Kollaard Associates
Engineers
210 Prescott Street, Unit 1
P.O. Box 189
Kemptville, Ontario K0G 1J0

Civil • Geotechnical •
Structural • Environmental •
Hydrogeology

(613) 860-0923
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SERVICING FEASIBILITY REPORT
PROPOSED INDUSTRIAL WAREHOUSE DEVELOPMENT
6622 BANK STREET
CITY OF OTTAWA, ONTARIO

Prepared For:

CAMM Machinery and Rentals Inc.
6622 Bank Street
Ottawa, Ontario
K0A 2P0

PROJECT #: 230156

DISTRIBUTION
City of Ottawa
CAMM Machinery and Rentals Inc.
Kollaard Associates

Rev 0 – Issued for Site Plan Approval	July 31, 2024
Rev 1 – Response to City Planner Comments	October 7, 2024
Rev 2 – Response to SPC Comments	January 10, 2025

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APPENDICES

1 INTRODUCTION

Kollaard Associates was retained by CAMM Warehousing and Rentals Inc. to complete a Servicing Feasibility Report for a proposed industrial development to be located at 6622 Bank Street, Ottawa, Ontario. This report will address the serviceability of the proposed industrial warehouse development with respect to the water and sanitary demands, as well as outline the proposed design to meet these requirements.

For the purposes of this report, Bank Street is considered to be oriented along a north-south axis. The proposed development site is located along the west side of Bank Street. The site is approximately rectangular in shape and extends about 250 metres from Bank Street. The site has a total area of 6.019 hectares and was formerly cleared for agricultural purposes.

1.1 Background

This site is the location of a previous development. The existing development consists of a warehouse building (Building #1) with a footprint of 2310 square metres and an attached office with a footprint of 191 square metres. This development also included on-site servicing works. A full description of these works is available in the previous combined Servicing Design and Stormwater Management Brief. Presently, the site is serviced by means of a private onsite septic system and a drilled well. In addition, fire water storage is provided with onsite cast in place tanks.

1.2 Proposed Development

The proposed further development of the site will contain a warehouse building (Building #2) with a total footprint of 2174 square metres which includes accessory office space at the front (east) of the building. This building will face Bank Street in the southeast corner of the property.

An additional warehouse building (Building #3) with a total footprint of 2174 square metres will be located on the south side of the property. This building will be located west of Building #2 and east of the hydro easement which crosses diagonally the southeast corner of the site.

1.3 Proposed Servicing

The proposed development will be serviced by means of a private onsite septic system, and a drilled well. Fire water storage is to be provided by underground storage tanks.

The existing septic system onsite is designed to provide services to Building #1 and does not have the capacity to service the additional construction. The existing drilled well does have sufficient capacity to service the additional construction.

2 SANITARY DESIGN

As previously indicated, the proposed development will be occupied by two buildings each having a footprint of 2,174 square metres. Building #2 will have an accessory office space at the

front of the building. Building #3 is entirely for storage and will be serviced with a single water closet in the southeast corner of the building.

2.1 Septic Design

Sanitary sewage will be disposed of by an on-site Class 4 sewage system with a level IV treatment unit. The on-site system will include a shallow buried trench disposal field preceded by a Waterloo Biofilter treatment system.

2.2 Design Flows

The sanitary sewage flow for the development was calculated based on the Ontario Building Code (O.B.C Table 8.2.1.3B) for the proposed occupancy. The calculations are provided in Table 3.1 on the following page.

Table 3.1 Sanitary Flow Demand Calculations

	Establishment	*Volume, L*	*Quantity*	*Flow*
	Office Building			
	a) per employee per 8 hour shift, or	75	8	600 L/day
x	b) per each 9.3 m^2 of floor space	75	(105 m^2 / 9.3 m^2)	900 L/day
	Warehouse			
x	a) per water closet, and	950	1	950 L/day
x	a) per loading bay	150	9	1350 L/day
	Total Daily Residential Sewage Design Flow =			**3200 litres/day**

A sewage system application has been prepared for approval through the Ottawa Septic System Office. Details can be found on the septic design plan prepared by Kollaard Associates. The septic system design has been submitted to the Ottawa Septic Office for Permit.

2.3 Consideration for In-Floor Drainage

In Buildings #2 and #3 trench drainage is to be provided at each of the overhead doors. This drainage is to capture snowmelt and other water from vehicle traffic. This runoff is considered contaminated by salts and oils present on driving surfaces. As such it will be detained in a subterranean storage tank. This tank will be fitted with a high level alarm. When the storage tank is full, the volume will be pumped out by a licensed waste water handler and transferred to an appropriate treatment facility.

3 WATER DEMAND

3.1 Commercial

The facility is to be serviced by the existing drilled well located as shown on Kollaard Associates Inc drawing 230156-SER. The Ministry of Environment Conservation and Parks (MECP) Well Record for this well indicates that the recommended pump rate for this well is 10 gpm (37.9 litres/minute). The water is currently in use for the existing development on the site and is known to be potable.

The water demand is calculated using the information from the sewage system daily design flow and the City of Ottawa Water Distribution Guidelines, 2010. The sewage design flows for the current development are calculated in Section 3 above and provide a total daily flow of 3200 litres/day. Also to be considered are the sewage flows for the existing development. According to the permit obtained for the existing development the design flow for the existing septic system is equal to 3250 litres/day. For convenience a reproduction of the approved permit has been attached to this document as Appendix A. The total septic design flow for the entire site will be 6450 litres/day.

Since septic system design is based on the maximum expected daily use, it is equivalent to the Maximum Daily Demand (MDD). The MDD is based on an eight hour operation schedule. This assumes that the full day usage occurs over an eight hour period rather than a twenty-four hour period.

The City of Ottawa calculates the Maximum Hour Demand (MHD) for commercial or industrial demand to be 1.8 x MDD. Calculations for MDD and MHD are presented below.

$$MDD = \frac{6450\ litres}{1\ day} x\ \frac{1\ day}{8\ hours}\ x\ \frac{1\ hour}{60\ minutes} \qquad MDD = 13.4 \frac{litres}{minute}$$

$$MHD = 1.8\ x\ 13.4 \frac{litres}{minute} \qquad MHD = 24.2 \frac{litres}{minute}$$

Based on the above calculations, the Maximum Hourly Demand of 24.2 litres/minute is well below the recommended pump rate of 37.9 litres/minutes. As such the existing pump will be more than sufficient to service the entire development.

To ensure proper servicing to the new construction, a seamless 1.25” polyethylene pipe rated at 160 psi shall be installed between the well and the building at a depth of at least 2.4m.

3.2 Water Demand for Fire Protection

There is no municipal water supply at the site. Fire protection will be provided by providing a fire access route and an onsite water supply for firefighting.

3.2.1 Fire Water Storage Design Rationale

For the City of Ottawa, water demand requirements for fire protection are governed by Section 4.2.11 of the Ottawa Design Guidelines – Water Distribution. A revision to this section was published in Technical Bulletin ISTB-2021-03 which stated that "The requirements for levels of fire protection on private property in rural areas are based on the [Fire Underwriters Survey (FUS)] method in all cases." Since the publication of ISTB-2021-03, the City of Ottawa has undertaken a review of the applicability of the FUS calculation in the rural context.

On June 28th, 2024 the City of Ottawa circulated a draft memo which intended to support a forthcoming Technical Bulletin which would provide clarity on the applicability of FUS calculations in the rural context. This document, titled "Revision 2 – Memo accompanying forthcoming Rural fire technical bulletin", contains guidance on the parameters which will determine whether fire storage should be calculated using FUS calculations or with calculations according to the Ontario Building Code (OBC). A copy of this memo is included with this report as Appendix B.

This memo is currently circulated as a draft, however indication was given to Kollaard Associates on July 10th, 2024 that calculations based on this draft information would be accepted for fire water storage requirements for this development. Email correspondence between the City of Ottawa and Kollaard Associates are attached as Appendix C of this report.

Guidance for sites located outside of a pressurized hydrant network is given on page 2 of the report. As this site does not meet the requirements for FUS Superior Tanker Shuttle, OBC method is recommended to calculate the fire flow. These calculations are discussed further in the next section. The result of those calculations indicates that the required flow rate is less than 9,000 litres per minute. This results in a storage volume requirement equal to the storage volume requirement as per OBC calculations.

3.2.2 OBC Fire Water Storage Requirements

As previously discussed, fire water storage requirements were determined using the OBC. The calculation sheet is attached in Appendix D of this report.

Each of the proposed buildings has a total footprint of 2174 square metres and a total building volume of 15,870 cubic metres. The type of construction and occupancy are identical. It is considered that it is unlikely that both buildings will be on fire simultaneously due to the amount of separation between them. According to the provided OBC calculations the minimum water supply requirement for firefighting purposes is 270,000 litres and the minimum flow rate is 6,300 litres per minute.

3.2.3 Fire Water Storage and Dry Hydrant Locations

Fire water storage will be provided by the existing fire water storage tank for the previous development which has a capacity of 270,000 litres. One dry hydrant will be installed near the fire water storage tanks and one dry hydrant will be installed near the corner of the existing fence in the centre of the site ensuring sufficient capacity and flow are available for all firefighting scenarios. The location of this tank and the dry hydrants are shown on Kollaard Associates Inc. drawing 230156-SER. The placement of these items was determined through consultation with the Ottawa Fire Service. Email correspondence related to this determination has been attached to this brief as Appendix E.

These dry hydrants will be connected by means of a supply main consisting of 200 mm PVC DR18 C900 Class 235 gasketed pressure pipe. Two dry hydrants will be connected to the supply main using factory tees and 152 mm diameter leads. The proposed fire hydrants will be connected to the fire protection supply main in keeping with City of Ottawa STD W54.

4 CONCLUSIONS

The water and sanitary demands for the proposed development will be met by private services.

The sanitary demand will be met with an onsite Class 4 sewage system with a level IV treatment unit. The onsite system will include a pressurized shallow buried trench system preceded by a Waterloo Biofilter treatment unit and an anaerobic digester. The daily design flow for the entire site is below 10,000 litres per day. Therefore an application will be made to the Ottawa Septic System Office for the construction of the septic system.

The domestic water demand will be met by the existing drilled will on site. The water demand for firefighting purposes will be met with underground water storage tanks.

We trust that this report provides sufficient information for your present purposes. If you have any questions concerning this report please do not hesitate to contact our office.

Sincerely,
Kollaard Associates Inc.

Steve deWit, P.Eng.

Appendix A: Existing Septic Permit

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17-207
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Kollaard Associates
Engineers

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210 Prescott Street Unit 1
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Kemptville, Ontario
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(613) 860-0923
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www.kollaard.ca
info@kollaard.ca

R.V.C.A. RECEIVED
JUN 12 2017
REFER TO:

Date: June 6, 2017 *File # 170035*

Attention:
Mr. Terry Davidson, P.Eng
Rideau Valley Conservation
3889 Rideau Valley Drive
Manotick, ON
K4M 1A5

****COMMERCIAL****

Proposed Sewage System
6622 Bank Street
R.Plan 4R-25595, Parts 1 - 3
Lot 13, Conc. 6
Osgoode
City of Ottawa

Owner: CAMM Warehousing and Rentals Inc

Dear: Mr. Davidson

Please find attached the onsite septic system application package for the above noted client and property.

Included in the package are the:
- Ontario Building Code Forms
- Relevant Schedules
- Relevant Drawings

SEPTIC PERMIT COPY
☐ APPLICANT
☐ TOWNSHIP / CITY
☐ FILE
☒ OTHER Kollaard

Yours Sincerely,

Kaleb Lakew, P.Eng.

Ottawa Septic System Office / Bureau des systèmes septiques d'Ottawa

Application for a Permit to Construct or Demolish

This form is authorized under subsection 8(1.1) of the Building Code Act

For use by Principal Authority

Application Number:	Permit Number (if different):
Date received:	Roll number:

Application submitted to: **OTTAWA SEPTIC SYSTEM OFFICE**
(Name of municipality, upper-tier municipallity, board of health or conservation authority)

A. Project information

Building number, street name:	Unit number:	Lot/con.
6622 Bank Street	**--**	**13 / 6**

Municipality	Postal code:	Plan number/other description
Osgoode	**--**	**Parts 1 - 3 Plan 4R-25595**

Project value est. $	Area of work (m^2)

B. Purpose of application

☒ New construction ☐ Addition to an existing building ☐ Alteration / repair ☐ Demolition ☐ Conditional Permit

Proposed use of Building	Current use of Building
Light Industrial Building	

Description of proposed work

On-Site Septic System

C. Applicant

Applicant is: **Authorized agent of Owner**

Last name	First name	Corporation or partnership	
' --	**' --**	**Kollaard Associates Inc.**	
Street address		Unit number:	Lot/con.
Box 189, 210 Prescott St.		**1**	**--**
Municipality	Postal code:	Province	E-mail
Kemptville	**K0G 1J0**	**ON**	**info@kollaard.ca**
Telephone number	Fax		Cell number
(613) 860-0923	**(613) 258-0475**		**' --**

D. Owner (if different from applicant)

Last name	First name	Corporation or partnership	
		CAMM Warehousing & Rentals Inc	
Street address		Unit number:	Lot/con.
3460 Rideau Road			**--**
Municipality	Postal code:	Province	E-mail
Ottawa	**K1G 3N4**		
Telephone number	Fax		Cell number
613-822-2073			

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E. Builder (optional)

Last name	First name	Corporation or partnership (if applicable)	
Street address		Unit number:	Lot/con.
Municipality	Postal code:	Province	E-mail
Telephone number	Fax		Cell number

F. Tarion Warranty Corporation (Ontario New Home Warranty Program)

i. Is proposed construction for a new home as defined in the Ontario New Home Warranties Plan Act? If no, go to section G. ☐ Yes ☐ No

ii. Is registration required under the *Ontario New Home Warranties Plan Act*? ☐ Yes ☐ No

iii. If yes to (ii) provide registration number(s): _____

G. Required Schedules

i. Attach Schedule 1 for each individual who reviews and takes responsibility for design activities.

ii. Attach Schedule 2 where application is to construct on-site, install or repair a sewage system.

H. Completeness and compliance with applicable law

i. This application meets all the requirements of clauses 1.3.13 (5) (a) to (d) of Division C of the Building Code (the application is made in the correct form and by the owner or aurthorized agent, all applicable fields have been completed on the application and required schedules, and all required schedules are submitted). ☒ Yes ☐ No

Payment has been made of all fees that are required, under applicable by-law, resolution or regulation made under clause 7(1)(c)of *Building Code Act, 1992*, to be paid when the application is made. ☒ Yes ☐ No

ii. This application is accompanied by the plans and specifications prescribed by the the applicable by-law, resolution or regulation made under clause 7(1)(b) of *Building Code Act, 1992* ☒ Yes ☐ No

iii. This application is accompanied by the information and documents prescribed by-law, resolution or regulation made under clause 7(1)(b) of the *Building Code Act, 1992* which enable the chief building offical to determine whether the proposed building, construction or demolition will contravene any applicable law. ☒ Yes ☐ No

iv. The proposed building, construction or demolition will not contravene any applicable law. ☒ Yes ☐ No

I. Declaration of applicant

I **Kaleb Lakew, P.Eng.** declare that:

1. The information contained in this application, attached schedules, attached plans and specifications,and other attached documentation is true to the best of my knowledge.
2. If the owner is a corporation or partnership, I have authority to bind the corporation or partnership.

June 7/2017
Date

Signature of applicant

Personal information contained in this form and schedules is collected under the authority of subsection 8(1.1) of the Building Code Act, 1992, and will be used in the administration and enforcement of the Building Code Act, 1992. Questions about the collection of personal information may be addressed to: a) the Chief Building Official of the municipality or upper-tier municipality to which this application is being made, or, b) the inspector having the powers and duties of a chief building official in relation to sewage systems or plumbing for an upper-tier municipality, board of health or conservation authority to whom this application is made, or, c) Director, Building and Development Branch, Ministry of Municipal Affairs and Housing 777 Bay St., 2nd Floor. Toronto, M5G 2E5 (416) 585-6666

Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project information

Building number, street name	Unit number	Lot/con.
6622 Bank Street	--	13 / 6

Municipality	Postal code	Plan number/other description
Osgoode	--	Parts 1 - 3 Plan 4R-25595

B. Individual who reviews and takes responsibility for design activities

Name	Firm
Kaleb Lakew, P.Eng.	Kollaard Associates Inc.

Street address	Unit number	Lot/con.
Box 189, 210 Prescott St.	1	--

Municipality	Postal code	Province	E-mail
Kemptville	K0G 1J0	ON	info@kollaard.ca

Telephone number	Fax	Cell number
(613) 860-0923	(613) 258-0475	

C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 of Division C]

☐ House	☐ HVAC – House	☐ Building Structural
☐ Small Buildings	☐ Building Services	☐ Plumbing – House
☐ Large Buildings	☐ Detection, Lighting and Power	☐ Plumbing – All Buildings
☐ Complex Buildings	☐ Fire Protection	☒ On-site Sewage Systems

Description of designers work

Conventional ~ Fully Raised

D. Declaration of Designer

I **Kaleb Lakew, P.Eng.** (print name) declare that (choose one as appropriate):

☐ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Divison C of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.

Individual BCIN: _____

Firm BCIN: _____

☐ I review and take responsibility for the design work and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Divison C of the Building Code.

Individual BCIN: _____

Basis for exemption from registration: _____

☒ The design work is exempt from the registration and qualification requirements of the Building Code.

Basis for exemption from registration and qualification: **Licensed Professional Engineer**

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. I have submitted this application with the knowledge and consent of the firm.

June 7/2017
Date

Signature of Designer

Note:

1. For the purpose if this form, "individual" means the "person" referred to in Clause 3.2.4.7(1)d). Of Division C, Article 3.2.5.1. Of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4 and 3.2.5 of Division C

2. Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of authorization, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practice, a limited license to practice, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

Schedule 2: Sewage System Installer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project information

Building number, street name	Unit number:	Lot/con.
6622 Bank Street	--	13 / 6

Municipality	Postal code:	Plan number/other description
Osgoode	--	Parts 1 - 3 Plan 4R-25595

B. Sewage system installer

Is the installer of the sewage system engaged in the business of constructing on-site, installing, repairing, servicing, cleaning or emptying sewage systems, in accordance with Building Code Article 3.3.1.1, Division C?

☐ Yes (Continue to Section C) ☐ No (Continue to Section E) ☒ Installer unknown at time of application (Continue to Section E)

C. Registered installer information (where answer to B is "Yes")

Name			BCIN	
Street address			Unit number:	Lot/con.
Municipality	Postal code	Province	E-mail	
Telephone number	Fax		Cell number	

D. Qualified supervisor information (where answer to section B is "Yes")

Name of qualified supervisor(s)	BCIN

E. Declaration of Applicant:

I Kaleb Lakew, P.Eng. declare that:
(print name)

☒ I am the applicant for the permit to construct the sewage system. If the installer is unknown at time of application, the owner shall submit a new Schedule 2 prior to construction when the installer is known;

OR

☐ I am the holder of the permit to construct the sewage system, and am submitting a new Schedule 2 now that the installer is known.

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. If the owner is a corporation or partnership, I have authority to bind the corporation or partnership

June 7/2017
Date

Signature of applicant

Ottawa Septic System Office
Bureau des systèmes septiques d'Ottawa

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Do not Complete
Permit No
Revision No
Date 17-207

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Schedule 4
Proposed Services

1. Engineered
- X Yes
- No

2. Water Supply
- X Proposed
- Existing

3. Type of work proposed
- X New Installation
- Replacement
- Alteration

4. Type of well
- Dug/bored/Standpoint well
- X Drilled well
- Municipal
- Other

5. Residential Sewage Design Flow Info.
Bedrooms _____
House (floor area) _____ m^2
People _____
Total Fixture Units _____ (Schedule 8)
Residential Flow _____ L/day

6. Sewage Design Flow for Other Occupancies
Design Flow **3250** L/day
Detail sewage flow calculations:
Refer ro Schedule 8

7. Type of System

Treatment Unit
- Class 2 - Leaching Pit
- Class 3 - Cesspool
- Class 4 - Shallow Buried Trench
- Class 4 - Trench
  - X Fully Raised
  - Partially Raised
  - In-ground
- Class 4 - Filter Media
  - Fully Raised
  - Partially Raised
  - In-ground

Conventional
- Class 4 Area Bed
  - Fully Raised
  - Partially Raised
  - In-ground
- Class 4 - Aerobic With Trench
  - Fully Raised
  - Partially Raised
  - In-ground
- Class 4 - Aerobic with Filter Media
  - Fully Raised
  - Partially Raised
  - In-ground
- Class 5 - Holding Tank

Kollaard Associates
Engineers

File 170035

Ottawa Septic System Office
Bureau des systèmes septiques d'Ottawa

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Permit No
Revision No 17-207
Date

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Schedule 5
Sewage System Details

Type of System	**Conventional ~ Fully Raised**		(Schedule 4)
Septic / Holding	**11250** Litres	Conventional	
Septic Tank Effluent Filter	**Yes**		
Treatment Unit - Make & Model		**Conventional**	
Number of Units			
Refer to Typical Drawing	**Conventional ~ Fully Raised**		
Mantle information			
Native or imported = 15 m in		**1**	direction(s)
Slope Subgrade		**1.0**	% slope
		NE	direction(s)
Site to be Scarified (If in Clay)	**NO**	Yes / No	
Clay Seal Required (If in bedrock)	**NO**	Yes / No	
Minimum Required Contact Area		**325**	m^2 required
Pump(s) required		**Yes**	
Specified discharge rate required		**449**	L/15min
Note: Alarm required for all pumping systems			
Trench Bed - Length of Distribution Pipe		**132**	m
- Proposed diameter of Tile		**76**	mm
Filter Media Bed - Stone			m^2
- Sand			m^2
- Filter Sand			m^2
- Pipe			m
- Amount of Filter Media Sand			Kg required
SBT - Length of Distribution Pipe			m
Area Bed - Stone			m^2
- Sand			m^2
- Pipe			m

Construction Notes: See construction notes on Kollaard Associates Drawing No. **170035-SEP**

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File 170035

Ottawa Septic System Office | Bureau des systèmes septiques d'Ottawa

SEPTIC APPLICATION

Do not Complete	
Permit No	17-207
Revision No	
Date	REQUIRED FOR ALL INQUIRIES

SCHEDULE 6
Soil and Water Table Information
(Minimum depth of test pit: 2 metres)

June 6, 2017

File # 170035

6622 Bank Street
R.Plan 4R-25595, Parts 1 - 3
Lot 13, Conc. 6
Osgoode
City of Ottawa

Inspector: Adam Dillon
Date: June 13/17 @ 12:50pm
Signature:

Test Pit #	Elevation / (Depth) [m]	Soil Description
TP1	94.75	
	0.0-0.3	TOPSOIL
	0.3-1.0	Grey brown silty sand, gravel, cobbles and boulders
	1.05	End of test pit
TP2	94.40	
	0.0-0.25	TOPSOIL
	0.25-1.0	Grey brown silty sand, gravel, cobbles and boulders
	1.0	End of test pit

Test Pit #	Elevation / (Depth) [m]	Soil Description

Test pits not available for inspection. Engineer assumes all liability for soil and HGWT info/elev's.

Kollaard Associates
Engineers

Professional Engineers Ontario

Authorized by the Association of Professional Engineers Ontario to offer Professional Engineering Services

SEPTIC APPLICATION

Ottawa Septic System Office | Bureau des systèmes septiques d'Ottawa

RVCA RECEIVED JUN 12 2017 REFER TO:

Schedule 8

Do not Complete
Permit No 17-207
Revision No
Date

REQUIRED FOR ALL INQUIRIES

SEWAGE DESIGN FLOW CALCULATION (OTHER OCCUPANCIES)

As per O.B.C. 8.2.1.3.(2)

File: 170035

Date: June 6, 2017

	Establishment	*Volume, L*	*Quantity*	*Flow*
	Office Building			
	a) per employee per 8 hour shift, or	75	8	**600** L/day
x	b) per each 9.3 m^2 of floor space	75	(192.1 m^2 / 9.3 m^2)	**1550** L/day
	Warehouse			
x	a) per water closet, and	950	1	**950** L/day
x	a) per loading bay	150	5	**750** L/day

Total Daily Residential Sewage Design Flow = 3250 litres/day

Note:
Sump pumps and floor drains are not to be connected to the sewage system. Connection of such fixtures to a sewage system may lead to a hydraulic failure of the said system. The above mentioned fixtures should be discharged separately to an approved Class 2 (leaching pit) sewage system.

Where laundry waste is not more than 20% of the total daily design sanitary sewage flow, it may discharge to a sewage system (Part 8, OBC, 8.1.3.1(2)).

Signature of Owner / Agent: _____

Date: June 7/2017

Kollaard Associates Engineers

Professional Engineers Ontario

Authorized by the Association of Professional Engineers Ontario to offer Professional Engineering Services

Kollaard Associates
Engineers

File: 170035

Conventional Bed ~Fully Raised~
6622 Bank Street
R.Plan 4R-25595, Parts 1 - 3
Lot 13, Conc. 6
Osgoode
City of Ottawa
June 6, 2017

Flow Rate		3250 L/day
Existing Soil Percolation Rate (T)		30 min/cm
Replacement Soil		8 min/cm
Pipe Length Min	= $\frac{3250 \times 8}{200}$	130 metres
Sand Loading Area	= $\frac{3250}{8}$	406.25 m^2
Header Invert	= 94.84	
Footer Invert	= 94.75	
Slope Subgrade	1.00 %	

SEE KOLLAARD ASSOCIATES
TECHNICAL DRAWING 170035- SEP
FOR DETAILS

6 RUNS AT 22.00m EACH AT 1.6m

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REFER TO:

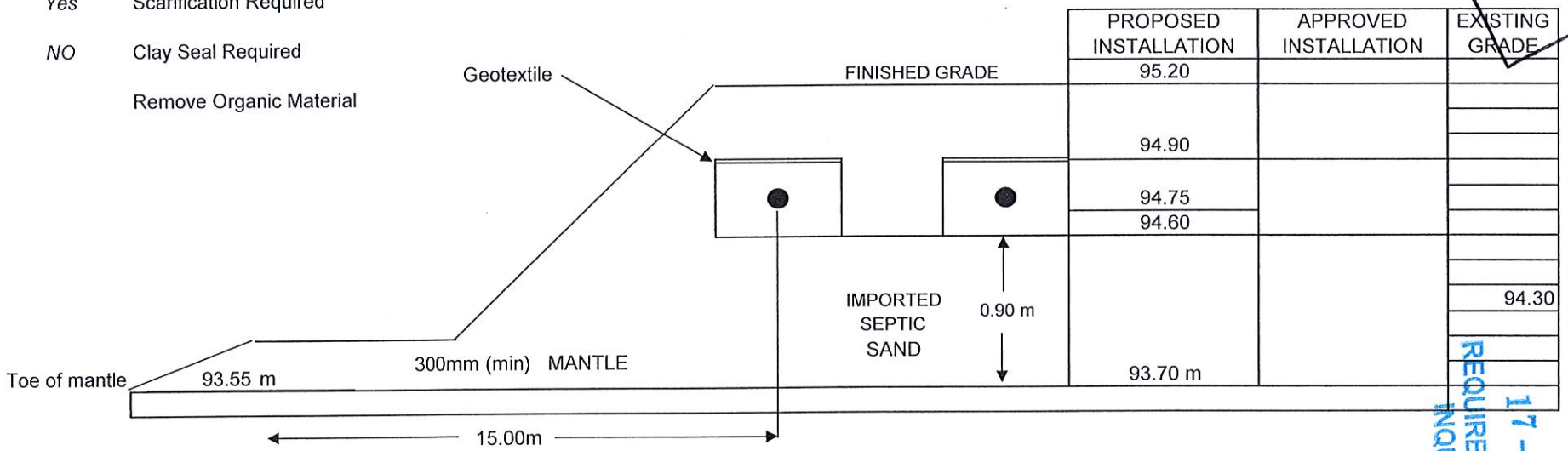
Minimum Septic Tank Working Capacity
The greater of 3600 Litres or 3 x 3250 = 11250

Yes Scarification Required

NO Clay Seal Required

Remove Organic Material

Mantle Required in NE Direction



PROPOSED INSTALLATION	APPROVED INSTALLATION	EXISTING GRADE
95.20		
94.90		
94.75		
94.60		
93.70 m		94.30

SEPTIC APPLICATION
17 - 2 0 7
REQUIRED FOR ALL INQUIRIES

SEPTIC APPLICATION

Ottawa Septic System Office / Bureau des systèmes septiques d'Ottawa

Do Not Complete
Permit No 17-207
Revision No
Date
Related Application
REQUIRED FOR ALL INQUIRIES

Permit
Part 8 – Sewage System
Ontario Building Code

A copy of this permit must be posted on the property at all time during construction. OBC, Division C — Part 1, Section 1.3.2.1

This permit verifies that the on-site sewage system was reviewed and approved for construction under the *Ontario Building Code* and *O.Reg. 323/12* as amended by *O.Reg. 151/13.*

Inspected & Recommended by: Adam Dillon
Owner: CAmm Warehousing & Rentals Inc
Inspection Date & Time: June 13/17 @ 12:50 pm
Weather: overcast & 24°c
Civic Address: 6622 Bank St.
Legal:

number of ~~bedrooms~~ loading bays: 5
~~fixture units~~: 1 water closet
finished floor area: 192 m² office area
Q: 3250 L/day

septic/~~holding tank/pretreatment~~ tank 11,250 L
effluent filter as per 8.6.2.1.(2)
pump rate 449 L/15 min
treatment unit
number of units

weigh bills for filter media	☐ yes	☒ no
grain size analysis required	☐ yes	☒ no
site to be scarified	☐ yes	☒ no
clay seal inspection	☐ yes	☒ no
mantle required	☒ yes	☐ no
sub-grade inspection	☐ yes	☒ no

ELEVATION ☐ In Ground ☒ Partially Raised ☐ Fully Raised

TYPE OF SYSTEM

☐ **Trench**
○ **Pipe and Stone or** ○ **Chambers**
type of chamber n/a
loading area 456 m²
total trench length 132 m
trench configuration 6 @ 22m

☐ **Dispersal Bed**
☐ BMEC ☐ Type A ☐ Type B
stone m²
sand m²
pipe
linear loading L/m²

☐ **Shallow Buried Trench**
pipe length m
orifice spacing m

☐ **Filter Media Bed**
stone m²
extended base m²
pipe
weight of filter media kg
loading area m²

☐ **Class 5 Holding Tank**

☐ **Septic Tank Only**

Manager, Septic System Approvals: Jeff Davidson
Permit Date: JUNE 15, 2017
Comments:

☐ maintenance/pumping required ☐ ESA permit # required ☐ engineer to verify ☐subgrade ☐squirt height
☐ Class 5 Holding Tank approval only valid for three years from date of issue

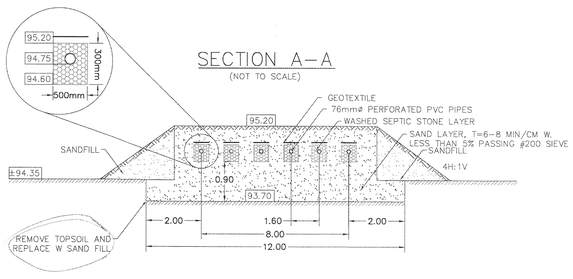
Manager, Septic System Approvals: Revision Date:
Comments:

NOTE: For further details, refer to corresponding application.

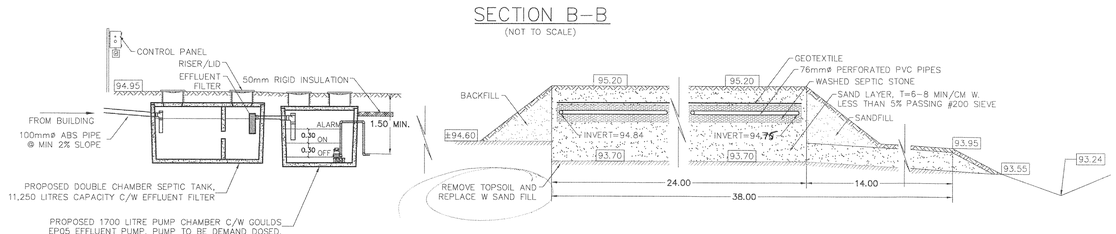
LEGEND

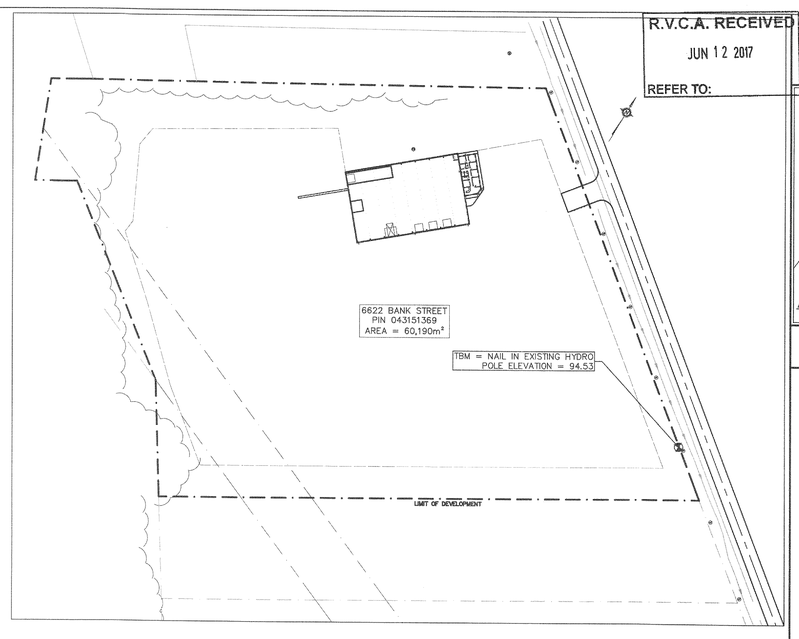
EXISTING ELEVATION
PROPOSED/EXISTING ELEVATIONS
PROPOSED ELEVATION
DRAINAGE SLOPE
CENTRELINE OF ROAD
EDGE OF ROAD
TOP OF SLOPE
PROPERTY LINE
OVERHEAD WIRE
EDGE OF TREES
PROPOSED FENCE
BUILDING ENTRANCE LOCATION
EXISTING HYDRO POLE
EXISTING WELL
PROPOSED DRILLED WELL
TEST PIT
TEMPORARY BENCHMARK

SECTION A–A
(NOT TO SCALE)



SECTION B–B
(NOT TO SCALE)

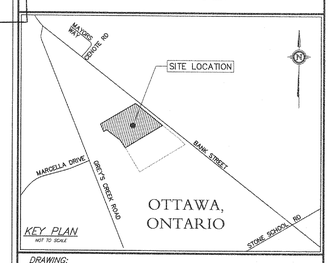




SITE PLAN
SCALE = 1:1500

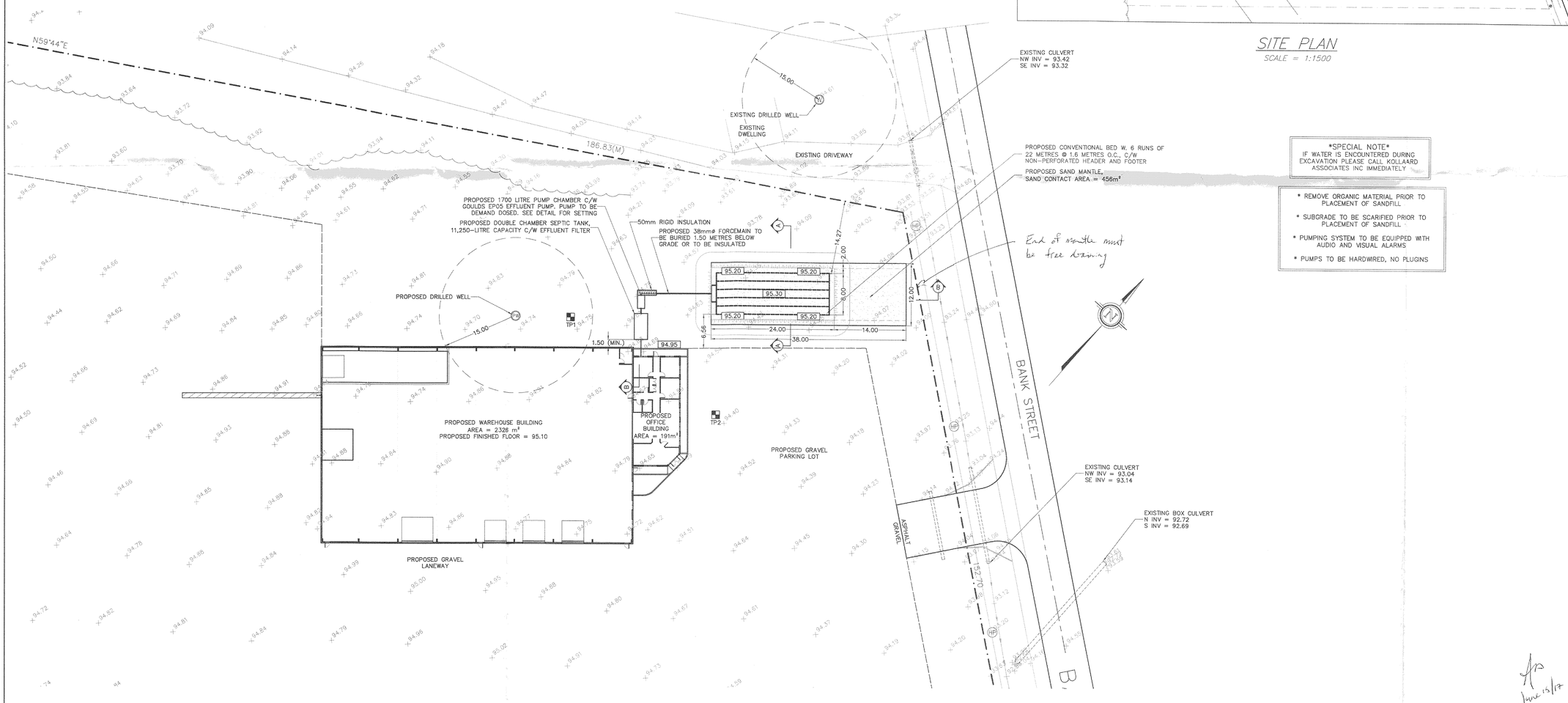
R.V.C.A. RECEIVED
JUN 12 2017
REFER TO:

DRAWING NUMBER: 17-207
REQUIRED FOR ALL INQUIRIES
170035–SEP



DRAWING: SEPTIC DESIGN PLAN AND DETAILS

1. All dimensions and elevations are in metres. Do not scale drawing. This drawing is not a site grading plan. This drawing is not for construction until approved by the relevant authorities.
2. TBM = Nail in existing hydro pole. Elevation = 94.53.
3. The sewage system envelope (leaching bed) as identified on the drawing must be maintained free of the deposit or disposal of any materials, structures, or equipment other than the material or equipment required for the construction of the leaching bed within the sewage system envelope.
4. Topsoil rootmat (organics) to be removed from bed area and exposed subgrade. No wheeled vehicles to be allowed in leaching bed area.
5. Percolation rate of any imported sand for bed to be 6 to 8 min/cm, with < 5% passing the #200 (0.080 mm) sieve.
6. Stone layer to be washed septic stone, free of fine material, with gradation conforming to OBC Table 8.7.3.3.A.
7. The septic system leaching bed is to be graded to provide positive drainage away from the septic system and treated with 75 to 100 mm permeable topsoil and seed. Grass growth is to be established.
8. The following are not to be connected to the septic system: Water softener; swimming pool or filter system backwash; sump pump discharge.
9. Septic system to be installed in accordance with the OBC.
10. Septic tank to meet criteria described in the OBC.
11. No silty clay or clayey or silty material to be placed around or over leaching bed.
12. All changes to this design must be verified and approved by Kollaard Associates Incorporated.
13. Minimum clearance from treatment unit to;
    * structure = 1.5m
    * property line = 3m
    * drilled well = 15m
14. Minimum clearance from distribution piping to;
    * structure = 7m
    * property line = 5m
    * drilled well = 17m



SPECIAL NOTE
IF WATER IS ENCOUNTERED DURING EXCAVATION PLEASE CALL KOLLAARD ASSOCIATES INC IMMEDIATELY

* REMOVE ORGANIC MATERIAL PRIOR TO PLACEMENT OF SANDFILL
* SUBGRADE TO BE SCARIFIED PRIOR TO PLACEMENT OF SANDFILL
* PUMPING SYSTEM TO BE EQUIPPED WITH AUDIO AND VISUAL ALARMS
* PUMPS TO BE HARDWIRED, NO PLUGINS

End of months must be free draining

SEPTIC DESIGN PLAN
SCALE = 1:400

REV	BY	DATE	DESCRIPTION
0	ML	JUNE 7, 2017	ISSUED FOR PERMIT

Kollaard Associates Engineers
P.O. BOX 189, 210 PRESCOTT ST. (613) 860–0923
KEMPTVILLE, ONTARIO info@kollaard.ca
K0G 1J0 FAX (613) 258–0475
http://www.kollaard.ca

CONSULTANTS:
SURVEYORS:
H.A.KEN SHIPMAN SURVEYING LTD.
P.O. BOX 53, North Gower,
Ontario, K0A 2T0

CLIENT: CAMM WAREHOUSING AND RENTALS INC.

PROJECT: PROPOSED WAREHOUSE WITH OFFICE

LOCATION: 6622 BANK STREET, OTTAWA, ON

LICENSED PROFESSIONAL ENGINEER
K. LAKEW
90421595
JUNE 7, 2017
PROVINCE OF ONTARIO

June 13/17

DESIGNED BY:	CHECKED BY:
ML	PV
DRAWN BY:	APPROVED BY:
ML	KL

DATE: MAY 29, 2017
SCALE: AS NOTED
PROJECT NUMBER: 170035
ARCH D

Appendix B: Draft Technical Memo – June 28, 2024

Memo accompanying Rural Fire Demand Tech Bulletin

General

This memo is provided to support Technical Bulletin IWSTB-2024-05, regarding fire-fighting flow in the Rural area.

This bulletin clarifies the previous statement, found in IWSTB-2021-03, “the requirements for levels of fire protection on private property in rural areas are based on the Fire Underwriters Survey (FUS) method in all cases”.

There were some questions as to the applicability of the FUS, as amended, and that issue is addressed first; the City was of the opinion that it could ask for the FUS in Rural areas - regardless, the change in bulletin IWSTB-20204-05 establishes that it can, and does.

The definition of urban and rural herein is intended to only apply to the information carried herein and for Technical Bulletin IWSTB-2024-05 and is not intended for any other use.

The requirements of the Ontario Building Code (OBC), as amended OBC are found in Appendix A, Volume 2, of the OBC, as amended, section A-3.2.5.7 (page 44 of the 2024 version).

The references below are intended for buildings defined as Part 3 occupancies under the OBC (that is, applications that are applied for under Site Plan Control). Buildings defined as Part 9 occupancies under the OBC (that is applications that are applied for under residential Plan of Subdivision), generally do not apply for this criteria (except, possibly, exceptionally large dwellings). Residential Plans of Subdivision do not require fire-fighting review for the individual lots (again, except, very large dwellings), however, they may require a tank (or tanks) depending on several factors.

This memo makes no recommendations for changes around using FUS for watermain sizing.

Direction

For fire flow calculations only, Ottawa Fire Services (OFS) will define **Urban** to solely mean pressurized hydrant system available for firefighting that meets OBC requirements and is independent of location within the City as it pertains to firefighting force (i.e.: full-time vs paid on-call are equivalent)

Urban (Pressurized Hydrants)

For fire flow and water storage calculations (OBC Part 3 buildings), the following is required in Urban areas;

- OBC method for fire flows permitted until it reaches OBC maximum fire flow of 9000 L/min
- Once OBC maximum reached, applicant is to use FUS method for fire flow calculation

Memo accompanying Rural Fire Demand Tech Bulletin

- Multi-hydrant approach as per the NRC method up to 150m (contained within the technical bulletin) is permitted to achieve required fire flows for both OBC or FUS method as required
- Confirmation that the water network is capable of delivering the required fire flows must be provided

Switching from the OBC to the FUS method at the 9,000 L/min threshold for an urban building design is necessary for several reasons. Once the building reaches a volume of Q > 270,000 L, the highest flow rate is 9,000 L/min (

Table 1). Although this flow rate is difficult to achieve in fire area and vicinity, even a building 10 times larger would still be limited to 9,000 L/min. Therefore, it is essential to switch to the FUS method at this threshold for calculating fire flow. The FUS method is more conservative, requiring substantially more water for the same building, increasing the chances of a successful fire attack and better protection of surrounding properties. For both OBC and FUS methods, the NRC multi-hydrant approach can be used to achieve the required fire flows.

Rural (No Pressurized Hydrants Available)

For fire flow calculations only, OFS will define rural to solely mean that there is no pressurized hydrant system available for firefighting (This is independent of location within the city as it pertains to firefighting force). OFS is certified under FUS for Superior Tanker Shuttle and can deliver 1,900 L/min within 5 minutes of arrival (refer to Figure 1). The OBC minimum for water storage is for 30 minutes, so for buildings that qualify under FUS, are permitting up to 57,000 L (From 30 minutes x 1900 L/min) of storage reduction (See ***Sample Calculations***:

for more information).

Rural firefighting has many considerations, but one of the most important aspects is the ability for a fire department to respond with its own continuous water supply. Under the FUS, OFS is certified to Superior Tanker Shuttle levels which means we can deliver a minimum of 1900 L/min (Refer to Figure 1), but to qualify the building must be within 5 km of a fire station and 2.5 km of an approved water supply (refer to Figure 2). We wanted to give some storage reduction credit for our ability to shuttle water, while still staying within the general confines of the OBC minimum storage which leads to a few different scenarios for required on-site water storage.

In Rural areas, for fire flow and water storage calculations (OBC Part 3 buildings), the following criteria is required.

If the building meets FUS Superior Tanker Shuttle distance requirements (≤ 5 km to fire station and ≤ 2.5 km to approved water supply):

- OBC method for fire flows permitted for all fire flows < 9,000 L/min
    - Storage Volume = Q – 57,000 L
- If calculated fire flow = 9,000 L/min, applicant is to use the FUS method for fire flow calculation
    - Storage Volume = (FUS fire flow x 30 minutes) – 57,000 L

If the building does **not** meet FUS Superior Tanker Shuttle distance requirements (≥ 5 km to fire station **and/or** ≥ 2.5 km to approved water supply):

- OBC method for fire flows permitted for all fire flows < 9,000 L/min
    - Storage Volume = Q calculated by OBC
- If calculated fire flow = 9,000 L/min, applicant is to provide calculations for FUS fire flows, NFPA 1142, and Q calculated by OBC
    - ***Storage Volume = Special Evaluation***

Memo accompanying Rural Fire Demand Tech Bulletin

- Minimum storage tank volume permitted for firefighting is 38,000 L (Equates to 10,00 U.S. gallons)
- OFS maximum flow rate from a single draft point is approximately 4,500 L/min
    - OBC flow rates = 2,700 or, 3,600 or 4,500 L/min (and one draft point required)
    - OBC flow rates = 5,400 or 6300 L/min (by connected storage and two draft points)
    - OBC flow rate = 9,000 L/min change to FUS flow rate (by connected storage and two draft points)

The specifications and locations of storage and connection to be coordinated with OFS Engineer

Despite the foregoing criteria, an application may require additional water storage in excess of OBC calculation where, in the sole opinion of the OFS, additional protection is required – this is expected to be les than 10% of applications.

If there is a sprinkler system a special review will be required based upon NFPA 13.

Sample Calculations:

Example 1: For a proposed building that meets the distance requirements of FUS and has a calculated OBC fire flow < 9000 L/min, a reduction in the storage value (Q) down to the minimum storage tank size of 38000 L. Storage Volume = Q – 57,000 > 38000 L

Example 2: For a proposed building that does **not** meet the distance requirements of FUS and has a calculated OBC fire flow < 9,000 L/min, a reduction in the Q storage value is not permitted; Storage Volume = Q.

Example 3: For a proposed building that meets the distance requirements of FUS and has a calculated OBC fire flow = 9,000 L/min, there is a hybrid solution. The flow rate is increased by requiring FUS fire flows for 30 minutes and allow a reduction in the calculated total for tanker shuttle. Storage Volume = (FUS fire flow x 30 minutes) – 57,000 L

Example 4: For a proposed building that does **not** meet the distance requirements of FUS and has a calculated OBC fire flow = 9,000 L/min, allow a reduction in the Q storage value is not permitted and will require an increase. Storage Volume = Special Calculation (possibly NFPA 1142 or FUS – to be discussed with OFS and Development Review).

Please refer to **Error! Reference source not found.** for examples of calculating storage volumes

Memo accompanying Rural Fire Demand Tech Bulletin

Table 1: OBC Fire Flows

Part 3 Building under the Building Code	Required Minimum Water Supply Flow Rate, L/min
One-storey building with building area not exceeding 600 m^2	1,800
All other buildings	2,700 (if Q ≤ 108,000 L) 3,600 (if Q > 108,000 L and ≤ 135,000 L) 4,500 (if Q > 135,000 L and ≤ 162,000 L) 5,400 (if Q > 162,000 L and ≤ 190,000 L) 6,300 (if Q > 190,000 L and ≤ 270,000 L) 9,000 (if Q > 270,000 L)

For commercial lines insurance, the Fire Department must be able to deliver a flow rate of not less than 1900 LPM (400 IGPM) within 5 minutes of arriving at the test site with the first major piece of apparatus (wheel stop).

Figure 1. *Superior Tanker Shuttle – Commercial Flow Rate*

Figure 2. *Superior Tanker Shuttle – Distances*

To be recognized for fire insurance grading purposes, the protected property must be located within;

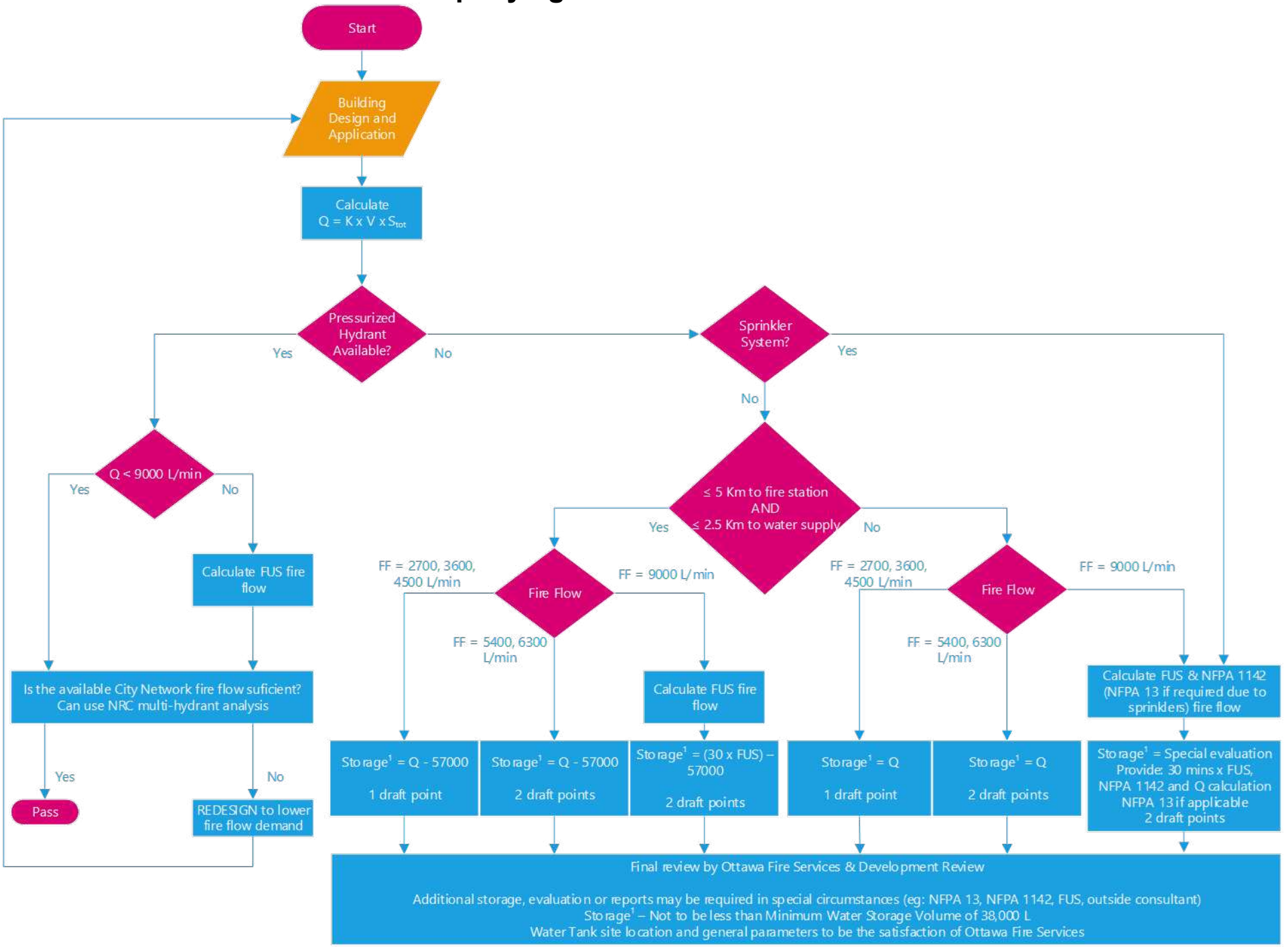
- Commercial Lines (PFPC) – 5 km of a fire station AND 2.5 km of an approved water supply point
- Personal Lines (DPG) – 8 km of a fire station AND 5 km of an approved supply point

Memo accompanying Rural Fire Demand Tech Bulletin

Table 2 - Storage Calculation Examples

Calculated Q (L)	Meets Superior Tanker		Min OBC flow rate from table based on Q (L/min)	Required Storage Volume (L)	
	Fire Station within 5km	Approved Water Source within 2.5km		Q-57000 (min 38000)	Q or Special
85000	Yes	Yes	2700	28000 → 38000	85000
85000	Yes	No	2700	28000 → 38000	85000
121000	Yes	Yes	3600	64000	121000
121000	No	Yes	3600	108000	121000
255000	Yes	Yes	6300	198000	255000
255000	Yes	No	6300	189000	255000
325000	Yes	Yes	9000	270000	(FUS x 30)-57000
325000	No	Yes	9000	270000	Special

Memo accompanying Rural Fire Demand Tech Bulletin



Memo accompanying Rural Fire Demand Tech Bulletin

Definition of Acronyms and Terms:

OFS – Ottawa Fire Services

OBC – Ontario Building Code

NFPA – National Fire Protection Association (www.nfpa.org)

FUS – Fire Underwriter Survey (www.fireunderwriters.ca)

FF = fire flow

PFPC – Public Fire Protection Classification – a part of FUS and Insurance Ratings

DPG = Dwelling Protection Grade – a part of FUS and Insurance Ratings

From the Ontario Building Code Appendix, A-3.2.5.7. Water Supply:

The designer needs to demonstrate choice/support/rationale for all parameters applied/selected.

$$Q = K \; x \; V \; x \; S_{tot} = Minimum \; supply \; of \; water \; in \; litres$$

where,

K = Water supply coefficient

V = Total building volume in m^3

S_{tot} = Total of spatial coefficient values from property line exposures on all sides as obtained from the formula $S_{tot} = 1.0 + [S_{side1} + S_{side2} + S_{side3} + \ldots etc]$.

Appendix C: Correspondence with City of Ottawa RE: Fire Flow

Subject: Fwd: 24202 Re: 6622 Bank St. CAMM machinery firefighting water
From: William Kollaard <bill@kollaard.ca>
Date: 2024-10-03, 9:58 a.m.
To: "sandy@kollaard.ca" <sandy@kollaard.ca>

--
William Kollaard, P.Eng.
Kollaard Associates Inc.
210 Prescott Street, Unit 1
Kemptville, Ontario
K0G 1J0
CANADA
TEL: (613) 860-0923
CEL: (613) 913-0282
www.kollaard.ca

-------- Forwarded Message --------
Subject:RE: 24202 Re: 6622 Bank St. CAMM machinery firefighting water
Date: Wed, 10 Jul 2024 18:19:35 +0000
From: Whittaker, Damien <Damien.Whittaker@ottawa.ca>
To: Sean Bartlett <sbartlett@rjbartlett.com>
CC:bill@kollaard.ca <bill@kollaard.ca>, Andrew Charron <andrew@camm.net>, Benoît LeBlanc <bleblanc@rjbartlett.com>, Evans, Allan <Allan.Evans@ottawa.ca>

Hello Sean,

Please see a memo, that is not final, that can be used to understand the City's forthcoming approach to volume calculation and on-site fire-fighting connection requirements.

Bill,

You may also use this draft information for the other application you discussed.

Pleae note that the memo is not final and may be changed up until it is officially released.

Regards,

Damien Whittaker, P.Eng
Senior Engineer - Infrastructure Applications ▪ Ingénieur principal - applications d'infrastructure
Development Review, Rural Services Unit ▪ Examen des projets d'eménagement, Unité des services ruraux
Planning, Development and Building Services Department (PDBS) ▪ Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)
City of Ottawa | **ville d'Ottawa**

*** Absence alert – please note that I will be on vacation July 11 and 12, and again August 6 through 9 (and the 5th is a holiday) ***

-----Original Appointment-----
From: Sean Bartlett <sbartlett@rjbartlett.com>
Sent: Wednesday, July 10, 2024 12:38 PM
To: Evans, Allan; Whittaker, Damien
Cc: bill@kollaard.ca; Andrew Charron; Benoît LeBlanc
Subject: RE: 24202 Re: 6622 Bank St. CAMM machinery firefighting water
When: July 10, 2024 1:30 PM-2:30 PM (UTC-05:00) Eastern Time (US & Canada).
Where:

From: Evans, Allan <Allan.Evans@ottawa.ca>
Date: Wednesday, July 3, 2024 at 2:29 PM
To: Sean Bartlett <sbartlett@rjbartlett.com>, Whittaker, Damien <Damien.Whittaker@ottawa.ca>
Cc: bill@kollaard.ca <bill@kollaard.ca>, Benoît LeBlanc <bleblanc@rjbartlett.com>, Andrew Charron <andrew@camm.net>
Subject: RE: 24202 Re: 6622 Bank St. CAMM machinery firefighting water

Hi - I'm available:

9:00-1:00 on Monday July 8th
9:00-11:00 and 12:00-3:00 on Wednesday July 10th
9:00-3:00 on Thursday July 11th

Allan Evans

Fire Protection Engineer / Ingénieur de Protection d'Incendies
Prevention Division / Prévention des Incendies
Ottawa Fire Services / Service des Incendies d'Ottawa
1445 Carling Avenue / 1445 Avenue Carling
Ottawa, ON K1Z 7L9
Allan.Evans@Ottawa.ca
☎ (613) 913-2747 | ☎ (613) 580-2424 x24119 | 🖷 (613) 580-2866 | 🖃 Mail Code: 25-102 | @OFSFPE

An internationally accredited agency 2019-2024

OTTAWA FIRE SERVICES
SERVICE DES INCENDIES D'OTTAWA
Protecting Our Nation's Capital With Honour
Protéger notre capitale nationale avec honneur

From: Sean Bartlett <sbartlett@rjbartlett.com>
Sent: July 03, 2024 1:18 PM
To: Evans, Allan <Allan.Evans@ottawa.ca>; Whittaker, Damien <Damien.Whittaker@ottawa.ca>
Cc: bill@kollaard.ca; Benoît LeBlanc <bleblanc@rjbartlett.com>; Andrew Charron <andrew@camm.net>
Subject: 24202 Re: 6622 Bank St. CAMM machinery firefighting water

Good Morning Allan and Damien,

We've been retained by CAMM to assist with the fire protection water supply concept development for their proposed expansion. I am a fire protection engineer based out of NB, but licensed to practise in a number of jurisdictions, including ON. We've completed an initial review of the file, the correspondence and developed preliminary fire flow calculations under a few different recognized methodologies for this site.

Today I am reaching out to coordinate a meeting to discuss the below to better understand the specific requirements and considerations applicable in this jurisdiction.

Please let me know if we can schedule a TEAMS meeting to discuss in the coming week. I am available most of the day Monday (July 8) and Wednesday/Thursday (July 10/11) afternoon if that happened to suit your schedule.

Please advise.

Best Regards

Sean

RJ Bartlett Engineering Ltd

Sean Bartlett, M.E., P.Eng.
Fire Protection Engineer
113-1133 Regent Street
Fredericton, NB, E3B 3Z2
sbartlett@rjbartlett.com
www.rjbartlett.com
Email Disclaimer
Tel: (506) 459-3070, ext. 2237
Fax: (506) 450-3731

Begin forwarded message:

From: "Evans, Allan" <Allan.Evans@ottawa.ca>
Date: May 27, 2024 at 3:08:12 PM EDT
To: bill@kollaard.ca, "Whittaker, Damien" <Damien.Whittaker@ottawa.ca>
Cc: Steven deWit <steve@kollaard.ca>, Andrew Charron <andrew@camm.net>
Subject: RE: FW: 6622 Bank St. CAMM machinery firefighting water

Hi Bill – I just wanted to reach out and follow up with where are you at in this process. We had a large meeting about a week ago with some key internal staff as well as some external representatives from the industry in regards to the FUS vs OBC method of fire flow calculations. There were a few different items to come out of that meeting, but the most important part to come out of that meeting was that for the time being OFS will be the authority for determining an "adequate" volume of storage water for firefighting. My expectation is that this will work very similar to the previous method I employed (OBC and FUS flows and total storage provided -> engineering analysis and experience used to determine a realistic final volume). This doesn't mean that there will never be a requirement for an outside

consultant (ie: for certain occupancies or high risk scenarios), but my rough estimate was 90-95% of the applications can be determined with the more simpler method. Additionally in parallel with this, we will be starting a technical advisory committee of both internal and external stakeholders with the end goal to have a formal process finalized within 2-3 months on how these will be handled moving forward (my expectation again is that it will be relatively similar to my previous methodology). All of this will still go through consultation with my building code compatriot as well of course.

Please let me know how you wish to proceed. If you'd like to take advantage of this temporary measure, I'll be happy to look at the calculations and review as soon as possible to get moving. I know you have an existing building and existing water supply volume – I'd still want to see the OBC and FUS for this site (adding a new building even if the same size, can still impact the FUS calculation due to exposures, etc), but could potentially be a much quicker solution.

Happy to discuss further.

A

Allan Evans

Fire Protection Engineer / Ingénieur de Protection d'Incendies
Prevention Division / Prévention des Incendies
Ottawa Fire Services / Service des Incendies d'Ottawa
1445 Carling Avenue / 1445 Avenue Carling
Ottawa, ON K1Z 7L9
Allan.Evans@Ottawa.ca
☎ (613) 913-2747 | ☎ (613) 580-2424 x24119 | 🖷 (613) 580-2866 | ✉ Mail Code: 25-102 | @OFSFPE

From: William Kollaard <bill@kollaard.ca>
Sent: April 03, 2024 1:54 PM
To: Whittaker, Damien <Damien.Whittaker@ottawa.ca>
Cc: Evans, Allan <Allan.Evans@ottawa.ca>; Steven deWit <steve@kollaard.ca>; Andrew Charron <andrew@camm.net>
Subject: Re: FW: 6622 Bank St. CAMM machinery firefighting water

Hi Damien

Thanks for the response. We have been working with Sean Bartlett from NB who owns a firm (rjbartlett.com) that primarily provides consulting services related to fire protection.

--
William Kollaard, P.Eng.
Kollaard Associates Inc.
210 Prescott Street, Unit 1
Kemptville, Ontario
K0G 1J0
CANADA
TEL: (613) 860-0923
CEL: (613) 913-0282
www.kollaard.ca

On 2024-04-03 10:35 a.m., Whittaker, Damien wrote:

> Hello Bill,
>
> Legal issues that were holding up the City's investigation of the FUS approach have, after a long discourse, been resolved.
>
> Firstly, yes, the owner/consultant can investigate alternatives to the FUS;
> 1. This must be done by a consultant with a history of fire-fighting design experience (someone that has merely done a number of FUS calculations will be dismissed)
> 2. The OBC calculation remains insufficient (an owner/consultant putting forth the OBC as an alternative to the FUS for the Rural area will be dismissed)
>
> Secondly, the City is pursuing an investigation of alternatives to the FUS. The City has a number of priorities and it is likely that an owner/consultant may be able to investigate alternatives to the FUS more rapidly).
> 3. Any alternatives reviewed and accepted an owner/consultant for 6622 Bank Street in place before the City's alternative-to-the-FUS is decided upon will be honoured for 6622 Bank Street, but any owner's/consultant FUS alternative for 6622 Bank Street will not carry precedent to other files once the City's alternative-to-the-FUS is decided upon
>
> Regards,

Damien Whittaker, P.Eng
Senior Engineer - Infrastructure Applications ▪ Ingénieur principal - applications d'infrastructure
Development Review, Rural Services Unit ▪ Examen des projets d'eménagement, Unité des services ruraux
Planning, Real Estate and Economic Development Department ▪ Direction générale de la planification, des biens immobiliers et du développement économique
City of Ottawa | **ville d'Ottawa** ▪ damien.whittaker@ottawa.ca ▪ 01-14

From: William Kollaard <bill@kollaard.ca>
Sent: Tuesday, February 27, 2024 9:36 AM
To: Evans, Allan <Allan.Evans@ottawa.ca>; Whittaker, Damien <Damien.Whittaker@ottawa.ca>
Subject: Re: FW: 6622 Bank St. CAMM machinery firefighting water

Hi Allan, Damien,

Please see the attached very preliminary site plan with the additional buildings on it for the purpose of today's discussion only.

Thx

--
William Kollaard, P.Eng.
Kollaard Associates Inc.
210 Prescott Street, Unit 1
Kemptville, Ontario
K0G 1J0
CANADA
TEL: (613) 860-0923
CEL: (613) 913-0282
www.kollaard.ca

Title: FW: 6622 Bank St. CAMM machinery firefighting water
Location: Microsoft Teams Meeting
When: February 27, 2024 10:00 a.m. – 10:30 a.m.

Organizer: Evans, Allan <Allan.Evans@ottawa.ca>
Description: Preliminary Teams discussion around site size increase and water storage options.

_____
Microsoft Teams Need help?<https://aka.ms/JoinTeamsMeeting?omkt=en-US>
Join the meeting now<https://teams.microsoft.com/l/meetup-join/19%3ameeting_NzQ3MWI1ZTMtNjhjNC00MTQzLThmYjEtMjU2MTVjYjcyOTVj%40thread.v2/0?context=%7b%22Tid%22%3a%22dfcc033d-df87-4c6e-a1b8-8eaa73f1b72e%22%2c%22Oid%22%3a%222579a71b-22e3-4988-b37b-16a8db6bf708%22%7d>
Meeting ID: 239 517 222 832
Passcode: eMoD8c
_____
Dial-in by phone
+1 613-319-1080,,815547626#<tel:+16133191080,,815547626> Canada, Ottawa-Hull
Find a local number<https://dialin.teams.microsoft.com/1f5fd6b6-7613-484d-aafe-996ac0e0cf16?id=815547626>
Phone conference ID: 815 547 626#
Join on a video conferencing device
Tenant key: teams@vc.ottawa.ca<http://microsoft.com/>
Video ID: 115 066 255 5
More info<https://pexip.me/teams/vc.ottawa.ca/1150662555>
For organizers: Meeting options<https://teams.microsoft.com/meetingOptions/?organizerId=2579a71b-22e3-4988-b37b-16a8db6bf708&tenantId=dfcc033d-df87-4c6e-a1b8-8eaa73f1b72e&threadId=19_meeting_NzQ3MWI1ZTMtNjhjNC00MTQzLThmYjEtMjU2MTVjYjcyOTVj@thread.v2&messageId=0&language=en-US> | Reset dial-in PIN<https://dialin.teams.microsoft.com/usp/pstnconferencing>
_____

_____
From: Evans, Allan <Allan.Evans@ottawa.ca>
Sent: February 16, 2024 3:06 PM
To: bill@kollaard.ca
Subject: RE: FW: 6622 Bank St. CAMM machinery firefighting water

Hi – there are a few things in play around this and I won't have answers for another week or two for some of them.

I'm only a part of the equation, and the authority comes from the OBC not the fire code so I have limited ability to impact the outcome.

Let me work on my internal stuff here first and we will touch base back in like a week and a half once I have some further answers and we can loop in the building code representative for the discussion. I'll send you a teams invite for the rough timeframe and adjust as necessary if that works?

Allan Evans

Fire Protection Engineer / Ingénieur de Protection d'Incendies
Prevention Division / Prévention des Incendies
Ottawa Fire Services / Service des Incendies d'Ottawa
1445 Carling Avenue / 1445 Avenue Carling
Ottawa, ON K1Z 7L9
Allan.Evans@Ottawa.ca<mailto:xxxxxx@ottawa.ca>
• (613) 913-2747|• (613) 580-2424 x24119|6 (613) 580-2866 |• Mail Code: 25-102|@OFSFPE

[cid:image001.jpg@01DA60EA.4361AF20][cid:image002.jpg@01DA60EA.4361AF20]

From: William Kollaard <bill@kollaard.ca<mailto:bill@kollaard.ca>>
Sent: February 15, 2024 2:59 PM
To: Evans, Allan <Allan.Evans@ottawa.ca<mailto:Allan.Evans@ottawa.ca>>
Subject: Re: FW: 6622 Bank St. CAMM machinery firefighting water

Hi Alan,

Thanks for contacting me. Thom Fuller is good friend and I have met with Pall Hutt and Duncan McNaughton several times, but I don't think we have met.

We are working on a revision to the site plan that includes 2 more buildings of a similar size and use of the the existing building with appropriate spatial separation. The site that was constructed a few years ago includes 270,000 litres of water storage. The calculation was done as per the OBC at that time. If we use the FUS method, we are requiring at least 4 times that volume. We (Kollaard Assoc. and CAMM) are hoping that an exception can be made based on the fact that the building is non-combustible and the contents are mainly steel equipment, machines, etc. His existing warehouse is full - I was hoping we could have a meeting on site and come up with a plan that all parties are comfortable with. Please call my cell if you have any questions.

--

William Kollaard, P.Eng.

Kollaard Associates Inc.

210 Prescott Street, Unit 1

Kemptville, Ontario

K0G 1J0

CANADA

TEL: (613) 860-0923

CEL: (613) 913-0282

www.kollaard.ca<http://www.kollaard.ca>
On 2024-02-15 1:45 p.m., Evans, Allan wrote:
Hi Bill – not sure if we've ever had a meeting together, but I know I have with some others at your company. I can't find anything on 6622 Bank Street (other than the original application back in 2019/2020 timeframe which I was a part of). Have you been in contact with anyone from the city about this application yet? Do you have the FUS calculation prepared? Curious what stage this new addition or building is at and what info you have available for it.

Thanks,

Allan Evans
Fire Protection Engineer / Ingénieur de Protection d'Incendies
Prevention Division / Prévention des Incendies
Ottawa Fire Services / Service des Incendies d'Ottawa
1445 Carling Avenue / 1445 Avenue Carling
Ottawa, ON K1Z 7L9
Allan.Evans@Ottawa.ca<mailto:xxxxxx@ottawa.ca>
• (613) 913-2747|• (613) 580-2424 x24119|6 (613) 580-2866 |• Mail Code: 25-102|@OFSFPE

[cid:image001.jpg@01DA60EA.4361AF20][cid:image002.jpg@01DA60EA.4361AF20]

From: Fuller, Tom <Tom.Fuller@ottawa.ca<mailto:Tom.Fuller@ottawa.ca>>
Sent: February 13, 2024 7:30 PM

Subject: 6622 Bank St. CAMM machinery firefighting water

Good Morning Chief

My friend Bill Kollaard is an engineer designing the firefighting water facilities for an expansion at the CAMM property on Bank St. in Greely. He would like to schedule a meeting with a fire chief who can apply some discretion to the required quantity of water to be stored on site.

Apparently, the method for calculating the amount needed has changed since the property owner built their first structure from Ontario Building Code requirements to the Fire Underwriters Survey method and this results in a significant increase to the amount required which will be quite an

expensive installation, for the new building.

Would it be appropriate for the owner and the engineer to meet with Alan Evans and Chief Miller at the site ? Can you either delegate this or advise me how to facilitate this for them ?

Thanks very much.

Thom

Thom Fuller
Captain
Ottawa Fire Services
Station 56 B Platoon
(613) 291-2041
104892

[cid:image003.jpg@01DA60EA.4361AF20]
'

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about:blank
Attachments: about:blank
about:blank

Attendees:

1. bill@kollaard.ca <bill@kollaard.ca>
2. Whittaker, Damien <Damien.Whittaker@ottawa.ca>

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Attachments:

Revision 2 - Memo accompanying forthcoming Rural fire technical bulletin.docx 59.4 KB

Appendix D: Fire Flow Demand Calculations Using OBC

APPENDIX D: FIRE FLOW DEMAND CALCULATIONS USING OBC

Client:	**CAMM Warehousing and Rentals**
Job No.:	**230156**
Location:	**6622 Bank St., Ottawa**
Date:	**October 7, 2024**

Fire Water Storage and Supply Flow Rate Requirements

The following equation from the latest version of the Ontario Building Code (2012) was used for calculation of the on-site supply rates required to be supplied by the hydrants.

Formulae:

$$Q = KVS_{Tot}$$

$$S_{Tot} = 1.0 + [S_{side1} + S_{side2} + S_{side3} + S_{side4} + ...]$$

OBC Classification of Building Use	Group, Division	Residential Group C		
Assumed Type of Construction	Combustible with Fire Separations	Buidling is of Combustible construction with fire separations and fire resistance ratings provided in accordance with Subsection 3.2.2 including Loadbearing walls, columns and arches.		
Water Supply Coefficient (Table 1, OBC)	K	17		
Exposure Distance 1		>10	m	
Exposure Distance 2		>10	m	
Exposure Distance 3		>10	m	
Exposure Distance 4		>10	m	
Spatial Coefficient 1	Sside	0		
Spatial Coefficient 2	Sside	0		
Spatial Coefficient 3	Sside	0		
Spatial Coefficient 4	Sside	0		
Total Spatial Coefficient	Stot	1		
Average Building Height	H	7.3	m	
Building Footprint	A	2,174	sq.m	
Total Building Volume	V	15,870	cu.m	
Minimum Supply of Water	Q	269,793	L	
Required Fire Flow	Qf	6300	L/min	*per Table 2 on A-3.2.5.7 of the OBC*
		105	L/s	
		1664	US gpm	

OBC - Table 2 of A-3.2.5.7. REQUIRE MINIMUM WATER SUPPLY FLOW RATE (L/min)		
Qf =	2700	If Q ≤ 108 000 L
Qf =	3600	108 000L < Q ≤ 135 000 L
Qf =	4500	135 000L < Q ≤ 162 000 L
Qf =	5400	162 000L < Q ≤ 190 000 L
Qf =	6300	190 000L < Q ≤ 270 000 L
Qf =	9000	Q > 270 000 L

Appendix E: Correspondence with City of Ottawa RE: Closed Loop Hydrant System

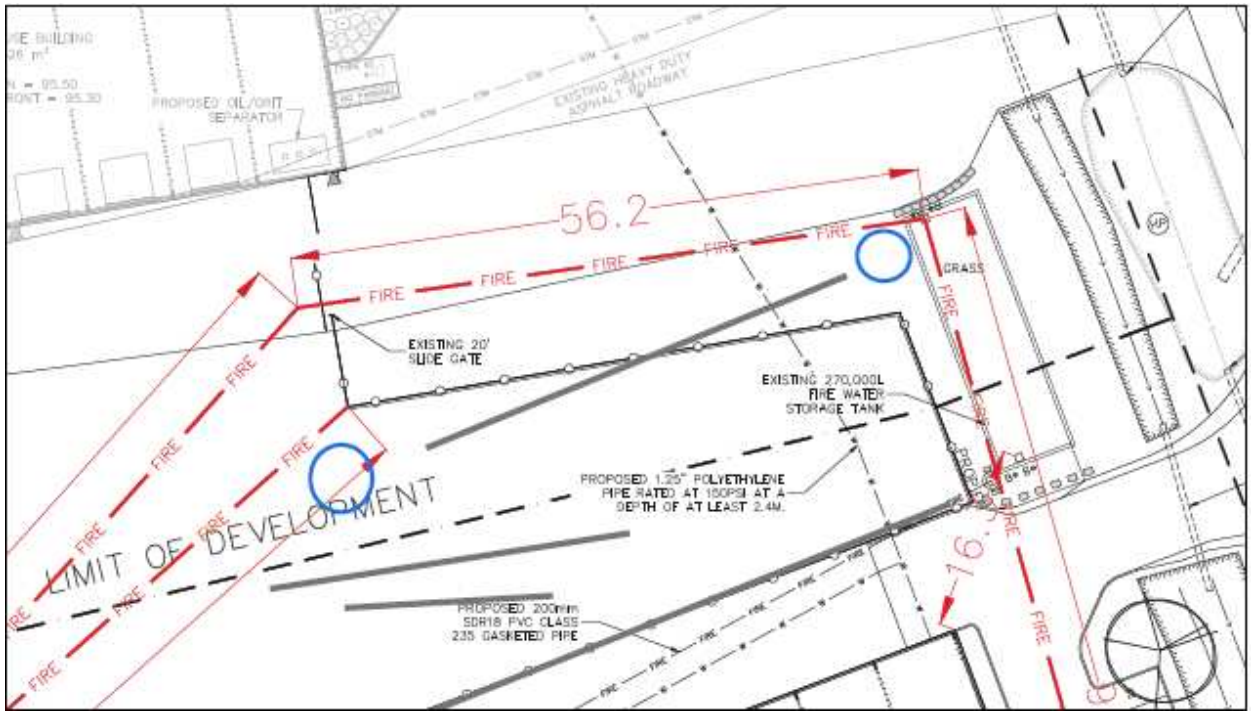
Fire Protection Services

Comments:

1. OFS accepts the proposal to use the existing 270kL water storage on site for the new building(s).

2. OFS is happy with the distances to building phase 2 with the existing draft point and proposed access and fencing as shown in the drawing – this path will have to be cleared at all times (winter maintained).

3. We do want a remote hydrant system (especially for the third building, but would also be beneficial for the second building), but the location as discussed is proposed instead (image below). These are approximate locations only, but the one “input” remote hydrant should be somewhere adjacent to the draft tank that doesn’t interfere with our approach and the “output” hydrant should be on the far side of the fence away from the building roughly as shown. Both will need to be protected from damage (bollards typically, sometimes curbing). The remote hydrant system allows us to keep the gate access clear of hoses and permit additional fire trucks access to fight the fire as necessary and also the opportunity to use it as a second water source (source 1 is tank in ground, source 2 could be tankers that drive by and connect to input hydrant).



4. We do not want a new draft point on the existing tanks. It would be too close to building 2.

5. OFS is fine with the entrances of building 2 being a bit outside of OBC requirements for distances from a water source.