

# **FUNCTIONAL SERVICING REPORT**

**FOR**

**3194 JOCKVALE ROAD  
BARRHAVEN TOWN CENTRE  
RICHCRAFT HOMES**

**CITY OF OTTAWA**

**PROJECT NO.: 14-735**

**DEC 2018– 1<sup>ST</sup> SUBMISSION  
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## **1.0 INTRODUCTION**

Richcraft Homes have retained David Schaeffer Engineering Ltd. (DSEL) to prepare a Functional Servicing Report (FSR) in support of their application for draft plan approval.

Richcraft Homes is proposing a mix of residential and commercial development on 3194 Jockvale Road (PIN 045951677) within the South Nepean Town Centre (SNTC). The study area is subject to development permit and zoning by-law amendment applications. The FSR study area measures approximately 10.6 ha and is located north of the future extension of Chapman Mills Drive, east of the existing Kennedy-Burnett Stormwater Management Facility Road, west of Greenbank Road and south of an existing commercial development.

The preliminary municipal servicing for the SNTC was originally considered in the *South Nepean Town Centre Community Design Plan (2006 CDP)* (City of Ottawa, July 2006). The *2006 CDP* considered the study area to consist of high-rise and mid-rise mixed use land uses and a portion of a neighbourhood park. Per the *2006 CDP*, the mixed-use land uses permit apartments, and a variety of retail office and commercial uses. The excerpted land use breakdown and corresponding development statistics from the *2006 CDP* are also included in **Appendix B**, and summarized in **Table 1** below. The design plan was completed in order to prepare an over-arching vision for the servicing strategy and cohesive development of the SNTC (165 ha total area). The report identifies existing infrastructure, environmental constraints and identifies the neighbourhood-level trunk services that will service all properties within the SNTC and support the proposed development of the SNTC.

The proposed draft plan of subdivision contemplates approximately 3.86 ha of residential development and 5.9 ha of commercial development. At the time of this FSR, latest estimates report approximately 240 condo flats within the residential area. This is subject to change as the design of the study area advances. The realignment of Jockvale Road is proposed to run through the study area and a future collector road is proposed at the southern boundary of the study area. Both roads have 20 m wide Right-of-Way (ROW)

widths. The proposed plan of subdivision can be seen in **Appendix A**. Corresponding development stats can be seen in **Table 1** below.

**Table 1: Summary of Land Uses and Population Projections**

Land Use	SNTC CDP JULY 2006				3194 JOCKVALE RD. FSR DEC 2018			
	Gross Area (ha)	Projected Residential Units*	Residential Pop. per Unit **	Pop.	Gross Area (ha)	Projected Residential Units	Residential Pop. per Unit **	Pop.
High-Rise M.U.	5.34	1335	1.8	2403				
Mid-Rise M.U.	3.29	658	1.8	1184				
Neigh. Park	0.72							
Collector Roads	1.26				0.82			
Residential					3.86	240	2.1	504
Commercial					5.93			
<b>Total</b>	<b>10.61</b>	<b>1993</b>		<b>3587</b>	<b>10.61</b>	<b>240</b>		<b>504</b>

\*NOTE: Projected residential units based on unit densities (250 units/ha – High Rise Mixed-Use & 200 units/ha – Mid-Rise Mixed-Use) taken from the South Nepean Town Centre Community Design Plan (City of Ottawa, July 2006).

\*\*NOTE: Population projections may differ from population estimates used in background Transportation Studies, Planning Rationale, and other studies. Population projection and residential population per unit values are based on Ministry of Environment and Climate Change guidelines for servicing demand calculations. Local & Private Roads included in Block estimates above.

This FSR is provided to demonstrate conformance with the design criteria of the City of Ottawa, the *2006 CDP*, other background studies, and general industry practice. This FSR has also been prepared in accordance with the City of Ottawa’s Servicing Study Guidelines for Development Applications, as demonstrated by the checklist included in **Appendix A**.

### 1.1 Existing Conditions

Under existing conditions, the study area is predominantly occupied by agricultural uses. A forested area exists in the northeast corner of the study area. A remnant and unused segment of old Jockvale Road runs through the study area.

The existing elevations within the study area generally range from 93m to 96.5m. Per the *Geotechnical Investigation - Proposed Commercial Development - Greenbank Road* (Paterson Group, February 2012), the soil profile in the area consists of topsoil or fill, underlain by a silty clay layer followed by glacial till deposit. Groundwater is expected between 2m to 3m depth and permissible grade raise restrictions were reported to be between 0.8m to 1.5m. Additional geotechnical details can be found within the *Geotechnical Investigation - Proposed Commercial Development - Greenbank Road* (Paterson Group, February 2012).

The study area is located within the Jock River – Barrhaven sub-watershed which is within the jurisdiction of the Rideau Valley Conservation Authority (RVCA).

A north-south municipal drain (Burnett Drain) is located in the central portion of the study area. The Burnett Drain ultimately outlets into the Jock River to the south. Per discussions with City staff, it is understood that the proposed plan of subdivision triggers the need for the existing Burnett Drain to be abandoned. This is to be completed per the appropriate process outlined in the *Drainage Act*.

## 1.2 Required Permits / Approvals

The City of Ottawa must approve detailed engineering design drawings and reports prior to construction of the municipal infrastructure identified in this report. This is expected to occur as part of the approval process for *Planning Act* development applications.

The following additional approvals and permits listed in **Table 2** could be expected to be required prior to construction of the municipal infrastructure detailed herein. Please note that other permits and approvals may be required, as detailed in the other studies submitted as part of the *Planning Act* development applications (e.g. *Tree Conservation Report*, *Environmental Impact Statement*, *Phase 1 Environmental Site Assessment*, etc.).

**Table 2: Anticipated Permit/Approval Requirements**

Agency	Permit/Approval Required	Trigger	Remarks
RVCA	Application for “Development, Interference with Wetlands and Alteration to Shorelines and Watercourses” Ont. Reg. 174/06	Alterations of existing watercourse.	Existing watercourses through the site may be altered as part of development.
MOECP	Environmental Compliance Approval	Construction of new sanitary, storm sewers, and appurtenances.	The MOECP is expected to review the stormwater collection system, and wastewater collection system by transfer of review submission.
MOECP	Permit to Take Water	Construction of proposed land uses (e.g. basements for residential homes) and services.	Pumping of groundwater or surface water may be required during construction.
City of Ottawa	MOE Form 1 – Record of Watermains Authorized as a Future Alteration.	Construction of watermains.	The City of Ottawa is expected to review the watermains on behalf of the MOE through the Form 1 – Record of Watermains Authorized as a Future Alteration.
City of Ottawa	Commence Work Notification (CWN)	Construction of new sanitary and storm sewer throughout the subdivision.	The City of Ottawa will issue a commence work notification for construction of the sanitary and storm sewers once an ECA is issued by the MOECP.

City of Ottawa / Private Landowners	Permission/license to access/occupation and/or legal property instruments.	Construction of servicing infrastructure (e.g. sewer, overland flow route) beyond the FSR study area.	Construction activities and permanent infrastructure beyond the FSR study area may trigger legal agreements.
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### 1.3 Summary of Pre-Consultation

#### 1.3.1 City of Ottawa, October 11<sup>th</sup>, 2018

A formal Pre-Application Consultation with City of Ottawa staff occurred October 11<sup>th</sup>, 2018. The purpose of the meeting was to discuss the proposed development, review technical considerations and identify/confirm the studies required to accompany the submission of a Plan of Subdivision application. A copy of the Pre-Application Consultation meeting notes can be found in **Appendix A**.



## 2.0 GUIDELINES, PREVIOUS STUDIES, AND REPORTS

### 2.1 Existing Studies, Guidelines, and Reports

- Ottawa Sewer Design Guidelines, City of Ottawa, *SDG002*, October 2012. (*Sewer Design Guidelines*)
  - Technical Bulletin ISDTB-2014-01, Revisions to Ottawa Design Guidelines – Sewer, City of Ottawa, February 5, 2014. (*ISDTB-2014-01*)
  - Technical Bulletin PIEDTB-2016-01, Revisions to Ottawa Design Guidelines – Sewer, City of Ottawa, September 6, 2016. (*PIEDTB-2016-01*)
  - Technical Bulletin ISTB-2018-01, Revisions to Ottawa Design Guidelines – Sewer, City of Ottawa, March 21, 2018. (*ISTB-2018-01*)
- Ottawa Design Guidelines – Water Distribution, City of Ottawa, July 2010. (*Water Supply Guidelines*)
  - Technical Bulletin ISD-2010-2, City of Ottawa, December 15, 2010. (*ISDTB-2010-2*)
  - Technical Bulletin ISDTB-2014-02, City of Ottawa, May 27, 2014. (*ISDTB-2014-02*)
  - Technical Bulletin ISTB-2018-02, City of Ottawa, March 21, 2018. (*ISTB-2018-02*)
- Design Guidelines for Sewage Works, Ministry of the Environment, 2008. (*MOE Design Guidelines*)
- Stormwater Planning and Design Manual, Ministry of the Environment, March 2003. (*SWMP Design Manual*)
- Drainage Act, Ministry of the Environment, 1990. (*Drainage Act*)
- Erosion & Sediment Control Guidelines for Urban Construction, Greater Golden Horseshoe Area Conservation Authorities, December 2006. (*E&S Guidelines*)
- South Nepean Town Centre Community Design Plan, City of Ottawa, July 2006. (*CDP*)
- Appendix 1 South Nepean Town Centre Community Design Plan, Preliminary Serviceability Report, Cumming Cockburn Limited, December 2005.
- Geotechnical Investigation - Proposed Commercial Development - Greenbank Road, Paterson Group, February 2, 2012.
- Kennedy Burnett Potable Water Master Servicing Study, Stantec Consulting Ltd, April 29, 2014.
- South Nepean Collector: Phase 2, Hydraulics Review, Technical Memorandum, Novatech, August 20, 2015.
- Kennedy-Burnett Stormwater Management Facility Functional Design Report, CH2M, February 17, 2017.
- South Nepean Town Centre – Updated Land Use Plan and Stats, Fotenn, April 26, 2018.

### 3.0 WATER SUPPLY SERVICING

#### 3.1 Existing Water Supply Services

The study area lies within the existing City of Ottawa BARR pressure zone. An existing 750mm diameter trunk watermain exists within Greenbank Road to the east of the study area. A 300mm diameter watermain exists to the north of the study area, servicing the existing commercial development off the Greenbank Road trunk watermain.

#### 3.2 Water Supply Servicing Design

The water supply servicing strategy for the study area was considered within the *2006 CDP*. In accordance with the *2006 CDP*, the study area will be serviced with potable water by a trunk watermain network connecting to the reservoir and pumping station on Fallowfield Road.

More recently, the study area's water supply servicing was considered as a part of the *Kennedy Burnett Potable Water Master Servicing Study* (Stantec, April 2014). The Stantec April 2014 report identifies 300mm trunk watermain within the future alignment of Jockvale Road and the collector road at the southern boundary of the study area. Despite minor changes to the watermain network layout, the general water supply servicing strategy in the Stantec April 2014 report remained consistent with the strategy laid out in the *2006 CDP*. The proposed plan of subdivision presents no apparent constraints to the *2006 CDP* and the Stantec April 2014 water supply servicing strategy for the area.

The proposed development will be serviced by a network of pressurized local watermain connecting to trunk infrastructure detailed in the Stantec April 2014 report. See **Figure 1** and **Appendix C** for details. **Table 3** summarizes the design criteria that will be employed in the detailed design of the watermain network.

**Table 3: Water Supply Design Criteria**

Design Parameter	Value
Residential Single Family	3.4 P/unit
Residential Semi-detached	2.7 P/unit
Residential Townhouse/Back-to-Back	2.1 P/unit
Residential Apartment (High Density)	1.8 P/unit
Residential Average Daily Demand	280 L/d/P
Residential Maximum Daily Demand **	2.5 x Average Daily *
Residential Maximum Hourly **	5.5 x Average Daily *
Minimum Watermain Size	150mm diameter
Minimum Depth of Cover	2.4m from top of watermain
During normal operating conditions desired operating pressure is within	350kPa and 480kPa
During normal operating conditions pressure must not drop below	275kPa
During normal operating conditions pressure must not exceed	552kPa
During fire flow operating pressure must not drop below	140kPa

\*Daily average based on Appendix 4-A from **Water Supply Guidelines**. Table updated to reflect ISD-2010-2.  
 \*\* Residential Max. Daily and Max. Hourly peaking factors per MOE Guidelines for Drinking-Water Systems Table 3-3 for 0 to 500 persons. City Guidelines used for populations greater than 500 persons.

The water demands for the 2006 CDP land use plan and the proposed plan of subdivision were calculated using consumption rates from **Table 3** and the City of Ottawa's *Water Supply Guidelines*. Results can be found in **Table 4** below, with calculations provided in **Appendix C**. The water demand associated with the proposed plan of subdivision is roughly 25% of the demand anticipated in the 2006 CDP land use plan.

**Table 4: Summary of Water Demands**

	Avg. Daily Water Demand (L/s)
SNTC CDP JULY 2006	14.42
3194 JOCKVALE RD. FSR DEC 2018	3.56

Through the detailed design of the study area, a complete hydraulic analysis will be prepared for the water distribution network to confirm that water supply is available within the required pressure range under the anticipated demands during average day, peak hour and fire flow conditions. Per the Stantec April 2014 report, fire flows upwards of 15,000 L/min @ 20 psi are available to the subject lands. As the design process advances, these fire flows will be further analyzed and respected through the use of fire walls, sprinklers and/or other means to ensure the fire flow requirement does not exceed the rate of supply. In circumstances where infrastructure may be required outside of the study area, land owner agreements will be put in place to facilitate cost sharing and access when necessary.

### **3.3 Water Supply Conclusion**

Potable water will be delivered to the proposed study area via pressurized 300mm diameter watermains. In accordance with the *2006 CDP* and the *Kennedy Burnett Potable Water Master Servicing Study* (Stantec, April 2014) the study area's watermain network will connect to the existing external trunk watermain system detailed in the Stantec April 2014 report.

The proposed plan of subdivision represents a decrease in water demand when compared to the *2006 CDP* land uses. A complete hydraulic analysis will be prepared at the time of detailed design. The watermain network will be sized to meet maximum hour and maximum day plus fire flow demands and conform to all relevant City of Ottawa and MOECP Guidelines and Policies.

## 4.0 WASTEWATER SERVICING

### 4.1 Existing Wastewater Services

The study area is tributary to the South Nepean Collector (SNC) sewer, which exists south of the study area and conveys wastewater to the east, and under the Jock River.

### 4.2 Wastewater Design

The wastewater servicing strategy for the study area was considered within the 2006 CDP. In accordance with the 2006 CDP, the study area's sanitary sewer system will ultimately discharge to the existing SNC sanitary sewer, within the future extension of Chapman Mills Drive, south of the study area. See **Figure 1** for details.

The *South Nepean Collector: Phase 2, Hydraulics Review, Technical Memorandum* (Novatech, Aug 2015) more recently considered the wastewater servicing for the study area, reporting that wastewater flows will enter the SNC sewer between nodes 90-80.

The proposed development will be serviced by a network of gravity sewers to be designed in accordance with the wastewater design parameters from *ISTB-2018-01* and the *Sewer Design Guidelines*, summarized in **Table 5**. Where infrastructure may be required outside of the study area, there will be agreements in place facilitating cost sharing and access when necessary.

**Table 5: Wastewater Design Criteria**

Design Parameter	Value
Residential - Single Family	3.4p/unit
Residential – Townhome/ Semi	2.7p/unit
Residential Townhouse/Back-to-Back	2.1 P/unit
Residential Apartment (High Density)	1.8 P/unit
Average Daily Demand	280 L/d/per
Peaking Factor	Harmon's Peaking Factor, where K=0.8
Commercial / Institutional Flows	28,000 L/gross ha/day
Commercial / Institutional Peak Factor	1.5 if contribution >20%, otherwise 1.0
Light Industrial Flows	35,000 L/gross ha/day
Industrial Peaking Factor	Per Figure in Appendix 4-B, City of Ottawa Guidelines
Infiltration and Inflow Allowance	0.33 L/s/gross ha for all areas
Park Peaking Factor	1.0
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
<i>Extracted from Sections 4 and 6 of the City of Ottawa Sewer Design Guidelines, October 2012, Technical Bulletins, and recent residential subdivision in City of Ottawa.</i>	

**Table 6** shows anticipated wastewater flows for the study area for both the proposed plan of subdivision and the *2006 CDP* land use plan using the design criteria detailed in **Table 5**. Reported wastewater flows from the study area within the *South Nepean Collector: Phase 2, Hydraulics Review, Technical Memorandum* (Novatech, Aug 2015) are also included in **Table 6**. Refer to **Appendix D** for excerpts and detailed calculations.

**Table 6: Comparison of Wastewater Flows**

	Total Area (Ha)	Flow (L/s)			
		Res.	ICI	Infiltration	Total
<b>SNTC CDP JULY 2006</b>	10.61	33.7	4.3	3.5	41.5
<b>SNC: PH2 HYDRAULICS REVIEW AUG 2015</b>	11.01	14.1	0.0	3.1	17.2
<b>3194 JOCKVALE RD. FSR DEC 2018</b>	10.61	5.5	2.9	3.5	11.9

The anticipated wastewater flows from the study area are lower than those anticipated in both the *2006 CDP* and the *South Nepean Collector: Phase 2, Hydraulics Review, Technical Memorandum* (Novatech, Aug 2015). The anticipated peak design flow is 29% and 69% of the 2006 CDP and Novatech Aug 2015 reported flows respectively. It is noted that the Novatech Aug 2015 report uses wastewater design criteria that represents a flow increase compared to the design criteria detailed in **Table 5**.

#### 4.3 Wastewater Servicing Conclusions

A network of local gravity sewers is proposed within the study area to convey flow to the existing SNC sanitary sewer, in accordance with the *2006 CDP* and the *South Nepean Collector: Phase 2, Hydraulics Review, Technical Memorandum* (Novatech, Aug 2015). The sewers are to be designed in conformance with all relevant City of Ottawa and MOECP Guidelines and Policies.

The proposed plan of subdivision represents a decrease in estimated wastewater flow rates when compared to the *2006 CDP* land uses and what was considered in the Novatech Aug 2015 report. As such, the SNC sanitary sewer can accommodate the proposed plan of subdivision.

## 5.0 STORMWATER MANAGEMENT

### 5.1 Existing Stormwater Drainage

The study area is located to the east of the existing Kennedy-Burnett Stormwater Management Facility (KB SWMF). A north-south municipal drain is located in the central portion of the study area. Under existing conditions the western portion of the study area drains to the KB SWMF while the remaining portion of the study area drains to the Jock River via the municipal drain and roadside ditches.

### 5.2 Stormwater Management Strategy

The stormwater management strategy for the study area was considered within the 2006 CDP. In accordance with the 2006 CDP, the study area's storm sewer system will ultimately discharge to the existing KB SWMF, west of the study area. See **Figure 1** for details.

The *Kennedy-Burnett Stormwater Management Facility and Functional Design Report* (CH2M, Feb 2017) more recently considered the stormwater management strategy for the study area. The preferred servicing option in the CH2M Feb 2017 report plans for minor system flows (5-year capture) to be conveyed via trunk storm sewers and passed through a Hydro Dynamic Separator unit for quality control, prior to outletting to the KB SWMF. Major flows are to be routed overland to the KB SWMF. Excerpts from the *Kennedy-Burnett Stormwater Management Facility and Functional Design Report* (CH2M, Feb 2017) can be found in **Appendix E**. The study area is shown to be slightly larger, area reported as 10.9 ha as opposed to 10.6 ha, and was assigned a runoff coefficient of 0.8 based on the land uses in the 2006 CDP.

Runoff coefficients taken from the *Kennedy-Burnett Stormwater Management Facility and Functional Design Report* (CH2M, Feb 2017) have been assigned to the proposed plan of subdivision. Results can be found in **Table 7** below.

**Table 7: Anticipated Runoff Calculations**

Land Use	C (Runoff Coef)	Area (ha)	A*C
Low/Med Density Res.	0.65	3.86	2.509
Commercial	0.85	5.93	5.0405
Roads	0.80	0.82	0.656
	<b>Total</b>	<b>10.61</b>	<b>8.2055</b>
	<b>Avg C</b>	<b>0.77</b>	
	<b>CH2M Feb 2017 Avg C</b>	<b>0.80</b>	

The reduced runoff coefficient for the study area indicates that a decrease in stormwater runoff is anticipated for the plan of subdivision from what was considered in the CH2M

Feb 2017 report. As the design of the study area advances, it is to account for the rates of minor system capture, major system conveyance and onsite stormwater detention storage required to accommodate the limitations of the KB SWMF.

The proposed development will be serviced by a network of gravity sewers. **Table 8** summarizes the design criteria that will be employed in the detailed design of the trunk and local storm sewers. Where infrastructure may be required outside of the study area, there will be agreements in place facilitating cost sharing and access when necessary.

**Table 8: Storm Sewer Design Criteria**

Design Parameter	Value
Minor System Design Return Period	2-Year (Local Streets), 5-Year (Collector Streets), 10-Year (Arterial Streets) – PIEDTB-2016-01
Major System Design Return Period	100-Year
Intensity Duration Frequency Curve (IDF) 2-year storm event: A = 723.951, B = 6.199, C = 0.810 5-year storm event: A = 998.071, B = 6.053, C = 0.814	$i = \frac{A}{(t_c + B)^C}$
Minimum Time of Concentration	10 minutes
Rational Method	$Q = CiA$
Runoff coefficient for paved and roof areas	0.90
Runoff coefficient for landscaped areas	0.20
Storm sewers are to be sized employing the Manning's Equation	$Q = \frac{1}{n} AR^{2/3} S^{1/2}$
Minimum Sewer Size	250 mm diameter
Minimum Manning's 'n'	0.013
Service Lateral Size	100mm dia PVC SDR 28 with a minimum slope of 1.0%.
Minimum Depth of Cover	1.5m from crown of sewer to grade ( <i>based on recent residential subdivisions in City of Ottawa</i> )
Minimum Full Flowing Velocity	0.8 m/s
Maximum Full Flowing Velocity	6.0 m/s
Clearance from 100-Year Hydraulic Grade Line to Building Opening	0.30 m
Max. Allowable Flow Depth on Municipal Roads	35 cm above gutter (PIEDTB-2016-01)
Extent of Major System	To be contained within the municipal right-of-way or adjacent to the right-of-way provided that the water level must not touch any part of the building envelope and must remain below the lowest building opening during the stress test event (100-year + 20%) and 15cm vertical clearance is maintained between spill elevation on the street and the ground elevation at the nearest building envelope (PIEDTB-2016-01)
Stormwater Management Model	DDSWMM (release 2.1), SWMHYMO (v. 5.02) and XPSWMM (v. 10)
Model Parameters	Fo = 76.2 mm/hr, Fc = 13.2 mm/hr, DCAY = 4.14/hr, D.Stor.Imp. = 1.57 mm, D.Stor.Per. = 4.67 mm
Imperviousness	Based on runoff coefficient (C) where Percent Imperviousness = (C - 0.2) / 0.7 x 100%.



Design Storms	Chicago 3-hour Design Storms and 24-hour SCS Type II Design Storms. Maximum intensity averaged over 10 minutes.
Historical Events	July 1st, 1979, August 4th, 1988 and August 8th, 1996
Climate Change Street Test	20% increase in the 100-year, 3-hour Chicago storm
<i>Extracted from City of Ottawa Sewer Design Guidelines, October 2012, as amended by PIEDTB-2016-01, and based on recently approved residential subdivision designs in City of Ottawa.</i>	

Consistent with the *2006 CDP* and the CH2M Feb 2017 report, the major system drainage strategy proposes to direct overland flow towards the existing KB SWMF. See **Figure 2** for details. As shown in the proposed grading plan, it is anticipated that certain areas, particularly the western portion of the site, may exceed the permissible grade raises detailed in the *Geotechnical Investigation - Proposed Commercial Development - Greenbank Road* (Paterson Group, February 2012). Note that the proposed grading plan is subject to change as the design of the subject area advances. The grading plan has been produced to best respect the grade restrictions in the study area and to provide appropriate cover (minimum 1.5m depth) for the storm sewers. Due to these grading constraints, below grade structures requiring gravity drainage (basements) may not be permissible for any buildings in the study area.

### 5.3 Stormwater Servicing Conclusions

A network of local gravity storm sewers is proposed within the study area to convey stormwater runoff to the existing KB SWMF, in accordance with the *2006 CDP* and the *Kennedy-Burnett Stormwater Management Facility and Functional Design Report* (CH2M, Feb 2017). The sewers are to be designed in conformance with all relevant City of Ottawa and MOECP Guidelines and Policies.

The proposed plan of subdivision represents a decrease to estimated stormwater runoff when compared to the CH2M Feb 2017 report. As such, the KB SWMF can accommodate the proposed plan of subdivision.

## 6.0 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 active part 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.

Catchbasins will have catchbasin inserts installed during construction to protect from silt entering the storm sewer system.

Specifically, 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 exiting the construction area and entering existing ditches/stormwater systems.
- Install mud mat at the construction access in order to prevent mud tracking onto adjacent roads.
- No refueling or cleaning of equipment near existing watercourses.
- Provide sediment traps and basins during dewatering.
- Install catchbasin inserts.
- Plan construction at proper time to avoid flooding.

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 inserts at catch basins.

## 7.0 CONCLUSIONS AND RECOMMENDATIONS

This *Functional Servicing Study* (FSR) (DSEL, December 2018) provides details on the planned on-site and off-site municipal services for the subject property. Results of this FSR indicate that the proposed plan of subdivision results in reduced or equivalent water supply, wastewater servicing and stormwater management servicing requirements when compared to the 2006 CDP. Existing and proposed infrastructure planned to support the 2006 CDP lands is considered adequate to service the proposed plan of subdivision.

Prior to detailed design of the infrastructure presented in this report, this FSR will require approval under the *Planning Act* as supporting information for the development applications. Project-specific approvals are also expected to be required for the infrastructure presented in this report from the City of Ottawa, Ministry of Environment, Conservation and Parks, and the Rideau Valley Conservation Authority.

Prepared by,  
**David Schaeffer Engineering Ltd.**



Per: Braden Kaminski, E.I.T.

Reviewed by,  
**David Schaeffer Engineering Ltd.**



Per: Matt Wingate, P.Eng

© DSEL

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# **Appendix A**

Development Study Checklist, Record of Pre-Consultation, Plan of Subdivision, Record  
of City Pre-Consultation

# DEVELOPMENT SERVICING STUDY CHECKLIST

4.1 General Content	
<input type="checkbox"/>	Executive Summary (for larger reports only). N/A
<input type="checkbox"/>	Date and revision number of the report. Title Page
<input type="checkbox"/>	Location map and plan showing municipal address, boundary, and layout of proposed development. Figure 1
<input type="checkbox"/>	Plan showing the site and location of all existing services. Figures 1
<input type="checkbox"/>	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 & Section 2.0
<input type="checkbox"/>	Summary of Pre-consultation Meetings with City and other approval agencies. Section 1.3 & Appendix A
<input type="checkbox"/>	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 defensible design criteria. All sections
<input type="checkbox"/>	Statement of objectives and servicing criteria. Section 1.0 & Section 3.2, Section 4.2, and Section 5.2
<input type="checkbox"/>	Identification of existing and proposed infrastructure available in the immediate area. Sections 3.1, Section 4.1, and Section 5.1
<input type="checkbox"/>	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). Sections 1.1 & 1.2
<input type="checkbox"/>	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. Figure 2
<input type="checkbox"/>	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. To be addressed in at detailed design.
<input type="checkbox"/>	Proposed phasing of the development, if applicable. N/A. Depends on landowner preferred timing
<input type="checkbox"/>	Reference to geotechnical studies and recommendations concerning servicing. Section 1.1
<input type="checkbox"/>	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 Figures
4.2 Development Servicing Report: Water	
<input type="checkbox"/>	Confirm consistency with Master Servicing Study, if available. Section 3.2
<input type="checkbox"/>	Availability of public infrastructure to service proposed development. Section 3.2
<input type="checkbox"/>	Identification of system constraints. Section 3.2
<input type="checkbox"/>	Identify boundary conditions. Detailed hydraulic assessment N/A for FSR

## DEVELOPMENT SERVICING STUDY CHECKLIST

<input type="checkbox"/>	Confirmation of adequate domestic supply and pressure	Kennedy Burnett Potable Water Master Servicing Study, Stantec Consulting Ltd, April 29, 2014. Detailed hydraulic assessment N/A for FSR.
<input type="checkbox"/>	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.	Stantec April 2014. Detailed hydraulic assessment N/A for FSR.
<input type="checkbox"/>	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.	Stantec April 2014. Detailed hydraulic assessment N/A for FSR.
<input type="checkbox"/>	Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design	Stantec April 2014. Detailed hydraulic assessment N/A for FSR.
<input type="checkbox"/>	Address reliability requirements such as appropriate location of shut-off valves	Detailed hydraulic assessment N/A for FSR.
<input type="checkbox"/>	Check on the necessity of a pressure zone boundary modification	Stantec April 2014.
<input type="checkbox"/>	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	Stantec April 2014. Detailed hydraulic assessment N/A for FSR.
<input type="checkbox"/>	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.	Stantec April 2014. Section 3.2 & Figure 1.
<input type="checkbox"/>	Description of off-site required feeder mains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities, and timing of implementation.	Stantec April 2014.
<input type="checkbox"/>	Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.	Section 3.2 & Appendix C
<input type="checkbox"/>	Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.	Detailed hydraulic assessment N/A for FSR.

### 4.3 Development Servicing Report: Wastewater

<input type="checkbox"/>	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
<input type="checkbox"/>	Confirm consistency with Master Servicing Study and/or justifications for deviations.	Section 4.2
<input type="checkbox"/>	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.	South Nepean Collector: Phase 2, Hydraulics Review, Technical Memorandum, Novatech, August 20, 2015.
<input type="checkbox"/>	Description of existing sanitary sewer available for discharge of wastewater from proposed development.	Novatech Aug 2015 & Section 4.2
<input type="checkbox"/>	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)	Novatech Aug 2015 & Section 4.2

## DEVELOPMENT SERVICING STUDY CHECKLIST

<input type="checkbox"/>	Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix 'C') format.	Novatech Aug 2015, Section 4.2 & Appendix D
<input type="checkbox"/>	Description of proposed sewer network including sewers, pumping stations, and forcemains.	Section 4.2 & Figure 1
<input type="checkbox"/>	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).	Novatech Aug 2015
<input type="checkbox"/>	Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.	Novatech Aug 2015
<input type="checkbox"/>	Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.	Novatech Aug 2015
<input type="checkbox"/>	Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.	Novatech Aug 2015
<input type="checkbox"/>	Special considerations such as contamination, corrosive environment etc.	N/A

### 4.4 Development Servicing Report: Stormwater Checklist

<input type="checkbox"/>	Description of drainage outlets and downstream constraints including legality of outlets (i.e. municipal drain, right-of-way, watercourse, or private property)	Section 1.1 ,5.1 & 5.2
<input type="checkbox"/>	Analysis of available capacity in existing public infrastructure.	Kennedy-Burnett Stormwater Management Facility Functional Design Report, CH2M, February 17, 2017 & Section 5.2
<input type="checkbox"/>	A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.	CH2M Feb 2017
<input type="checkbox"/>	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.	CH2M Feb 2017 & Section 5.2
<input type="checkbox"/>	Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.	CH2M Feb 2017 & Section 5.2
<input type="checkbox"/>	Description of the stormwater management concept with facility locations and descriptions with references and supporting information	CH2M Feb 2017, Section 5.2 & Figure 1
<input type="checkbox"/>	Set-back from private sewage disposal systems.	N/A
<input type="checkbox"/>	Watercourse and hazard lands setbacks.	N/A
<input type="checkbox"/>	Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.	Record of consultation forthcoming.
<input type="checkbox"/>	Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.	CH2M Feb 2017 & Section 5.2
<input type="checkbox"/>	Storage requirements (complete with calculations) and conveyance capacity for minor events (1:5 year return period) and major events (1:100 year return period).	Detailed modelling N/A for FSR.
<input type="checkbox"/>	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 1.1.

## DEVELOPMENT SERVICING STUDY CHECKLIST

<input type="checkbox"/>	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.	Detailed Analysis N/A for FSR.
<input type="checkbox"/>	Any proposed diversion of drainage catchment areas from one outlet to another.	N/A
<input type="checkbox"/>	Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and stormwater management facilities.	Section 5.2 & Figure 1
<input type="checkbox"/>	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
<input type="checkbox"/>	Identification of potential impacts to receiving watercourses	CH2M Feb 2017
<input type="checkbox"/>	Identification of municipal drains and related approval requirements.	Section 1.1
<input type="checkbox"/>	Descriptions of how the conveyance and storage capacity will be achieved for the development.	N/A at FSR level, future work described in Section 5.3
<input type="checkbox"/>	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 at FSR level
<input type="checkbox"/>	Inclusion of hydraulic analysis including hydraulic grade line elevations.	N/A at FSR level, future work described in Section 5.2
<input type="checkbox"/>	Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.	Section 6.0
<input type="checkbox"/>	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.	CH2M Feb 2017
<input type="checkbox"/>	Identification of fill constraints related to floodplain and geotechnical investigation.	Section 1.1

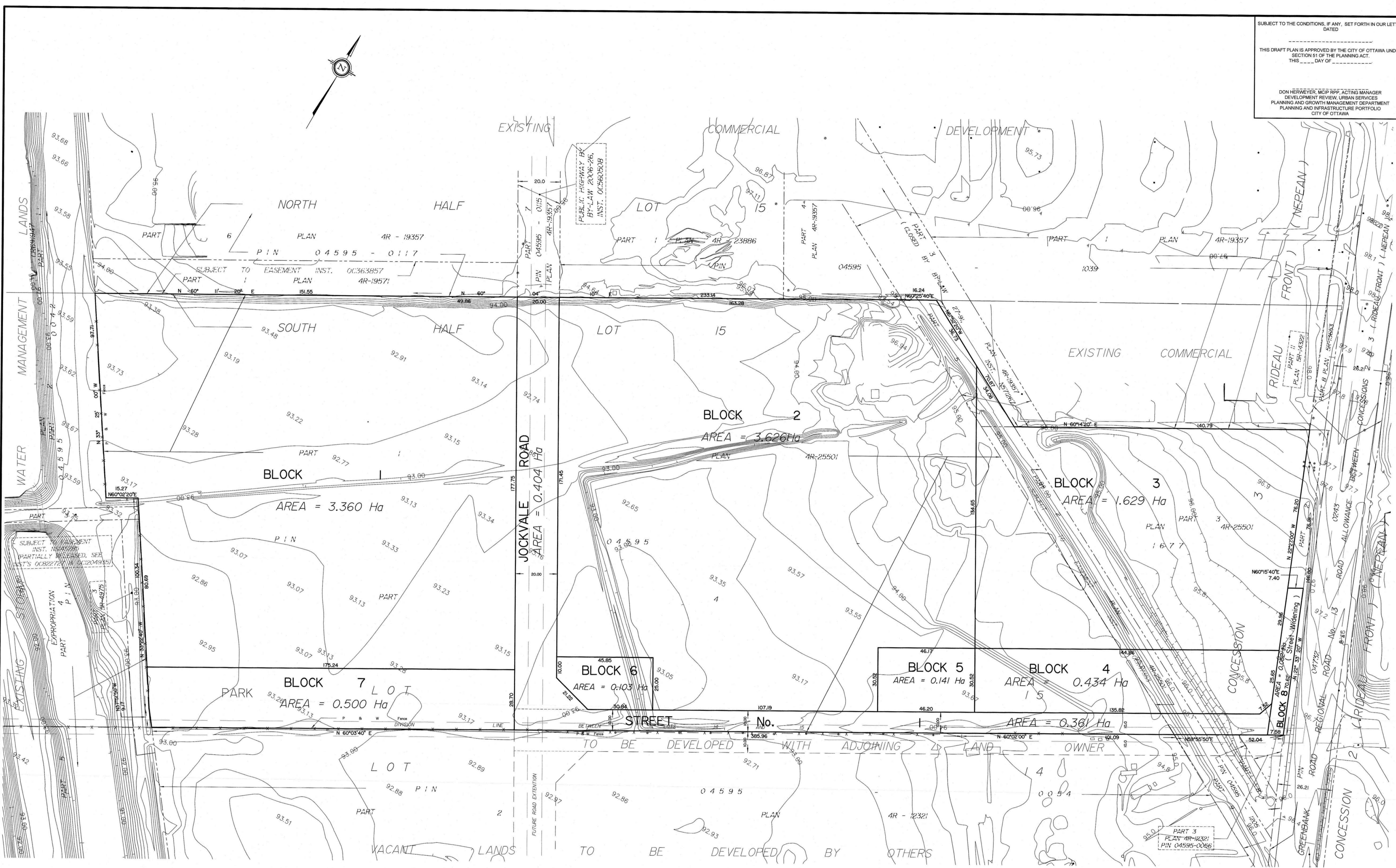
### 4.5 Approval and Permit Requirements: Checklist

<input type="checkbox"/>	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 1.2
<input type="checkbox"/>	Application for Certificate of Approval (CofA) under the Ontario Water Resources Act.	Section 1.2
<input type="checkbox"/>	Changes to Municipal Drains.	Section 1.1
<input type="checkbox"/>	Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation etc.)	Section 1.2

### 4.6 Conclusion Checklist

<input type="checkbox"/>	Clearly stated conclusions and recommendations	Section 7.0
<input type="checkbox"/>	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.	N/A – first submission
<input type="checkbox"/>	All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario	Section 7.0

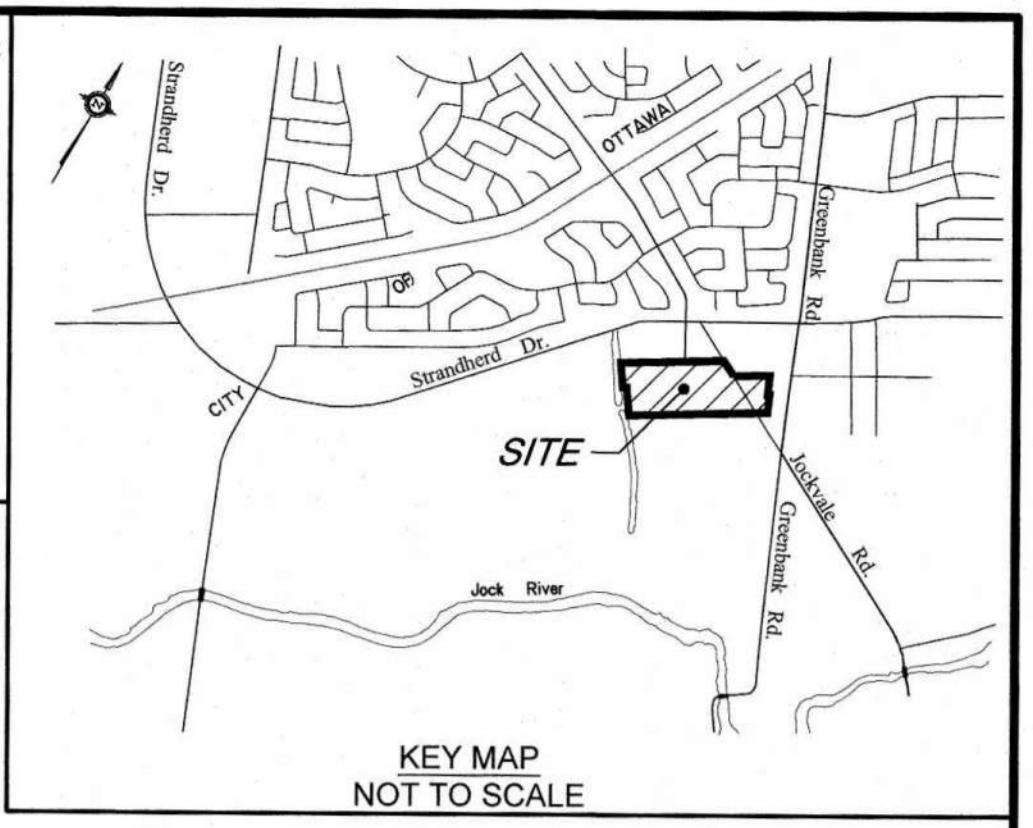




SUBJECT TO THE CONDITIONS, IF ANY, SET FORTH IN OUR LETTER DATED \_\_\_\_\_

THIS DRAFT PLAN IS APPROVED BY THE CITY OF OTTAWA UNDER SECTION 51 OF THE PLANNING ACT, THIS \_\_\_\_\_ DAY OF \_\_\_\_\_

DON HERMEYER, MCIP RPP, ACTING MANAGER  
DEVELOPMENT REVIEW, URBAN SERVICES  
PLANNING AND GROWTH MANAGEMENT DEPARTMENT  
PLANNING AND INFRASTRUCTURE PORTFOLIO  
CITY OF OTTAWA



DRAFT PLAN OF SUBDIVISION OF  
**PART OF LOT 15  
CONCESSION 3 (RIDEAU FRONT)**  
Geographic Township of Nepean  
**CITY OF OTTAWA**  
Prepared by Annis, O'Sullivan, Vollebek Ltd.

Scale 1 : 750  
0 2.5 5 7.5 10 15 20 30 Metres

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

**SURVEYOR'S CERTIFICATE**

I CERTIFY THAT:  
The boundaries of the lands to be subdivided and their relationship to adjoining lands have been accurately and correctly shown.

Date: Dec 12/2018  
Andre Roy  
ONTARIO LAND SURVEYOR

**OWNER'S CERTIFICATE**

This is to certify that I am the owner / agent of the lands to be subdivided and that this plan was prepared in accordance with our instructions.

Date: \_\_\_\_\_  
Steve Grandmont, Chief Operating Officer  
Richcraft Homes Ltd.  
I have the authority to bind the corporation

**ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51-17 OF THE PLANNING ACT**

- (a) see plan
- (b) see plan
- (c) see plan
- (d) park land, commercial
- (e) see plan
- (f) see plan
- (g) see plan
- (h) City of Ottawa
- (i) see soils report
- (j) see plan
- (k) sanitary, storm sewers, municipal water, bell, hydro, cable and gas to be available
- (l) see plan

## Braden Kaminski

---

**Subject:** FW: Richcraft subdivision / South Nepean Town Centre  
**Attachments:** 18291-17 Richcraft Pt Lt 15 C3 RF NP CONCEPT SK D6.pdf; Document4\_Recommended\_Pond.pdf; Harmony Subdivision.pdf; Jockvale\_Blakely\_Flats CONCEPT SITE PLAN(s)\_216 and 240 Units\_11Dec2017.pdf

**From:** Moore, Sean <[Sean.Moore@ottawa.ca](mailto:Sean.Moore@ottawa.ca)>

**Sent:** October 19, 2018 11:20 AM

**To:** Jennifer Murray <[jenniferkmurray@outlook.com](mailto:jenniferkmurray@outlook.com)>; Miguel Tremblay <[tremblay@fotenn.com](mailto:tremblay@fotenn.com)>

**Cc:** Krabicka, Jeannette <[Jeannette.Krabicka@ottawa.ca](mailto:Jeannette.Krabicka@ottawa.ca)>; Shillington, Jeffrey <[jeff.shillington@ottawa.ca](mailto:jeff.shillington@ottawa.ca)>; Baggs, Rosanna <[Rosanna.Baggs@ottawa.ca](mailto:Rosanna.Baggs@ottawa.ca)>; Moise, Christopher <[christopher.moise@ottawa.ca](mailto:christopher.moise@ottawa.ca)>; Stevens, Lorraine <[Lorraine.Stevens@ottawa.ca](mailto:Lorraine.Stevens@ottawa.ca)>; Reed, Kerry <[kerry.reed@ottawa.ca](mailto:kerry.reed@ottawa.ca)>

**Subject:** RE: Richcraft subdivision / South Nepean Town Centre

Hi Jennifer,

Regarding our preconsultation meeting on Thursday October 11<sup>th</sup> for a plan of subdivision and rezoning please find the submission requirements and preliminary comments below.

### List of required Plans/Reports with your applications:

#### Required Plans/Studies:

- Draft Plan of Subdivision (15 copies)
- Survey Plan (2 copies)
- Planning Rationale, with Integrated Environmental Review (3 copies) – please include a Parks rationale for the park location, size, configuration and how it meets the parks policies / guidelines of the City of Ottawa
- Stormwater Management Report / Brief (3 copies)
- Serviceability Study (3 copies)
- Transportation Impact Assessment (3 copies)
- Noise Feasibility Study (3 copies)
- Geotechnical Study (3 copies)
- Phase 1 ESA (2 copies) – to conformity with OReg 153/04
- Tree Conservation Report (3 copies)
- Archaeological Resource Assessment (3 copies)
- Roadway Modification Plan (3 copies) – for functional design of any road mods / intersections / medians etc
- Concept Plan – ultimate use of lands (3 copies)
- No EIS required

\*All required plans & reports are to be provided in digital format (\*.pdf) at application submission in addition to any required hard copies.

#### Link to Plan of Subdivision application form:

<https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/development-application-forms#plan-subdivision>

**Link to Plan of Zoning By-law amendment application form:**

<https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/development-application-forms#zoning-law-amendment>

**Link to SNTC CDP – see appendix for Street Cross Sections that are discussed below:**

<https://ottawa.ca/en/city-hall/planning-and-development/community-plans-and-design-guidelines/community-plans-and-studies/community-design-plans/south-nepean-town-centre-community-design-plan>

**Preliminary Staff Comments:**

- Any block configuration that contemplates commercial is premature until the concurrent OPA process (D01-01-18-0006) has determined commercial uses are permitted within this area of the Town Centre. Submitting a Plan of Subdivision and Zoning By-law application in advance of the OPA process is at the discretion of the applicant and can be circulated and reviewed but cannot proceed to draft approval until the OPA has come to a final conclusion (such as Council approval through its appeal period).
- Any park design will need to be determined through the concurrent OPA process. Parkland size and location cannot be finalized in advance of the larger picture OPA currently under review
- Street No. 1 cross section and Jockvale Road will have to be determined through the OPA process currently underway. The CDP cross sections call for 12m asphalt curb to curb (see CDP appendix), but these are outdated and new direction on street cross sections will need to come out of that OPA process. This will need to address cycling, pedestrian, on-street parking, landscaping and utility/infrastructure considerations.
- Minimum 2 public street frontages on the new city park are in line with City direction for park design. Frontage of city parks via a cul-de-sac will not be supported by Staff.
- If the city park is determined to remain adjacent to Block 1, Street No. 1 should provide a vista across the stormwater pond, thus extending and providing street frontage along the park edge (see conceptually image attached). This would also provide direct connectivity from a public road to the pathway that crosses the storm pond.
- A public street should enter the residential area (Block 1) to break up this block, provide public access to the pathways along the pond, and to provide a single loaded element along the pond.
- If commercial is permitted on Blocks 1-6, zoning and policy will need to be drafted to ensure Blocks 4, 5 and 6 can achieve active building frontages along Street No.1 – this is to be coordinated with the active OPA application
- If commercial is permitted within the OPA at this location, Staff would look to an example such as Grant Crossing on Hazeldean Road to either allow public access, or access which ‘appears’ public in nature to divide Blocks 2 and 3 (as conceptually illustrated in the attachment). This would line up with the future road extension shown on the applicant’s concept plan (attached).
- Development should tie into the retrofitted Kennedy-Burnett storm pond where there are proposed pathways along the pond (see attached functional design plan entitled ‘Document 4 Recommended Pond’). The detail design of the pond retrofit is currently with Novatech, led by the City’s ISD (Patrick Chamney). I understand landowners will be notified shortly of this detail design plan. I have also attached the grading plan for Harmony Subdivision, across the pond to the west, where you can see how the pathway will cross the pond – making a good opportunity to link the pathway where it crosses the pond to a public road on Richcrafts land.

Regards,

**Sean Moore** MCIP, RPP

Planner III | Urbaniste III

Development Review (South Services) | Examen des projets d'aménagement (services sud)

Planning, Infrastructure and Economic Development | Services de planification, d'infrastructure et de développement économique

City of Ottawa | Ville d'Ottawa

 613.580.2424 ext./poste 16481

[ottawa.ca/planning](http://ottawa.ca/planning) / [ottawa.ca/urbanisme](http://ottawa.ca/urbanisme)

# **Appendix B**

Excerpts from the South Nepean Town Centre Community Design Plan (City of Ottawa,  
July 2006)

# *South Nepean Town Centre Community Design Plan*



**Planning and Growth Management Department  
Community Planning and Design Division  
July 2006  
Publication #03-14**

# Land Use

**Table 1 – Land Use Distribution**

Policy Area	Net Area (hectares)	% of Total Area
High Rise Mixed-Use	26.5	16.1%
Mid Rise Mixed-Use	34.2	20.7%
High Rise Residential	3.4	2.1%
Mid Rise Residential	21.9	13.2%
School	7.9	4.8%
Civic Complex	2.2	1.3%
District Park	21.6	13.1%
Neighbourhood Park	4.5	2.7%
Streets	42.8	25.9%
<b>Total</b>	<b>165.0</b>	<b>100.0%</b>

**Table 2 – Dwelling Type Distribution**

Dwelling Type	# of Dwellings	% of Total Dwellings
<b>Phase 2</b>		
Street Townhouses	1,000	14%
Stacked Townhouses	750	10%
Apartments	5,500	76%
<b>Total</b>	<b>7,250</b>	<b>100%</b>
<b>Phase 3</b>		
Street Townhouses	1,000	9%
Stacked Townhouses	750	7%
Apartments	9,300	84%
<b>Total</b>	<b>11,050</b>	<b>100%</b>

**Table 3 – Land Use Statistics**

Phase	Retail Gross Floor Area (m <sup>2</sup> )	Office Gross Floor Area (m <sup>2</sup> )	# of Dwelling Units	Population	Employment
Phase 1 – Initial	78,000	1,000	0	0	1,000
Phase 2 – Interim Built Out	208,250	158,250	7,250	14,500	7,300
Phase 3 – Ultimate Build Out	217,000	350,500	11,000	22,500	12,600

**Notes:**

- (1) Tables 2 and 3 indicate projections of different build out scenarios. Given the long-term nature of the scenarios, these figures should only be considered as potential build out projections based on permissions by the policies in this CDP.
- (2) Numbers for each phase are total, not cumulative.
- (3) Phase 1 does not include the limited residential units currently within the Town Centre.
- (4) The type of units identified in Table 2 are intended to only illustrate the intensity of units, and not necessarily limit the form of units.

## 4.2 Policy Area – High Rise Mixed-Use

The High Rise Mixed-Use policy area represents the primary retail and mixed-use development area within the Town Centre. The High Rise Mixed-Use policy area will be a lively and active mixed-use shopping district, with an emphasis on commercial and residential uses in the same building with retail uses located at-grade, but also single use retail and office commercial uses and residential apartments.

### Policies

For the High Rise Mixed-Use policy area:

- (1) Apartments, a broad variety of retail, office and service commercial activities, public and institutional uses, schools, places of worship, and community facilities are permitted.
- (2) The minimum building height is 6 storeys and the maximum building height is 12 storeys.
- (3) The net density target for residential uses is 250 units per hectare.
- (4) The maximum lot coverage for stand-alone residential buildings is 30% of the total area of any block.
- (5) All building frontage along Greenbank Road and Chapman Mills Drive must have non-residential uses at grade.
- (6) The City will encourage that all buildings along the BRT route north of Chapman Mills Drive incorporate the route as much as possible into the design of the building, through such means as clear windows or secondary doors.
- (7) The above policies in Section 4.2 or the policies and guidelines of Section 5.0 do not apply to future development in the “Strandherd Retail District” that is permitted by existing zoning or master site plans, provided that this development does not jeopardize the long-term acquisition of the public streets identified on Schedule 2 or public parkland identified on Schedule 5. For this new development, the City will still encourage the consideration of the

urban design policies and guidelines in Section 5.0, as they may apply, during the development review process.

## 4.3 Policy Area – Mid Rise Mixed-Use

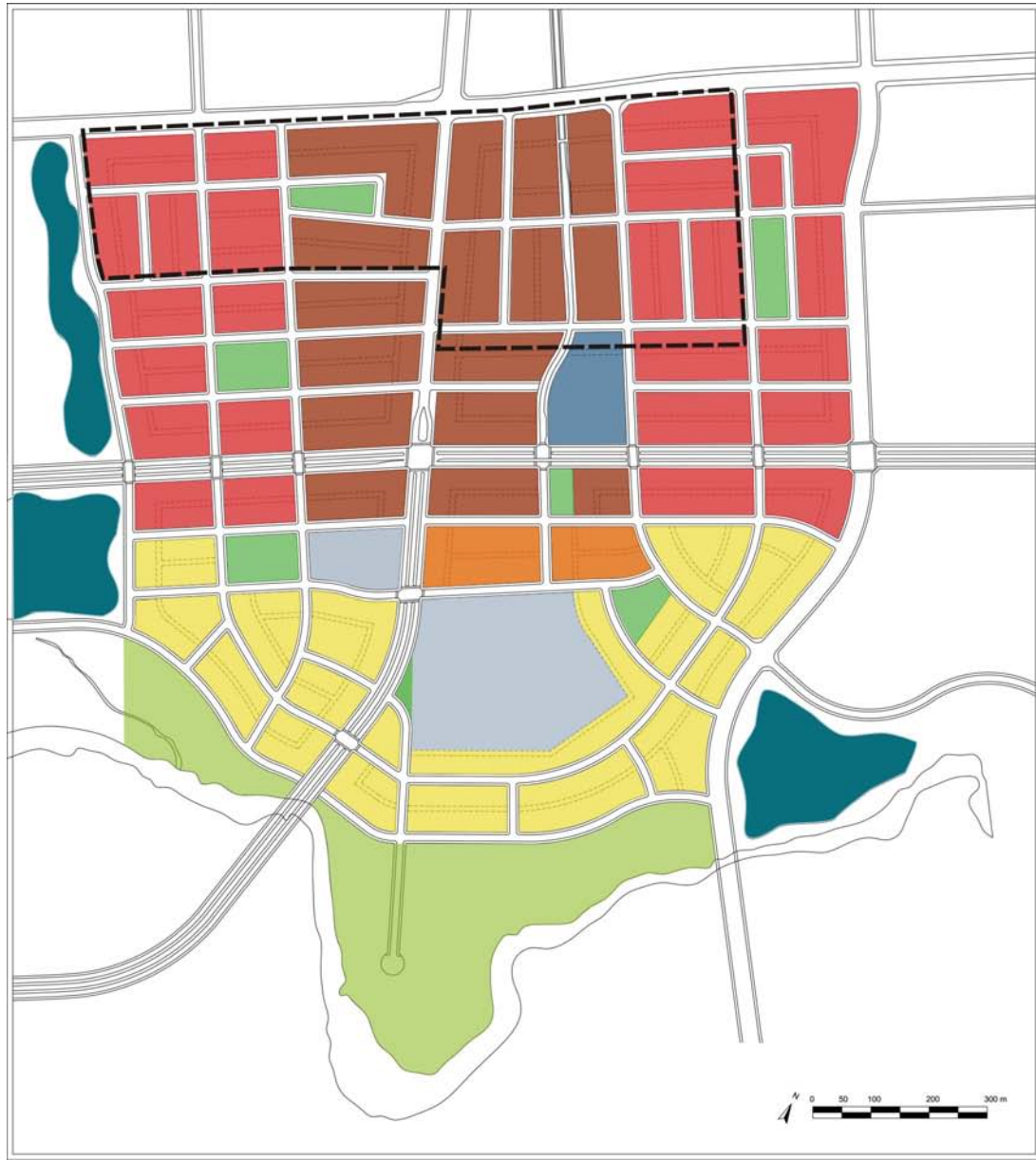
The Mid Rise Mixed-Use policy area represents a lower scale, mixed-use area within the Town Centre with the intent of establishing opportunities for live-work units and medium density housing forms. The Mid Rise Mixed-Use policy area is intended to be a transition between the High Rise Mixed-Use policy area and the adjacent lower density residential neighbourhoods, both within the Town Centre and in surrounding communities.

### Policies

For the Mid Rise Mixed-Use policy area:

- (1) Apartments, live-work units, retail, office and service commercial uses, public and institutional uses, schools, places of worship and community facilities are permitted.
- (2) The minimum building height is 4 storeys and the maximum building height is 6 storeys.
- (3) The net density target for residential uses is 200 units per hectare.
- (4) The maximum lot coverage for stand-alone residential buildings is 50% of the total area of any block.
- (5) The above policies in Section 4.3 or the policies and guidelines of Section 5.0 do not apply to future development in the “Strandherd Retail District” that is permitted by existing zoning or master site plans, provided that such development does not jeopardize the long-term acquisition of the public streets identified on Schedule 2 or public parkland identified on Schedule 5. For this new development, the City will still encourage the consideration of the urban design policies and guidelines in Section 5.0, as they may apply, during the development review process.





**Schedule 1 - Land Use Plan**

- High Rise Mixed-Use
- Mid Rise Mixed-Use
- High Rise Residential
- Mid Rise Residential
- Neighbourhood Park
- District Park
- School
- Civic Complex
- Strandherd Retail District
- Stormwater Management Pond

# Schedules



## Schedule 6 Servicing Network Plan

- Stormwater Management Pond
- Trunk Watermain
- Trunk Storm Sewer
- Wastewater Collector Sewer

# **Appendix C**

Water Supply Servicing

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			504
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 <sup>3</sup> /d	L/min	m <sup>3</sup> /d	L/min	m <sup>3</sup> /d	L/min
<b>Total Domestic Demand</b>	504	141.1	98.0	352.8	245.0	776.2	539.0

**Institutional / Commercial / Industrial Demand**

Property Type	Unit Rate	Units	Avg. Daily		Max Day		Peak Hour	
			m <sup>3</sup> /d	L/min	m <sup>3</sup> /d	L/min	m <sup>3</sup> /d	L/min
Commercial Area	28,000 L/gross ha/d	5.93	166.04	115.3	249.1	173.0	448.3	311.3
Office	75 L/9.3m <sup>2</sup> /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
<b>Total I/CI Demand</b>			166.0	115.3	249.1	173.0	448.3	311.3
<b>Total Demand</b>			<b>307.2</b>	<b>213.3</b>	<b>601.9</b>	<b>418.0</b>	<b>1224.5</b>	<b>850.3</b>

	L/min	L/s
<b>Avg. Daily</b>	213.3	3.56
<b>Max Day</b>	418.0	6.97
<b>Peak Hour</b>	850.3	14.17

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	1,993	3588

	Pop	Avg. Daily		Max Day		Peak Hour	
		m <sup>3</sup> /d	L/min	m <sup>3</sup> /d	L/min	m <sup>3</sup> /d	L/min
<b>Total Domestic Demand</b>	3588	1004.6	697.7	2511.6	1744.2	5525.5	3837.2

**Institutional / Commercial / Industrial Demand**

Property Type	Unit Rate	Units	Avg. Daily		Max Day		Peak Hour	
			m <sup>3</sup> /d	L/min	m <sup>3</sup> /d	L/min	m <sup>3</sup> /d	L/min
Commercial Area*	28,000 L/m <sup>2</sup> /d	8.63	241.64	167.8	362.5	251.7	652.4	453.1
Office	75 L/9.3m <sup>2</sup> /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
<b>Total I/CI Demand</b>			241.6	167.8	362.5	251.7	652.4	453.1
<b>Total Demand</b>			1246.3	865.5	2874.1	1995.9	6177.9	4290.2

\* Mixed Use Area taken as Commercial to account for both Population and Commercial demands

	L/min	L/s
<b>Avg. Daily</b>	865.5	14.42
<b>Max Day</b>	1995.9	33.26
<b>Peak Hour</b>	4290.2	71.50

**Kennedy-Burnett Potable  
Water Master Servicing Study**



Prepared for:  
City of Ottawa  
100 Constellation Crescent  
Ottawa, ON K2G 6G8

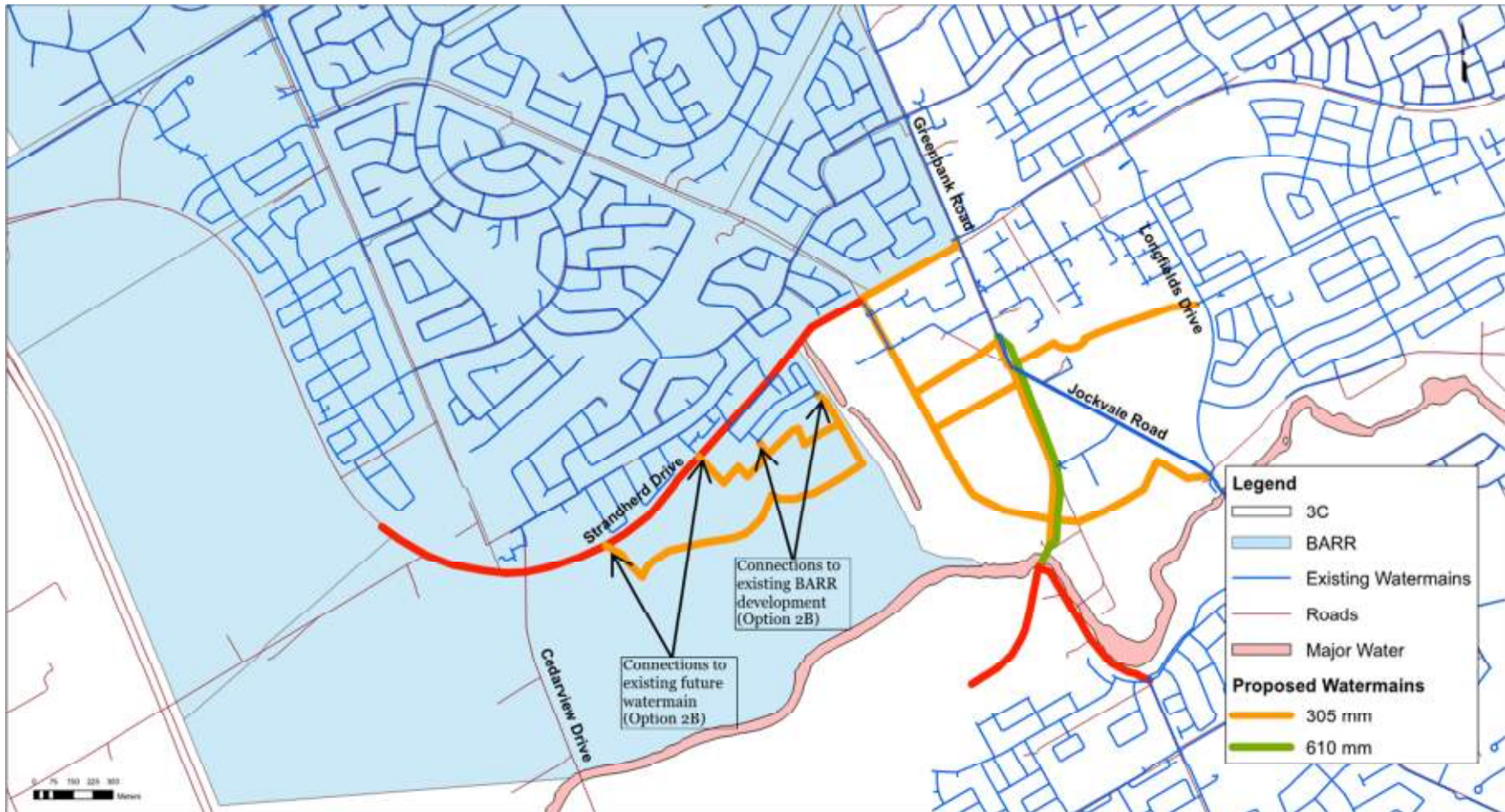
Prepared by:  
Stantec Consulting Ltd.  
400-1331 Clyde Avenue  
Ottawa, ON K2C 3G4

File No. 1634-01221

April 29, 2014

# KENNEDY-BURNETT POTABLE WATER MASTER SERVICING STUDY

Hydraulic Assessment  
April 29, 2014



**Figure 2-6: Proposed Pipe Layout Post Zone Reconfiguration – Scenario 2B**

# **Appendix D**

Wastewater Servicing



**SANITARY SEWER CALCULATION SHEET**

LOCATION: **3194 Jockvale Rd.**  
 FILE REF: **14-735**  
 DATE: **18-Dec-18**

**NEW PROPOSED DESIGN PARAMETERS**

Avg. Daily Flow Res.	280 L/p/d	Peak Fact Res. Per Harmons: Min = 2.0, Max =4.0	Infiltration / Inflow	0.33 L/s/ha	
Avg. Daily Flow Comm.	28,000 L/ha/d	Peak Fact. Comm.	1.5	Min. Pipe Velocity	0.60 m/s full flowing
Park Flow	9,300 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
Harmens Corr Factor	0.8				



Location		Residential Area and Population							Commercial*		Institutional		Park		Infiltration								
Area ID	INFO	Area (ha)	Number of Units				Pop. (ha)	Cumulative		Peak Fact. (-)	Q <sub>res</sub> (L/s)	Area (ha)	Accu. (ha)	Area (ha)	Accu. (ha)	Area (ha)	Accu. (ha)	Q <sub>C+I+I</sub> (L/s)	Total	Accu.	Infiltration	Total	
			Singles	MidRise	Town's	Apt's		Area	Pop.										Area	Area	Area	Area	Flow (L/s)
<b>SNTC CDP JULY 2006</b>		0.000			1993	3587.0	0.000	3587.0	2.90	33.71	8.63	8.63		0.00	0.72	0.72	4.3	10.610	10.610	3.501	41.53	*Includes 1.26 ha of infiltration for collector roads	
<b>3194 JOCKVALE RD. FSR DEC 2018</b>		3.860			240	504.0	3.860	504.0	3.38	5.52	5.93	5.93		0.00		0.00	2.9	10.610	10.610	3.501	11.90	*Includes 0.82 ha of infiltration for collector roads	

\* Mixed Use areas taken as commercial area to account for commercial & population flows

## Engineering

Land / Site  
Development  
Municipal  
Infrastructure  
Environmental /  
Water Resources  
Traffic/  
Transportation  
Structural  
Recreational

## Planning

Land/Site  
Development  
Planning  
Application  
Management  
Municipal  
Planning  
Documents &  
Studies  
Expert Witness  
(OMB)  
Wireless Industry

## Landscape Architecture

Urban Design &  
Streetscapes  
Recreation & Parks  
Planning  
Environmental  
Restoration  
Sustainable Design



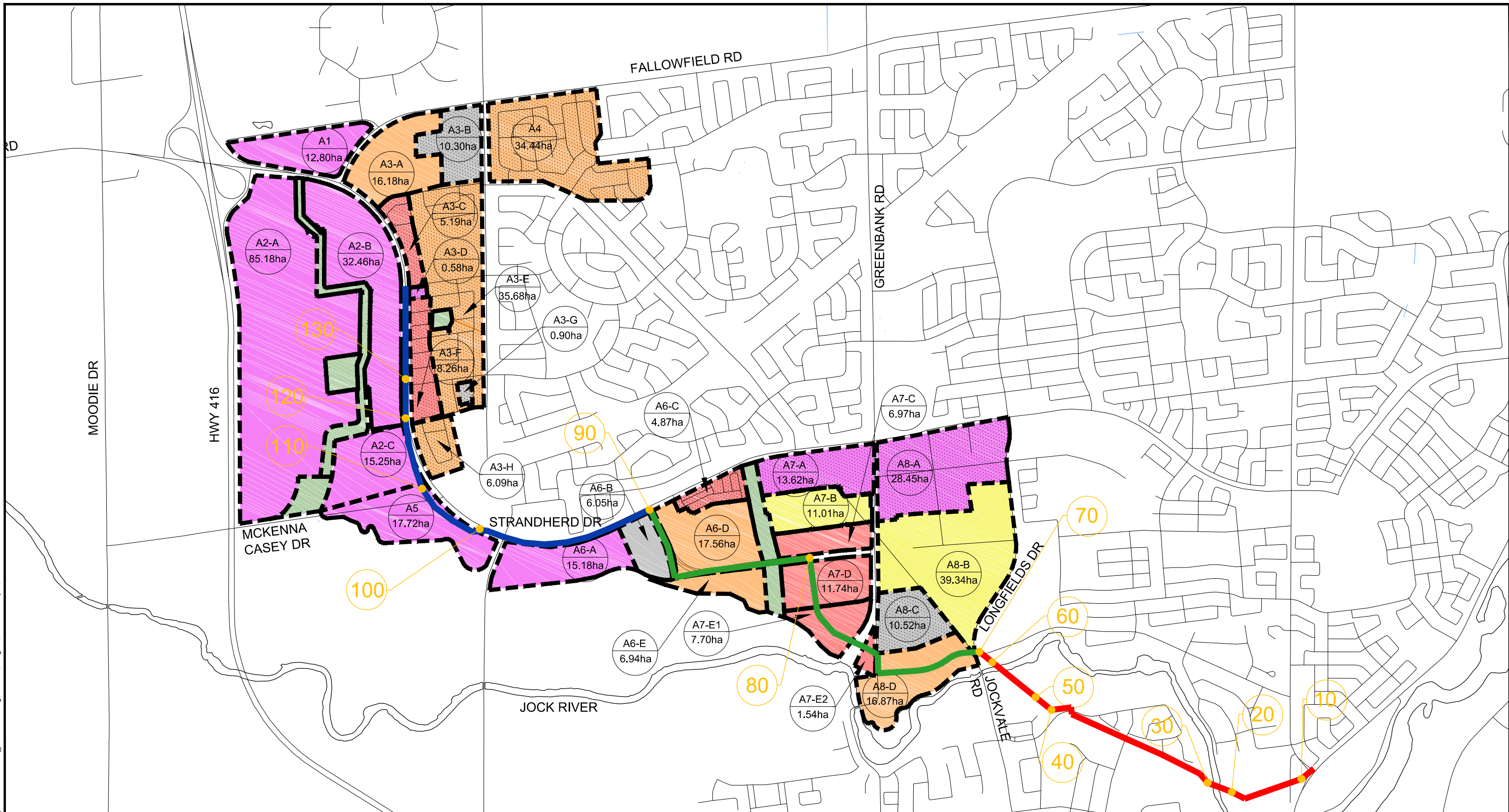
# South Nepean Collector: Phase 2

## Hydraulics Review / Assessment











### Technical Memorandum

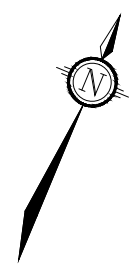
Prepared for the City of Ottawa

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**LEGEND**

- |                                                                                     |                                                |                                                                                      |                                            |
|-------------------------------------------------------------------------------------|------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------|
|  | EXISTING / PROPOSED HIGH DENSITY RESIDENTIAL   |  | OTHER LANDS (OPEN SPACE, PARKS, AND SWMFS) |
|  | EXISTING / PROPOSED MEDIUM DENSITY RESIDENTIAL |  | SOUTH NEPEAN COLLECTOR PHASE 1             |
|  | EXISTING / PROPOSED LOW DENSITY RESIDENTIAL    |  | SOUTH NEPEAN COLLECTOR PHASE 2             |
|  | EXISTING / PROPOSED COMMERCIAL                 |  | SOUTH NEPEAN COLLECTOR PHASE 3             |
|  | EXISTING / PROPOSED INSTITUTIONAL              |  | SOUTH NEPEAN COLLECTOR NODE ID             |



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 Facsimile (613) 254-5867  
 Website www.novatech-eng.com

**SOUTH NEPEAN COLLECTOR SEWER**  
**SANITARY DRAINAGE AREAS AND LAND USE**

SCALE	1:20 000	
DATE	AUG 2015	FIGURE FIG. 1
JOB	115075	

PROJECT #: 115075  
 DESIGNED BY: CMS  
 CHECKED BY: MJP  
 DATE: August 20, 2015

**SANITARY SEWER DESIGN SHEET**

**South Nepean Collector - Phase 2 & 3**

Theoretical Future Full Service Peak Wastewater Flow



Location			Areas				Population				Individual Design Flows			Cumulative Design Flows				
Area I.D.	Existing / Proposed Land Use	Upstream Node	Gross Commercial Area (ha)	Gross Institutional Area (ha)	Gross Residential Area (ha)	Total Gross Area (ha)	Residential Population Density (people / ha)	Individual Residential Population	Cumulative Residential Population	Residential Peaking Factor (Harmon Eqn <sup>1</sup> )	Commercial Peak Flow Rate <sup>2</sup> (50,000 L/ha/d) (L/s)	Institutional Peak Flow Rate <sup>2</sup> (50,000 L/ha/d) (L/s)	Infiltration / Inflow Rate (0.28 L/s/ha) (L/s)	Commercial (L/s)	Institutional (L/s)	Infiltration / Inflow (L/s)	Residential Peak Flow Rate (350 L/cap/d) (L/s)	Cumulative Peak Design Flow (L/s)
A1	Commercial	130	12.80			12.80					11.1	0.0	3.6	11.1	0.0	3.6	0.0	14.7
A2-A	Commercial	130	85.18			85.18					73.9	0.0	23.9	85.1	0.0	27.4	0.0	112.5
A2-B	Commercial	130	32.46			32.46					28.2	0.0	9.1	113.2	0.0	36.5	0.0	149.8
A3-A	Low Density Residential	130			16.18	16.18	95.2	1540	1540	3.67	0.0	0.0	4.5	113.2	0.0	41.1	22.9	177.2
A3-B	Institutional	130		10.30		10.30		1540	1540	3.67	0.0	8.9	2.9	113.2	8.9	43.9	22.9	189.0
A3-C	Medium Density Residential	130			5.19	5.19	162.0	841	2381	3.53	0.0	0.0	1.5	113.2	8.9	45.4	34.0	201.6
A3-D	Commercial	130	0.58			0.58			2381	3.53	0.5	0.0	0.2	113.7	8.9	45.6	34.0	202.2
A3-E	Low Density Residential	130			35.68	35.68	95.2	3397	5778	3.19	0.0	0.0	10.0	113.7	8.9	55.5	74.6	252.8
A3-F	Medium Density Residential	130			8.26	8.26	162	1338	7116	3.10	0.0	0.0	2.3	113.7	8.9	57.9	89.4	269.9
A3-G	Institutional	130		0.90		0.90			7116	3.10	0.0	0.8	0.3	113.7	9.7	58.1	89.4	270.9
A4	Low Density Residential	130			34.44	34.44	95.2	3279	10395	2.94	0.0	0.0	9.6	113.7	9.7	67.8	123.7	314.9
A2-C	Commercial (ex. snow dump)	120	15.25			15.25			10395	2.94	13.2	0.0	4.3	127.0	9.7	72.0	123.7	332.4
A3-H	Low Density Residential	120			6.09	6.09	95.2	580	10974	2.91	0.0	0.0	1.7	127.0	9.7	73.7	129.6	340.0
A5	Commercial	110	17.72			17.72			10974	2.91	15.4	0.0	5.0	142.4	9.7	78.7	129.6	360.3
A6-A	Commercial	100	15.18			15.18			10974	2.91	13.2	0.0	4.3	155.5	9.7	82.9	129.6	377.8
A6-B	Institutional	100		6.05		6.05			10974	2.91	0.0	5.3	1.7	155.5	15.0	84.6	129.6	384.7
A6-C	Medium Density Residential	90			4.87	4.87	162.0	789	11763	2.88	0.0	0.0	1.4	155.5	15.0	86.0	137.4	393.9
A6-D	Low Density Residential	90			17.56	17.56	95.2	1672	13435	2.83	0.0	0.0	4.9	155.5	15.0	90.9	153.8	415.2
A6-E	Low Density Residential	90			6.94	6.94	95.2	661	14096	2.81	0.0	0.0	1.9	155.5	15.0	92.9	160.2	423.6
A7-A	Commercial	90	13.62			13.62			14096	2.81	11.8	0.0	3.8	167.4	15.0	96.7	160.2	439.2
A7-B	High Density Residential	90			11.01	11.01	135.0	1486	15582	2.76	0.0	0.0	3.1	167.4	15.0	99.8	174.3	456.4
A7-C	Medium Density Residential	90			6.97	6.97	162.0	1129	16711	2.73	0.0	0.0	2.0	167.4	15.0	101.7	184.9	468.9
A7-D	Medium Density Residential	90			11.74	11.74	162.0	1902	18613	2.68	0.0	0.0	3.3	167.4	15.0	105.0	202.4	489.7
A7-E1/E2	Medium Density Residential	90			9.24	9.24	162.0	1497	20110	2.65	0.0	0.0	2.6	167.4	15.0	107.6	215.9	505.8
A8-A	Commercial	80	28.45			28.45			20110	2.65	24.7	0.0	8.0	192.0	15.0	115.5	215.9	538.5
A8-B	High Density Residential	80			39.34	39.34	135.0	5311	25421	2.55	0.0	0.0	11.0	192.0	15.0	126.6	262.4	596.0
A8-C	Institutional	80		10.52		10.52			25421	2.55	0.0	9.1	2.9	192.0	24.1	129.5	262.4	608.1
A8-D	Low Density Residential	80			16.87	16.87	120.9	2040	27461	2.52	0.0	0.0	4.7	192.0	24.1	134.2	279.8	630.2
ROW Along SNC Sewer Alignment	-	80				14.34			27461	2.52	0.0	0.0	4.0	192.0	24.1	138.2	279.8	634.2
<b>TOTAL</b>		<b>80</b>	<b>221.24</b>	<b>27.77</b>	<b>230.38</b>	<b>493.73</b>	<b>-</b>	<b>27461</b>	<b>27461</b>	<b>2.52</b>	<b>192.0</b>	<b>24.1</b>	<b>134.2</b>	<b>192.0</b>	<b>24.1</b>	<b>138.2</b>	<b>279.8</b>	<b>634.2</b>

Residential Land Use	Population Density (Units / ha)	Persons per Unit	Persons per ha
Low Density (singles and semis)	26 – 28 (28 used)	2.7 – 3.4 (3.4 used)	95.2
Medium Density (row/townhouse)	50 – 60 (60 used)	2.7	162.0
High Density (apartments)	60 – 75 (75 used)	1.8	135.0

Notes:

- Harmon Equation =  $1 + [14 / (4 + (P/1000)^{1/2})] \times K$   
 Where: P = population; K = correction factor = 1.0
- Institutional / Commercial Peaking Factor = 1.5

Reported Design Flows / Assumptions:

- Area A4: Existing single family units currently serviced by Jockvale pump station to be redirected to SNC
- Area A8-D: proposed 600 medium density residential units

# **Appendix E**

Stormwater Management Servicing

FINAL REPORT

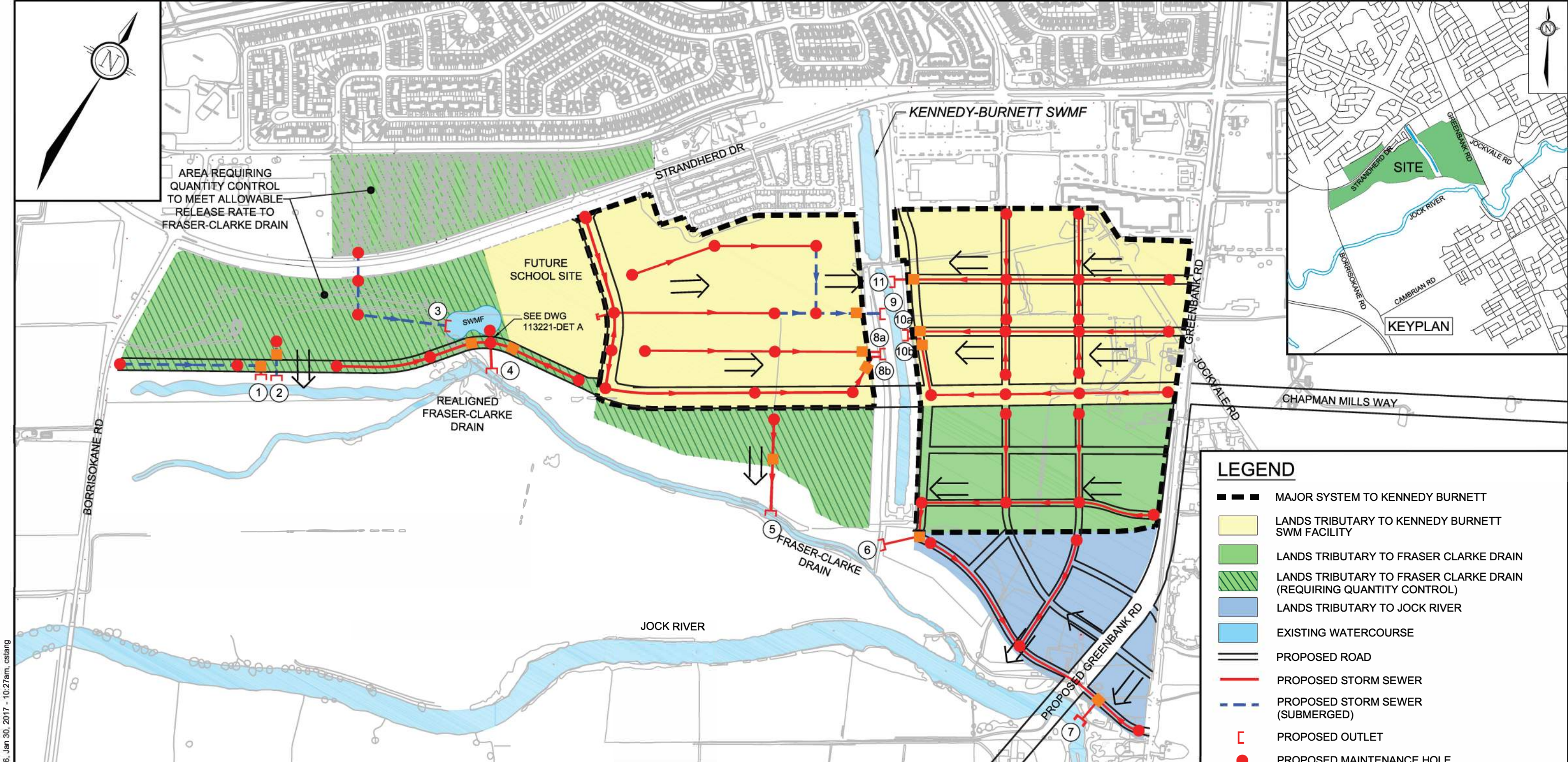
# Kennedy-Burnett Stormwater Management Facility Project File and Functional Design Report

*Prepared for*  
City of Ottawa

February 17, 2017



CH2M Hill Canada Ltd.  
1101 Prince of Wales Drive  
Suite 330  
Ottawa, ON K2C 3W7



**LEGEND**

- MAJOR SYSTEM TO KENNEDY BURNETT
- LANDS TRIBUTARY TO KENNEDY BURNETT SWM FACILITY
- LANDS TRIBUTARY TO FRASER CLARKE DRAIN
- LANDS TRIBUTARY TO FRASER CLARKE DRAIN (REQUIRING QUANTITY CONTROL)
- LANDS TRIBUTARY TO JOCK RIVER
- EXISTING WATERCOURSE
- PROPOSED ROAD
- PROPOSED STORM SEWER
- PROPOSED STORM SEWER (SUBMERGED)
- PROPOSED OUTLET
- PROPOSED MAINTENANCE HOLE
- PROPOSED HYDRO DYNAMIC SEPARATOR (HDS)
- MAJOR OVERLAND FLOW DIRECTION

OUTLET										
ID	WATER COURSE	DRAINAGE AREA	NWL	PIPE INVERT	PIPE SIZE	PEAK FLOW *CONTROLLED	SUBMERGED SEWERS	DEPTH TO OBVERT	MAX GRADE RAISE	STM HGL (D/S - U/S)
1	FRASER-CLARKE DRAIN	0.97 ha	90.25	90.15	600mm	28 L/s*	75m	1.5m	1.1m	91.75m - 92.30m
2	FRASER-CLARKE DRAIN	5.34 ha	90.25	89.85	965 x 1525mm ELLIPTICAL	187 L/s*	400m	1.5m	0.9m	91.75m - 92.20m
3	MINTO SWM POND	14.64 ha	90.00	89.81	1220mm x 1930mm ELLIPTICAL	1,785 L/S	195m	1.5m	0.8m	91.65m - 92.23m
4	FRASER-CLARKE DRAIN	1.29 ha + 14.64 ha	89.90	89.90	1050mm	692 L/S*	0m	1.5m	1.0m	91.65m - 92.25m
5	FRASER-CLARKE DRAIN	6.49 ha	89.87	89.87	965 x 1525mm ELLIPTICAL	363 L/S*	0m	1.8m	0.9m	91.65m - 92.00m
6	FRASER-CLARKE DRAIN	11.83 ha	89.90	89.90	1220mm x 1930mm ELLIPTICAL	1,649 L/S	0m	1.8m	0.8m	91.75m - 92.65m
7	JOCK RIVER	9.24 ha	89.20	89.20	965 x 1525mm ELLIPTICAL	1,252 L/S	0m	1.8m	0.1m	91.60m - 92.45m
8A	KENNEDY-BURNETT SWMF	6.58 ha	90.20	90.20	1050mm	915 L/S	0m	1.5m	0.9m	91.80m - 92.80m
8B	KENNEDY-BURNETT SWMF	2.44 ha	90.20	90.20	825mm	444 L/S	0m	1.8m	0.9m	91.80m - 92.76m
9	KENNEDY-BURNETT SWMF	15.49 ha	90.20	90.00	1220mm x 1930mm ELLIPTICAL	2,034 L/S	200m	1.5m	1.2m	91.90m - 93.18m
10A	KENNEDY-BURNETT SWMF	6.68 ha	90.20	90.20	1050mm	928 L/S	0m	2.0m	0m	91.80m - 92.80m
10B	KENNEDY-BURNETT SWMF	2.07 ha	90.20	90.20	825 mm	365 L/S	0m	2.0m	0m	91.80m - 92.78m
11	KENNEDY-BURNETT SWMF	10.90 ha	90.20	90.20	1220mm x 1930mm ELLIPTICAL	1,892 L/S	0m	1.8m	0.3m	91.90m - 92.78m

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 Facsimile (613) 254-5867  
 Website www.novatech-eng.com

**KENNEDY-BURNETT SWMF  
SERVICING OPTIONS**

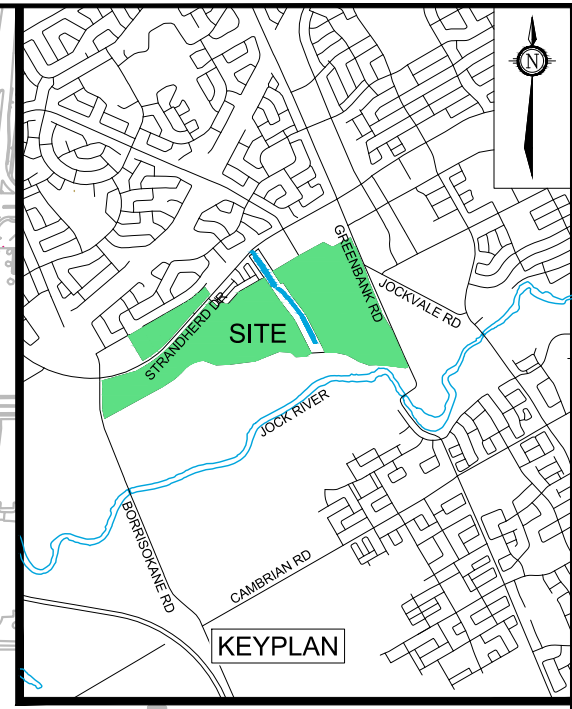
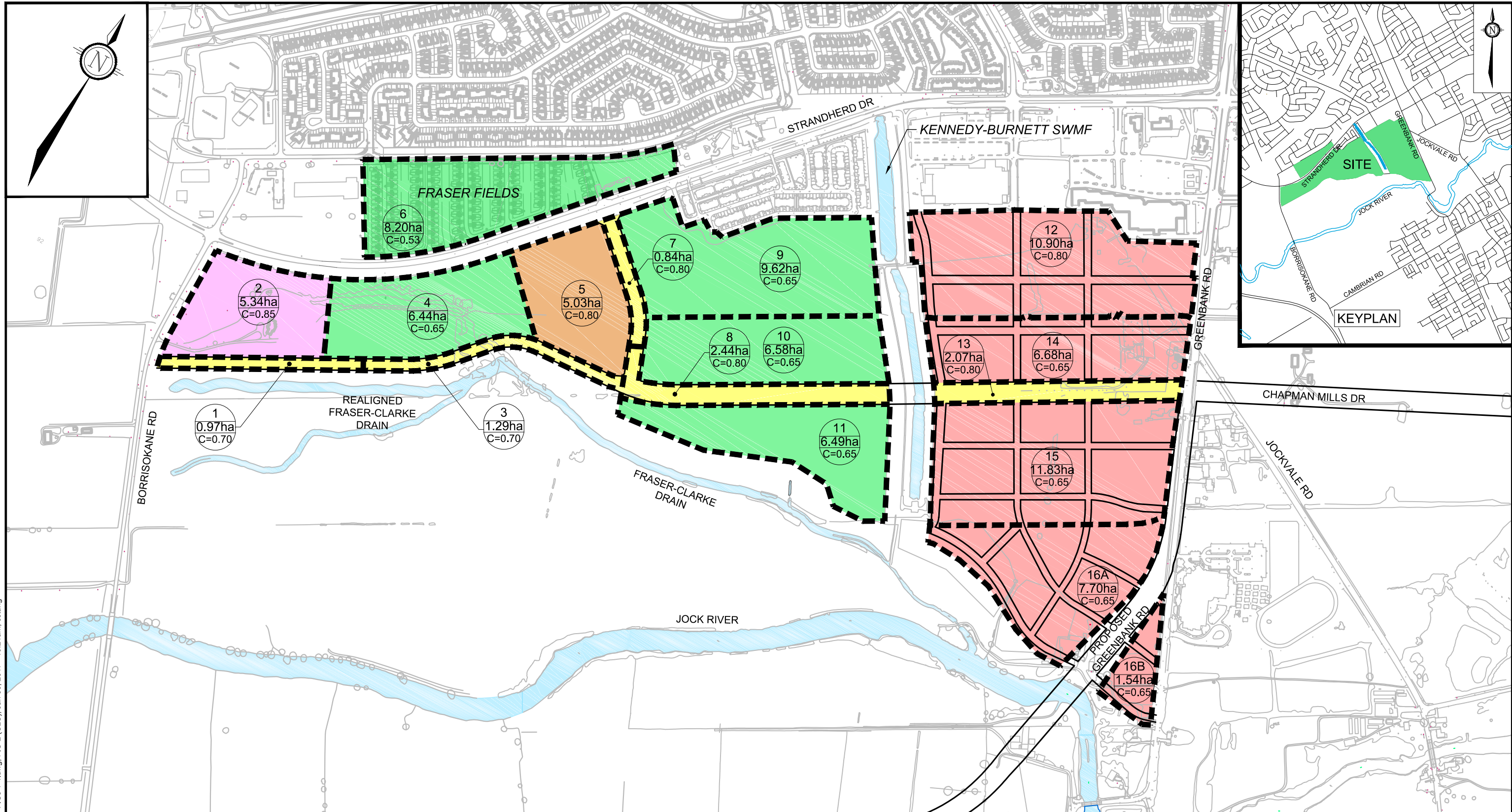
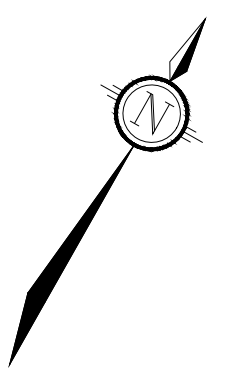
**OPTION 4: HYBRID EXPANDED  
K-B SWMF / HDS UNITS**

SCALE 1 : 7500

DATE JAN 2017 JOB 113221 FIGURE FIG 5-1

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CUT 1:1 V17 DWG 270mm x 420mm



**LEGEND**

- MIXED RESIDENTIAL (AS PER SOUTH NEPEAN CDP)
- LOW / MEDIUM DENSITY RESIDENTIAL
- INSTITUTIONAL
- COMMERCIAL
- CHAPMAN MILLS DRIVE / BUS RAPID TRANSIT (BRT)
- EXISTING WATERCOURSE
- PROPOSED ROAD
- 6  
8.20ha  
C=0.53 CATCHMENT ID  
DRAINAGE AREA  
RUNOFF COEFFICIENT



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Ottawa, Ontario, Canada K2M 1P6

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Website [www.novatech-eng.com](http://www.novatech-eng.com)

**KENNEDY-BURNETT SWMF  
SERVICING OPTIONS**

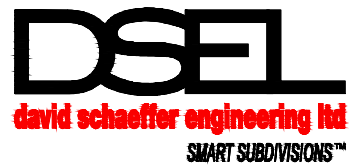
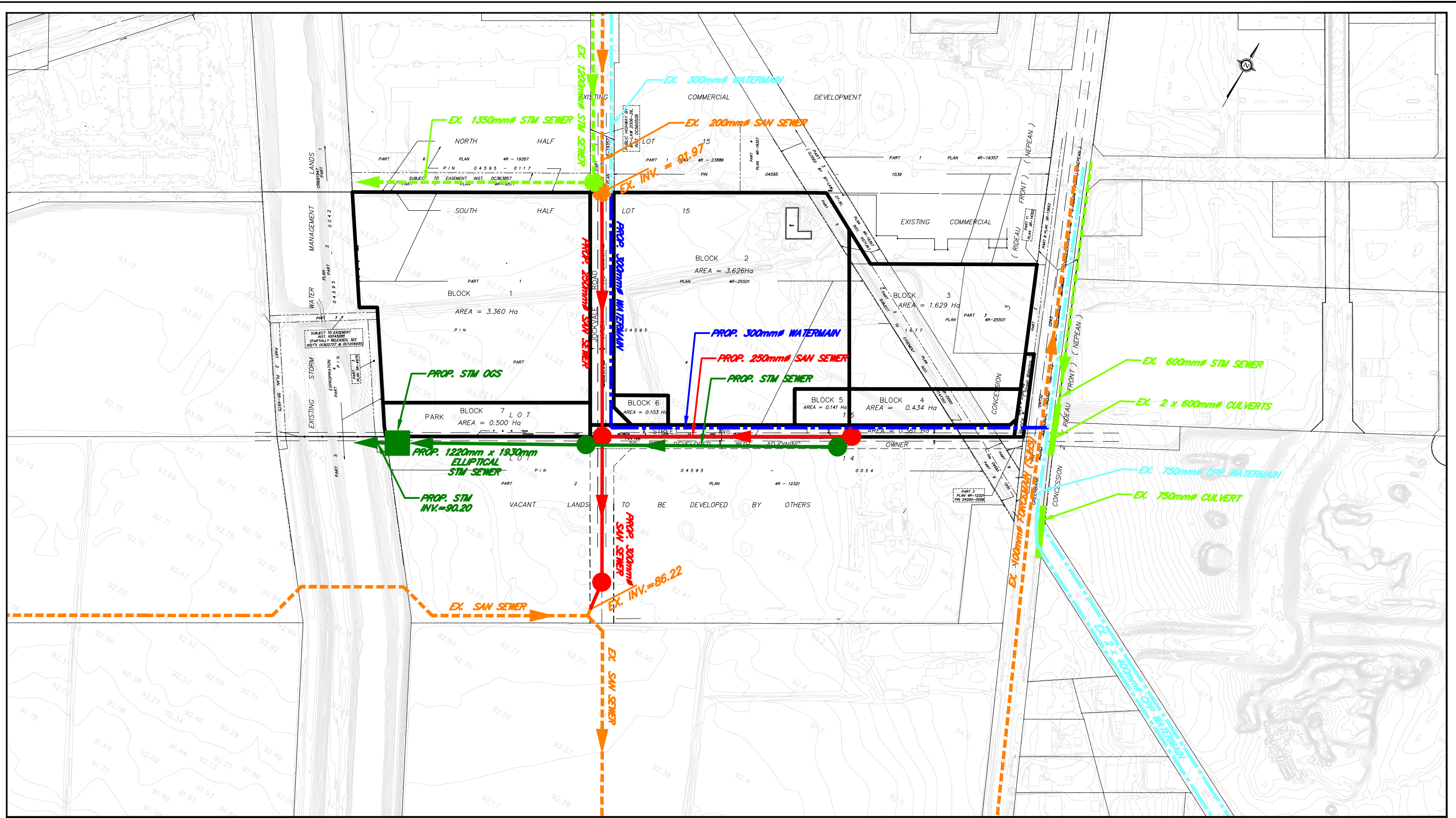
**CONCEPTUAL LAND USE**

SCALE	1 : 7500	
DATE	JAN 2017	FIGURE
JOB	113221	FIGURE
		FIG. 2

M:\2013\113221\CAD\Design\Figures\SWM\113221-FIGs 1-4.dwg, FIG-2 (CLU), Jan 30, 2017 - 10:21am, cslang



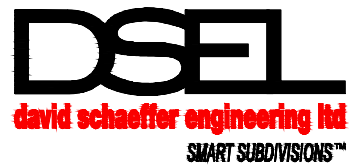
# FIGURES



120 Iber Road, Unit 103  
 Stittsville, ON K2S 1E9  
 TEL: (613) 836-0856  
 FAX: (613) 836-7183  
 www.DSEL.ca

# SITE SERVICING PLAN

PROJECT No.:	15-735
SCALE:	1:3000
DATE:	DECEMBER 2018
FIGURE:	1



120 Iber Road, Unit 103  
 Stittsville, ON K2S 1E9  
 TEL: (613) 836-0856  
 FAX: (613) 836-7183  
 www.DSEL.ca

# GRADING PLAN

PROJECT No.:	15-735
SCALE:	1:3000
DATE:	DECEMBER 2018
FIGURE:	2