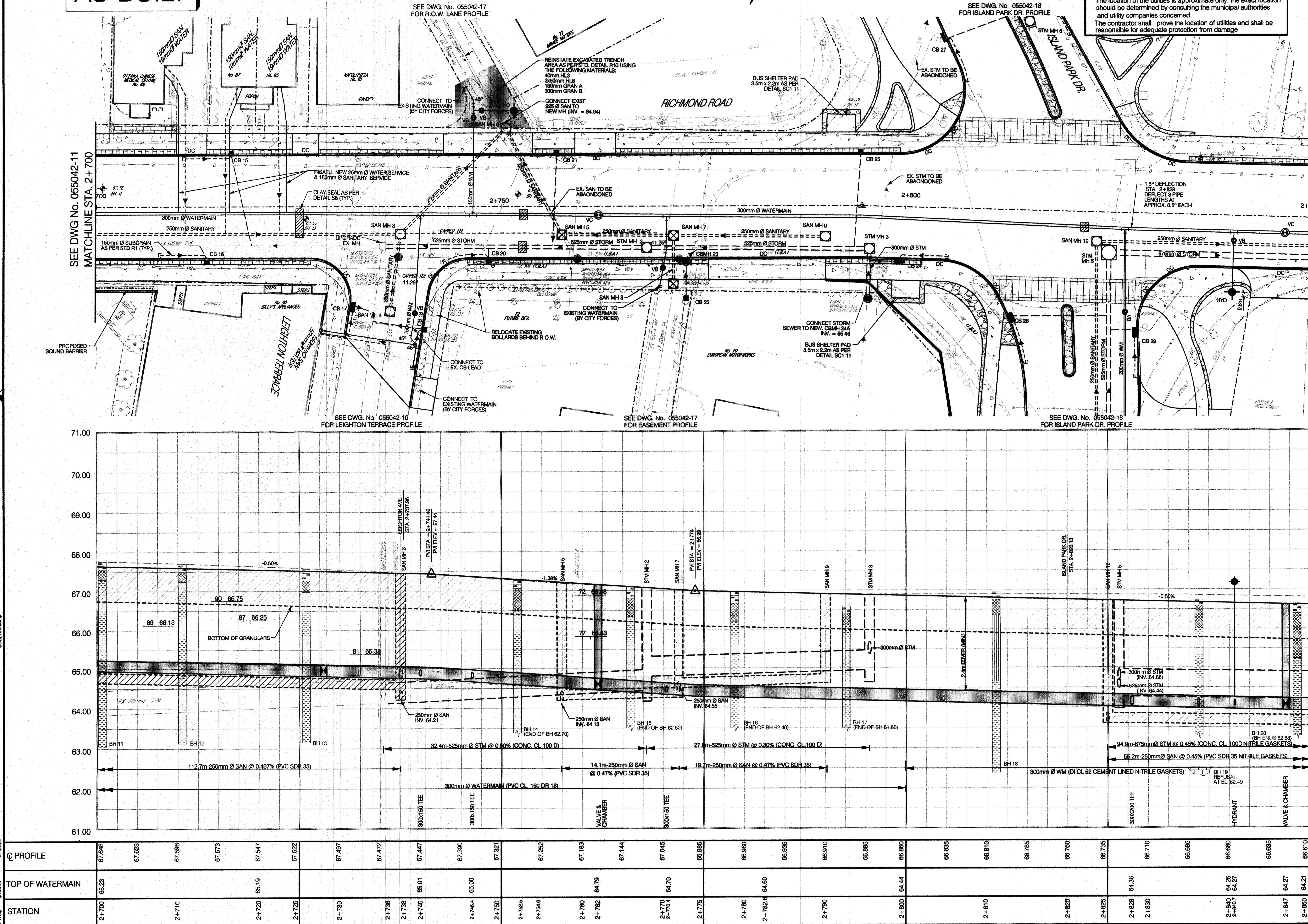
GRADING AND DRAINAGE
STATION 2+700 TO STATION 2+850

Ottawa

CONTRACT NO. ISB05-5042
DWG. NO. 055042-12
SHEET 12 OF 39
Date: OCTOBER 2004
Scale: HORIZONTAL 1:250 (0m 2.5 5 10); VERTICAL 1:50 (0m 0.5 1 2)

R. G. HEWITT, P.ENG. — Director Infrastructure Services
W. NEWELL, P.ENG. — Manager Construction Services - West

Dwn: KLM | Chkd: DHI | Des: DHI | Chkd: RSC



CATCH BASIN DATA						
NO.	STATION	OFFSET (m)	TYPE	COVER	ELEVATION (m) T/GRATE	ELEVATION (m) LOW/INV.
CB 15	2+716.62	6.40 LT	OPSD-705.010	S22, S23	67.37*	65.67
CB 16	2+713.62	6.40 RT	OPSD-705.010	S22, S23	67.38*	65.98
CB 17	27+013	4.60 RT	OPSD-705.020	S22, S23	67.25*	65.85
CB 18	27+014.73	4.60 LT	OPSD-705.010	S22, S23	67.24*	65.84
CB 19	2+743.09	12.10 RT	OPSD-705.010	S19	67.15	65.75
CB 20	2+748.45	6.40 RT	OPSD-705.010	S22, S23	67.16*	65.76
CB 21	2+756.87	6.40 LT	OPSD-705.010	S22, S23	67.03*	65.33
CB 22	2+772.87	11.17 RT	OPSD-705.010	S19	66.90	65.50
CBMH 23	2+772.87	6.40 RT	OPSD-701.010	S28	66.81*	65.45
CB 24	2+799.40	6.40 RT	OPSD-705.020	S22, S23	66.60*	65.50
CBMH 24A	2+795.65	11.56 RT	OPSD-701.010	S19	66.85	65.43
CB 25	2+794.44	6.40 LT	OPSD-705.010	S22, S23	66.69*	65.69

OFFSETS ARE FROM BASELINE TO FACE OF CURB FOR CATCH BASINS
* = CURB INLET ELEV (E/P ELEVATION).

STORM MANHOLE DATA					
NO.	STATION	OFFSET (m)	TYPE	ELEVATION (m) T/GRATE	ELEVATION (m) LOW/INV.
STM MH 2	2+768	5.15 RT	OPSD-701.010	66.92	64.433
STM MH 3	2+795.65	5.31 RT	OPSD-701.010	66.72	64.944
STM MH 5	2+825.32	5.04 RT	OPSD-701.011	66.71	64.274

OFFSETS ARE FROM BASELINE TO CENTRE OF STRUCTURE
NOTE: ALL STORM MHs TO HAVE PERFORATED COVERS AS PER S24

STORM SEWER DATA					
SEWER	DIA.	TYPE	LENGTH	INVERT ELEVATION (m) UP STR.	INVERT ELEVATION (m) DOWN STR.
STM MH 2 TO STM MH EX.	525mm	CONC CL 100D	32.4m	64.433	64.122
STM MH 3 TO STM MH 2	525mm	CONC CL 100D	27.8m	64.944	64.799
STM MH 5 TO STM MH 7	675mm	CONC CL 100D	94.9m	64.274	64.012
CBMH 24A TO STM MH 3	300mm	PVC SDR 35	7.6m	65.460	65.376

SANITARY MANHOLE DATA						
NO.	STATION	OFFSET (m)	TYPE	ELEVATION (m) T/GRATE	ELEVATION (m) LOW/INV.	
SAN MH 2	2+851.35	3.28 RT	OPSD-701.010	67.80	~~64.799~~ 65.006	
SAN MH 3	2+737.54	3.42 RT	OPSD-701.010	67.38	64.259	
SAN MH 5	2+757.51	3.55 RT	OPSD-701.010	67.21	64.189	PVC BASIN
SAN MH 7	2+771.77	3.68 RT	OPSD-701.010	66.92	64.266	PVC BASIN
SAN MH 8	29+009.74	0.0 RT	OPSD-701.010	67.00	64.470	PVC BASIN
SAN MH 9	2+790.07	3.80 RT	OPSD-701.010	66.84	64.634	
SAN MH 12	2+823.78	3.66 RT	OPSD-701.010	66.72	63.614	

OFFSETS ARE FROM BASELINE TO CENTRE OF STRUCTURE
NOTE: ALL SANITARY MHs TO HAVE SOLID COVERS AS PER S24

SANITARY SEWER DATA					
SEWER	DIA.	TYPE	LENGTH	INVERT ELEVATION (m) UP STR.	INVERT ELEVATION (m) DOWN STR.
SAN MH 2 TO SAN MH 3	250mm	PVC SDR 35	112.7	~~64.799~~ 65.006	64.479
SAN MH 7 TO SAN MH 5	250mm	PVC SDR 35	14.1m	64.266	64.204
SAN MH 9 TO SAN MH 7	250mm	PVC SDR 35	19.7m	64.634	64.514
SAN MH 12 TO SAN MH 13	250mm	PVC SDR 35	55.2m	63.614	63.463

NOTES:

GENERAL

1. BOREHOLE LOCATIONS ARE APPROXIMATE ONLY. FOR FURTHER INFORMATION, REFER TO GEOTECHNICAL INFORMATION IN THE REPORT PREPARED BY PATERSON GROUP LTD. (REPORT No. PG0452-1 AND PE 0315-1)
2. EXISTING TREES IN THE CONSTRUCTION ZONE AREA TO BE PRESERVED AND PROTECTED DURING THE CONSTRUCTION PERIOD.
3. LIMITS OF GRADING MAY VARY FROM THAT INDICATED, DEPENDING ON FIELD CONDITIONS OR AS DIRECTED BY THE ENGINEER.
4. WHERE AVAILABLE, EXISTING SERVICING INFORMATION TO PRIVATE PROPERTY HAS BEEN SHOWN.
5. SIGNS AND PAVEMENT MARKING TO BE REMOVED AND INSTALLED BY OTHERS.

STORM AND SANITARY SEWERS

1. ALL STORM AND SANITARY SERVICES SHALL BE REPLACED TO PROPERTY LINE, OR FURTHER AS REQUIRED. TIE-IN LOCATION BEYOND PROPERTY LINE TO BE APPROVED BY ENGINEER. WHERE NEW STORM LATERALS ARE TO BE PLACED TO PROPERTY LINE, THEY SHALL BE CAPPED WITH A WATER TIGHT SEAL.
2. ALL STORM AND SANITARY SERVICES TO HAVE NITRILE GASKETS AS PER SPECIAL PROVISION GENERAL No. D-017.
3. ALL CATCHBASINS TO HAVE A SUMP OF 0.6m (MIN.), STORM MANHOLES TO HAVE 0.3m SUMP. EXCEPT FOR SHALLOW CB WHICH IS TO HAVE 0.1m SUMP.
4. ALL SEWERS TO HAVE CLASS "B" BEDDING AND APPROVED BACKFILL MATERIAL AS SPECIFIED. SEE TRENCH DETAIL.
5. SUBDRAIN OUTLETS INTO MANHOLES AND CATCHBASINS SHALL BE LOCATED TO SUIT FIELD CONDITIONS.
6. THE CONTRACTOR WILL BE REQUIRED TO LOCATE AND VERIFY THE STATUS OF EXISTING SERVICE PIPES. DYE TESTING OR OTHER METHODS (TO THE SATISFACTION OF THE ENGINEER),SHALL BE USED TO DETERMINE THE STATUS (ABANDONED, IN USE, SANITARY, STORM) AND/OR THAT THE EXISTING SERVICES ARE CONNECTED TO BUILDINGS.
7. ACCESS INTO ALL CITY OF OTTAWA MH'S WILL BE AVAILABLE AT ALL TIMES. DURING THE PAVING PROCESS THERE IS TO BE NO CITY OWNED COVERS OF ANY TYPE TO BE PAVED OVER PREVENTING ACCESS.
8. EXISTING MH STRUCTURES THAT ARE TO REMAIN IN USE SHALL BE UPDATED TO CITY STANDARDS AS PER SP No. F-5042-06. (i.e. REPLACE UPPER ACCESS SECTIONS & COVERS AND LADDER RUNGS).
9. INSTALL "RAINSTOPPER" BASIN (BY ONTARIO WATER PRODUCTS) IN ALL SANITARY MAINTENANCE HOLES AS INDICATED PER LEGEND.
10. WHERE OLD CB'S ARE REMOVED, EXISTING LEAD IS TO BE PLUGGED AT SEWER.

WATERPLANT

1. ALL WATERMAIN MATERIALS AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY STANDARD SPECIFICATIONS AND STANDARD DRAWINGS.
2. ALL CONNECTIONS TO EXIST. SERVICES INCLUDING REINSTATEMENT SHALL BE DONE BY THE CONTRACTOR. ALL CONNECTIONS OF NEW WM TO EXISTING WM AND ALL BLANKINGS SHALL BE PERFORMED BY CITY FORCES.
3. RESTRAINING RINGS AND THRUST BLOCKING SHALL BE UTILIZED ON ALL BENDS, TEES AND PLUGS IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY STANDARD SPECIFICATIONS AND STANDARD DRAWINGS.
4. A MINIMUM 2m SEPARATION IS REQUIRED BETWEEN ALL NEW WATER SERVICES AND CATCHBASINS OR OPEN STRUCTURES AND SHALL BE INSULATED PER CITY SPECIFICATION WSD-23 AS APPLICABLE.
5. A MINIMUM 2m SEPARATION IS REQUIRED BETWEEN ALL NEW HYDRANTS AND CATCHBASINS OR OPEN STRUCTURES AND SHALL BE INSULATED PER CITY SPECIFICATION WSD-23 AS APPLICABLE.
6. THE CONTRACTOR SHALL BE RESPONSIBLE TO DETERMINE VIA EXCAVATION THE EXACT LOCATION AND ELEVATION OF THE EXISTING WATERMAINS AS REQUIRED FOR ALL CONNECTIONS, RELOCATIONS AND BLANKING.
7. ALL HYDRANT LATERALS TO HAVE NITRILE GASKETS.

13112

LEGEND

- PROPOSED CURB INLET CATCHBASIN
- PROPOSED ROADSIDE CATCHBASIN
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- EXISTING WATER SERVICE CONNECTION

BOREHOLE LEGEND

- ASPHALTIC CONCRETE
- BEDROCK
- CRUSHED STONE
- SILTY SAND
- GLACIAL TILL
- BH 22 BOREHOLE BY PATERSON GROUP LTD. (REPORT No. PG0452-1) DEC. 15, 2004

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6.	GAS MAIN RELOCATION	DHI	JUN 15,05
7.	AS BUILT	DHI	DEC 22,06

NOTE:
The location of the utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned.
The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage

RICHMOND ROAD
REHABILITATION
KIRKWOOD AVENUE TO WESTERN AVENUE

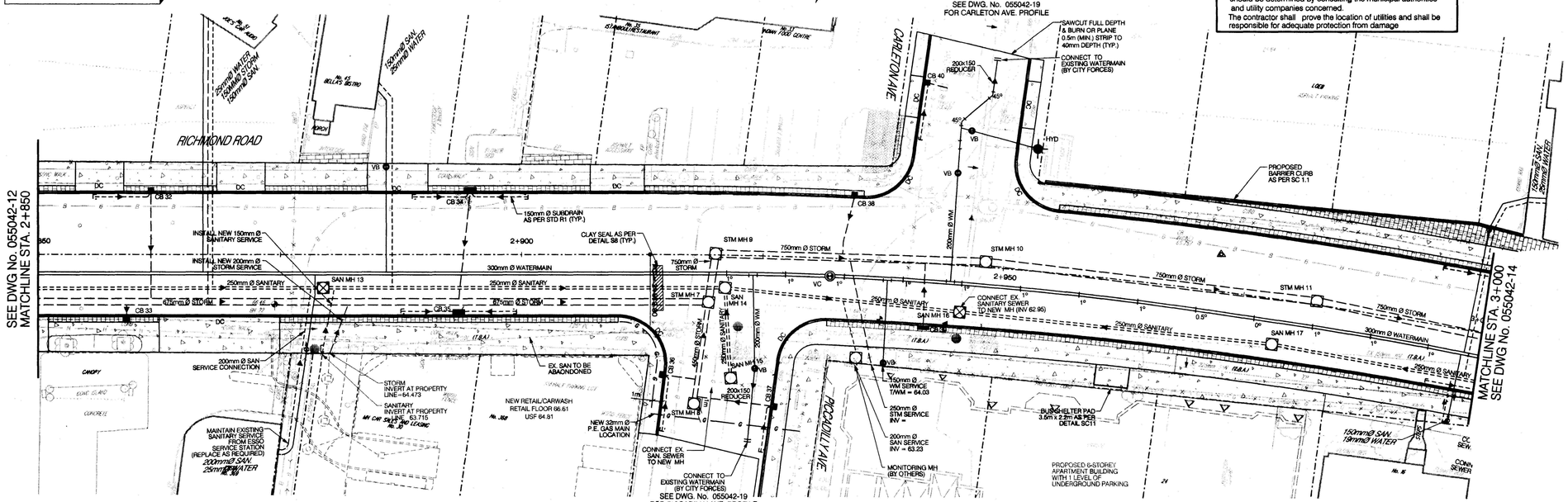
GRADING AND DRAINAGE
STATION 2+850 TO STATION 3+000

R. G. HEWITT, P.ENG. — Director Infrastructure Services
W. NEWELL, P.ENG. — Manager Construction Services - West

Dwn: KLM Chkd: DHI Des: DHI Chkd: RSC

Ottawa

CONTRACT NO. ISB05-5042
DWG. NO. 055042-13
SHEET 13 OF 39
Date: OCTOBER 2004
Scale: HORIZONTAL 1:250 (0m, 2.5, 5, 10)
VERTICAL 1:50 (0m, 0.5, 1, 2)



CATCH BASIN DATA

NO.	STATION	OFFSET (m)	TYPE	COVER	ELEVATION (m) TOPGATE	ELEVATION (m) LOW/INV.
CB 32	2+861.59	6.40 LT	OPSD-705.010	S22, S23	66.42*	64.72
CB 33	2+859.06	6.40 RT	OPSD-705.010	S22, S23	66.37*	64.97
CB 34	2+893.5	6.40 LT	OPSD-705.020	S22, S23	66.26*	64.56
CB 35	2+893.5	6.40 RT	OPSD-705.020	S22, S23	66.20*	64.80
CB 36	31+013.52	5.75 RT	OPSD-705.010	S22, S23	66.36*	64.96
CB 37	31+015.39	5.54 LT	OPSD-705.010	S22, S23	66.41*	66.01
CB 38	2+934.18	6.40 LT	OPSD-705.010	S22, S23	66.26*	64.56
CB 39	2+942.04	6.40 RT	OPSD-705.020	S22, S23	66.24*	64.84
CB 40	30+018.56	6.40 LT	OPSD-705.010	S19	66.67	64.47
CB 41	32+017.85	5.00 RT	OPSD-705.010	S19	66.87	64.47
CB 42	2+958.19	6.40 LT	OPSD-705.010	S22, S23	66.33*	64.53

OFFSETS ARE FROM BASELINE TO FACE OF CURB FOR CATCH BASINS
* = CURB INLET ELEV (UP ELEVATION)

STORM MANHOLE DATA

NO.	STATION	OFFSET (m)	TYPE	ELEVATION (m) TOPGATE	ELEVATION (m) LOW/INV.
STM MH 7	3+006.27	2.13 RT	OPSD-701.012	66.38	63.880
STM MH 9	2+920.09	0.15 LT	OPSD-701.012	66.52	63.800
STM MH 10	2+948.07	0.58 LT	OPSD-701.011	66.43	63.447
STM MH 11	2+982.80	0.39 LT	OPSD-701.011	66.54	63.351

OFFSETS ARE FROM BASELINE TO CENTRE OF STRUCTURE
NOTE: ALL STORM MHs TO HAVE PERFORATED COVERS AS PER S24

STORM SEWER DATA

SEWER	DIA.	TYPE	LENGTH	INVERT ELEVATION (m) UP STR.	INVERT ELEVATION (m) DOWN STR.
STM MH 5 TO STM MH 7	675mm	CONC CL. 100D	94.9m	64.274	64.012
STM MH 7 TO STM MH 9	750mm	CONC CL. 100D	5m	63.880	63.800
STM MH 9 TO STM MH 10	750mm	CONC CL. 100D	27.8m	63.800	63.590
STM MH 10 TO STM MH 11	750mm	CONC CL. 100D	33.6m	63.447	63.361
STM MH 11 TO STM MH 12	750mm	CONC CL. 100D	28.7m	63.351	63.170

SANITARY MANHOLE DATA

NO.	STATION	OFFSET (m)	TYPE	ELEVATION (m) TOPGATE	ELEVATION (m) LOW/INV.	
SAN MH 13	2+879.43	3.50 RT	OPSD-701.010	66.36	63.464	PVC BASIN
SAN MH 15	2+921.13	3.44 RT	OPSD-701.010	66.42	63.192	
SAN MH 16	2+933.39	10.24 RT	OPSD-701.010	66.31	62.877	PVC BASIN
SAN MH 17	2+978.62	4.79 RT	OPSD-701.010	66.40	~~66.195~~ 63.719	

OFFSETS ARE FROM BASELINE TO CENTRE OF STRUCTURE
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SANITARY SEWER DATA

SEWER	DIA.	TYPE	LENGTH	INVERT ELEVATION (m) UP STR.	INVERT ELEVATION (m) DOWN STR.
SAN MH 12 TO SAN MH 13	250mm	PVC SDR 35	55.2m	63.614	63.464
SAN MH 13 TO SAN MH 14	250mm	PVC SDR 35	42.0m	63.454	63.116
SAN MH 14 TO SAN MH 16	250mm	PVC SDR 35	24.0m	63.099	62.915
SAN MH 17 TO SAN MH 16	250mm	PVC SDR 35	34.5m	63.119	62.957
SAN MH 18 TO SAN MH 17	250mm	PVC SDR 35	32.5m	63.511	63.144

NOTES:

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8. EXISTING MH STRUCTURES THAT ARE TO REMAIN IN USE SHALL BE UPDATED TO CITY STANDARDS AS PER SP No. F-5042-06. (i.e. REPLACE UPPER ACCESS SECTIONS & COVERS AND LADDER RUNGS).
9. INSTALL "RAINSTOPPER" BASIN (BY ONTARIO WATER PRODUCTS) IN ALL SANITARY MAINTENANCE HOLES AS INDICATED PER LEGEND.
10. WHERE OLD CB'S ARE REMOVED, EXISTING LEAD IS TO BE PLUGGED AT SEWER.

WATERPLANT

1. ALL WATERMAIN MATERIALS AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY STANDARD SPECIFICATIONS AND STANDARD DRAWINGS.
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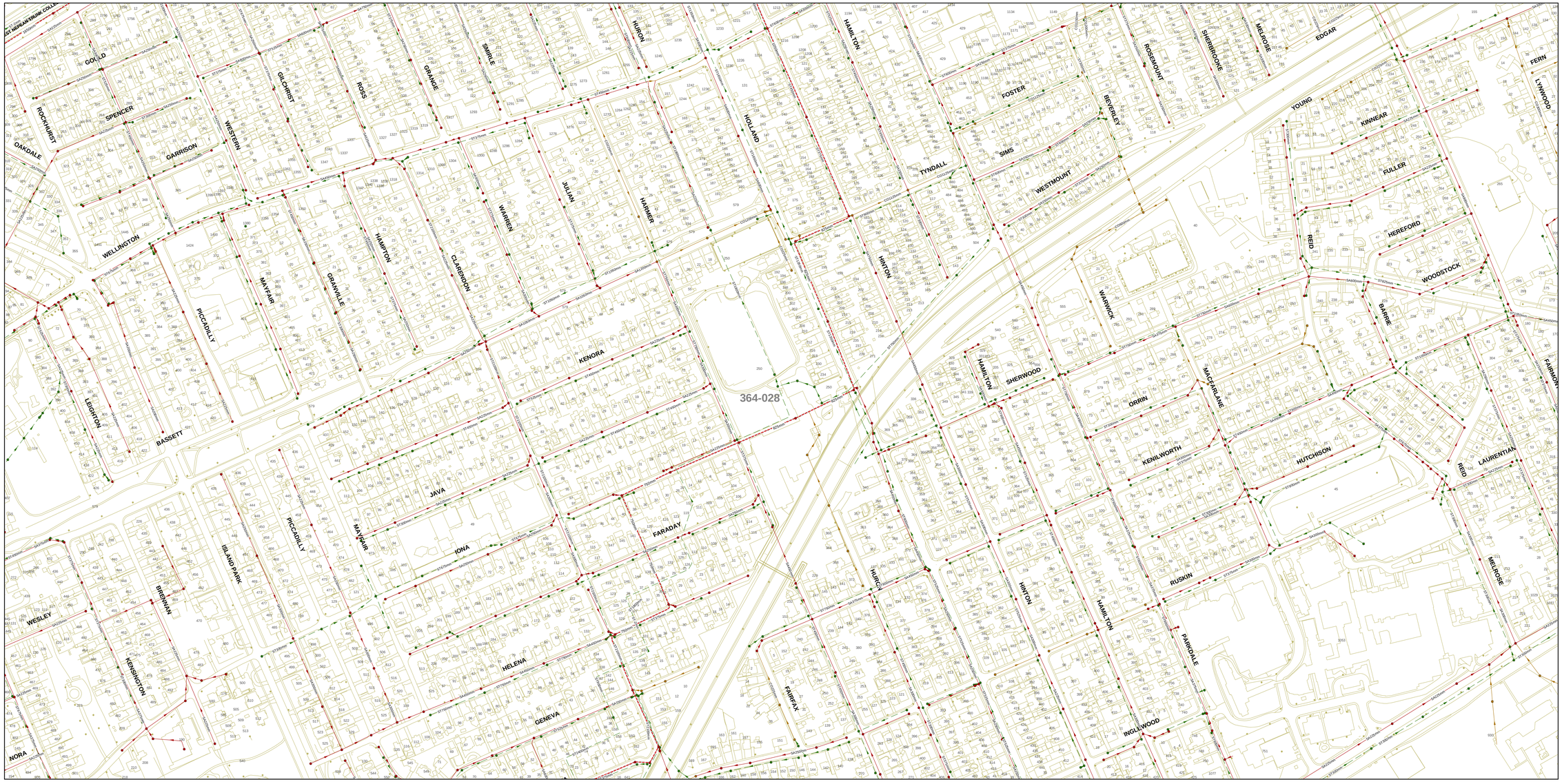

2008
SANITARY & STORM COLLECTION SYSTEM

Department of Infrastructure Services and Community Sustainability

0 25 50 100 150 200 250 Meters

Scale 1 : 2500 approx.

Ottawa ©

Legend

Regulator	Storm Outlet	Sanitary Manhole
Storm Pump Station	Storm Manhole	Sanitary Pipe
Sanitary Pump Station	Storm Pipe	Combined Manhole
Wastewater Treatment Plant	Sanitary Trunk Sewer	Combined Pipe

PIPE EQUIVALENTS

nominal (mm)	actual (inches)	nominal (mm)	actual (inches)	nominal (mm)	actual (inches)
100	4	675	27	1800	72
150	6	750	30	1950	78
200	8	825	33	2025	80
250	10	900	36	2100	84
300	12	975	39	2250	90
375	15	1050	42	2400	96
400	16	1200	48	2550	102
450	18	1350	54	2700	108
525	21	1500	60	2850	114
600	24	1650	66	3000	120

PIPE MATERIALS

ABS - ACRYL BUTADENE STYRENE
AC - ASBESTOS CEMENT
BRICK - BRICK
CLAY - CLAY
CONC - CONCRETE
CONPP - CONCRETE PRESSURE PIPE
CONR - REINFORCED CONCRETE PIPE
CONX - EXTRA STRENGTH CONCRETE PIPE
CORI - CORRUGATED IRON PIPE
CSP - CORRUGATED STEEL PIPE
CSPA - ASPHALT COATED CSP
DI - DUCTILE IRON PIPE
FRP - FIBERGLASS REINFORCED PLASTIC PIPE
GALV - GALVANIZED PIPE
KI - KITEC PIPE
PE - POLYETHYLENE PIPE (DR17)
PP - POLYPROPYLENE PIPE
PVC - POLYVINYL CHLORIDE PIPE
ST - STEEL PIPE
STC - CONCRETE LINED STEEL PIPE
UCI - UNLINED CAST IRON PIPE
UNK - UNKNOWN MATERIAL

362-030	364-030	366-030
362-029	364-029	366-029
362-028	364-028	366-028
362-027	364-027	366-027
362-026	364-026	366-026

2008
SANITARY & STORM COLLECTION SYSTEM

Department of Infrastructure Services and Community Sustainability

0 25 50 100 150 200 250 Meters

Scale 1 : 2500 approx.

Ottawa ©

Legend

- Regulator
- Storm Pump Station
- Sanitary Pump Station
- WTP Wastewater Treatment Plant
- Storm Outlet
- Storm Manhole
- Storm Pipe
- Sanitary Trunk Sewer
- Sanitary Manhole
- Sanitary Pipe
- Combined Manhole
- Combined Pipe

PIPE EQUIVALENTS

nominal (mm)	actual (inches)	nominal (mm)	actual (inches)	nominal (mm)	actual (inches)
100	4	675	27	1800	72
150	6	750	30	1950	78
200	8	825	33	2025	80
250	10	900	36	2100	84
300	12	975	39	2250	90
375	15	1050	42	2400	96
400	16	1200	48	2550	102
450	18	1350	54	2700	108
525	21	1500	60	2850	114
600	24	1650	66	3000	120

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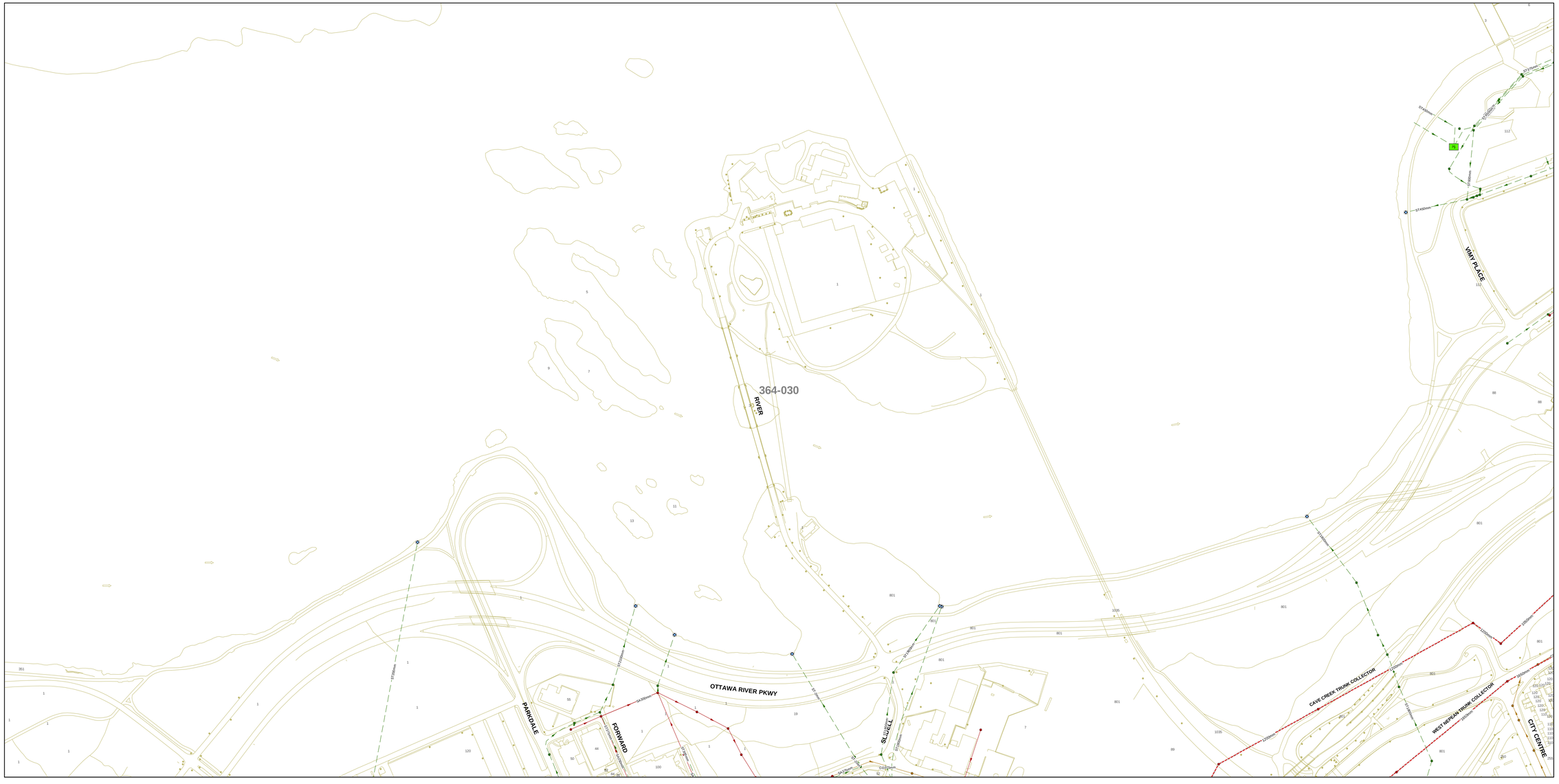
UNK - UNKNOWN MATERIAL

	364-031	366-031
362-030	364-030	366-030
362-029	364-029	366-029
362-028	364-028	366-028
362-027	364-027	366-027



2008
SANITARY & STORM COLLECTION SYSTEM

Department of Infrastructure Services and Community Sustainability

0 25 50 100 150 200 250 Meters

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UCI - UNLINED CAST IRON PIPE
UNK - UNKNOWN MATERIAL

		366-032
	364-031	366-031
362-030	364-030	366-030
362-029	364-029	366-029
362-028	364-028	366-028