Stantec Consulting Ltd.
300 - 1331 Clyde Avenue, Ottawa ON, K2C 3G4

July 7, 2022
File: 160401742

Attention: **Amya Martinov (Per Evode Rwagasore),**
Student Planner
110 Laurier Avenue West
Ottawa, ON. K1P 1J1

Dear Ms. Martinov,

Reference: 3713 Navan Road Adequacy of Services (Serviceability Brief)

BACKGROUND

Stantec Consulting Ltd. has been commissioned by P.E.N. Holdings Corp. to prepare a Serviceability Brief in support of a Major Zoning By-law Amendment for a property situated at 3713 Navan Road. The zoning amendment would permit a Community Health and Resource Center within the existing building previously used as a financial institution.

The 0.18 ha site is located at the northwest corner of Navan Road and Mer-Bleue Road. As shown in the **Figure 1** plan view and **Figure 2** street view below. The existing 1 storey building is in the south portion of the site and has a gross floor area of 183 sq. metres. The applicant proposes to utilize the existing building to establish a Community Health and Resource Center that will support up to 30 patients and 5 office staff throughout a 12-hour typical workday. The site also includes an existing asphalt-paved parking lot with approximately eighteen parking spaces.

The Zoning By-law Amendment is strictly related to change of use. The existing zoning is Development Reserve (DR) zone, and the proposed re-zoning is to a General Mixed-Use (GM) zone. There are no proposed changes to the interior of the building, exterior of the building, or parking lot.

The intent of this letter is to provide an engineering rationale for the proposed changes in local infrastructure demands or loading that will result from the zoning change, while adhering to City of Ottawa design guidelines and recommendations and utilizing the existing local infrastructure in accordance with prior consultation with City of Ottawa staff.

The site is currently serviced by an existing sump pump connection to the Navan roadside ditch, an existing catch basin with an outlet to the Mer-Bleue roadside ditch, and an existing septic tank within the front yard of the site as displayed in drawing EXSP-1 in **Appendix C**. The site is also serviced by a municipal water service connection. As-built information of the existing water service was unavailable. For the purposes of this report, it has been assumed that there is a service connection from the building to either the existing 300mm diameter watermain within the Navan Road ROW south of the site (Scenario 1) or the existing 400mm diameter watermain within the Mer-Bleue Road ROW east of the site (Scenario 2).

Reference: 3713 Navan Road Adequacy of Services

Figure 1 - Site Location Plan View

Figure 2 - 3713 Navan Road Street View

Reference: 3713 Navan Road Adequacy of Services

POTABLE WATER

DEMANDS

Water demands for the development were estimated using the City of Ottawa Water Distribution Design Guidelines (2009). A rate of 75 L/day for office staff and 25 L/day for patients has been applied for average day domestic demands for the proposed Community Health and Resource Center as per Ottawa Sewer Design Guide Appendix 4-A. For detailed water demand estimates, see **Appendix A**.

The average day demand (AVDY) for the proposed use within existing building was determined to be 0.013 L/s. The maximum daily demand (MXDY) is 1.5 times the AVDY for ICI type uses, and equates to 0.020 L/s. The peak hour demand (PKHR) is 1.8 times the MXDY, totaling 0.035 L/s.

Based on the above demands, hydraulic grade lines vary from approximately 126.6 m to 130.5 m on Navan Road (Scenario 1) and 126.6 m to 130.5 m on Mer-Bleue Road (Scenario 2) as confirmed through boundary conditions provided by the City of Ottawa on June 7, 2022 (**Appendix A**).

Ordinary construction was considered in the assessment for fire flow requirements according to the FUS Guidelines. Based on calculations per the 2020 FUS Guidelines (**Appendix A**), the minimum required fire flows for this development are 50 L/s (3,000 L/min).

ANALYSIS

The property is located within the City's water pressure zone 2E.

Based on average existing on-site elevations of 86.0 m and expected pressures within the watermain system on Navan Road of 126.6 m to 130.5 m, on-site pressures under Scenario 1 are expected to range from 40.6m to 44.5m (397.8 kPa (57.7 psi) to 436.4 kPa (63.3 psi)).

On Mer-Bleue Road expected pressures within the watermain system for Scenario 2 are 126.6 m to 130.5m, on-site pressures are expected to range from 40.6 m to 44.5 m (397.1 kPa (57.6 psi) to 435.7 kPa (63.2 psi)).

The Gloucester East Urban Community Phase 2 Infrastructure Servicing Study Update (Gloucester EUC ISSU) prepared by Stantec dated September 27, 2013, was reviewed in conjunction with the provided boundary conditions. As confirmed by the City of Ottawa on June 7, 2022, none of the Scenarios (A, B, and C) described in the Gloucester EUC ISSU represent the water network currently servicing the EUC. Based on this confirmation, the analysis of the service adequacy for this site has been based on the existing infrastructure and boundary conditions provided by the City.

Reference: 3713 Navan Road Adequacy of Services

The boundary condition values provided by the city for both servicing Scenarios 1 and 2 are within the recommended pressure range of 345 kPa to 552 kPa (50 to 80 psi) and not less than 276 kPa (40 psi) under maximum hourly demand conditions, as recommended by the City of Ottawa's Water Distribution Design Guidelines.

Based on the anticipated maximum day water demand of 0.020 L/s and fire flow requirements per the FUS methodology (**Appendix A**) of 50 L/s (the maximum fire flow noted for the existing building) the 300mm watermain within Navan Road is expected to maintain a residual pressure of 128.5 m (417.1 kPa (60.5 psi)).

The 400mm watermain within Mer-Bleue Road is expected to maintain a residual pressure of 128.5 m (416.4 kPa (60.4 psi)).

This demonstrates that the existing watermain and nearby hydrants can provide adequate fire flows in excess of the calculated 50 L/s fire flow requirement with the required residual pressure of 20 psi for either servicing scenario. The nearest existing hydrant is located 29.5 m southwest of the site within the Navan Road ROW and a second is located 51.9 m northeast of the site at the northeast corner of Mer-Bleue Road and Saphir Avenue, as shown in **Figure 3**. Both hydrants are within 90 m of the main entrance as per City of Ottawa requirements.

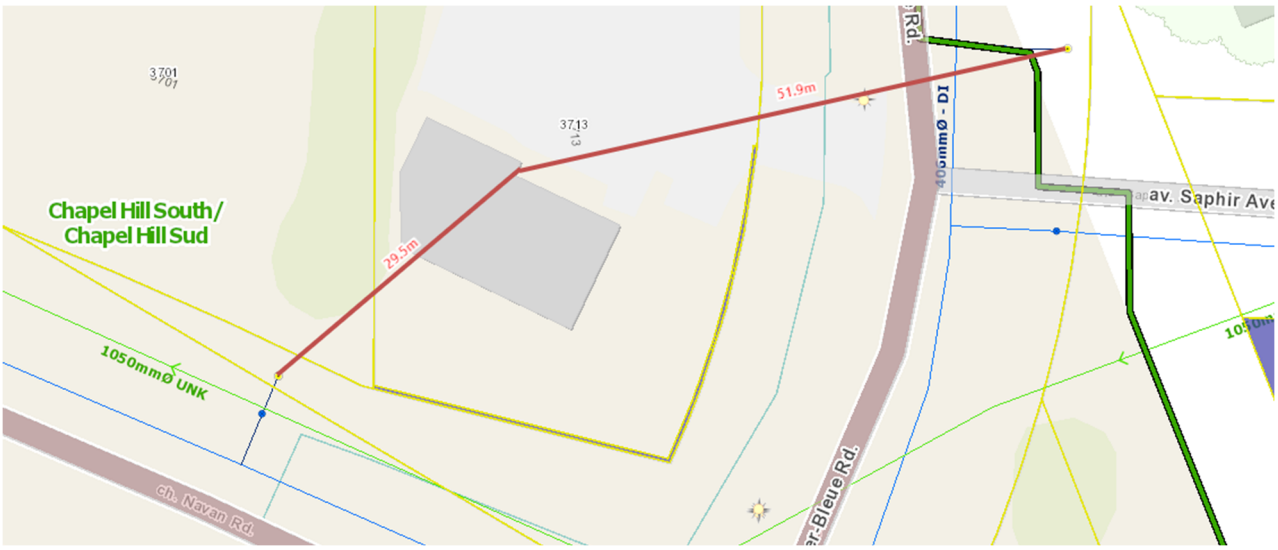


Figure 3 - Fire Hydrant Coverage

Reference: 3713 Navan Road Adequacy of Services

SANITARY SEWER

The site will continue to be serviced via the existing septic tank situated near the southern boundary of the site (see drawing EXSP-1 in **Appendix C**). The proposed building occupancy will allow the 3713 Navan Road property to function as a Community Health and Resource Center. As outlined in the City of Ottawa Sewer Design Guidelines and the MOE's Design Guidelines for Sewage Works, the following criteria were used to calculate estimated wastewater flow rates.

- Average Wastewater Generation – 75 L/person/day (Office Staff)
- Average Wastewater Generation – 25 L/person/day (Patients)

The wastewater generation rates were obtained from the medical office buildings, dental offices, and medical clinics section of Appendix 4-A.3 of the City of Ottawa Sewer Design Guidelines (2012). Based on the above, the daily sanitary loading to the septic system for the proposed building use is estimated to be 1,125 L/day (see **Appendix B**).

A geotechnical consultant (Paterson Group) has been retained to conduct a desktop sewage system sizing review to assess the capacity of the existing septic system (see **Appendix D.1** for full memorandum). Based on their assessment of the Ministry of Environment Use Permit No. 75(14) and several assumptions, Paterson Group determined that the existing system could support a daily flow rate of 1,200 L/day.

Paterson Group found that: "*Considering the minimum working capacity of the existing on-site sewage system has been noted to be 1,200 L/day which exceeds the proposed daily flow rate of 1,125 L/day, the existing sewage system is considered to be adequately sized to support the potential change of use at the aforementioned site.*"

In an email correspondence dated May 31, 2022 (see **Appendix D.2**) Paterson Group also notes: "*It should be noted the condition of the system and the underlying soils should be confirmed and the estimated maximum allowable flow rate is based on the file search information only.*"

STORM SEWER

The site is currently serviced via an existing sump pump connection to the Navan roadside ditch and an existing parking lot catch basin with an outlet to the Mer-Bleue roadside ditch as displayed in **Appendix C**. There is no proposed increase to the amount of impervious area on site, nor are there modifications proposed to the exterior of the 3713 Navan Road building for this application. As such, no increases in the estimated peak storm sewer discharge rate for the site have been identified. Stantec has not inspected the sump pump or discharge line, nor have we received any design information regarding them. It is recommended that these be inspected by the owner in order to confirm they are in good working order.

Reference: 3713 Navan Road Adequacy of Services

UTILITIES

As the subject site lies within a developed community, Hydro, Bell, Gas and Cable servicing for the proposed change of use should be readily available as indicated in **Appendix C**. It is anticipated that existing infrastructure will be sufficient to provide a means of distribution for the proposed site. No off-site works are anticipated to be required for rezoning of the subject site.

RECOMMENDATIONS

Stantec has not inspected the condition of any of the servicing infrastructure on site and can only comment on the adequacy of the design of the original servicing infrastructure using the data that has been provided. It is recommended that the sump pump and discharge line be inspected by the owner in order to confirm they are in good working order.

Responsibility for the assessment of the capacity and adequacy of the septic bed lies with Paterson Group, who has recommended that the condition of the system and the underlying soils should be confirmed; presumably, this would also include confirmation of several of the assumptions made in the desktop assessment in **Appendix D**.

Based on the information provided, it is anticipated that the current servicing infrastructure for the 3713 Navan Road property (if in adequate condition) will be sufficient for rezoning purposes to permit the establishment of a Community Health and Resource Center within the subject property.

Regards,

STANTEC CONSULTING LTD.

Warren Johnson, C.E.T.
Civil Engineering Technologist
Phone: (613) 784-2272
Warren.Johnson@Stantec.com

Neal Cody, P.Eng.
Water Resources Engineer
Phone: (780) 969-3263
Neal.Cody@stantec.com

Reference: 3713 Navan Road Adequacy of Services

Attachments: Appendix A:
- Boundary Conditions
- Water Demand Estimates
- FUS Calculations
- Background Report Excerpts

Appendix B:
- Sanitary Discharge Calculations

Appendix C:
- Existing Site Servicing Plan
- Site and Floor Plan Drawings – Existing Building

Appendix D:
- Desktop Sewage System Sizing Review Memorandum
- Correspondence with Paterson RE: PH4577: 3713 Navan Road - Desktop Sewage System Sizing Assessment

June 28, 2022
Amya Martinov (Per Evode Rwagasore),
Student Planner
Appendices

Reference: 3713 Navan Road Adequacy of Services

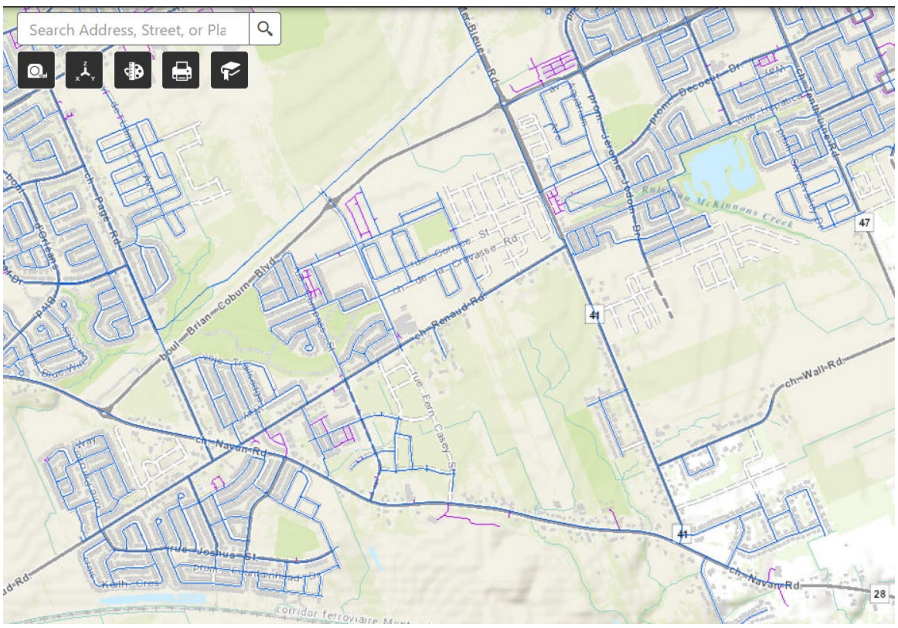
APPENDIX A

From: Polyak, Alex
To: Gladish, Alyssa
Cc: Johnson, Warren
Subject: RE: 3713 Navan Road Coordination
Date: Tuesday, June 7, 2022 9:15:20 AM
Attachments: image002.png
image003.png
image004.png
image005.png
3713 Navan Road_03June2022.docx

Good morning Alyssa,

I've checked with a few colleagues regarding whether the City can share historical water consumption data, and we do not share this information.

Please see the attached site boundary conditions. The boundary conditions provided by the City are based on watermains in service as shown below.



None of the scenarios described below represent the water network currently servicing the EUC.

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GLOUCESTER EAST URBAN COMMUNITY PHASE 2 INFRASTRUCTURE SERVICING STUDY UPDATE

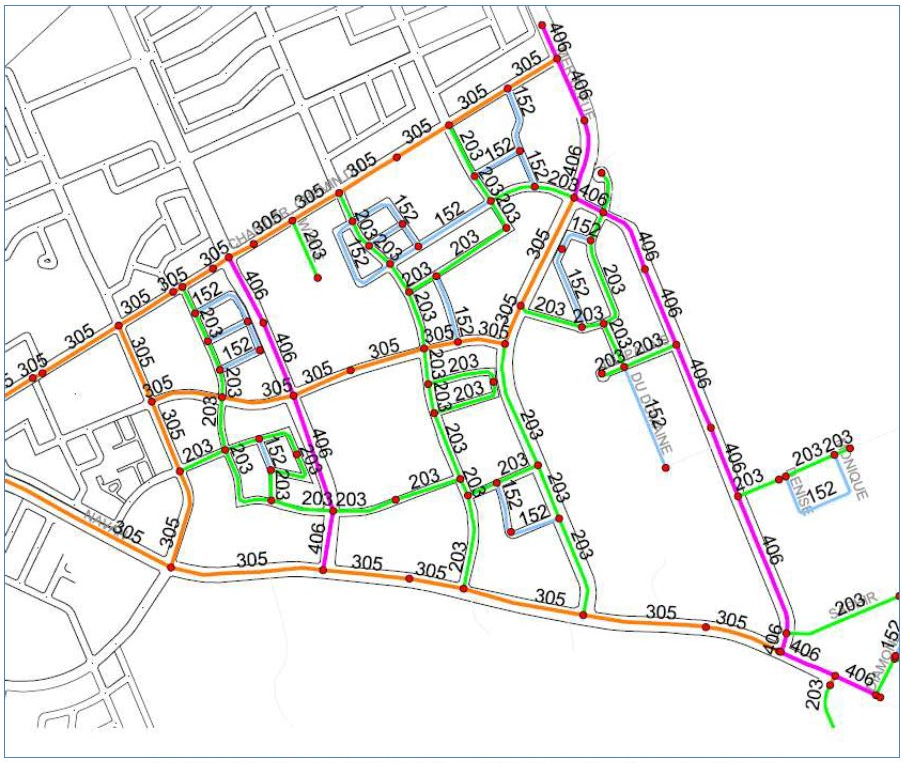
Water Supply

October 2, 2013

The network was tested under three configurations: A) Existing conditions with only EUC Phase 2 watermain; B) Same as A) except with the completion of the Mer Bleue 406mm dia w/m and C) complete build out of all EUC lands.

The objective of testing the three configurations noted above was to determine the impact of building Phase 2 of the EUC without any additional looping of major transmission lines to the area versus completing a critical transmission link to the south area of the EUC (i.e. the Mer Bleue watermain) versus the results once all network pipes are in and full growth (i.e. demands are observed).

GLOUCESTER EAST URBAN COMMUNITY PHASE 2 INFRASTRUCTURE SERVICING STUDY UPDATE
Water Supply
October 2, 2013



Drawing 11 Proposed EUC Phase 2 Watermain Diameters (mm)

If you still have questions, do not hesitate to reach out.

Regards,

Oleksandr (Alex) Polyak., B.Eng., EIT

Prj Mgr, Infrastructure Approvals, Development Review East Branch | Gestionnaire de projet, Direction de l'examen des projets d'aménagement – Est.
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
110 Laurier Ave., 4th Fl East;
Ottawa ON K1P 1J1

Alex.Polyak@Ottawa.ca

From: Gladish, Alyssa <Alyssa.Gladish@stantec.com>
Sent: June 03, 2022 7:16 PM
To: Polyak, Alex <alex.polyak@ottawa.ca>
Subject: RE: 3713 Navan Road Coordination

Hello Alex.

The owner took possession of the property on April 26, 2022, so I do not believe they will have access to the historical water consumption data.

I appreciate your further inquiry regarding this matter.

Have a great weekend!

Best,
Alyssa

Alyssa Gladish E.I.T.
Project Manager, Community Development

Direct: 780 917-8567
Mobile: 587 721-1241
Alyssa.Gladish@stantec.com

Stantec
300-1331 Clyde Avenue
Ottawa ON K2C 3G4

From: Polyak, Alex <alex.polyak@ottawa.ca>
Sent: Monday, May 30, 2022 9:54 AM
To: Gladish, Alyssa <Alyssa.Gladish@stantec.com>
Subject: RE: 3713 Navan Road Coordination

Hi Alyssa,

Historical water consumption data should be available to the Owner, however I will let you know if we can share that information with you.

Regards,

Oleksandr (Alex) Polyak., B.Eng., EIT

Prj Mgr, Infrastructure Approvals, Development Review East Branch | Gestionnaire de projet, Direction de l'examen des projets d'aménagement – Est.
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
110 Laurier Ave., 4th Fl East;
Ottawa ON K1P 1J1

Alex.Polyak@Ottawa.ca

From: Gladish, Alyssa <Alyssa.Gladish@stantec.com>
Sent: May 30, 2022 11:34 AM
To: Polyak, Alex <alex.polyak@ottawa.ca>
Subject: RE: 3713 Navan Road Coordination

Hi Alex,

Thank you for reaching out to asset management.

For the third item listed "Do you have any historical water consumption data available for the site?" Is there a contact that I should reach out to at the City to request historical consumption data? We were hoping this information would assist us and Paterson with the evaluation of the sanitary system.

Best regards,

Alyssa

Alyssa Gladish E.I.T.
Project Manager, Community Development

Direct: 780 917-8567
Mobile: 587 721-1241
Alyssa.Gladish@stantec.com

Stantec
300-1331 Clyde Avenue
Ottawa ON K2C 3G4

From: Polyak, Alex <alex.polyak@ottawa.ca>
Sent: Monday, May 30, 2022 10:23 AM
To: Gladish, Alyssa <Alyssa.Gladish@stantec.com>
Subject: RE: 3713 Navan Road Coordination

Good morning Alyssa,

My weekend was good. Hope yours was as well. I reached out to asset management and requested an update on the boundary condition request that Warren submitted on May 13th, which should shed some light on your questions.

Kind Regards,

Oleksandr (Alex) Polyak., B.Eng., EIT

Prj Mgr, Infrastructure Approvals, Development Review East Branch | Gestionnaire de projet, Direction de l'examen des projets d'aménagement – Est.
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
110 Laurier Ave., 4th Fl East;
Ottawa ON K1P 1J1

Alex.Polyak@Ottawa.ca

From: Gladish, Alyssa <Alyssa.Gladish@stantec.com>
Sent: May 30, 2022 10:11 AM
To: Polyak, Alex <alex.polyak@ottawa.ca>
Subject: RE: 3713 Navan Road Coordination

Good morning Alex,

I hope you had a good weekend.

I am following-up to see if there has been any traction on the coordination and inquiries below?

I believe we are also awaiting the boundary conditions for this site (submitted May 13, 2022) is there any

update on when those can be expected?

Thank you kindly,
Alyssa

Alyssa Gladish E.I.T.
Project Manager, Community Development

Direct: 780 917-8567
Mobile: 587 721-1241
Alyssa.Gladish@stantec.com

Stantec
300-1331 Clyde Avenue
Ottawa ON K2C 3G4

From: Gladish, Alyssa
Sent: Tuesday, May 24, 2022 4:08 PM
To: alex.polyak@ottawa.ca
Subject: 3713 Navan Road Coordination

Hello Alex,

I hope you were able to enjoy the long weekend and were not severely impacted by Saturday's storm.

I have three questions for you regarding the 3713 Navan Road project.

1. Upon reviewing the Master Servicing Study (EUC Phase 2), we were unsure what Scenario the site is currently in, Scenario A or B?
    a. The existing infrastructure on GeoOttawa appears to line up with the existing watermain layout from Drawing 10 leading us to believe *no work has yet been done in the area*.
    b. If we are currently in Scenario A:
        - we expected the existing infrastructure to match that shown on Drawing 20.
        - the minimum pressures are not being met as discussed in the ISSU.
    c. In Scenario B, why does the relocation of the watermain to accommodate the proposed jog in Mer-Bleue cause significantly increased pressure and flow if the existing Mer-Bleue main was already 400mm dia.?
    d. Are we required to provide discussion on the ultimate watermain Scenario C?

2. We were unable to locate the WTR service connection for this property when the topographic survey of the site was conducted, and the roadway as=built plans appear to predate the building on this site. Do you have any other information available on the location of the water service, and whether it connects to Navan Road or Mer Bleue Road?

   Do you have any historical water consumption data available for the site? This information will be

3.

required if we need to discuss Scenario C.

Thank you for your assistance.

Best Regards,
Alyssa

Alyssa Gladish E.I.T.
Project Manager, Community Development

Direct: 780 917-8567
Mobile: 587 721-1241
Alyssa.Gladish@stantec.com

Stantec
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Ottawa ON K2C 3G4

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Boundary Conditions
3713 Navan Road

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	0.78	0.013
Maximum Daily Demand	1.20	0.020
Peak Hour	2.10	0.035
Fire Flow Demand #1	3,000	50.00

Location – Scenario 1

Results – Scenario 1

Connection 1 – Navan Rd.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	130.5	63.3
Peak Hour	126.6	57.7
Max Day plus Fire 1	128.5	60.5

Ground Elevation = 86.0 m

Location – Scenario 2

Results – Scenario 2

Connection 1 – Mer Bleue Rd.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	130.5	63.2
Peak Hour	126.6	57.6
Max Day plus Fire 1	128.5	60.4

Ground Elevation = 86.0 m

Disclaimer

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

3713 Navan Road - Water Demand

Project #160401742

12-May-22

Building ID	Area (m^2)	Population	Daily Rate of Demand [1 2] (L/day)	Avg Day Demand		Max Day Demand [3]		Peak Hour Demand [3]	
				(L/min)	(L/s)	(L/min)	(L/s)	(L/min)	(L/s)
Office staff		5	75	0.260	0.004	0.391	0.007	0.703	0.012
Patients		30	25	0.521	0.009	0.781	0.013	1.406	0.023
Total Site :		**35**		**0.781**	**0.013**	**1.172**	**0.020**	**2.109**	**0.035**

1 For the purpose of this study it is predicted that the facilities will be operated 12 hours per day.

2 As per OSDG Appendix 4-A, Medical office buildigs, dental offices, and medical clinics :

Office staff=75 L/day

Patients=25L/day

3 City of Ottawa water demand criteria used to estimate peak demand rates for industrial and insitutional areas are as follows:

maximum day demand rate = 1.5 x average day demand rate

maximum hour demand rate = 1.8 x maximum day demand rate

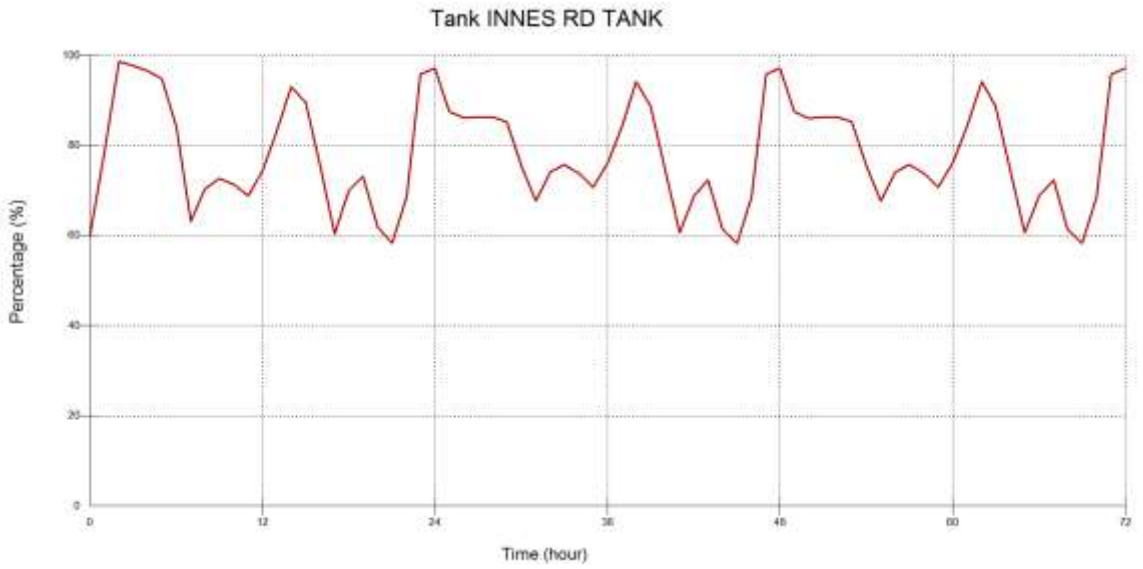
Stantec

FUS Fire Flow Calculation Sheet - 2020 FUS Guidelines

Stantec Project #: 160401742
Project Name: 3713 Navan Road
Date: 5/13/2022
Fire Flow Calculation #: 1
Description: Existing one storey brick building

Notes: 183m2 Floorplate

Step	Task	Notes								Value Used	Req'd Fire Flow (L/min)
1	Determine Type of Construction	Type III - Ordinary Construction / Type IV-C - Mass Timber Construction								1	-
2	Determine Effective Floor Area	Sum of All Floor Areas								-	-
		183								183	-
3	Determine Required Fire Flow	($F = 220 \times C \times A^{1/2}$). Round to nearest 1000 L/min								-	3000
4	Determine Occupancy Charge	Limited Combustible								-15%	2550
5	Determine Sprinkler Reduction	None								0%	0
		Non-Standard Water Supply or N/A								0%	
		Not Fully Supervised or N/A								0%	
		% Coverage of Sprinkler System								0%	
6	Determine Increase for Exposures (Max. 75%)	Direction	Exposure Distance (m)	Exposed Length (m)	Exposed Height (Stories)	Length-Height Factor (m x stories)	Construction of Adjacent Wall	Firewall / Sprinklered ?		-	-
		North	20.1 to 30	19.3	1	0-20	Type V	NO		0%	0
		East	> 30	9.2	1	0-20	Type V	NO		0%	
		South	> 30	16.7	1	0-20	Type V	NO		0%	
		West	> 30	11.2	1	0-20	Type V	NO		0%	
7	Determine Final Required Fire Flow	Total Required Fire Flow in L/min, Rounded to Nearest 1000L/min									3000
		Total Required Fire Flow in L/s									50.0
		Required Duration of Fire Flow (hrs)									1.25
		Required Volume of Fire Flow (m^3)									225



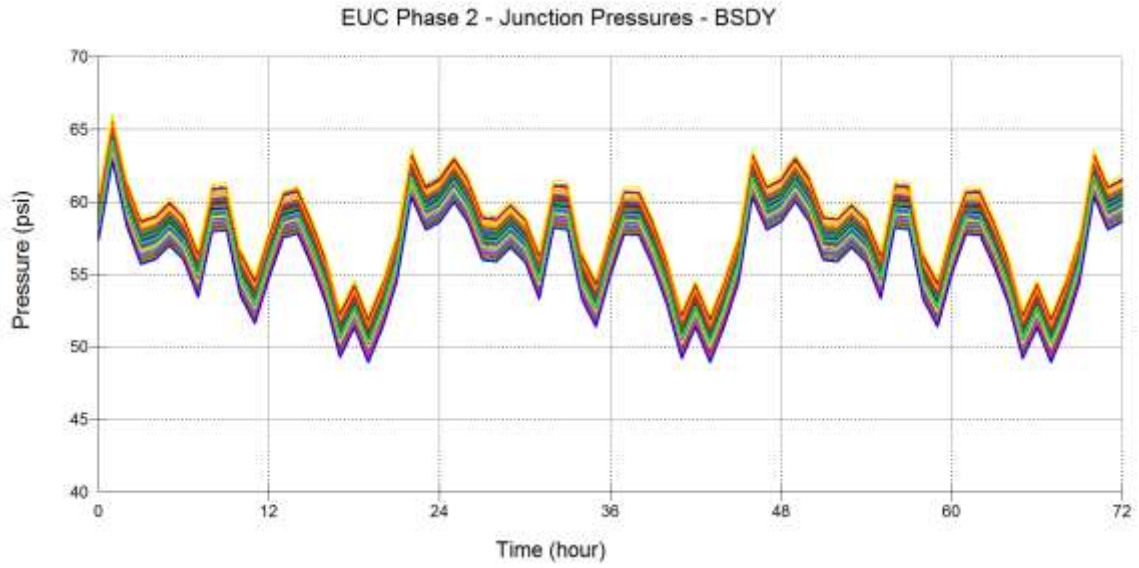
Drawing 15 Fill Draw Cycles in the Innes EST under BSDY Demands

3.3.3 Basic Day Demand Analysis

Under typical operating conditions, there is minimal headloss in the distribution system and therefore, the pressures within the Phase 2 development area will be dependent on ground elevations and hydraulic grade lines (HGLs) from the discharge of the pumping stations and the water levels in the Innes Road elevated storage tank (which vary from approximately 126m to 131m).

Drawing 16 presents the resulting BSDY pressures over 72 hours for all 82 nodes within the Phase 2 boundaries. The following table summarizes resulting minimum and maximum pressures observed in the entire Phase 2 service area under basic day demands. The ranges of pressures shown in the table are all within the allowable pressure range of 40 psi to 100 psi as recommended by the City of Ottawa Design Guidelines.

Scenario	Min Pressure (psi)	Max Pressure (psi)
A	49	66
B	52	66
C	53	64



Drawing 16 BSDY Pressures

3.3.4 Maximum Day/Peak Hour Demand Analysis

A peak hour demand analysis was carried out using an extended period simulation of maximum day demands. The diurnal patterns for residential and ICI demands were previously established in the City's hydraulic model.

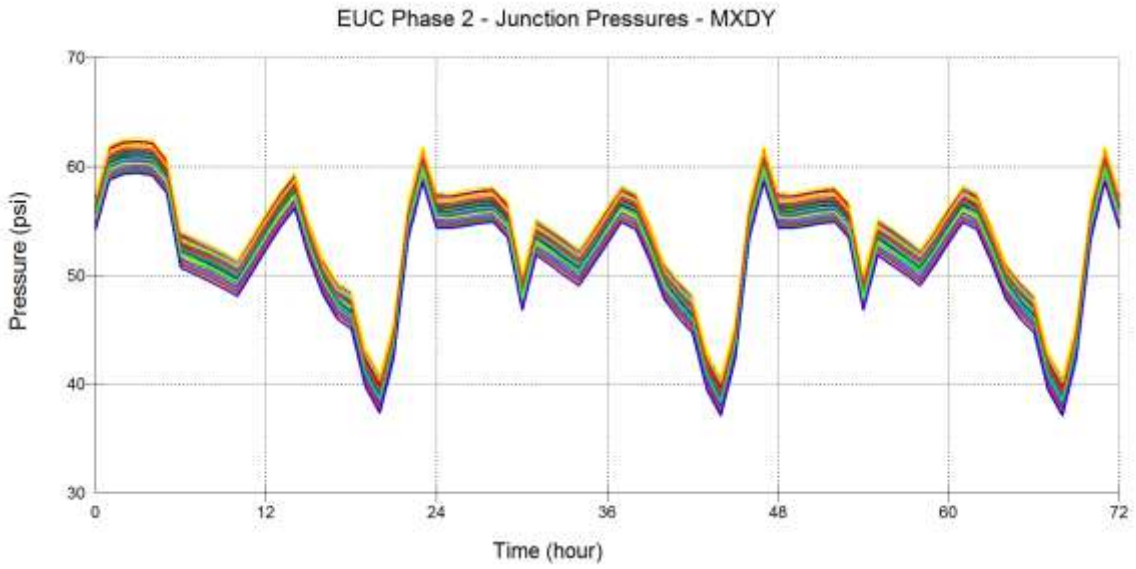
Under Scenario A where there is no additional external transmission to the EUC Phase 2 lands, the headlosses in the existing network under the increased demands of Phase 2 are such that the minimum pressures fall below the design guideline requirements of 40 psi. As such, prior to full build-out of Phase 2, it will be necessary to provide additional transmission of flow from the large diameter watermain network (i.e. from the HEPC watermain and/or Innes Road watermain). There are currently to major feeds proposed in the EUC area, extending directly south of the Innes Road EST and another along Mer Bleue.

As shown in the results, with the additional transmission along Mer Bleue, (Scenario B) headloss to Phase 2 lands is significantly reduced and minimum pressures are kept closer to the City minimum pressure objective of 50 psi.

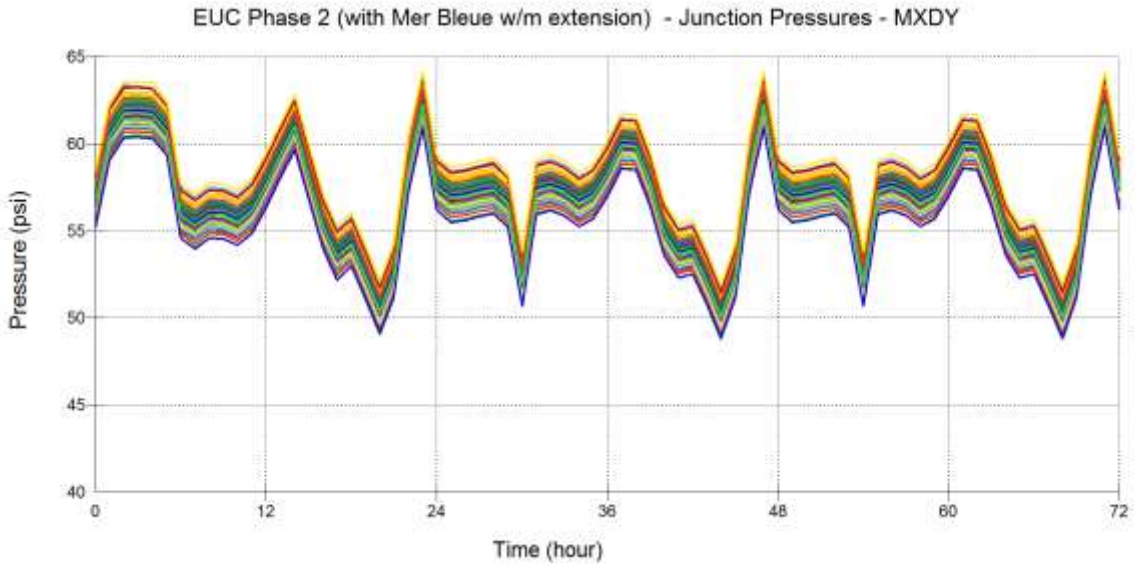
With the completion of the entire EUC, i.e. Build-out (Scenario C), the additional pipe network counters the additional demands and the resulting minimum pressures of the Phase 2 lands stay close to the 50 psi objective.

Scenario	Min Pressure (psi)	Max Pressure (psi)
A	37	64
B	49	64
C	48	64

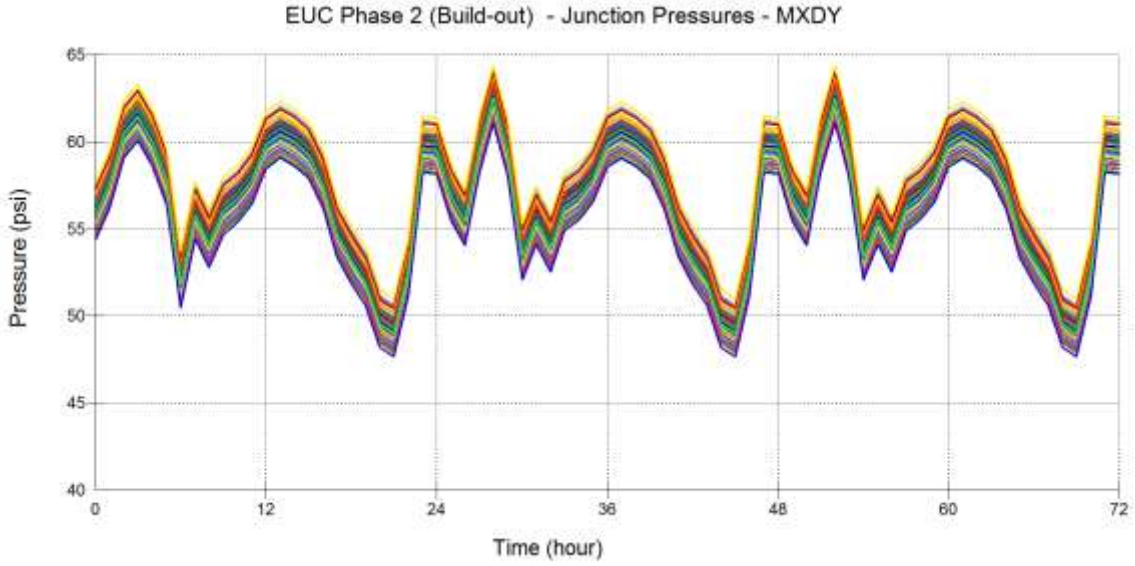
Drawing 17, Drawing 18 and Drawing 19 further illustrate the pressures observed in the Phase 2 network under the three scenarios modeled.



Drawing 17 Scenario A – MXDY Pressures in EUC Phase 2



Drawing 18 Scenario B – MXDY Pressures in EUC Phase 2



Drawing 19 Scenario C – MXDY Pressures in EUC Phase 2

3.3.5 Maximum Day Fire flow Analysis

Using the automated fire flow modeling feature of the modeling software, a fire flow analysis was carried out on each node in the system individually. This is accomplished by the software that systematically applies an increasing demand at each node, one analysis at a time, and

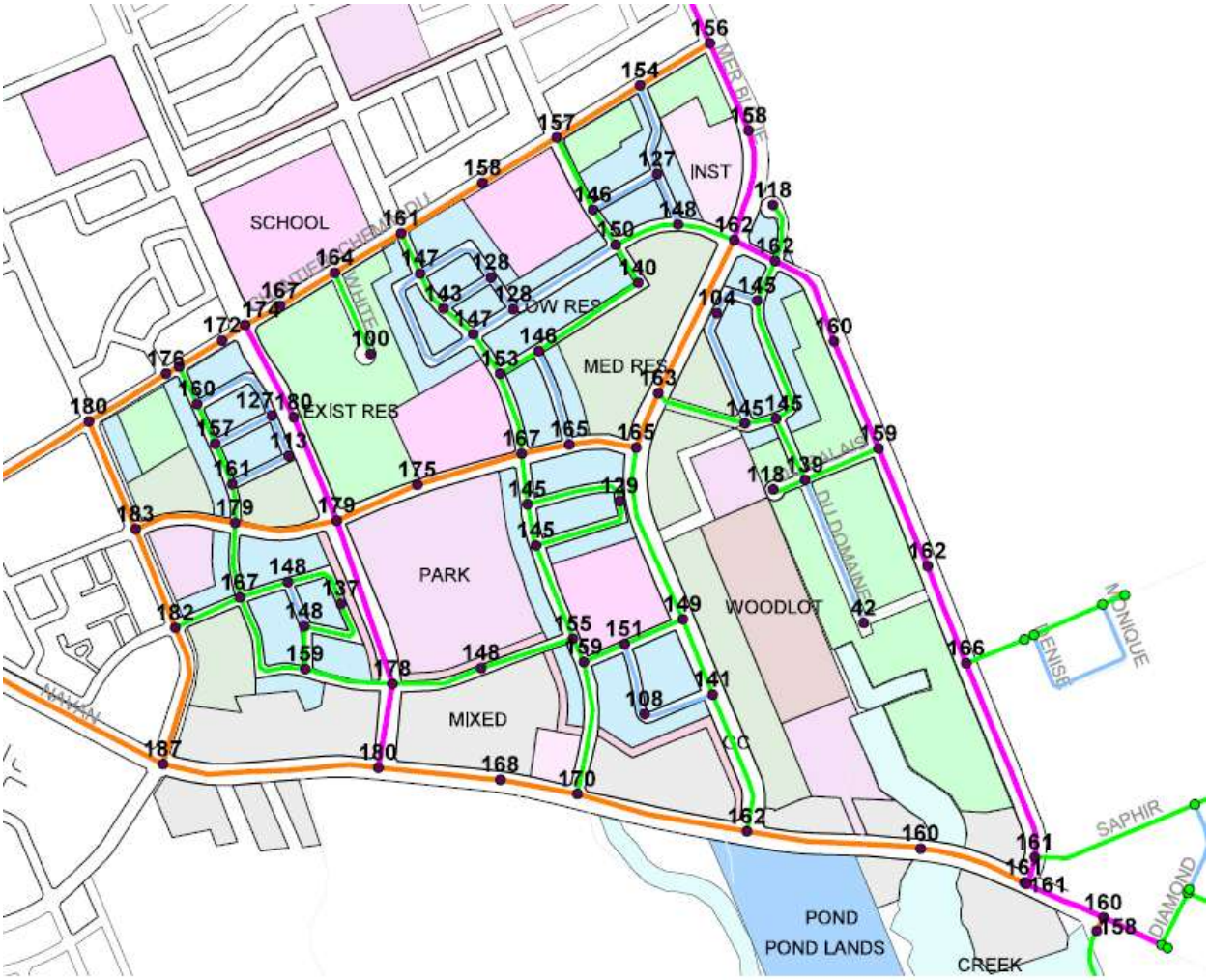
determines the resulting flow that causes pressures to fall to a residual pressure of 20 psi in the distribution network. Subtracting the node's domestic demands returns the "available fire flow demand" at each node.

The following table and **Drawing 20** provide a snapshot of the results of the fire flow analysis. Under Scenario A, the maximum available fire flow in the entire Phase 2 network is 187L/s (11,200L/min) and the average is 153L/s (9180L/min). Although this may be suitable for most residential structures, it is considered somewhat limiting and could have a potential negative impact on the types of development that would be permitted to proceed under these network conditions.

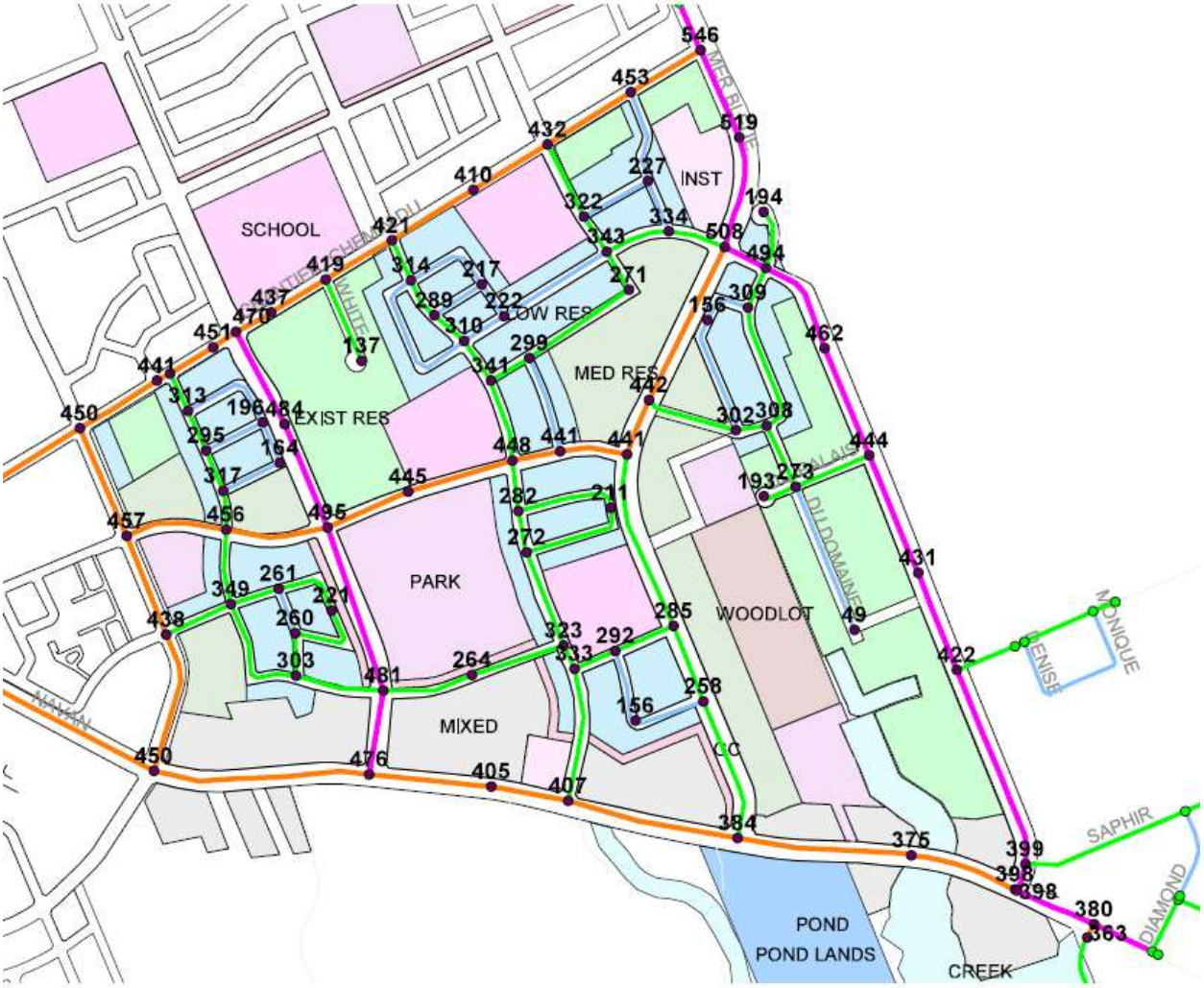
It should be noted that for specific buildings, the Fire Underwriters Survey (FUS) guidelines requires a determination of the fire suppression needed based on parameters such as building material, size and edifice separation distances. This is not typically determined at this level of study however; the system should be designed accordingly to handle a wide range of flows given the types of land uses proposed.

Under scenarios B & C (see **Drawing 21** and **Drawing 22)**, the available fire flow within the 200mm diameter and larger watermain is greater than 200L/s (12,000 L/min). Those nodes shown in the table below that are below 200L/s are located along smaller 152mm diameter watermain. If required, at the subdivision analysis, if greater fire flows are required these smaller pipes could be upsized to 200mm diameter to achieve greater flows. The existing pipes servicing nodes 391 and 389 would need to be replaced or looped to achieve greater fire flows.

ID	Available Fire Flow – Maximum Day (L/s)		
	Scenario A	Scenario B	Scenario C
391	42	49	49
389	100	137	144
23448	104	156	163
23412	108	156	164
23424	113	164	175
2522	118	193	206
23452	118	194	206
23422	127	196	212
23408	129	211	228



Drawing 20 Scenario A Available Maximum Day Fire flow (L/s)



Drawing 21 Scenario B Available Maximum Day Fire flow (L/s)

Drawing 22 Scenario C Available Maximum Day Fire flow (L/s)

3.3.6 Recommendations

The proposed network of large and small diameter watermains will be capable of providing the residential and ICI demands under basic day, peak hour conditions within the recommended minimum and maximum pressure ranges once build out is achieved. Under build out conditions, fire flows will be sufficient to achieve most FUS fire flow requirements.

If Phase 2 proceeds prior to build out it is recommended that an additional transmission line (i.e. Mer Bleue extension watermain) is constructed in order to maintain minimum pressures above design guideline requirements and to achieve a greater level of fire protection, redundancy in supply and overall improved level of service to the EUC Phase 2 area.

June 28, 2022
Amya Martinov (Per Evode Rwagasore),
Student Planner
Appendices

Reference: 3713 Navan Road Adequacy of Services

APPENDIX B

3713 Navan Road - Sanitary Generation

Project #160401742

28-Jun-22

Building ID	Area (m^2)	Population	Daily Rate of Generation[1,2] (L/day)	Avg Day Generation	
				(L/day)	(L/min)
Office staff		5	75	375	0.260
Patients		30	25	750	0.521
Total Site :		**35**		**1125**	**0.781**

1 For the purpose of this study it is predicted that the facilities will be operated 12 hours per day.

2 As per OSDG Appendix 4-A, Medical office buildigs, dental offices, and medical clinics :

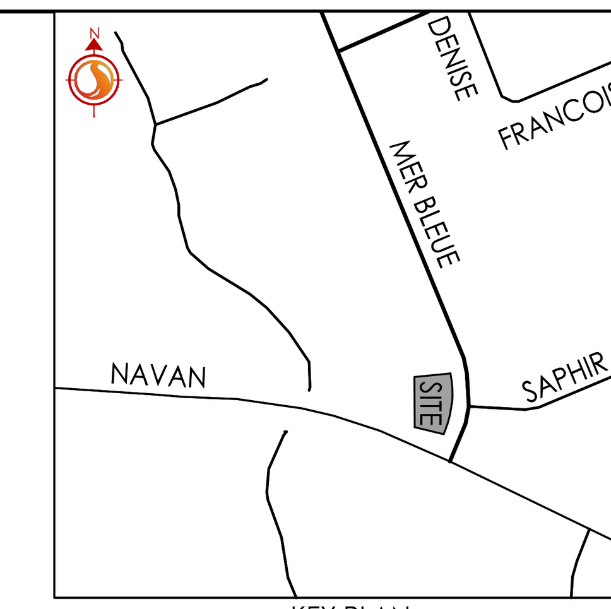
Office staff = 75 L/day

Patients = 25 L/day

June 28, 2022
Amya Martinov (Per Evode Rwagasore),
Student Planner
Appendices

Reference: 3713 Navan Road Adequacy of Services

APPENDIX C



KEY PLAN
N.T.S.

\\Ca0218-ppfss01\01-604\active\160401742\design\drawing\160401742-DB.dwg
2022/06/23 1:06 PM By: Johnson, Warren

ORIGINAL SHEET - ARCH D

Stantec

Stantec Consulting Ltd.
400 - 1331 Clyde Avenue
Ottawa ON
Tel. 613.722.4420
www.stantec.com

Legend

Symbol	Code	Description
99.99		ORIGINAL GROUND ELEVATION
	ACU	EXISTING AIR CONDITIONING UNIT
	AN	EXISTING ANCHOR
	BOL	EXISTING BOLLARD
	BOUL	EXISTING BOULDER
	CB	EXISTING CATCH BASIN
	CBMH	EXISTING CB MANHOLE
	GSR	EXISTING GAS SERVICE REGULATOR
	HTN	EXISTING HYDRO TRANSFORMER
	HYD	EXISTING FIRE HYDRANT
	LS	EXISTING LIGHT STANDARD
	MH	EXISTING MAINTENANCE HOLE UNIDENTIFIED
	SN	EXISTING SIGN
	TB BELL	EXISTING TERMINAL BOX - BELL
	TB CATV	EXISTING TERMINAL BOX - CABLE
	TBM	EXISTING TEMPORARY BENCH MARK
	VC	EXISTING VALVE CHAMBER
	WV	EXISTING WATER VALVE
		EXISTING TREE CONIFEROUS (D.B.H. SHOWN)
		EXISTING TREE DECIDUOUS (D.B.H. SHOWN)
	UP	EXISTING UTILITY POLE
OHW		OVERHEAD UTILITY WIRES
		EXISTING STORM SEWER
		EXISTING WATERMAIN
C		EXISTING ROGERS CABLE CONDUIT
B		EXISTING BELL CONDUIT
G		EXISTING GASMAIN

Notes

1. THE INFORMATION SHOWN FOR EXISTING UTILITIES WAS PROVIDED BY OTHERS. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES DURING CONSTRUCTION. ALL EXISTING UTILITIES MUST BE LOCATED AND VERIFIED BY EACH UTILITY PRIOR TO COMMENCEMENT OF WORK. ANY VARIANCE IS TO BE IMMEDIATELY REPORTED TO THE ENGINEER. LOST TIME DUE TO FAILURE OF THE CONTRACTOR TO CONFIRM UTILITY LOCATIONS AND NOTIFY THE ENGINEER OF POSSIBLE CONFLICTS PRIOR TO CONSTRUCTION WILL BE AT THE CONTRACTORS EXPENSE.
2. BENCHMARKS: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THAT THE SITE BENCHMARK(S) HAS NOT BEEN ALTERED OR DISTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREES WITH THE INFORMATION SHOWN ON DRAWING CSP-1.
3. TOPOGRAPHIC SURVEY SUPPLIED BY STANTEC GEOMATICS LTD. DATED APRIL 28, 2022, PROJECT No. 161614571-111.
4. SITE PLAN PREPARED BY FREW + BOYLE ARCHITECTS DATED JUNE 7, 1989, DRAWING No. 01-A.

Revision	By	Appd.	YY.MM.DD
1 ISSUED FOR REVIEW	WAJ	AG	22.06.23

File Name: 160401742-DB	WAJ	AG	WAJ	22.05.11
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit-Seal

LICENSED PROFESSIONAL ENGINEER
2022-07-08
N. P. CODY
100125430
PROVINCE OF ONTARIO

Client/Project

P.E.N. HOLDINGS GROUP

3713 NAVAN ROAD

OTTAWA, ON

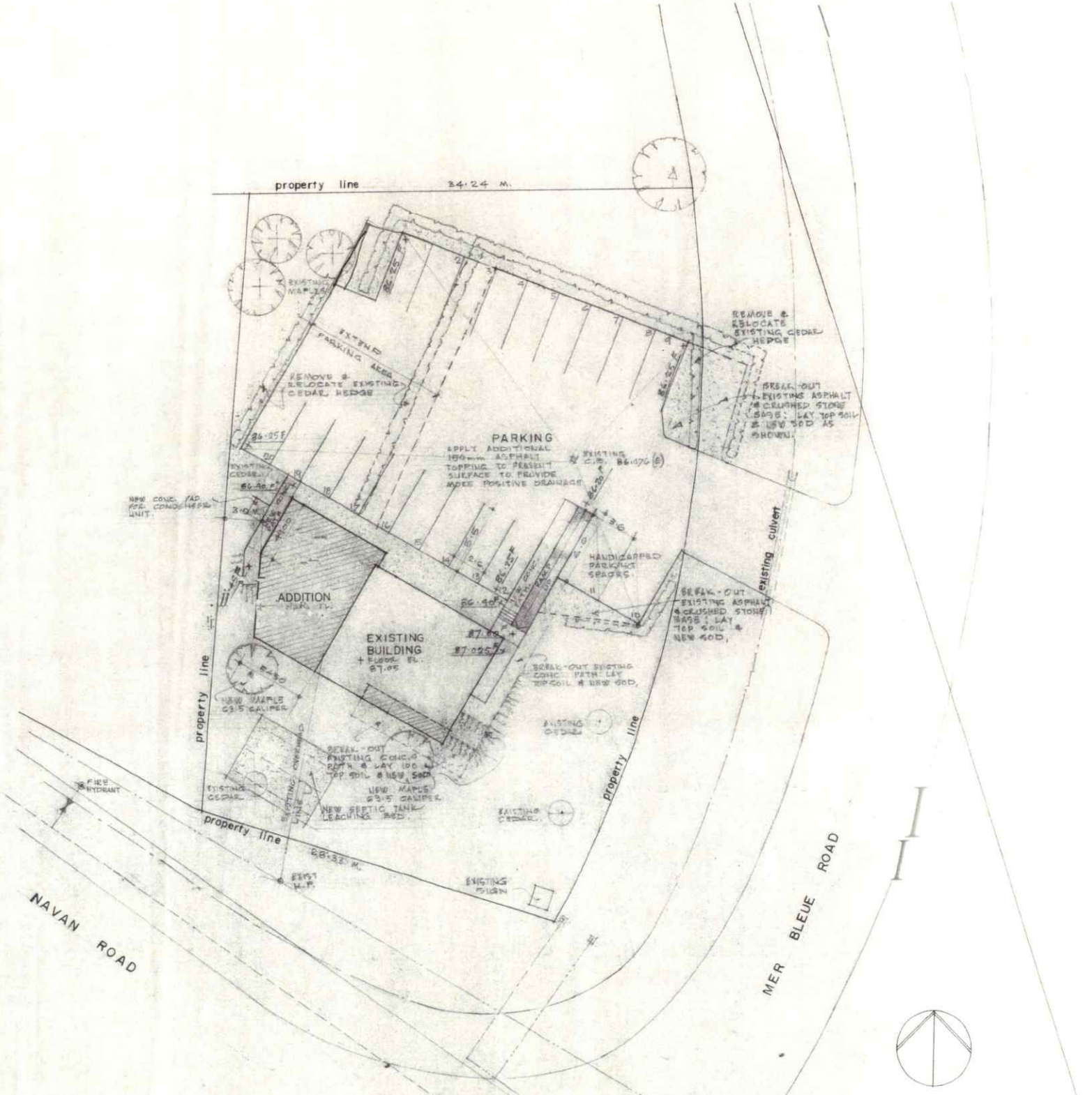
Title

EXISTING SITE SERVICING PLAN

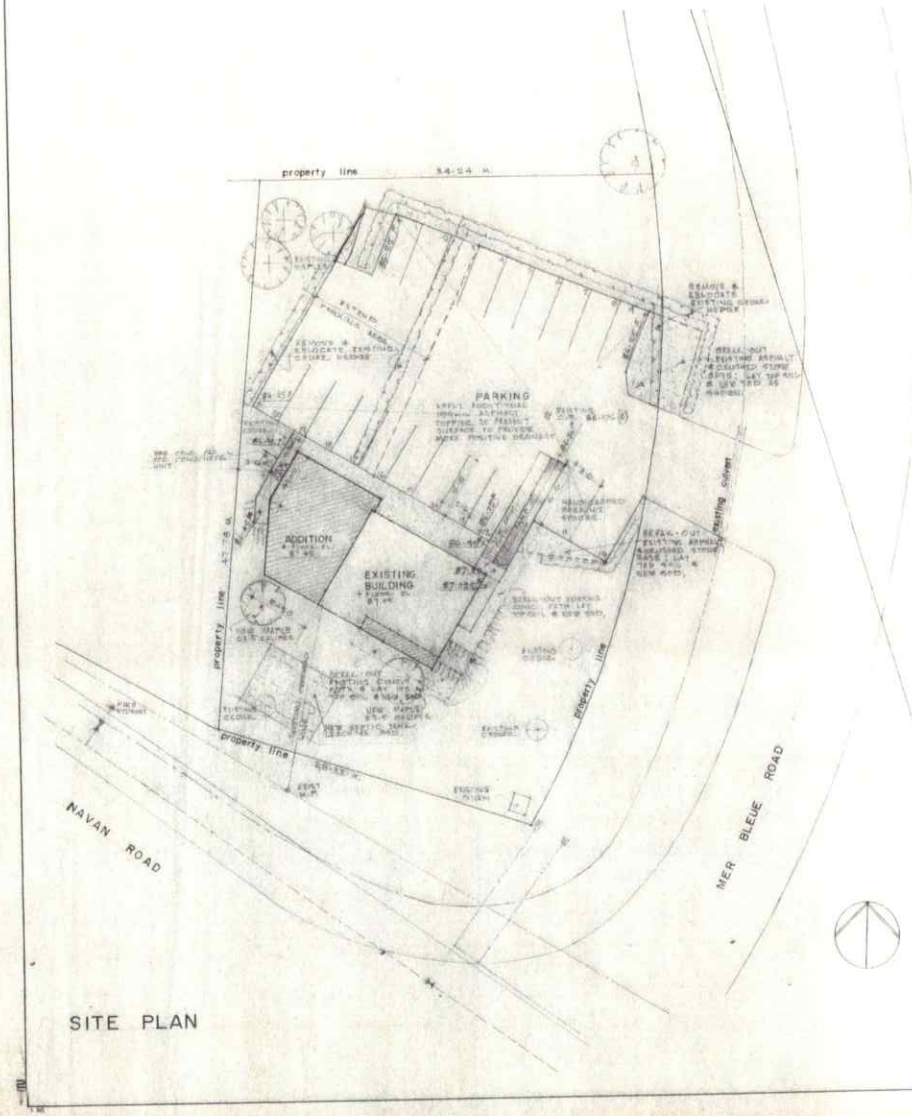
Project No. 160401742

Scale 1:200 (0 2 6 10m)

Drawing No.	Sheet	Revision
EXSP-1	1 of 1	1


property line 34.24 M.
EXTEND PARKING AREA
REMOVE & RELOCATE EXISTING CEDAR HEDGE
REMOVE & RELOCATE EXISTING CEDAR HEDGE
BREAK-OUT EXISTING ASPHALT & CRUSHED STONE BASE; LAY TOP SOIL & NEW SOD AS SHOWN.
PARKING
APPLY ADDITIONAL 150 m/m ASPHALT TOPPING TO PRESENT SURFACE TO PROVIDE MORE POSITIVE DRAINAGE
EXISTING C.B. 86.16 (E)
NEW CONC. PAD FOR CONDENSER UNIT.
HANDICAPPED PARKING SPACES.
ADDITION
EXISTING BUILDING
+ FLOOR EL. 87.05
BREAK-OUT EXISTING ASPHALT & CRUSHED STONE BASE; LAY TOP SOIL & NEW SOD.
existing culvert
property line
BREAK-OUT EXISTING CONC. PATH; LAY TOPSOIL & NEW SOD.
NEW MAPLE 63.5 CALIPER
EXISTING CEDAR
BREAK-OUT EXISTING CONC. PATH & LAY TOP SOIL & NEW SOD
EXISTING OVERHEAD HYDRO LINE
NEW MAPLE 63.5 CALIPER
NEW SEPTIC TANK LEACHING BED.
EXISTING CEDAR
FIRE HYDRANT
property line
28.32 M.
EXIST. H.P.
EXISTING SIGN
NAVAN ROAD
MER BLEUE ROAD

SITE PLAN



SITE PLAN

INDEX OF DRAWINGS

NO.	TITLE
	ARCHITECTURAL
01-A	SITE PLAN · INDEX OF DRAWINGS
02-A	BASEMENT PLAN · GROUND FLOOR PLAN
03-A	ELEVATIONS
04-A	REFLECTED CEILING PLANS · DETAILS
05-A	ROOF PLAN · BUILDING SECTIONS
06-A	STAIR DETAILS · ENTRANCE DETAILS
07-A	SCHEDULES · MILLWORK
	MECHANICAL
M-1	SITE PLAN
M-2	BASEMENT
M-3	GROUND FLOOR
	ELECTRICAL
E-1	BASEMENT
E-2	GROUND FLOOR

PROJECT

CAISSE POPULAIRE
CYRVILLE ROCKLAND
NOTRE DAME DES CHAMPS BRANCH

FREW + BOYLE
ARCHITECTS
ORLEANS ONTARIO

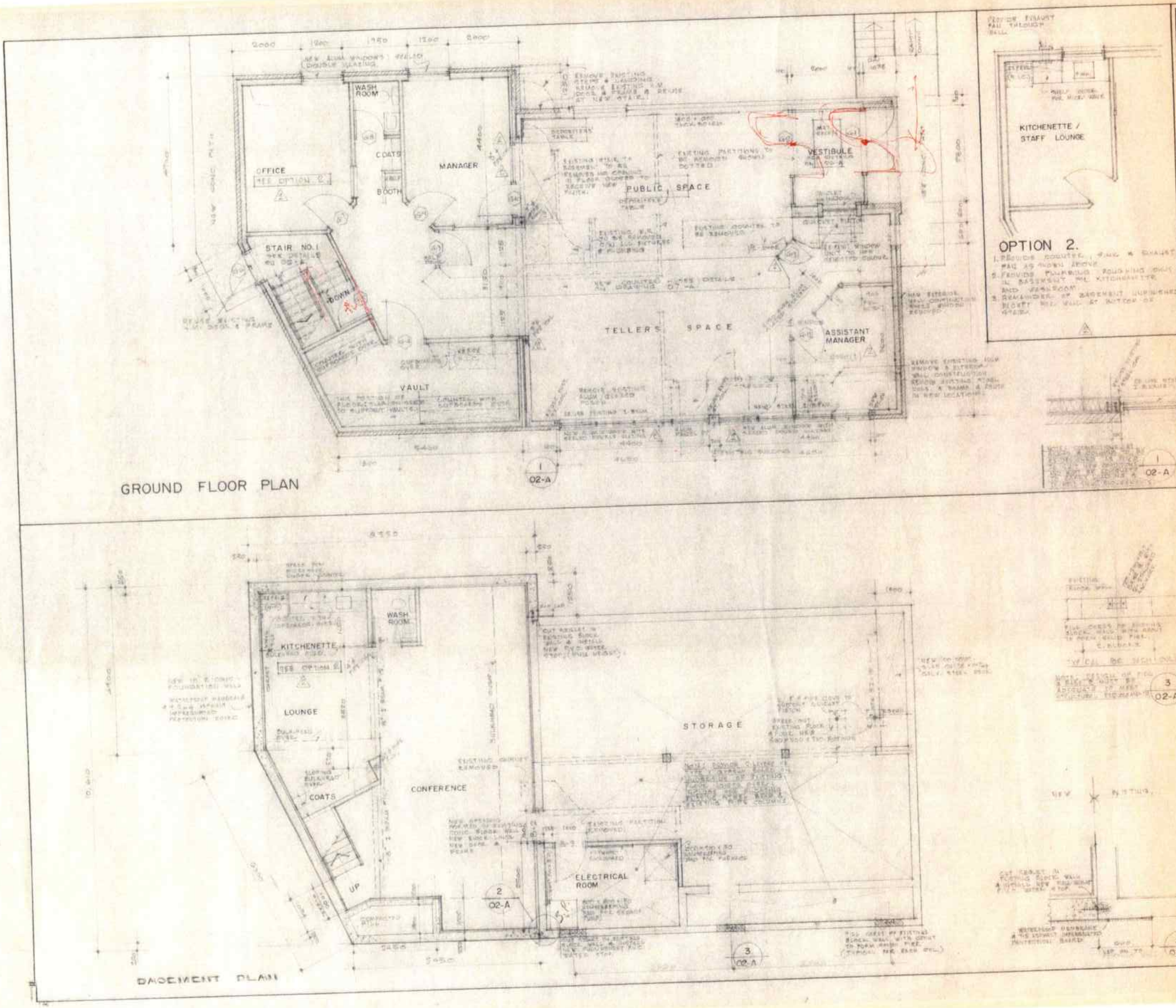
NO.	DATE	DESCRIPTION	DRN	APP.
1	86.07.04	ISSUED FOR BUILDING PERMIT		

REVISIONS (READ UP)

DRAWING
SITE PLAN
INDEX OF DRAWINGS

REVISION ISSUE

SCALE 1:200	SHEET NO.
DRAWN R.F.	01-A
CHECKED	
DATE	
FILE NO. 860127	
APPROVED	



PROJECT

CAISSE POPULAIRE
CYRVILLE ROCKLAND

NOTRE DAME DES CHAMPS BRANCH

FREW + BOYLE
ARCHITECTS
ORLEANS ONTARIO

NO	DATE	DESCRIPTION	DRN	APP

REVISIONS (READ UP)

DRAWING
BASEMENT PLAN
GROUND FLOOR PLAN

REVISION ISSUE

SCALE 1 : 50
DRAWN RF
CHECKED
DATE
FILE NO 860127
APPROVED

SHEET NO
02-A

June 28, 2022
Amya Martinov (Per Evode Rwagasore),
Student Planner
Appendices

Reference: 3713 Navan Road Adequacy of Services

APPENDIX D

PATERSON GROUP

memorandum

re: **Desktop Sewage System Sizing Review**
3713 Navan Road – Ottawa (Navan), Ontario

to: **Walk of Grace Residential Services: Elias Houkayem** – ehoukayem@walkofgrace.org

date: July 4, 2022

file: PH4552-MEMO.01

Further to your request, Paterson Group (Paterson) has prepared a memorandum to provide a desktop sewage system sizing review in support of a potential change of use of the onsite commercial building. Paterson has reviewed the suitability of the private wastewater system capacity and its ability to service the proposed change of use at the onsite private building.

Existing Sewage System Capacity

According to the Ministry of Environment Use permit No. 75(14) 767, dated November 6, 1986, the existing sewage system consists of a 3,600 L septic tank which gravity drains to a filter media style leaching bed comprised of 6 distribution runs of 6 m (30.8 m^2).

For commercial applications, the septic tank should have a minimum working capacity of at least three (3) times the TDDSSF. As such, the existing septic tank, which have an estimated working capacity of 3,600 L, is considered to be adequate to support up to 1,200 L/day.

The total area of distribution area required in a filter media style leaching bed is determined by the formula Q/75, where “Q” is the design daily sewage flow and “75” is the pre-determined value provided by the Ontario Building Code. The approximate total filter media area of 30.8 m^2 is considered to be adequate to support up to 2,310 L/day.

The total expanded base area required in a filter media style leaching bed is determined by the formula QT/850, where “Q” is the design daily sewage flow and “T” is the percolation rate of the in-situ soil underlying the leaching bed. Based upon the assumed percolation rate of 15 min/cm, the approximate total expanded base area of 30.8 m^2 is considered to be adequate to support up to 1,745 L/day.

Proposed Flow Rate

The proposed design daily flow rate of 1,125 L/day for the potential change of use at the onsite private building has been provided by Stantec.

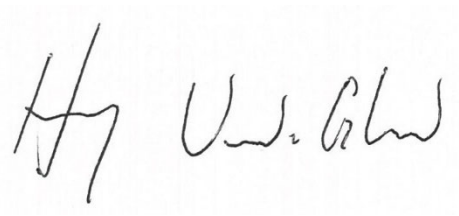
Conclusions

Considering the minimum working capacity of the existing on-site sewage system has been noted to be 1,200 L/day which exceeds the proposed daily flow rate of 1,125 L/day, the existing sewage system is considered to be adequately sized to support the potential change of use at the aforementioned site.

We trust that this satisfies your present requirements. Should you have any questions regarding this submission, please do not hesitate to contact the undersigned.

Best Regards,

Paterson Group Inc.



Hendrik Van de Glind,
C.Tech

Gladish, Alyssa

From: Hendrik Van de Glind <hvandeglind@patersongroup.ca>
Sent: Tuesday, May 31, 2022 2:24 PM
To: Gladish, Alyssa
Cc: Michael Killam
Subject: RE: PH4577: 3713 Navan Road

Follow Up Flag: Follow up
Flag Status: Completed

Hi Alyssa,

Based on the documentation you have provided, the proposed daily flow rate is estimated to be 1,125 L/day. The estimate flow rate seems to coincide with the Ontario Building Code (which is what the OSSO will use to review), albeit, we do not know what the exact usage will be.

The existing system info is as follows:

- 6 runs of 6 m at 0.76 m o/c – 4.56 m x 6.76 m
- FM area = 30.8 m sq. : Can support 2,310 L/day – 30.8 m sq. x 75 L/day/m sq.
- Expanded Base not shown – assume T time of 15 min/cm – 30.8 m sq of expanded base can support 1,745 L/day – (30.8 m sq x 850 L/day/m sq) / 15 min/cm = 1,745 L/day
- Assuming a minimum tank size of 3,600 L/day (min.) – can support up to 1,200 L/day - 3,600 L/day / 3 (Commercial)

Based on the above, the max flow rate the existing system can support is 1,200 L/day which exceeds the proposed estimated flow rate of 1,125 L/day.

It should be noted the condition of the system and the underlying soils should be confirmed and the estimated maximum allowable flow rate is based on the file search information only.

Best Regards,

Henry Van de Glind
C.Tech.
patersongroup
solution oriented engineering
over 60 years serving our clients

154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Ext.336
****** My office phone currently is not able to forward calls to my cellphone while working from home, please contact me via email.**
Fax: (613) 226-6344

From: Gladish, Alyssa <Alyssa.Gladish@stantec.com>
Sent: May 31, 2022 9:24 AM
To: Hendrik Van de Glind <hvandeglind@patersongroup.ca>
Cc: Michael Killam <MKillam@patersongroup.ca>
Subject: RE: 3713 Navan Road

Good morning Henry,

I appreciate the update.

Best Regards,
Alyssa

Alyssa Gladish E.I.T.
Project Manager, Community Development

Direct: 780 917-8567
Mobile: 587 721-1241
Alyssa.Gladish@stantec.com

Stantec
300-1331 Clyde Avenue
Ottawa ON K2C 3G4

From: Hendrik Van de Glind <hvandeglind@patersongroup.ca>
Sent: Monday, May 30, 2022 8:23 PM
To: Gladish, Alyssa <Alyssa.Gladish@stantec.com>
Cc: Michael Killam <MKillam@patersongroup.ca>
Subject: Re: 3713 Navan Road

Hi Alyssa,

I apologize for not getting back to you earlier today. I believe I should have a chance to review the proposed flows based on the sizing tomorrow afternoon.

Best Regards,

Henry Van de Glind

Get Outlook for iOS

From: Gladish, Alyssa <Alyssa.Gladish@stantec.com>
Sent: Monday, May 30, 2022 9:28 AM
To: Hendrik Van de Glind <hvandeglind@patersongroup.ca>
Subject: RE: 3713 Navan Road

Good morning Henry,

I hope you had a fantastic weekend.

Any update on the Navan Road project?

Thank you,
Alyssa

Alyssa Gladish E.I.T.
Project Manager, Community Development

Direct: 780 917-8567
Mobile: 587 721-1241
Alyssa.Gladish@stantec.com

Stantec
300-1331 Clyde Avenue
Ottawa ON K2C 3G4

From: Gladish, Alyssa
Sent: Wednesday, May 18, 2022 7:14 PM
To: Hendrik Van de Glind <hvandeglind@patersongroup.ca>
Subject: 3713 Navan Road

Hello Henry,

Just checking in on the Navan Road project. I know we only provided our estimates of the sanitary generation to you on Tuesday, but do you have a ballpark estimate of when the desktop review will be available?

Best regards,
Alyssa

Alyssa Gladish E.I.T.
Project Manager, Community Development

Direct:780 917-8567
Mobile:587 721-1241
Alyssa.Gladish@stantec.com

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