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FUNCTIONAL SERVICING REPORT

FOR

BGO

PROPOSED RESIDENTIAL SUBDIVISION

1820-1846 BANK STREET
CITY OF OTTAWA

PROJECT NO.: 24-1369

FEBRUARY 2025 – REV 1
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FEBRUARY 2025 – REV 1

CITY OF OTTAWA
PROJECT NO.: 24-1369

1.0 INTRODUCTION

David Schaeffer Engineering Limited (DSEL) was retained by BentallGreenOak (BGO) to prepare a Functional Servicing Report in support of draft plan of subdivision for 1820-1846 Bank Street.

The site, located in Ottawa's Capital Ward, is bordered by Bank Street to the east, Walkley Road to the south, and existing residential areas to the west (see Figure 1). The development includes a municipal Right of Way (ROW) and a future site plan block.

This report outlines how the development can be adequately supported by municipal services.

Figure 1: Site Location

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1.1 Existing Conditions

The 1.74-hectare site currently includes a commercial building and parking lot as seen in the Existing Conditions Topo in ***Appendix A***. Municipal services are available along the property's east and south frontages on Bank Street and Walkley Road.

A Geotechnical Investigation by EXP Services Inc. reveals that bedrock is located 0.9m to 2.8m below grade. Groundwater elevations are also likely to be encountered at excavation depth.

1.2 Development Layout

The proposed municipal right of way will support a future mixed-use site plan development, including a park, four high-rise apartment buildings, and commercial space (see site plan in ***Appendix A***). Predicted population figures for the development are provided in Table 1.

Table 1: Development Statistics

Land Use	Total Area (ha)	Projected Residential Units	Residential Population per Unit *	Projected Population
Open Space	0.14			
Residential Apartments	0.41	1426	1.6	2,287
Commercial	0.08			
Roads and Landscape area	0.75			
Total	**1.74**	**1426**		**2,287**

** NOTE: Population projections may differ from population estimates used in background Transportation Studies, Planning Rationale, and other studies.*

1.3 Consultation Summary

Consultation with the City of Ottawa was initiated in June 2024, under Plan of Subdivision Application. The City of Ottawa submitted a set of relevant engineering comments from the pre-application consultation, which are provided in ***Appendix A***.

1.4 Required Permits / Approvals

Once Draft Plan of Subdivision is obtained, the City of Ottawa must approve detailed engineering design drawings and reports prior to construction of the proposed infrastructure identified in this report.

The future site plan block will be subject to a separate application through Site Plan Control.

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

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Table 2: Potential Required Permits/Approvals

Agency	Permit/Approval Required	Trigger	Remarks
MECP / City of Ottawa	Environmental Compliance Approval	Construction of new sanitary & storm sewers.	MECP is expected to review the stormwater collection system and wastewater collection system by transfer of review.
MECP	Permit to Take Water	Construction of proposed land uses (e.g. basements for residential homes) and services.	Pumping of groundwater will be required during construction, given groundwater conditions and proposed land uses/ municipal infrastructure.
City of Ottawa	MOE Form 1 – Record of Watermains Authorized as a Future Alteration	Construction of watermains.	The City of Ottawa is expected to review the watermains on behalf of the MECP.

2.0 GUIDELINES, PREVIOUS STUDIES, AND REPORTS

2.1 Existing Studies, Guidelines, and Reports

The following documents were referenced in the preparation of this report:

- **Ottawa Sewer Design Guidelines**,
  City of Ottawa, *SDG002,* October 2012.
  (City Standards)

  - **Technical Bulletin ISDTB-2014-01, Revisions to Ottawa Design Guidelines – Sewer,**
    City of Ottawa, February 5, 2014.
    (*ISDTB-2014-01*)

  - **Technical Bulletin PIEDTB-2016-01, Revisions to Ottawa Design Guidelines – Sewer,**
    City of Ottawa, September 6, 2016.
    (*PIEDTB-2016-01*)

  - **Technical Bulletin ISTB-2018-01, Revisions to Ottawa Design Guidelines – Sewer,**
    City of Ottawa, March 21, 2018.
    (*ISTB-2018-01*)

  - **Technical Bulletin ISTB-2018-03, Revisions to Ottawa Design Guidelines – Sewer,**

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City of Ottawa, June, 2018.
(*ISTB-2018-04*)

- **Technical Bulletin ISTB-2019-02, Revisions to Ottawa Design Guidelines – Sewer,**
  City of Ottawa, July 8, 2019.
  (*ISTB-2019-02*)

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

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

  - **Technical Bulletin ISDTB-2014-02**
    City of Ottawa, May 27, 2014.
    (*ISDTB-2014-02*)

  - **Technical Bulletin ISTB-2018-02**
    City of Ottawa, March 21, 2018.
    (*ISTB-2018-02*)

  - **Technical Bulletin ISTB-2021-03**
    City of Ottawa, August 18, 2021
    (ISTB-2021-03)

- **Design Guidelines for Sewage Works,**
  Ministry of the Environment, 2008.
  (MOE* Design Guidelines*)

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

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

- **Mississippi-Rideau Source Water Protection Plan,**
  MVCA & RVCA, August 2014.

- **Erosion & Sediment Control Guidelines for Urban Construction,**
  Toronto and Region Conservation Authority, 2019.

- **Geotechnical Investigation – Proposed Walkley Centre Development,**
  EXP Services Inc., August 28, 2024.

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3.0 WATER SUPPLY SERVICING

3.1 Existing Water Supply Services

The property is located within the 2W2C pressure zone, with a hydraulic grade line of approximately 129m, as shown in the City of Ottawa Water Distribution Map in ***Appendix B***. A 400mm diameter watermain is present along the southern and eastern frontages within the Walkley Road and Bank Street rights of way.

3.2 Water Supply Servicing Design

Figure 7 illustrates the proposed watermain configuration, with three new connections to the existing 400mm watermains: two in the Walkley Road Right-of-Way (ROW) and one in the Bank Street ROW. Water services will be looped through the site plan and the proposed municipal ROW.

Table 3 summarizes the estimated water supply demands for the future development based on the ***Water Supply Guidelines*** and boundary conditions provided by the City of Ottawa, as seen in **Appendix B**.

Table 3: Water Demand Proposed Conditions

Design Parameter	Estimated Demand[1] (L/min)	Boundary Conditions[2] (m H_20 / kPa)
Average Daily Demand	448.8	41.3 / 405.2
Max Day + Fire Flow	1,118 + 3,000= 4,118.0	37.3 / 365.9
Peak Hour	2,457	33.2 / 325.7
1) Water demand calculation per **Water Supply Guidelines**. See **Appendix B** for detailed calculations. 2) Boundary conditions supplied by the City of Ottawa for the demands indicated in the correspondence; assumed ground elevation 90.50m at Connection 1. **See Appendix B**.		

The existing grades of the site range from 90.5m to 94m and preliminary analysis indicates water pressures are expected to be within 343.4 kPa-377.7 kPa under normal operating conditions. This generally falls within the desired pressure range of 345 kPa to 552 kPa.

Hydraulic and fire flow capacity assessments will be required to confirm the sizing of the internal distribution network and ensure adequate water pressures under all scenarios outlined in ***Table 4*****.** The hydraulic water model will be prepared to support detailed design of the future site plan.

Head loss calculations, included in **Appendix B**, demonstrate a loss of 0.5 kPa through the public watermain under normal operating conditions, 17 kPa during peak events, and a maximum loss of 44.8 kPa during Max Day + Fire Flow conditions. Based on these findings, the existing watermains are expected to support the future site plan while maintaining sufficient pressure under all operating scenarios.

To support fire protection, hydrants will be installed along the south and east frontages of the site within the Bank Street and Walkley Road rights-of-way, connecting to the existing watermains per City of Ottawa fire service requirements. Additional hydrants will be also be considered in the detailed design of the new public ROW.

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Table 4: Water Supply Design Criteria

Design Parameter	Value
Residential 1 Bedroom/ Bachelor Apartment	1.4 P/unit
Residential 2 Bedroom Apartment	2.1 P/unit
Residential Average Daily Demand	280 L/d/P***
Residential Maximum Daily Demand	2.5 x Average Daily **
Residential Maximum Hourly	5.5 x Average Daily **
System Pressure	Minimum 140kPa at ground level under maximum day demands plus fire flow conditions
Pipe Diameters	For distribution systems designed to provide fire protection, the minimum diameter of watermains shall be 150 mm except beyond the last hydrant on cul-de-sacs where the minimum diameter of watermains may be 25 mm. Watermain diameters shall be such that a flushing velocity of 0.8 m/s can be achieved for cleaning and flushing procedures.
Fire Hydrants	Fire hydrants shall be dry-barrel type and shall conform to the latest edition of AWWA Standard C502: Dry-Barrel Fire Hydrants. Fire hydrants shall be provided with adequate thrust blocking to prevent movement caused by thrust forces. Fire hydrant leads shall be a minimum diameter of 150 mm. In areas where the water table will rise above the hydrant drain ports, the drain ports shall be plugged.
Minimum operating pressure during normal operation	275 kPa
Maximum operation pressure during normal operation	552 kPa
Desired operating pressure	350 kPa to 480 kPa

Daily average based on Appendix 4-A from **Water Supply Guidelines*
*** Residential Max. Daily and Max. Hourly peaking factors per MOE Guidelines for Drinking-Water Systems Table 3-3 for 0 to 500 persons.*
-Table updated to reflect ISD-2010-2
****Daily consumption rate of 280 L/person/day to align with the revised wastewater rates identified by City of Ottawa Technical Bulletin ISTB-2018-03. As a result, DSEL is submitting for a deviation from the **Water Supply Guidelines**.*

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3.3 Water Supply Conclusion

The proposed development at 1822 Bank Street will be serviced by a network of local watermains and connections to existing infrastructure within Walkley Road and Bank Street.

It is anticipated that sufficient pressure is available to accommodate the subject lands, however the City of Ottawa must confirm water pressures for average, peak hourly, and fire flow demands.

The proposed water supply design will conform with all relevant City of Ottawa Guidelines and Policies.

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4.0 WASTEWATER SERVICING

4.1 Existing Wastewater Services

The site is proposed to be tributary to the Trillium Rail Sanitary Trunk, located approximately 140m southwest of the property. The proposed connection point is MHSA33051, within the Walkley Road right of way, adjacent to the Trillium Rail corridor. At this location, the trunk sewer is a 675mm concrete pipe.

4.2 Wastewater Design

The wastewater design includes a single sanitary sewer within the proposed municipal ROW, with two connections to the future site plan. An off-site sanitary sewer will be required to extend services from the property to the existing Trillium Rail Sanitary Trunk. Based on the population outlined in ***Table 1***, the off-site sewer is sized at 300mm. Preliminary layouts for on- and off-site sewers are provided in ***Figures 6 and 8***.

The future site plan is expected to serve a population of 2,287, with a peak flow of **23.19 L/s** (see ***Appendix C*** for calculations). ***Table 5*** below summarizes the City Standards to be used in the design of the proposed wastewater sewer system.

Table 5: Wastewater Design Criteria

Design Parameter	Value
Residential 1 Bedroom/ Bachelor Apartment	1.4 P/unit
Residential 2 Bedroom Apartment	2.1 P/unit
Average Daily Demand	280 L/d/per
Peaking Factor	Harmon's Peaking Factor. Max 4.0, Min 2.0 Harmon's Corrector Factor 0.8
Infiltration and Inflow Allowance	0.05 L/s/ha (Dry Weather) 0.28 L/s/ha (Wet Weather) 0.33 L/s/ha (Total)
Park Flows	0.33 L/s/ha
Parking Peaking Factor	9300 L/ha/d
Sanitary sewers are to be sized employing the Manning's Equation	$Q = \frac{1}{n} A R^{2/3} S^{1/2}$
Minimum Sewer Size	200 mm diameter
Minimum Manning's 'n'	0.013
Minimum Depth of Cover	2.5 m from crown of sewer to grade
Minimum Full Flowing Velocity	0.6 m/s
Maximum Full Flowing Velocity	3.0 m/s
Extracted from Sections 4 and 6 of the City of Ottawa Sewer Design Guidelines, October 2012, and recent residential subdivisions in City of Ottawa (including revisions per ISTB Sewer-2018-01)	

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4.3 Wastewater Servicing Conclusions

The site is tributary to the Trillium Rail Sanitary Trunk sewer. The subject property will be serviced by local sanitary sewers which will outlet to the existing infrastructure on Walkley Road via a new off-site pipe.

It is recommended to confirm the capacity of the receiving 675mm sewer with the City of Ottawa. The proposed wastewater design will adhere to all relevant ***City Standards***.

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5.0 STORMWATER MANAGEMENT

5.1 Existing Stormwater Services

Stormwater runoff from the property drains into the Sawmill Creek Watershed, with an existing 750mm storm sewer along the southern frontage. ***Figure 11*** illustrates the storm drainage boundaries and existing conveyance infrastructure. A major overland flow assessment, based on current topography, indicates runoff drains into the adjacent residential subdivision, as shown in ***Figure 11***.

5.2 Post-Development Stormwater Management Target

The City of Ottawa has imposed the following Stormwater Management targets for the proposed project:

- Provide 80% total suspended solids removal;
- Limit post-development runoff rates to pre-development rates for 2 through 100-year storm events.
- For any discharge directly to City storm sewers, reduce all post development peak flows to the 2-year storm flow with an RC of 0.5.

Furthermore, the following City standards are required for stormwater management within the subject property:

- Storm sewers within the private site are to be designed to provide a minimum 2-year level of service per the City's latest Technical Bulletin PIEDTB-2016-01;
- For less frequent storms (i.e. larger than 1:2 year minimum or 1:5 year minimum), the minor system sewer capture will be restricted with the use of inlet control devices to prevent excessive hydraulic surcharges;
- Under full flow conditions, the allowable velocity in storm sewers is to be no less than 0.80 m/s and no greater than 6.0 m/s;
- For the 100-year storm and for all roads and parking surfaces, the maximum depth of water (static and/or dynamic) on streets, rear yards, public space and parking areas shall not exceed 0.35 m;
- The product of the maximum flow depths on streets and maximum flow velocity must be less than 0.60 m2/s on all roads;

5.3 Proposed Stormwater Management System

The property will be serviced by a gravity storm sewer system aligned with the public road as seen in ***Figure 5***. There will be a single outlet connection to the existing storm main on Walkley Road. Stormwater drainage boundaries have been identified and are also shown on the ***Storm Servicing Plan***.

The table below summarizes the standards that will guide the detailed design of the storm sewer network.

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Table 6: Storm Sewer Design Criteria

Design Parameter	Value
Minimum Minor System Design Return Period	2-Year (Public and Private Streets; Park)
Major System Design Return Period	1:100 year
Intensity Duration Frequency Curve (IDF) 2-year storm event: A = 732.951; B = 6.199; C = 0.810 5-year storm event: A = 998.071; B = 6.053; C = 0.814	$i = \frac{A}{(t_c + B)^C}$
Minimum Time of Concentration	10 minutes
Rational Method	$Q = CiA$
Storm sewers are to be sized employing the Manning's Equation	$Q = \frac{1}{n} A R^{2/3} S^{1/2}$
Runoff coefficient for paved and roof areas	0.9
Runoff coefficient for landscaped areas	0.2
Minimum Sewer Size	250 mm diameter
Minimum Manning's 'n' for pipe flow	0.013
Minimum Depth of Cover	2.0m from crown of sewer to grade
Minimum Full Flowing Velocity	0.8 m/s
Maximum Full Flowing Velocity	6.0 m/s (where velocities in excess of 3.0 m/s are proposed, provision shall be made to protect against displacement of sewers by sudden movement)
Clearance from 100-Year Hydraulic Grade Line to Building Opening (USF)	0.30 m
Max. Allowable Flow Depth on Municipal Roads	35 cm above gutter (PIEDTB-2016-01)
Extent of Major System	Water levels must not touch any part of the building envelope and must remain below the lowest building opening during the stress test event (100-year + 20%) and 15cm vertical clearance is maintained between spill elevation on the street and the ground elevation at the nearest building envelope (PIEDTB-2016-01)
Stormwater Management Model	PCSWMM (v. 5.2.4)
Model Parameters	Fo = 76.2 mm/hr, Fc = 13.2 mm/hr, DCAY = 4.14/hr, D.Stor.Imp. = 1.57 mm, D.Stor.Per. = 4.67 mm
Imperviousness	Based on runoff coefficient (C) where Percent Imperviousness = (C - 0.2) / 0.7 x 100%.
Design Storms	Chicago 3-hour Design Storms and 24-hour SCS Type II Design Storms. Maximum intensity averaged over 10 minutes.

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Historical Events	July 1st, 1979, August 4th, 1988 and August 8th, 1996
Climate Change Street Test	20% increase in the 100-year, 3-hour Chicago storm
Extracted from City of Ottawa Sewer Design Guidelines, October 2012, and Technical Bulletins	

5.3.1 Proposed Stormwater Management System – Public Road

Flows from the public road are proposed to drain into a Low Impact Development (LID) feature along the western frontage, which will then outlet to the proposed public storm sewer. A bioretention cell will manage both quality and quantity control. A control manhole with an Internal Control Device (ICD) will regulate the release rate before entering the storm sewer. Total storage volumes and release rates are detailed in ***Appendix D***. If the bioretention swale cannot meet the required storage, the future site plan will compensate for the volume shortfall.

5.3.2 Proposed Stormwater Management System – Private Site

The private site and open space will each manage stormwater separately, both targeting a 2-year release rate.

Buildings will collect rooftop stormwater and discharge it directly to the storm sewer in the Right-of-Way via a mechanical system.

The road network, landscape areas, and external drainage will be managed using underground cisterns. Quality control will be achieved through a combination of Oil-Grit Separator (OGS) units and LID infiltration tanks. OGS units will remove 50% of Total Suspended Solids (TSS) before water enters the cisterns. Pumps will then transfer the water to LID infiltration tanks in landscaped areas, with any overflow discharging to the public storm sewer. The LID features will provide additional treatment, ensuring 80% TSS removal.

Storage volumes, release rates, and anticipated TSS removal are detailed in ***Appendix D***.

5.3.3 Proposed Stormwater Management System – Park

The park will manage stormwater independently, targeting a 2-year release rate. To achieve this, landscape catch basins and perforated subdrains will be installed in softscape areas, as shown in ***Figure 10***. Minor flows will be conveyed to the public ROW storm infrastructure via a control manhole, while major flows will temporarily pond within the greenspace. An inlet control device (ICD) will regulate the release rate through the manhole's outlet, and sufficient surface storage will be available to attenuate the 100-year event. Emergency overland flow will drain to the public ROW at the block's southeast corner, with a maximum ponding depth of 0.4m over the control manhole.

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5.4 Grading and Drainage Design

The following additional grading criteria and guidelines will be applied to detailed design, per City of **Ottawa Guidelines** and standard industry practices:

- Slope in grassed areas will be between 2% and 7%;
- Grades in excess of 7% will require terracing to a maximum of a 3:1 slope;
- Swales are to be 0.15m deep with 3:1 side slopes unless otherwise indicated on the drawings; and,
- Perforated pipe will be required for drainage swales if they are less than 1.5% in slope;
- Grades within the roads and parking stalls are limited to min 1% and max 5%.

Figure 3 illustrates the conceptual grading for the public road and provides a general layout of the future site plan. ***Figure 9*** provides conceptual grading for the park block.

5.5 Stormwater Servicing Conclusions

The site is tributary to the Sawmill Creek Watershed via City storm sewer within Walkley Road. The subject property will be serviced by a local storm sewer which will outlet to the existing City infrastructure.

It is recommended that capacities in the receiving sewers be verified by the City of Ottawa.

The contemplated design will conform to all relevant ***City Standards***.

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6.0 EROSION AND SEDIMENT CONTROL

Soil erosion occurs naturally and is a function of soil type, climate and topography. The extent of erosion losses is exaggerated during construction where vegetation has been removed and the top layer of soil becomes agitated. Prior to earthworks or construction, erosion and sediment controls will be implemented and will be maintained throughout construction.

Silt fencing will be installed around the perimeter of the active part of the site (and headwater features) and will be cleaned and maintained throughout construction. The silt fence will remain in place until the working areas have been stabilized and re-vegetated.

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

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

The Contractor will be required to complete regular inspections and guarantee proper performance. The inspection is to include:

- Mitigate mud and dust erosion.
- Clean and change inserts at catch basins.

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7.0 CONCLUSION AND RECOMMENDATIONS

David Schaeffer Engineering Ltd. (DSEL) has been retained by BentallGreenOak (BGO) to prepare a Functional Servicing Report in support of the draft plan application. The report covers the following:

- Water: 400mm diameter watermains are available along Bank Street and Walkley Road to support the site. Sufficient pressures exist under all operating conditions.
- Wastewater: Sanitary sewers are present on Walkley Road. Capacities need to be confirmed with the City.
- Stormwater: On-site controls will limit release rates to the 2-year flow and achieve at least 80% TSS removal before discharging into the City's storm infrastructure.

The report demonstrates that existing water, sanitary, and storm services can accommodate the proposed development.

Prepared by,
David Schaeffer Engineering Ltd.

Per: Jeremy Chouinard, P.Eng.

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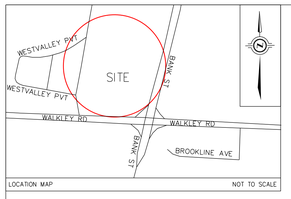
APPENDIX A



SUBSURFACE UTILITY PLAN OF
1822 BANK ST,
CITY OF OTTAWA
REGIONAL MUNICIPALITY OF OTTAWA

ONSITE LOCATES INC.
© COPYRIGHT 2023

SCALE 1 : 250
0 5 0 5 10 15 metres

METRIC
DISTANCES AND/OR COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

COORDINATE SYSTEM
MTM ZONE 9, NAD83 (CSRS) (2010.0).

NOTE:
LEGAL BOUNDARIES AND INFORMATION, AND TOPOGRAPHIC DATA HEREON HAVE BEEN PROVIDED BY THE CLIENT (ACAD-161614709-110_d1_c36.dwg) AND WERE NOT FIELD VERIFIED BY ONSITE LOCATES.

LEGEND

SAN	DENOTES UNDERGROUND SANITARY SEWER
STM	DENOTES UNDERGROUND STORM SEWER
G	DENOTES UNDERGROUND GAS LINE
W	DENOTES UNDERGROUND WATER LINE
UE	DENOTES UNDERGROUND HYDRO LINE
CT	DENOTES UNDERGROUND CABLE LINE
BT	DENOTES UNDERGROUND TELEPHONE LINE
FO	DENOTES UNDERGROUND FIBRE OPTIC LINE
CBMH	DENOTES CATCHBASIN
SAN MH	DENOTES MANHOLE
STM MH	DENOTES MANHOLE
GV	DENOTES GAS METER
FH	DENOTES FIRE HYDRANT
WV	DENOTES WATER VALVE
MW	DENOTES MONITORING WELL
LS	DENOTES LIGHT STANDARD
HJB	DENOTES HYDRO JUNCTION BOX
HMH	DENOTES HYDRO MANHOLE
TMH	DENOTES TELEPHONE MANHOLE
MH	DENOTES MANHOLE

SEWER INVERT NOTE:
SEWER INVERT DEPTHS ARE MANUALLY MEASURED FROM THE LID/GRATE OF THE GIVEN FEATURE.

ANNOTATIONS DISPLAYED AS */541/452/22* WITH AN ASTERISK• HAVE BEEN INTERPOLATED FROM RECORDS AND WERE NOT FIELD VERIFIED BY ONSITE LOCATES LTD.

INVERT DEPTH MEASUREMENTS ARE FROM THE ASSUMED BOTTOM OF THE FACILITY STRUCTURE.

DEPTHS ARE NOT SUITABLE FOR EXCAVATION PURPOSES. SEWER NETWORK CONNECTIONS WERE COMPILED WHERE FIELD EVIDENCE COINCIDED WITH AS-BUILT RECORDS.

WHERE NO DEPTH INFORMATION COULD BE OBTAINED, UTILITIES ARE ASSUMED TO BE AT STANDARD INSTALLATION DEPTH FOR THE SPECIFIC TYPE OF UTILITY.

THE MOST RELIABLE WAY TO PRECISELY DETERMINE THE HORIZONTAL AND VERTICAL LOCATION OF AN UNDERGROUND UTILITY IS THROUGH PHYSICAL EXPOSURE USING SAFE DIGGING TECHNIQUES (COMMONLY PERFORMED WITH HYDRO VACUUM EXCAVATION)

INVERT DEPTH MEASUREMENTS HEREON ARE PROVIDED IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

SEWER INVERT DATA TABLE

MH/CB	DIRECTION	DIAMETER	INVERT	NOTES
STM MH@1	N SE	525 525	3.39 3.42	N/A N/A
STM MH@2	NE SE	150 150	1.03 2.09	N/A N/A
STM MH@3	NW S SE	350 525 525	2.19 2.19 2.35	N/A N/A N/A
STM MH@4	SW	250	1.46	N/A
STM MH@5	NW SE	350 350 350	2.19 1.93 2.22	N/A N/A N/A
STM MH@6	NW NE SE	300 250 350	1.46 1.45 1.54	N/A N/A N/A
STM MH@7	NE SW	250 250	1.33 1.35	N/A N/A
STM MH@8	SE SW	300 300	2.10 2.10	N/A N/A
STM MH@9	NW NW SW	150 250 300±	1.32 2.33 2.92	POSSIBLE ROOF DRAIN N/A N/A
CB@1	SW	150	0.57	N/A
DCB@2	N/A	N/A	N/A	FULL OF DEBRIS NO LATERALS VISIBLE
CB@3	NW NE	300 300	1.20 1.27	N/A N/A
CB@4	SW	300	1.22	N/A
CB@5	SE	250	0.72	N/A
SAN MH@1	SE W	N/A 200	2.51 2.45	N/A N/A

UNDERGROUND UTILITY NOTES
THE UTILITY DATA DEPICTED ON THIS DRAWING WERE ACQUIRED IN ACCORDANCE WITH ASCE STANDARD 38-02. THE INFORMATION IS SHOWN BY ATTRIBUTED QUALITY LEVELS WHICH ARE DEFINED AS FOLLOWS.

DATA QUALITY LEVEL

HIGHEST QUALITY
LOWEST QUALITY
QUALITY LEVEL A
QUALITY LEVEL B
QUALITY LEVEL C
QUALITY LEVEL D

QUALITY LEVEL "A" - INFORMATION OBTAINED BY ACTUAL PHYSICAL EXPOSURE OF TARGETED UTILITIES AND SUBSEQUENT MEASUREMENT OF THE EXPOSED PRECISE HORIZONTAL AND VERTICAL POSITION.

QUALITY LEVEL "B" - INFORMATION OBTAINED USING GEOPHYSICAL LOCATE TECHNIQUES TO IDENTIFY THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF THE DESIGNATED UTILITIES.

QUALITY LEVEL "C" - INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE UTILITY FEATURES AND BY USING PROFESSIONAL JUDGMENT IN CORRELATING THIS INFORMATION TO THE QUALITY "D" INFORMATION OBTAINED.

QUALITY LEVEL "D" - INFORMATION DERIVED FROM UTILITY RECORDS OR VERBAL RECOLLECTIONS

ALL SERVICES ARE QUALITY "D" UNLESS NOTED OTHERWISE.
LEVEL "D" RECORD INFORMATION SHOWN ON THIS PLAN HAVE BEEN PLOTTED APPROXIMATELY AS PER THE RECORDS FOUND AND COULD NOT BE FIELD VERIFIED WITHIN THE SCOPE OF THIS PROJECT. FURTHER VERIFICATION IS REQUIRED, IT IS SUGGESTED THAT LEVEL "A" METHODOLOGIES BE EMPLOYED.

LOST SIGNAL- DENOTES/INDICATES A POINT WHERE QL-B METHODS COULD NO LONGER ASCERTAIN THE HORIZONTAL POSITION OF A FACILITY.

QUALITY LEVEL "D" INFORMATION COMPILED FROM RECORDS PROVIDED BY CITY OF OTTAWA: 23-1413.DWG, 464-4650&P2, 5915P&P9, 10085P&P7, 10188, BELL: MU 7413, TELUS: TELUS 2023-6933_ BANK.

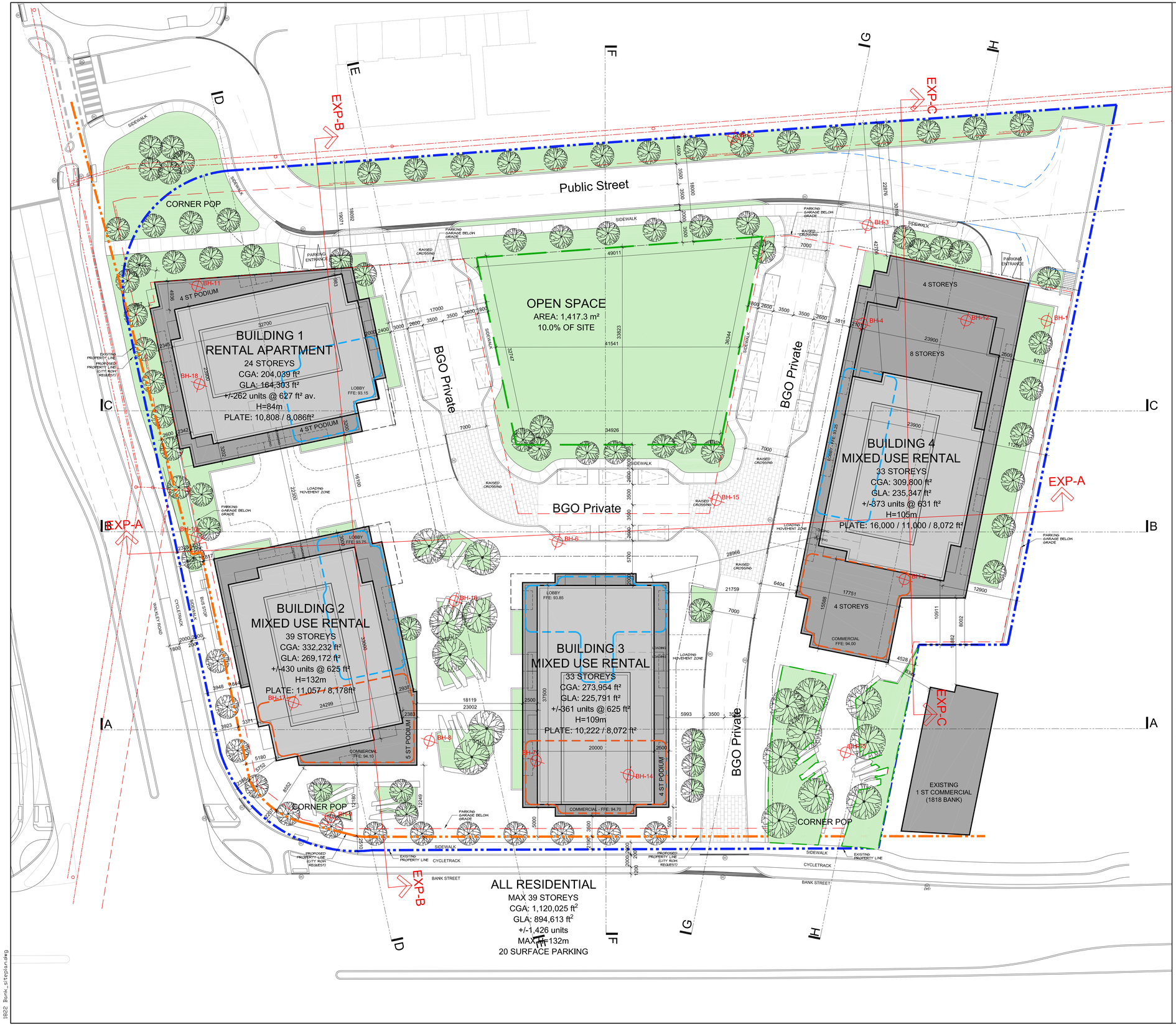
CAUTION: CALL BEFORE YOU DIG
THIS PLAN IS INTENDED FOR DESIGN PURPOSES ONLY. OTHER BURIED UTILITIES MAY EXIST WHICH ARE NOT SHOWN DUE TO INSUFFICIENT INFORMATION OR IMPROPER INSTALLATION. CONTACT ALL UTILITY OWNERS OF UNDERGROUND UTILITIES PRIOR TO EXCAVATION OR BLASTING AROUND.
IT IS THE RESPONSIBILITY OF THE CONTRACTOR/BUILDER TO ENSURE THE APPROPRIATE LEGAL REQUIREMENTS ARE MET.

SUBSURFACE UTILITY FIELD WORK WAS COMPLETED ON THE 21 DAY OF NOVEMBER, 2023

ONSITE LOCATES INC.
UTILITY LOCATE SERVICES
A wholly owned subsidiary of J.D. Barnes Ltd.
140 RENFREW DRIVE, SUITE 100, MARKHAM, ON L3R 6B3
T: 1-800-8054155
www.onsitelocates.ca

DRAWN BY:	CHECKED BY:	REFERENCE NO.:
BS	KSM	23-46-34971

FILE: Q:?-46-34971\DRAWING
DATED: 2023-12-20
PLOTTED: 12/20/2023



BGO

PROJECT TEAM

ARCHITECTURAL
HOBIN ARCHITECTURE
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SURVEYOR
STANTEC GEOMATICS LTD
BRIAN WEBSTER
T 613.722.4420

no.	date	revision
2	AUG 09/24	ISSUED FOR COORDINATION
1	MAY 21/24	ISSUED FOR INFORMATION

It is the responsibility of the appropriate contractor to check and verify all dimensions on site and report all errors and/or omissions to the architect.

All contractors must comply with all pertinent codes and by-laws.

Do not scale drawings.

This drawing may not be used for construction until signed.

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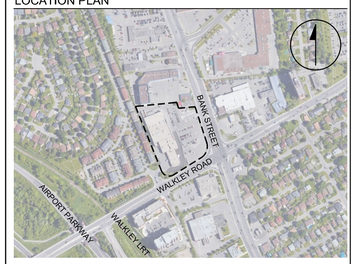
LOCATION PLAN



PROPOSED DEVELOPMENT STATS

	REQUIRED	PROPOSED
PROJECTED NUMBER OF UNITS		+/- 1,426
SETBACK ALONG BANK STREET	0m	0m
SETBACK ALONG WALKLEY ROAD	0m	0m
REAR YARD SETBACK	7.5m	7.5m
INTERIOR SIDEYARD SETBACK	0m	0m
MAXIMUM HEIGHT		132 m (MAX)
NUMBER OF STOREYS	MAX 40	MAX 39
TOTAL GROSS BUILDING AREA		104,054 m²
TOTAL NET LEASEABLE AREA (ZBL)		83,114 m²
COMMERCIAL		750 m²
RESIDENTIAL AMENITY	8,556m²	8,556m²
TOTAL PARKING (BELOW GRADE)		TBD
VISITORS @ 0.1/UNIT	143	143
RES @ 0.5/UNIT	713	TBD
BICYCLE PARKING		
RES @ 0.5/UNIT	713	713
COMMERCIAL	none	shared

NOTE: ALL EXISTING SITE INFORMATION AS PER TOPOGRAPHICAL SURVEY PLAN DATED MAY 23, 2023 PREPARED BY STANTEC GEOMATIC LTD.

PROPOSED UNIT MIX

UNIT TYPE	UNITS	AV. AREA	PERCENT
STUDIO / 1 BEDROOM	1017	50.9m²	71%
2 BEDROOM	409	78.2m²	29%
TOTAL	1426	58.3m²	100%

Hobin Architecture Incorporated
63 Pamilla Street
Ottawa, Ontario
Canada K1S 3K7
T: 613-238-7200
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E: mail@hobinarc.com
hobinarc.com

HOBIN ARCHITECTURE

PROJECT/LOCATION:

BGO BANK AND WALKLEY

1820 BANK STREET

DRAWING TITLE:

CONCEPT SITE PLAN

DRAWN BY:	DATE:	SCALE:
DV	23-11-13	1:300

PROJECT: 2230

DRAWING NO.: A1.00

REVISION NO.:

24-08-09
1822 Bank_siteplan.dwg

City File Number: (D00-00-00-0000)

City File Number: (D00-00-00-0000)

File No.: PC2024-0209

June 21, 2024

Paul Black
Fotenn Planning + Design
Via email: black@fotenn.com

Subject: Phase 2 Pre-Consultation: Meeting Feedback
Proposed Official Plan Amendment, Zoning By-law Amendment, and Plan of Subdivision Application – 1822 Bank St

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on June 10, 2024.

Pre-Consultation Preliminary Assessment

1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐

One (1) indicates that considerable major revisions are required while five (5) suggests that the proposal appears to meet the City's key land use policies and guidelines. This assessment is purely advisory and does not consider technical aspects of the proposal or in any way guarantee application approval.

Next Steps

1. As per the provincial Bill 185, *Cutting Red Tape to Build More Homes Act*, applicants are no longer required to partake in pre-consultation, but they may choose to participate. Should your team wish to continue with the pre-consultation process, pre-consultation fees still apply. Staff encourage further pre-consultation steps to take place.

2. Alternatively, should your team wish to skip any further pre-consultation steps, and proceed directly to applying for the required applications, please be advised that upon application, the City will assess whether the submission is "complete" or "incomplete". Staff will review the submission to ensure all the material outlined on the Study Plan and Identification List (SPIL) is provided and that this material meets the City's Terms of Reference. Should it be deemed "incomplete" the submission will be put on hold.

3. In your next pre-consultation submission or application submission, please ensure that all comments detailed herein are addressed. A detailed cover letter stating how each comment has been addressed must be included with the submission materials. Please coordinate the numbering of your responses within the cover letter with the comment number(s) herein.

Supporting Information and Material Requirements

1. The attached **Study and Plan Identification List** outlines the information and material that has been further identified and/or confirmed, during this phase of pre-consultation, as required (R) or advised (A) as part of a future complete application submission.

    a. The required plans and studies must meet the City's Terms of Reference (ToR) and/or Guidelines, as available on Ottawa.ca. These ToR and Guidelines outline the specific requirements that must be met for each plan or study to be deemed adequate.

Consultation with Technical Agencies

1. You are encouraged to consult with technical agencies early in the development process and throughout the development of your project concept. A list of technical agencies and their contact information is enclosed.

Planning

General Comments:

1. We are pleased to see this high-density transit-oriented development proposed in this area.

2. We are also pleased to see the City Parkland proposed. Thank you for removing outdoor amenity area adjacent to park and providing only parks land. Combination of both created confusion how public and private lands are to be shared and maintained in the future.

3. We are happy to see you've adjusted the plans to respond to many of the Phase 1 comments, including:

    i. ROW widenings being shown,

    ii. 18 m wide ROW for the new public roadway,

    iii. Adjusting heights by locating taller towers more toward the Bank Street,

        - Providing a conceptual plan with potential future high-rises along Bank Street

        - Screening low rise residential uses from the subject site with trees,

    iv. Extending public street to the neighbouring lot to the north as it is required by Secondary Plan policies.

v. Provision of two additional corner Privately Owned Publicly Accessible Spaces is great.

Built Form Comments:

4. Please further address the issue with the established neighbourhood to the west. The existing low-rise is stable and won't likely see major changes in the foreseeable future. Address how the proposed heights and built form of Building 1 and Building 4 respond to the low-rise context. If the proposed buildings protrude above the recommended 45-degree angular plane, please demonstrate how an effective built form transition can be achieved and meet policy intent. To reference policy on the angular plane, see OP, Section 4.6.6 and the Urban Design Guidelines for High-Rise Buildings.

Site Functionality Comments:

5. There appears to still be prominent loading between Buildings 1 and 2. Please internalize or integrate it in a way that allows this area to be used as public space or amenity area as well, not just for loading. If it cannot be internalized within the building, please explain why it cannot be accommodated. Our impression is that rest of the loading spaces for other buildings are internalized.

6. There was discussion in Phase 1 about wrapping lobbies to allow residential access internally from both the centralized park space / interior private roads as well as from Bank or Walkely / mainstreets to allow more connectivity. Please explore this further and ensure the development complies with Official Plan policies for active frontages.

7. We question survivability of trees in POPs and public spaces/amenity areas with the extent of the parking garage proposed. We will need clarity on the underground parking and the trees. Additionally, we want trees planted every 7-10 m along Bank and the side streets and it's unclear if the current boundaries of the underground parking garage would allow for adequate soil volumes to support trees growth. Providing trees on site and street trees that will thrive and survive is of high importance.

Questions:

8. There are overhead hydro wires along Walkley. Do the provided plans reflect the hydro setback requirements? Have you discussed with Hydro the option for burying any wires adjacent within the ROW?

Procedural Comments:

9. Please elaborate on the phasing of the project. There are specific policies in the Secondary Plan with respect to phasing: "New buildings framing Bank Street should be built before any other phases, as per the Secondary Plan". A phasing plan will be a required submission as well. Note: elaborating on the response

providing during the meeting where phasing will be focused along Walkley and Bank first with the internal portions (tower 4) being last is acceptable.

10. Required applications to facilitate the development:

    - Plan of Subdivision
    - Official Plan Amendment
    - Zoning By-law Amendment
    - Site Plan Control applications (for each building/phase)

11. Applicable Policy Framework:

    - Provincial Policy Framework
    - Official Plan
    - Bank Street South Secondary Plan
    - Bank Street Community Design Plan
    - Zoning By-law
    - Urban Design Guidelines for High-rise Buildings
    - Transit-Oriented Development Guidelines
    - Urban Design Guidelines for Development along Arterial Mainstreets

Urban Design

Comments on the submission materials

12. Images shown on pages 21 and 22 of the document named “Design Package” appear to be arbitrary and unrealistic. They can also be misleading in terms of understanding the context within which the proposal is evaluated.

13. The applicant should proactively engage a wind engineer as soon as possible and to use the knowledge of an experienced wind engineer to support the exploration of various site planning and massing options by evaluating wind conditions of the options explored (not as an afterthought to only recommend mitigation measures of a preselected preferred option).

Comments on the current concept

14. The development concept has evolved since the first preconsultation meeting. With respect to public street network and park land dedication, which are important structural elements of the plan, it is trending in a direction that appears to be acceptable to affected departments of the City. Hence, the general site planning seems to be appropriate. The high pedestrian porosity is particularly appreciated although the space between Towers 1 and 2 appears to be utilitarian. There also appears to be a general acceptance of taller buildings along Bank Street.

15. Despite the positive attributes, there is a lack of effective built form transition towards the existing low-rise area to the west of the site. Unlike the speculation shown on page 21 of the Design Package, the low-rise area will be there for a very long time in the foreseeable future.

16. Effective built form transition is required by the primary OP, the Secondary Plan, and the Urban Design Guidelines for High-Rise Buildings.

    i. Section 4.6 of the primary OP states that one of the key objectives of the urban design objectives is to "enable the sensitive integration of new development of Low-rise, Mid-rise and High-rise buildings to ensure Ottawa meets its intensification targets while considering liveability for all".

    ii. Policy 4.6.6.2 of the primary OP states that "Transitions between Mid-rise and High-rise buildings, and adjacent properties designated as Neighbourhood on the B-series of schedules, will be achieved by providing a gradual change in height and massing, through the stepping down of buildings, and setbacks from the Low-rise properties, generally guided by the application of an angular plane as may be set in the Zoning By-law or by other means in accordance with Council-approved Plans and design guidelines".

    iii. Figure 15 on page 104 of the primary OP illustrates the approach to built form transition.

    iv. The Urban Design Guidelines for High-Rise Buildings provides detailed guidance on the application of angular plane, illustrated in Diagrams 1-3, 1-4, 1-6.

    v. Policy 2.2.13 of the Bank Street South Secondary Plan states that "height transitions shall be maintained between high-rise buildings, mid-rise buildings and existing low-rise buildings. Transitions in heights can be achieved by: locating tall buildings away from low buildings, having a generous separation space between buildings and having upper storeys of building stepped-back away from low buildings." It should be noted that these policies shall be read within

the context of the Secondary Plan, which only permits high-rise buildings up to a maximum of approximately 16 storeys.

17. Towers 1 and 4 protrude significantly above the 45-degree angular planes as shown on page 20 of the submitted Design Package.

    i. Tower 1 – At the current proposed location and floorplate size, the height of the tower appears to be too tall.

    ii. Tower 4 – The height should be reduced. It is interesting to note that if Tower 4 is a 16-storey building, permitted by the Secondary Plan, it will not protrude above the angular plane.

18. In addition to applying the angular planes, the podium is often used as a mediator between a tall building and the low-rise context. This is shown on Diagrams 1-3, 1-4, 1-6, 2-6, and 2-7 of the Urban Design Guidelines for High-Rise Building. In this regard, the 8-storey portion of Tower 4 is overwhelming. The podium of Tower 4 should generally remain as a low-rise.

19. The site appears to be overcrowded, resulting from too many towers (albeit the reasonable floor plate size of approximately 750m^2), and too little space between them.

20. Tower separations, as required by the primary OP, the Secondary Plan, and the Urban Design Guidelines for High-Rise Buildings, are established to avoid overcrowding amongst other benefits.

    i. Policy 4.6.6.9 of the primary OP states that " High-rise buildings shall require separation distances between towers to ensure privacy, light and sky views for residents and workers. Responsibilities for providing separation distances shall be shared equally between owners of all properties where High-rise buildings are permitted. Maximum separation distances shall be achieved through appropriate floorplate sizes and tower orientation, with a 23-metre separation distance desired, however less distance may be permitted in accordance with Council approved design guidelines".

    ii. The City has embraced the Transect model of development. The general approach is to support tallest and densest development in and around downtown, and to gradually reduce heights and density as one moves towards the suburbs. Narrow tower separations are allowed in downtown. More generous spacing between towers is expected in Outer Urban and Suburban Transects. This site is within the Outer Urban Transect, which is the third tier in the City's 4-tier Transect system. Greater separations should be provided at this location particularly when building heights much greater than the currently permitted are being asked.

iii. The Bank Street Secondary Plan reflects the Transect model of development. The Secondary Plan only supports modest high-rise development up to approximately 16-storeys at this location and recommends a minimum 30m separation between towers. Policy 2.3.20 states that “high-rise towers should be point towers with floor plates that do not to exceed 750 square metres. A separation distance of 30 metres between towers is recommended”.

iv. The Urban Design Guidelines for High-Rise Buildings generally requires a minimum 23m separation for towers up to 30-storyes but expects greater separations for taller buildings. In this case, three of the four towers proposed are above 30 storeys.

21. In the current proposal, the separation between Towers 1 and 2 is 22m, between Towers 2 and 3 is 23m, between Towers 3 and 4 is 30m. Except for the space between Towers 3 and 4, the current proposal barely meets the required minimum separations given the proposed building heights.

22. However, it should be noted that the separation between Towers 3 and 4 is achieved by compromising the separation between Tower 4 and a potential tower on the abutting lot to the north.

    i. Tower 4, a 33-storey building, sets back only 10m from the interior lot line. This will unfairly require more building setback from the abutting landowner when the lot to the immediate north is redeveloped (as shown on page 21 of the submitted Design Package) or result in a very narrow separation between Tower 4 and a potential tower on the abutting lot.

    ii. A minimum 12.5m tower setback is required for Tower 4 (because it is above 30 storeys) according to the Urban Design Guidelines for High-Rise Buildings.

    iii. A 15m tower setback should be provided in order to achieve the Secondary Plan-recommended 30m tower separation (between the maximum16-storey towers). Secondary Plan policies take precedents over the primary policies and the general guidelines.

23. Related to the above point 3, due to the close proximity, the relationship between Towers 1, 2 and 4 appears to be awkward. The grouping of the towers appears to be a result of the desire to squeeze in more buildings by barely meeting or not meeting the minimum standards. A design approach to optimize the potential of the site as an attractive place to live and do business should be employed. The design should achieve a good balance between the highest and best uses of the land.

24. In the absence of a wind study, it is concerning that the wind conditions between the towers, particularly between Towers 1 and 2, and Towers 2 and 3, may not be

most conducive to pedestrian activities. Comfortable microclimate conditions in all seasons are key to creating and maintaining a successful public realm.

Suggestions for consideration (refer to the attached PDF)

25. The applicant should continue to explore site planning and massing options. As indicated above, the current concept compromises many urban design objectives and measures and can't be supported without significant changes. Two general approaches may be considered for the overall betterment. The images included in the PDF are to illustrate these two approaches. Please note these are not site plan options.

26. Approach 1 – retain the proposed number of towers, reduce the floor plate size.

    i. Tower floor plate size will have to be reduced if the applicant wishes to continue to explore the 4-tower option without compromising too many urban design objectives and measures and overwhelmingly externalizing impacts onto the surrounding public realm and abutting lots.

    ii. The reduced floor plate size may allow for appropriate separations between the proposed towers in a manner consistent with the Secondary Plan (overlaps between building facades should be reduced as much as possible).

    iii. The reduced floor plate size should also allow for Tower 1 to be moved further away from the low-rise residential area and towards Bank Street, similar to the position of Tower 4.

    iv. The height of Tower 4 should be reduced to approximately 18-22 storeys as indicated above and the setback from the interior lot line should be increased to a minimum 11.5m

    v. It is understood that towers of smaller floor plate typically cost more to construct.

27. Option 2 – reduce the number of towers, reasonably increase the floor plate size.

    i. A total of three towers, with reasonably increased floor plate size, may be more comfortably accommodated on this site, and yield many benefits (comparing with the current 4-tower concept).

    ii. The tallest tower should be on Bank Street, as the anchor of the project.

    iii. Two lower towers should complement the anchor tower, step down in height, to provide appropriate transition to the low-rise neigbourhood.

iv. Minimum tower separations, in a manor consistent with the Secondary Plan should be achieved without any overlaps. Greater tower separations should be achieved when there are some overlaps.

v. The tower on Walkley should be located as further away from the low-rise area as possible, similar to the currently proposed Tower 4.

vi. The tower interior to the site should be setback at least 15m from the interior lot line, and as further away from the low-rise area as possible.

vii. An animated pedestrian passage/courtyard can be established at the corner of Bank and Walkley leading to the new City park.

viii. Towers on Bank and Walkley may incorporate a through lobby to enhance pedestrian porosity.

ix. Mid-rise podium is appropriate along Bank Street.

x. Low-rise podiums should be designed closer to the existing low-rise residential area.

xi. The internal private streets and the new City park may be adjusted for the betterment of the entire development.

xii. It is understood that towers of larger floor plate are often more economical to construct.

Feel free to contact Randolph Wang, Urban Designer, for follow-up questions.

Policy

Comments:

28. Slide 20 of the Design Package demonstrates the buildings projecting above the angular plane. While the angular plane is not meant to be a rigid determination of heights, it does inform the general appropriateness of building heights. In this case, it seems to me that Building 4 should be reduced by several storeys. In addition to improving the building height transition, this would add more variation to the building heights.

29. In the Bank Street South Secondary Plan, Section 2.3, policy 20) states that “a separation distance of 30 metres between towers is recommended”. Note that this assumes maximum building heights of 50 metres or 16 storeys, as indicated in Section 2.2, policy 8). The Urban Design Guidelines for High-Rise Buildings, Section 2.25, states that a tower over 30 storeys should provide 25m of separation, rather than 23m. Together, this suggests that the proposed 22-23m separation distances do not meet City policies or guidelines.

30. In the Official Plan, Section 4.6.6, policies 1) and 3) speak to the built form transition between high-rise and low-rise to be guided by an angular plane in accordance with Council-approved Plans and Guidelines, which is further detailed in the Urban Design Guidelines for High-Rise Buildings, Section 1. In the applicant's Design Package, slide 20, the 45-degree angular plane is applied and shows that the proposed building heights clearly and significantly exceed the angular plane. The proposed building heights for buildings 2 & 3 along Bank St are acceptable, however, buildings 1 & 4 should be reduced in height in order to provide an appropriate building height transition.

31. The notion of a three tower concept, raised by Randolph Wang at the pre-consultation, should be seriously considered. It would allow for greater tower separation and potentially improve microclimate conditions. It may also allow for buildings 1 & 4 to shift further east towards Bank St, which could minimize the height reduction necessary to achieve appropriate building height transition.

Feel free to contact Peter Giles, Policy Planner, for follow-up questions.

Engineering

Comments:

32. The Stormwater Management Criteria, for the subject site, is to be based on the following:

> **Water Quantity Control:** In the absence of area specific SWM criteria, please control post-development runoff from the subject site, up to and including the **100-year storm event**, to **a pre-development level of 2-year.** The pre-development runoff coefficient will need to be determined **as per existing conditions** but in no case more than 0.5. [**If 0.5 applies it needs to be clearly demonstrated in the report that the pre-development runoff coefficient is greater than 0.5**]. The time of concentration (T_c) used to determine the pre-development condition should be calculated. *Tc should not be less than 10 min. since IDF curves become unrealistic at less than 10 min; T_c of 10 minutes shall be used for all post-development calculations*].

Any storm events greater than the established **2-year allowable** release rate, up to and including the **100-year storm event**, shall be detained on-site. The SWM measures required to avoid impact on the downstream sewer system will be subject to review.

Grassed areas above underground parking structures are required to have a runoff coefficient equal to 1.0 during the 100-year storm event, and a runoff coefficient of 0.9 during 2-year. Soil storage above underground

parking can be credited towards storage requirements, shown either by modeling or manual calculations.

Water Quality Control: This site is in the **Sawmill Creek Watershed**, therefore conclusions from the Sawmill Creek Constructed Wetland ESR (March 2003 Addendum) will need to be adhered to. The report states that all New Development in the headwaters of the watershed will need to implement on-site stormwater management since the constructed wetland that is proposed will only treat runoff from existing developments. The report that quality control is required to be implemented. It is therefore required that the 80% TSS removal requirement be implemented for this site.

33. The Stormwater Management Criteria, for the proposed public road and public park is to be based on the following:

Water Quantity Control: In the absence of area specific SWM criteria, please control post-development runoff from the subject site, up to and including the **100-year storm event**, to **a pre-development level of 2-year.** The pre-development runoff coefficient will need to be determined **as per existing conditions** but in no case more than 0.5. [**If 0.5 applies it needs to be clearly demonstrated in the report that the pre-development runoff coefficient is greater than 0.5**]. The time of concentration (T_c) used to determine the pre-development condition should be calculated. *Tc should not be less than 10 min. since IDF curves become unrealistic at less than 10 min; T_c of 10 minutes shall be used for all post-development calculations*].

Storm water management infrastructure is not permitted on City Parkland.

Any storm events greater than the established **2-year allowable** release rate, up to and including the **100-year storm event**, shall be detained on-site. The SWM measures required to avoid impact on the downstream sewer system will be subject to review.

Water Quality Control: This site is in the **Sawmill Creek Watershed**, therefore conclusions from the Sawmill Creek Constructed Wetland ESR (March 2003 Addendum) will need to be adhered to. The report states that all New Development in the headwaters of the watershed will need to implement on-site stormwater management since the constructed wetland that is proposed will only treat runoff from existing developments. The report that quality control is required to be implemented. It is therefore required that the 80% TSS removal requirement be implemented for this site.

34. Water Boundary condition requests must include the location of the service (map or plan with connection location(s) indicated) and the expected loads required by the proposed development, including calculations. Please provide the following information:

    a. Location of service

    Type of development and the amount of fire flow required (as per FUS).

    Average daily demand: ___ l/s.

    Maximum daily demand: ___l/s.

    Maximum hourly daily demand: ___ l/s.

35. **Water**

    a. Water Supply Redundancy: Residential buildings with a basic day demand greater than 50m3/day (0.57 L/s) are required to be connected to a minimum of two water services separated by an isolation valve to avoid a vulnerable service area as per the Ottawa Design Guidelines - Water Distribution, WDG001, July 2010 Clause 4.3.1 Configuration. The basic day demand for this site not expected to exceed 50m3/day.

    b. Please review Technical Bulletin ISTB-2018-02, maximum fire flow hydrant capacity is provided in Section 3 Table 1 of Appendix I. A hydrant coverage figure shall be provided and demonstrate there is adequate fire protection for the proposal. Two or more public hydrants are anticipated to be required to handle fire flow.

    c. Existing residential service(s) to be blanked at the main.

36. **MECP Environmental Compliance Approval**

    An MECP Environmental Compliance Approval **[Industrial Sewage Works or Municipal/Private Sewage Works]** will be required for the proposed development. Please contact the Ministry of the Environment, Conservation and Parks, Ottawa District Office to arrange a pre-submission consultation:

    Charlie Primeau at (613) 521-3450, ext. 251 or Charlie.Primeau@ontario.ca
    Emily Diamond at (613) 521-3450, ext. 238 or Emily.Diamond@ontario.ca

37. **Sewer (sanitary and storm)**

a. Preliminary plan and profile drawings of the proposed sanitary sewer extension from the subject site to the connection at the sanitary sewer within the transit way is required. Since the project sanitary capacity is reliant on the sewer extension, preliminary plan and profile drawings of the extension are required to perform an internal, utility, and municipal circulation to determine any potential conflicts and determine feasibility prior to the rezoning. The zoning bylaw amendment application will be required to demonstrate that the increased density of the parcel can be serviced adequately. Staff will review concepts and are available to discuss.

b. The Bank street south Secondary Plan includes the following policy “a new local street (public or private) that connects to the intersection of Alta Vista Drive and Bank Street, and to Walkley Road.” Please account for the future extension of the proposed public road when designing the storm, sanitary, and watermains.

c. A storm sewer monitoring maintenance hole is required to be installed at the property line (on the private side of the property) as per City of Ottawa Sewer-Use By-Law 2003-514 (14) Monitoring Devices.

d. Sanitary sewer monitoring maintenance hole is required to be installed at the property line (on the private side of the property) as per City of Ottawa Sewer-Use By-Law 2003-514 (14) Monitoring Devices.

e. Document how any foundation drainage system will be integrated into the servicing design and show the positive outlet on the plan. Foundation drainage is to be independently connected to sewer main unless being pumped with appropriate back up power, sufficient sized pump and back flow prevention. It is recommended that the foundation drainage system be drained by a sump pump connection to the storm sewer to minimize risk of basement flooding as it will provide the best protection from the uncontrolled sewer system compared to relying on the backwater valve.

f. Please note that the minimum orifice dia. for a plug style ICD is 83mm and the minimum flow rate from a vortex ICD is 6 L/s in order to reduce the likelihood of plugging.

g. Please provide a Pre-Development Drainage Area Plan to define the pre-development drainage areas/patterns. Existing drainage patterns shall be maintained and discussed as part of the proposed SWM solution.

h. Post-development site grading shall match existing property line grades in order to minimize disruption to the adjacent residential properties. A **topographical plan of survey** shall be provided as part of the submission and a note provided on the plans.

i. There must be at least **15cm of vertical clearance** between the spill elevation and the ground elevation at the building envelope that is in

proximity of the flow route or ponding area. The exception in this case would be at reverse sloped loading dock locations. At these locations, a minimum of 15cm of vertical clearance must be provided below loading dock openings. Ensure to provide discussion in report and ensure grading plan matches if applicable.

j. **Underground Storage:** Please note that the Modified Rational Method for storage computation in the Sewer Design Guidelines was originally intended to be used for above ground storage (i.e., parking lot) where the change in head over the orifice varied from 1.5 m to 1.2 m (assuming a 1.2 m deep CB and a max ponding depth of 0.3 m). This change in head was small and hence the release rate fluctuated little, therefore there was no need to use an average release rate.

k. When underground storage is used, the release rate fluctuates from a maximum peak flow based on maximum head down to a release rate of zero. This difference is large and has a significant impact on storage requirements. **We therefore require that an average release rate equal to 50% of the peak allowable rate shall be applied to estimate the required volume. Alternatively, the consultant may choose to use a submersible pump in the design to ensure a constant release rate.**

l. If there is a disagreement from the designer regarding the required storage, the City will require that the designer demonstrate their rationale utilizing dynamic modelling, that will then be reviewed by City modellers in the Water Resources Group.

m. Provide information on type of underground storage system including product name and model, number of chambers, chamber configuration, confirm invert of chamber system, top of chamber system, required cover over system and details, interior bottom slope (for self-cleansing), chart of storage values, length, width and height, capacity, entry ports (maintenance) etc. UG storage to provide actual 2- and 100-year event storage requirements.

n. In regard to all proposed UG storage, ground water levels (and in particular HGW levels) will need to be reviewed to ensure that the proposed system does not become surcharged and thereby ineffective.

o. Modeling can be provided to ensure capacity for both storm and sanitary sewers for the proposed development by City's Water Distribution Dept. – Modeling Group, through PM and upon request.

p. If rooftop control and storage is proposed as part of the SWM solutions sufficient details (Cl. 8.3.8.4) shall be discussed and document in the report and on the plans. Roof drains are to be connected downstream of any incorporated ICDs within the SWM system and not to the foundation drain system. Provide a Roof Drain Plan as part of the submission.

q. Street catch basins are not to be located at any proposed entrances.

q. Sewer connections to be made above the springline of the sewermain as per:

Std Dwg S11.1 for flexible main sewers – connections made using approved tee or wye fittings.

Std Dwg S11 (For rigid main sewers) – lateral must be less that 50% the diameter of the sewermain,

Std Dwg S11.2 (for rigid main sewers using bell end insert method) – for larger diameter laterals where manufactured inserts are not available; lateral must be less that 50% the diameter of the sewermain,

Connections to manholes permitted when the connection is to rigid main sewers where the lateral exceeds 50% the diameter of the sewermain. – Connect obvert to obvert with the outlet pipe unless pipes are a similar size.

No submerged outlet connections.

38. **Grading**

Post-development site grading shall match existing property line grades to minimize disruption to the adjacent residential properties. A **topographical plan of survey** shall be provided as part of the submission and a note provided on the plans.

39. **Geotechnical (including sensitive marine clay, where appropriate)**

Geotechnical Study shall be consistent with the Geotechnical Investigation and Reporting Guidelines for Development Applications.
https://documents.ottawa.ca/sites/default/files/documents/cap137602.pdf

A report addressing the stability of slopes, prepared by a qualified geotechnical engineer licensed in the Province of Ontario, should be provided wherever a site has slopes (existing or proposed) steeper than 5 horizontal to 1 vertical (i.e., 11 degree inclination from horizontal) and/or more than 2 metres in height. A report is also required for sites having retaining walls greater than one metre high, that addresses the global stability of the proposed retaining walls. The requirements for the assessment of the stability of slopes listed in this document pertain also to retaining walls.

40. **Snow Storage**

Any portion of the subject property which is intended to be used for permanent or temporary snow storage shall be as shown on the approved site plan and grading plan. Snow storage shall not interfere with approved grading and drainage patters or servicing. Snow storage areas shall be setback from the property lines, foundations,

fencing or landscaping a minimum of 1.5m. Snow storage areas shall not occupy driveways, aisles, required parking spaces or any portion of a road allowance. If snow is to be removed from the site please indicate this on the plan(s).

41. **Road Reinstatement**

Where servicing involves three or more service trenches, either a full road width or full lane width 40 mm asphalt overlay will be required, as per amended Road Activity By- Law 2003-445 and City Standard Detail Drawing R10. The amount of overlay will depend on condition of roadway and width of roadway(s).

42. **Gas pressure regulating station**

A gas pressure regulating station may be required depending on HVAC needs (typically for 12+ units). Be sure to include this on the Grading, Site Servicing, SWM and Landscape plans. This is to ensure that there are no barriers for overland flow routes (SWM) or conflicts with any proposed grading or landscape features with installed structures and has nothing to do with supply and demand of any product.

43. **Phase One Environmental Site Assessment**

a. A Phase I ESA is required to be completed in accordance with Ontario Regulation 153/04 in support of this development proposal to determine the potential for site contamination. Depending on the Phase I recommendations a Phase II ESA may be required.
b. The Phase I ESA shall provide all the required Environmental Source Information as required by O. Reg. 153/04. ERIS records are available to public at a reasonable cost and need to be included in the ESA report to comply with O.Reg. 153/04 and the Official Plan. The City will not be in a position to approve the Phase I ESA without the inclusion of the ERIS reports.
c. Official Plan Section 10.1.6
d. Record of Site Condition (RSC) will be required.

44. **General**

a. It is the sole responsibility of the consultant to investigate the location of existing underground utilities in the proposed servicing area and submit a request for locates to avoid conflict(s). The location of existing utilities and services shall be documented on an **Existing Conditions Plan**.
b. Any easements on the subject site shall be identified and respected by any development proposal and shall adhere to the conditions identified in the easement agreement. A **legal survey plan** shall be provided, and all

easements shall be shown on the engineering plans.

c. All underground and above ground building footprints and permanent walls need to be shown on the plans to confirm that any permanent structure does not extend either above or below into the existing property lines and sight triangles.

d. **Construction approach** – Please contact the Right-of-Ways Permit Office TMconstruction@ottawa.ca early in the Site Plan process to determine the ability to construct site and copy File Lead on this request.

Feel free to contact Amy Whelan, Infrastructure Project Manager, and John Wu, Senior Engineer for follow-up questions.

Noise

1. A **Transportation Noise Assessment** is required as the subject development fronts an arterial road.
2. A **Stationary Noise Assessment** is required to assess the noise impact of the proposed sources of stationary noise (mechanical HVAC system/equipment) of the development onto the surrounding residential area to ensure the noise levels do not exceed allowable limits specified in the City Environmental Noise Control Guidelines.

Feel free to contact Amy Whelan, Infrastructure Project Manager, and John Wu, Senior Engineer for follow-up questions.

Transportation

45. Right-of-way protection.

    i. See Schedule C16 of the Official Plan

        i. Protected ROW for Walkley Road: 26m

        ii. Protected ROW for Bank Street: 37.5m

        iii. Additional ROW is required on both Walkley Road and Bank Street per Policy 2.1.1 (f) of Schedule C16: "*Additional Intersection Widening – The City may require dedication of land for road right-of-way widening for any road that intersects with…arterial…in proximity of the intersection…"* The additional ROW is identified by the Bank Street Renewal project and is required to address the need for additional intersection-related features such as turn lanes, pedestrian sidewalks and facilities, cycling facilities, traffic signals and AODA compliance components per City design guidelines and standards. The additional road widenings on both Walkley and

Bank will be in accordance with the project needs. For the exact extent of required Right-of-Way widening, please refer to CAD files shared after Phase 1 pre-consultation on November 24, 2023.

ii. No encumbrances are permitted below grade.

iii. Any requests for exceptions to ROW protection requirements must be discussed with Transportation Planning and concurrence provided by Transportation Planning management.

iv. Please dimension the distance between the proposed property line and the centreline of Bank Street / Walkley Road (use the centreline of the post-renewal road design). Please also dimension the difference between the existing property line and the proposed property line.

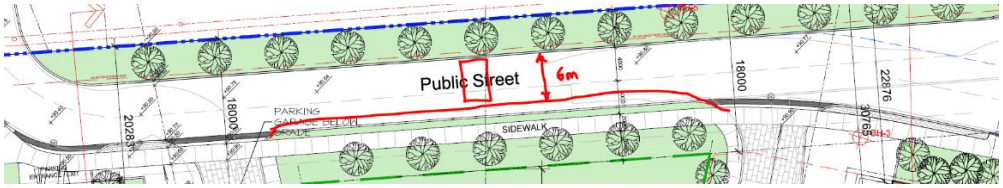
46. The concept site plan lacks street names.

47. Proposed Public Street Cross-Section:

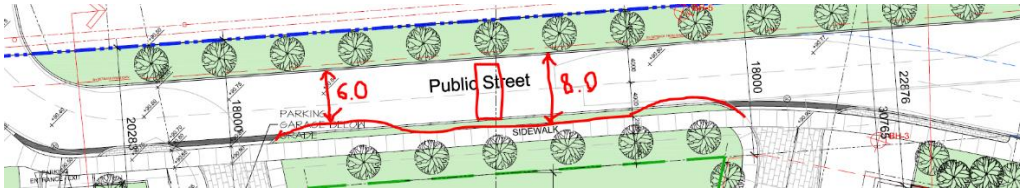
The 7.0m curb-to-curb design is likely appropriate for the “S-curve” on approach to Glenhaven Private, but this should be confirmed with AutoTurn turning template analysis.

The public street requires additional traffic calming per Section 2, Policy 39 and Section 3, Policy 22 of the Bank Street Secondary Plan, as well as City of Ottawa 30km/h policies in the OP, TMP, and Road Safety Action Plan. Consider two options adjacent to the park block:

i. (Preferred) Maintain no on-street parking. Reduce "mid-block" curb-to-curb adjacent to the park block to 6.0m (consistent with 30km/h Toolbox, 3.0m lanes, minimum fire lane width). Add a speed hump as a vertical traffic calming measure. See below conceptual image (to be refined).



ii. Add one-sided on-street parking. Increase curb-to-curb to approximately 8.0m at the parking bay, target 6.0m at road narrowings. Add a speed hump as a vertical traffic calming measure. See below conceptual image (to be refined).

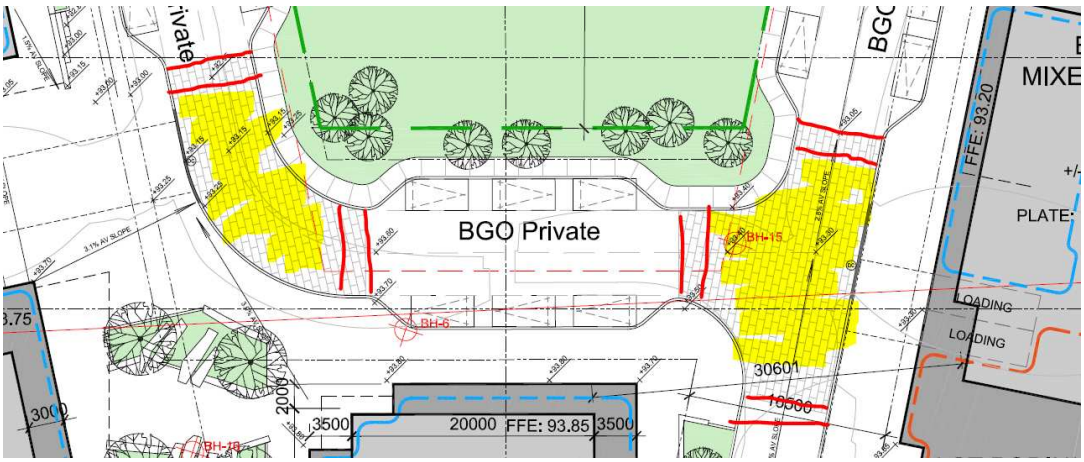


48. Proposed Private Street Cross-Section: A well traffic calmed private street also plays a role in ensuring these internal streets (public and private) function well for pedestrians and the public realm, and don't function as a cut-through route for vehicles between Bank Street and Walkley Road. This is consistent with Section 2, Policy 39 and Section 3, Policy 22 of the Bank Street Secondary Plan. Consider the following modifications to the private streets:

    At curves, curb to curb may have to remain at 7.0m width to accommodate delivery truck turns to Building 1 and Building 2 (to be confirmed with further site plan refinement and turning template analysis)

    At straight segments, target a curb to curb cross-section of 10m (3.0m lanes + 2.0m parking).

    Consider raised intersections at private street crossing locations where unit pavers are currently shown – at the southwest and southeast corners of the park. See below conceptual image (to be refined).



49. The parking level concepts should give early consideration for space and location of secure bicycle parking rooms. Refer to previous comments made during the Phase 1 pre-consult.

50. TIA Strategy submission should address the potential for 1818 Bank Street to re-open their existing driveway due to losing informal vehicle access through the 1822 Bank Street site.

51. The pedestrian route between the site and the Walkley Road / Glenhaven Private intersection is important as the main route towards the Walkley Transitway / LRT

Station. To avoid an informal desire line, recommend provision a sidewalk/pathway that makes a direct connection between the parking entrance/exit of Building 1 and the northeast corner of the Walkley Road / Glenhaven Private intersection, with this sidewalk passing just south of the cluster of five existing trees. Similarly, move the proposed sidewalk along the south side of the new public street "S-bend" away from the road so it passes just north of the cluster of five trees. Consider a landscape feature (seat wall, etc.) that discourages pedestrians from walking directly through the cluster of five trees.

52. The concept plan highlights two segments of east-west private street that have slopes of 7% (south side of the park) and 5.2% (north side of the park). Please continue to examine/adjust grading to achieve a maximum 5% sidewalk slope per section 80.23.6 of the Integrated Accessibility Standards under the AODA.

53. The consultant is to address the comments submitted under PC2023-0289 (Phase 1) – submitted November 24, 2023.

TIS Scoping Report Comments submitted January 22, 2024

Transportation Engineering

54. Section 2.1 Proposed Development:

    The circulation included a Concept Site Plan dated September 20th, 2023. This concept plan still includes a Walkley Road loading access. Ensure this access is removed in all subsequent resubmission materials.

55. Section 2.2.1 [Existing] Area Road Network:

    Please correct discussion of Walkley Road right-of-way protection within the study area. Schedule C16 of the Official Plan reserves a protected right-of-way of 26 metres west of Bank Street and 37.5m east of Bank Street.

56. Section 2.2.4 Existing Cycling Facilities:

    Please clarify that the ultimate cycling network is from the 2013 Ottawa Cycling Plan. Discuss the Cross-Town Bikeway network per the 2023 Transportation Master Plan Part 1.

    Please note within the text of Section 2.2.4 that the Bank Street and Alta Vista Drive turning movement count was conducted in February and therefore may undercount cyclist volumes. Consider correcting north-south cycling volumes at the Bank Street and Alta Vista Drive intersection based on the other study area intersections.

57. Section 2.2.5 Existing Transit

    Clarify whether Route #92 provides more frequent or less frequent services at 4PM.

58. Section 2.2.8 Collision Data:

    For segment on Bank Street between Walkley Road and Alta Vista Drive, it is noted that 7 out of the 18 collisions – including the two collisions involving cyclists – involve vehicles turning eastbound right or southbound right, which indicates that these collisions are related to the accesses on the west side of Bank Street. In addition, Figure 11 appears to show a cluster of collisions around the site's existing Bank Street access. Therefore:

- Please clarify how many collisions are attributable to the site's existing Bank Street access; and,
- As part of the TIA Strategy submission, consider recommendations to improve the safety of the site's proposed Bank Street access / public street intersection.

59. Section 4.1 Mode Shares:

    Column heading in table 10 reads "single detached". Please correct.

60. Section 4.4. Trip Assignment:

    It is anticipated that the new Airport Parkway southbound off-ramp to Walkley Road will be constructed by the TIA study's horizon years. Consider whether a percentage of traffic from the north should therefore be assigned to the Airport Parkway (N).

61. Section 5 Exemption Review:

    The development proposes a new internal public street. Therefore, include Element 4.1.3 New Street Networks.

Refer also to Pre-Consultation Transportation Comments:

62. Right-of-way protection.

    a. See Schedule C16 of the Official Plan.

    b. In addition to the protected right-of-way for Walkley Road and Bank Street listed in Schedule C16, additional right-of-way is required on both Walkley Road and Bank Street per policy 2.1.1 (f) of Schedule C16. The additional right-of-way is identified by the Bank Street Renewal project and is required to address the need for additional intersection-related features such as turn lanes, pedestrian sidewalks and facilities, cycling facilities, traffic signals, and AODA compliance components per City design guidelines and standards. PDF and CAD files are attached to illustrate the right-of-way requirement.

    c. Any requests for exceptions to ROW protection requirements must be discussed with Transportation Planning and concurrence provided by Transportation Planning management.

63. Coordination with ongoing City of Ottawa transportation projects

    a. The Bank Street Renewal project is reconstructing both the Bank Street and Walkley Road frontages of the site. Roxanne Tubb is the City project manager. Coordinate with the Bank Street Renewal team as required, including but not limited to the following:

        i. Provision of the required right-of-way for Walkley Road and Bank Street (see above right-of-way protection comments).
        ii. Reconstruction of the access on Bank Street, and removal of the existing access on Walkley Road.
        iii. Construction of a retaining wall / parking garage foundation structure along Bank Street and Walkley Road at the edge of the protected right-of-way.

    b. The Walkley Road cycling project has proposed a protected intersection at Walkley Road and Anand Private / Glenhaven Private. This new intersection design will be constructed either by the Bank Street renewal project or by the Airport Parkway Widening project. A PDF of the functional design of the intersection is attached. Note that the number of southbound vehicle lanes is proposed to be reduced from two to one.

64. Motor vehicle access:

    a. The Bank Street access, if private, is inconsistent with Policy 31 of Section of the Bank Street Secondary Plan, Policy 4.1.2 4) of the Official Plan, and Policy 6.2.1 4) b) of the Official Plan. However, the Bank Street access may be considered given the site's large Bank Street frontage, the provision of a new internal local road, and the removal of the Walkley Road access improving the site's overall access configuration. Provide a discussion of the technical merits and drawbacks of the Bank Street access as part of the TIA.

    b. The removal of the Walkley Road access per the concept plan dated 2023-11-01 is supported.

65. Internal street network:

    a. The internal public street must be designed for a 30km/h operating speed. Refer to the 2021 Local Residential Streets 30km/h Design Toolbox.

    b. Note Policy 39 of Section 2 of the Bank Street Secondary Plan, which encourages speeds lower than 30km/h in Nodes.

    c. The proposed public street cross-section of a 7.0m travel surface with 2.6m parking bays is too wide. Consult with the 2021 Local Residential Streets 30km/h Design Toolbox. The target throat width for narrowings is

6.0m. Minimum parking lane width is 2.0m. Consider reducing the amount of on-street parking to allow for the provision of street trees.

d. Note Policy 22 of Section 3 of the Bank Street Secondary Plan, which specifies that the internal road network for the northwest development block of Node 3 (Walkley Road), should connect between the intersection of Alta Vista Drive and Bank Street and the intersection of Walkley Road and Glenhaven Private. Therefore, the north-south public street proposed along the west edge of the site must extend all the way to the north property line for potential future extension upon redevelopment of 1800 Bank Street.

e. It is preferred that the proposed east-west internal street and connection to Bank Street be dedicated as a public local street right-of-way. However, a private east-west street may be considered if all resulting issues are addressed, including but not limited to:

    i. Retention of public access to the internal street network.
    ii. Long-term maintenance of the private street.
    iii. Winter maintenance access and circulation to the remaining north-south public street, to the satisfaction of the City of Ottawa's Roads Services staff.
    iv. Internal access for 1818 Bank Street.

f. Currently the junction of Glenhaven Private, Westvalley Private, and the existing driveway to the subject site all have stop control. It is recommended that the design and signage of this junction be adjusted to provide priority to the new public street.

66. Proximity to transit

a. While the importance of the site's proximity to higher order transit at Walkley Station is evident, please also reflect and celebrate the additional benefit of being located at the intersection of two frequent transit corridors in Bank Street and Walkley Road.

b. To reflect the transit-oriented development and sustainable mobility goals of Node 3 of the Bank Street South Secondary Plan, high transit mode share targets and the inclusion of significant transit-supportive TDM measures are expected for all phases.

67. Parking supply:

a. Note Policy 25 of Section 2 of the Bank Street South Secondary Plan, which requires a minimum bicycle parking rate of 1.0 per multi-residential unit and bicycle parking rates for other uses to support a 15 percent bicycle modal share for its users and visitors.

b. Given the large number of residential units proposed and the minimum 1.0 minimum bicycle parking rate, large secure bicycle parking rooms will be required. Give early thought to the location and design of these bicycle parking rooms, considering emerging trends and best practices:

    i. Locate bicycle parking rooms on the ground level or first parking level.
    ii. Provide dedicated bicycle accesses separate from motor vehicle access.
    iii. Consider “ride-in” bicycle accesses / parking rooms where dismounting is not required.
    iv. Consider connecting the bicycle parking accesses directly to the proposed Walkley Road and/or Bank Street cycle tracks.
    v. Consider spaces for bicycle repair and washing.

c. Note Policy 27 of Section 2 of the Bank Street South Secondary Plan, which requires, as part of development, consideration of a publicly accessible protected bicycle parking garage near hubs and corridors to accommodate the current or future parking demands of nearby destinations. This is consistent with the 2021 City of Ottawa Public Bike Parking Strategy. Contact Gaby.Davilus@ottawa.ca with Parking Services to discuss opportunities.

d. Note Policy 28 of Section 2 of the Bank Street Secondary Plan, which encourages less or no motor vehicle parking. Transportation Engineering Services is supportive of very low rates of motor vehicle parking given the site’s proximity to frequent and rapid transit, as well as new cycling infrastructure.

68. Per Section 3.2 of the City of Ottawa Accessibility Design Standards, include a designated accessible passenger loading zone within 30m of the main entrance of each building, and protect for ParaTranspo bus movements on new internal streets to/from each of these zones.

69. Submit delivery truck, garbage collection, ParaTranspo, and emergency services turning movement drawings for review.

70. Note: The Walkley Road and Bank Street intersection is one of the 11 most dangerous intersections in Ottawa. Review the impact of the traffic volumes generated from the site on the intersection.

Traffic Signal Design

71. Should any traffic signal plant relocations be required to accommodate site construction, shoring and/or excavation, the proponent would be required to contact the City of Ottawa Traffic Signal Design Unit to complete a necessary traffic signal plant design and also to coordinate the installation/relocation of

underground traffic plant, traffic signal hardware. The proponent would be fully responsible for all costs associated with any traffic signal plant relocations required to accommodate proposed site construction / conditions.

72. In addition, should any lane arrangements be modified (example lane closure to facilitate shoring, deliveries, etc.) within 30m of a signalized intersection or at a signalized intersection, the proponent will be required to provide Traffic Control Plans in AutoCAD (.dwg) format to the City's Traffic Signal Design Unit to update signal legal drawings as well as assess any changes to signal displays or operation. Required signal changes are at the sole discretion of the City Traffic Signal Design Unit and costs associated with changes including legal drawing update with or without signal changes are the responsibility of the proponent.

73. The proposed development should be coordinating with the City's planned Bank Street Reconstruction Project to ensure the proposed site development conditions align with the planned roadway reconstruction and property requirements for new infrastructure.

74. If there are any future proposed changes in the existing roadway geometry that would require modifications to an existing signalized intersection (outside the limits of the future Bank Street Reconstruction Project), the City of Ottawa Traffic Signal Design Unit would be required to complete a traffic signal plant design and would need to be engaged in reviews during the functional design stage.

Transit Services

75. Section 2.2.5: correct references to "Walkway" Road to Walkley Road.

76. Section 2.3.1.6: correct reference to "Confederation Line South" to "Trillium Line" or “Line 2”.

77. Section 4.1: correct column heading in Table 10 from "Single-detached" to Multi-Unit (High-Rise).

78. Section 4.7.1: please contact octdevelopmentreview@ottawa.ca to request transit ridership data to complete analysis for this section.

79. Per Section 3.2 of the City of Ottawa Accessibility Design Standards, include a designated accessible passenger loading zone within 30m of the main entrance of each building, and protect for ParaTranspo bus movements on new internal streets to/from each of these zones.

80. Transit services will support reduced, or no resident parking given the site's proximity to multiple frequent and rapid transit corridors.

81. Significant transit supportive TDM measures will be expected for all phases.

82. Indicate on the site plan and related drawings the location of the existing bus stop along the Walkley site frontage and show the planned location of bus stop infrastructure per the Bank Street renewal plan.

Feel free to contact Wally Dubyk, Transportation Project Manager, for follow-up questions.

Environment

Comments:

83. Within the Sawmill Creek Subwatershed, no trigger for an EIS due to the distance to the nearest natural heritage feature (the watercourse to the West).

84. Bird-Safe Design

    Please review and incorporate bird safe design elements. Some of the risk factors include glass and related design traps such as corner glass and fly-through conditions, ventilation grates and open pipes, landscaping, light pollution. More guidance and solutions are available in the guidelines which can be found here: https://documents.ottawa.ca/sites/documents/files/birdsafedesign_guidelines_en.pdf

85. Urban Heat Island

    Please add features that reduce the urban heat island effect (see OP 10.3.3) produced by the parking lot and a building footprint. For example, this impact can be reduced by adding large canopy trees, green roofs or vegetation walls, or constructing the parking lot or building differently.

Feel free to contact Matthew Haley, Environmental Planner, for follow-up questions.

Forestry

Deficiencies:

86. None – detailed planting and existing tree information will be required for any subsequent planning applications but please note the following comments.

Comments:

87. Existing Trees

A Tree Conservation Report will be required.

A tree permit is required should existing trees >10cm in diameter need to be removed.

Note that the removal of trees growing on a property line will require the permission of the adjoining property owner.

88. Future Trees

The minimum soil volume for all planted trees are as follows:

Tree Type/Size	Single Tree Soil Volume (m3)	Multiple Tree Soil Volume (m3/tree)
Ornamental	15	9
Columnar	15	9
Small	20	12
Medium	25	15
Large	30	18
Conifer	25	15

Note that soil depth must not be less that 1m.

Medium to large at maturity trees are required

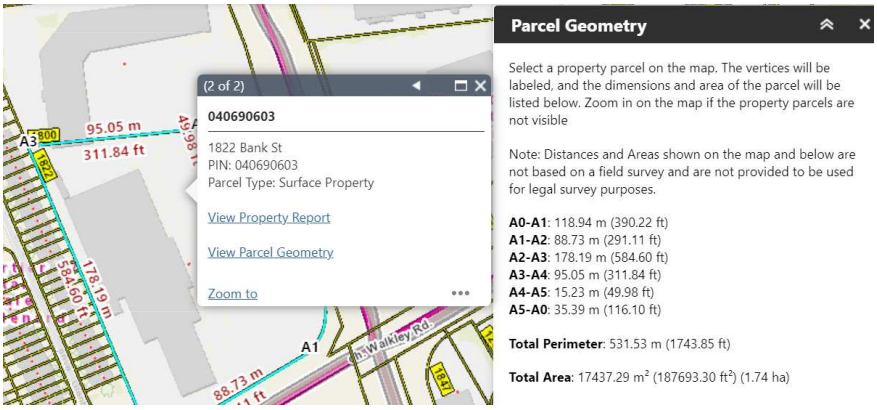
Efforts shall be made to provide as much future canopy cover as possible at a site level, through tree planting and tree retention. The Landscape Plan shall show/document that the proposed tree planting and retention will contribute to the City's overall canopy cover over time. Please provide a projection of the future canopy cover for the site to 40 years.

Feel free to contact the Planning Forester, Mark Richardson (mark.richardson@ottawa.ca) for follow-up questions.

Parkland

Deficiencies:

89. Please confirm developable site area and 10% parkland dedication requirement. GeoOttawa has total site are at 17437m2.



Comments:

90. Applicant is to be advised that no encumbrances are permitted on/over/under the dedicated parkland parcel, including, but not limited to no stormwater storage, retention or overland flows on/over parkland.

91. Please confirm width of proposed sidewalks abutting park block, and please confirm location of the sidewalks for those sidewalks to be constructed on BGO Private street frontages.

92. Please confirm intent for, or requirement of a public access easement for BGO Private to allow for maintenance or other public access requirements to allow access to the park block.

93. Please confirm that those lands abutting the future park block within the defined BGO Private ROW are to be included within the development M&L agreement(s).

94. In accordance with City ERU and Ministry requirements for change of use to parkland, that the park block is included in the development RSC.

95. The applicant is to be advised that conditions of Site Plan approvals to address park bock Base Improvement requirements are to be incorporated in the site Plan Agreement(s), which may include, or may be above and beyond what the RSC requirements detail(s).

Feel free to contact Mike Russett, Parks Planner, for follow-up questions.

Community issues

96. Note: No Community Association is registered to participate in the pre-consultation process in this area/site.

We look forward to further discussing your project with you.

Should there be any questions, please do not hesitate to contact myself or the contact identified for the above areas / disciplines.

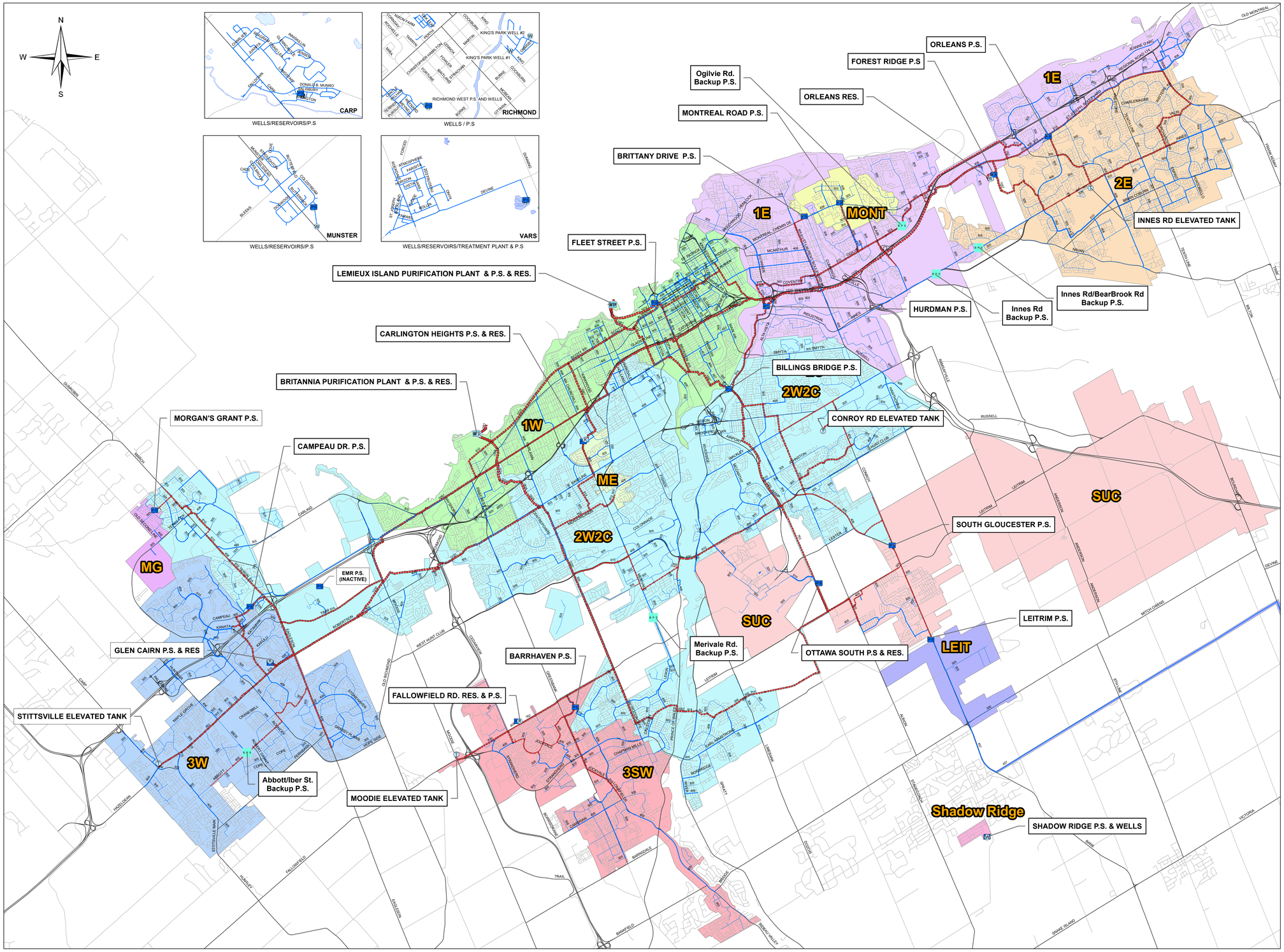
Yours Truly,
Ann O'Connor and Masha Wakula

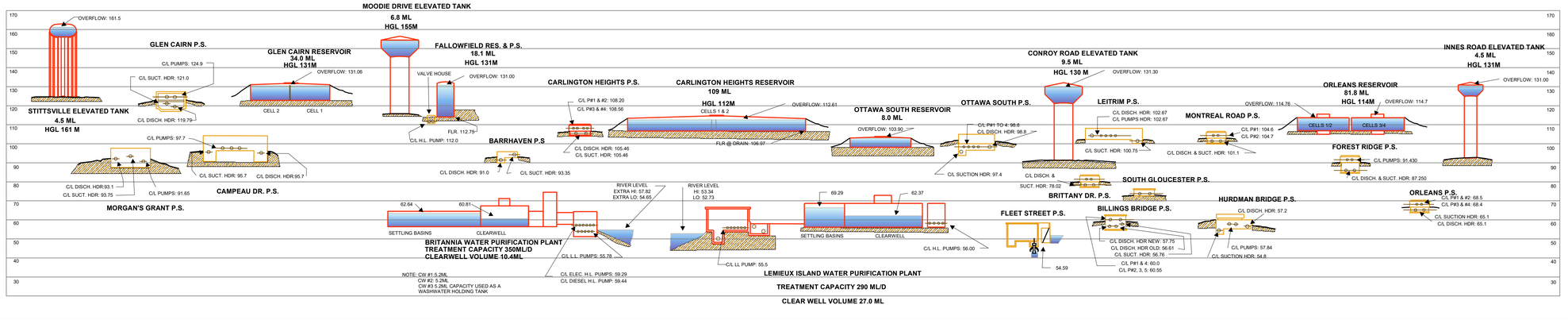
Encl. Study and Plan Identification List
HPDS Example Checklist
HPDS Example Checklist
ADS Site Plan Checklist

c.c. Randolph Wang
Peter Giles
Amy Whelan
John Wu
Matthew Hayley
Wally Dubyk
Emmett Proulx
Mike Russett
Mark Richardson
Andrew McCreight

David Schaeffer Engineering Ltd.
120 Iber Road, Suite 103
Stittsville, ON K2S 1E9
613-836-0856
dsel.ca

APPENDIX B





LEGEND

Water System Structure

Structure Type, Life Cycle Status

- WTP — DWTP, In Service
- PS — DWPS, In Service
- BPS — DWPS, Proposed
- W — DWWS, In Service
- T — RESE, In Service
- R — RESI, In Service

Watermains

Priority, Internal Diameter

- Backbone 1524mm - 1981mm
- Backbone 1067mm - 1372mm
- Backbone 610mm - 914mm
- Backbone 406mm - 508mm
- Backbone 152mm - 305mm
- Distribution 1676mm - 1981mm
- Distribution 1067mm - 1372mm
- Distribution 610mm - 914mm
- Distribution 406mm - 508mm
- Distribution 305mm - 381mm

Water Pressure Zone

Zone IDs

- 1E
- 1W
- 2E
- 2W2C
- 3SW
- 3W
- LEIT
- ME
- MG
- MONT
- SHADOW RIDGE
- SUC

Ottawa

Planning, Infrastructure and Economic Development Department
Right of Way, Heritage & Urban Design Services
Infrastructure Services

0 1,000 2,000 4,000 6,000

Metres

Water Distribution System Facilities & Feedermains

Geospatial Analytics, Technology and Solutions — June 2020

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

Domestic Demand

Type of Housing	Per / Unit	Units	Pop
Single Family	3.4	-	0
Semi-detached	2.7	-	0
Townhouse	2.7	-	0
Apartment			0
Bachelor	1.4	-	0
1 Bedroom	1.4	1,012	1418
2 Bedroom	2.1	414	869
3 Bedroom	3.1	-	0
Average	1.8	-	0

	Pop	Avg. Daily		Max Day		Peak Hour	
		m^3/d	L/min	m^3/d	L/min	m^3/d	L/min
Total Domestic Demand	2287	640.4	444.7	1600.9	1111.7	3522.0	2445.8

Institutional / Commercial / Industrial Demand

Property Type	Unit Rate	Units	Avg. Daily m^3/d	Avg. Daily L/min	Max Day m^3/d	Max Day L/min	Peak Hour m^3/d	Peak Hour L/min
Commercial floor space	2.5 $L/m^2/d$	375	0.94	0.7	1.4	1.0	2.5	1.8
Office	75 $L/9.3m^2/d$	-	0.00	0.0	0.0	0.0	0.0	0.0
Restaurant*	125 L/seat/d	40	5.04	3.5	7.6	5.3	13.6	9.5
Total I/C/I Demand			6.0	4.2	9.0	6.2	16.1	11.2
Total Demand			**646.3**	**448.8**	**1609.9**	**1118.0**	**3538.1**	**2457.0**

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

Fire Flow Estimation per Fire Underwriters Survey

Water Supply For Public Fire Protection - 2020

Fire Flow Required

1. Base Requirement

$$F = 220C\sqrt{A}$$ L/min *Where **F** is the fire flow, **C** is the Type of construction and **A** is the Total floor area*

Type of Construction: Fire-Resistive Construction

C	0.6		*Type of Construction Coefficient per FUS Part II, Section 1*
A	1379.7	m^2	*Total floor area based on FUS Part II section 1*

Fire Flow	4903.1	L/min	
	5000.0	**L/min**	*rounded to the nearest 1,000 L/min*

Adjustments

2. Reduction for Occupancy Type

Limited Combustible	-15%	
Fire Flow	**4250.0**	**L/min**

3. Reduction for Sprinkler Protection

Sprinklered - Supervised	-50%	
Reduction	**-2125**	**L/min**

4. Increase for Separation Distance

	Cons. of Exposed Wall	S.D	Lw	Ha	LH	EC	
N	Type I-II Unprotected Openings	Over 30m	20	1	20	0%	
S	Type I-II Unprotected Openings	10.1m-20m	25	5	125	8%	
E	Type I-II Unprotected Openings	Over 30m	18	3	54	0%	
W	Type I-II Unprotected Openings	Over 30m	18	3	54	0%	
		% Increase				**8%**	*value not to exceed 75%*

Increase	**340.0**	**L/min**

Lw = Length of the Exposed Wall
Ha = number of storeys of the adjacent structure. Max 5 stories
LH = Length-height factor of exposed wall. Value rounded up.
EC = Exposure Charge

Total Fire Flow

Fire Flow	2465.0	L/min	
	2000.0	**L/min**	*rounded to the nearest 1,000 L/min*

Notes:
-Type of construction, Occupancy Type and Sprinkler Protection information provided by _____.
-Calculations based on 2020 FUS

Fire Flow Estimation per Fire Underwriters Survey

Water Supply For Public Fire Protection - 2020

Fire Flow Required

1. Base Requirement

$$F = 220C\sqrt{A}$$ L/min *Where **F** is the fire flow, **C** is the Type of construction and **A** is the Total floor area*

Type of Construction: Fire-Resistive Construction

C	0.6		*Type of Construction Coefficient per FUS Part II, Section 1*
A	1407.1	m^2	*Total floor area based on FUS Part II section 1*

Fire Flow	4951.5	L/min
	5000.0	**L/min** *rounded to the nearest 1,000 L/min*

Adjustments

2. Reduction for Occupancy Type

Limited Combustible	-15%
Fire Flow	**4250.0 L/min**

3. Reduction for Sprinkler Protection

Sprinklered - Supervised	-50%
Reduction	**-2125 L/min**

4. Increase for Separation Distance

	Cons. of Exposed Wall	S.D	Lw	Ha	LH	EC
N	Type I-II Unprotected Openings	10.1m-20m	25	5	125	8%
S	Type I-II Unprotected Openings	Over 30m	25	5	125	0%
E	Type I-II Unprotected Openings	10.1m-20m	30	5	150	8%
W	Type I-II Unprotected Openings	Over 30m	18	5	90	0%
		% Increase				**16%** *value not to exceed 75%*

Increase	**680.0 L/min**

Lw = Length of the Exposed Wall
Ha = number of storeys of the adjacent structure. Max 5 stories
LH = Length-height factor of exposed wall. Value rounded up.
EC = Exposure Charge

Total Fire Flow

Fire Flow	2805.0	L/min
	3000.0	**L/min** *rounded to the nearest 1,000 L/min*

Notes:
-Type of construction, Occupancy Type and Sprinkler Protection information provided by _____.
-Calculations based on 2020 FUS

Fire Flow Estimation per Fire Underwriters Survey

Water Supply For Public Fire Protection - 2020

Fire Flow Required

1. Base Requirement

$$F = 220C\sqrt{A}$$ L/min *Where **F** is the fire flow, **C** is the Type of construction and **A** is the Total floor area*

Type of Construction: Fire-Resistive Construction

C	0.6		*Type of Construction Coefficient per FUS Part II, Section 1*
A	1324.6	m^2	*Total floor area based on FUS Part II section 1*

Fire Flow	4804.2	L/min	
	5000.0	**L/min**	*rounded to the nearest 1,000 L/min*

Adjustments

2. Reduction for Occupancy Type

Limited Combustible	-15%	
Fire Flow	**4250.0**	**L/min**

3. Reduction for Sprinkler Protection

Sprinklered - Supervised	-50%	
Reduction	**-2125**	**L/min**

4. Increase for Separation Distance

	Cons. of Exposed Wall	S.D	Lw	Ha	LH	EC	
N	Type I-II Unprotected Openings	Over 30m	25	5	125	0%	
S	Type I-II Unprotected Openings	Over 30m	25	5	125	0%	
E	Type I-II Unprotected Openings	20.1m-30m	15	5	75	2%	
W	Type I-II Unprotected Openings	20.1m-30m	31	5	155	4%	
		% Increase				**6%**	*value not to exceed 75%*

Increase	**255.0**	**L/min**

Lw = Length of the Exposed Wall
Ha = number of storeys of the adjacent structure. Max 5 stories
LH = Length-height factor of exposed wall. Value rounded up.
EC = Exposure Charge

Total Fire Flow

Fire Flow	2380.0	L/min	
	2000.0	**L/min**	*rounded to the nearest 1,000 L/min*

Notes:
-Type of construction, Occupancy Type and Sprinkler Protection information provided by _____.
-Calculations based on 2020 FUS

Fire Flow Estimation per Fire Underwriters Survey

Water Supply For Public Fire Protection - 2020

Fire Flow Required

1. Base Requirement

$$F = 220C\sqrt{A}$$ L/min *Where **F** is the fire flow, **C** is the Type of construction and **A** is the Total floor area*

Type of Construction: Fire-Resistive Construction

C	0.6		*Type of Construction Coefficient per FUS Part II, Section 1*
A	1929.4	m^2	*Total floor area based on FUS Part II section 1*

Fire Flow	5798.1	L/min	
	6000.0	**L/min**	*rounded to the nearest 1,000 L/min*

Adjustments

2. Reduction for Occupancy Type

Limited Combustible	-15%	
Fire Flow	**5100.0**	**L/min**

3. Reduction for Sprinkler Protection

Sprinklered - Supervised	-50%	
Reduction	**-2550**	**L/min**

4. Increase for Separation Distance

	Cons. of Exposed Wall	S.D	Lw	Ha	LH	EC	
N	Type I-II Unprotected Openings	Over 30m	25	5	125	0%	
S	Type I-II Unprotected Openings	Over 30m	25	5	125	0%	
E	Type I-II Unprotected Openings	10.1m-20m	23	5	115	8%	
W	Type I-II Unprotected Openings	Over 30m	31	5	155	0%	
		% Increase				**8%**	*value not to exceed 75%*

Increase	**408.0**	**L/min**

Lw = Length of the Exposed Wall
Ha = number of storeys of the adjacent structure. Max 5 stories
LH = Length-height factor of exposed wall. Value rounded up.
EC = Exposure Charge

Total Fire Flow

Fire Flow	2958.0	L/min	
	3000.0	**L/min**	*rounded to the nearest 1,000 L/min*

Notes:
-Type of construction, Occupancy Type and Sprinkler Protection information provided by _____.
-Calculations based on 2020 FUS

Jeremy Chouinard

From: Jeremy Chouinard
Sent: September 17, 2024 11:28 AM
To: 'amy.whelan@ottawa.ca'
Cc: Adam Fobert
Subject: 1369 - BGO - Bank / Walkley Boundary Conditions
Attachments: wtr-2024-09-05_1369_adf.pdf; 2024-09-17_1822 Bank_Proposed Water Layout.pdf

Hi Amy,

Please find attached sketch and calcs to support our request for boundary conditions for the new development at 1822 Bank Street. Demands are as follow:

Avg Daily = 448.8 L/min
Max Day = 1,118.0 L/min
Peak Hour = 2,457 L/min

Required Fire Flow = 3,000 L/min

Can you please confirm receipt and expected timeline for information?

Thank you,

Jeremy Chouinard, P.Eng.,
Project Manager

DSEL
david schaeffer engineering ltd.

120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

Cell: 613-668-2585
e-mail: jchouinard@DSEL.ca
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Jeremy Chouinard

From: Whelan, Amy <amy.whelan@ottawa.ca>
Sent: October 3, 2024 1:11 PM
To: Jeremy Chouinard
Cc: Adam Fobert; Brockman, Griffin
Subject: RE: 1369 BGO - Bank / Walkley: Phase 2 Feedback Form
Attachments: 1822 Bank September 2024.pdf

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Hey Jeremy,

Please find the results of the boundary condition request below.

The following are boundary conditions, HGL, for hydraulic analysis at 1822 Bank Street (zone 2W2C) assumed to be connected to the 406mm watermain on Bank Street and the 406mm watermain on Walkley Road (see attached PDF for location).

Minimum HGL = 123.7 m

Maximum HGL = 131.8 m

Max Day + Fire Flow (50.0 L/s) = 127.8 m

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

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

Kind regards,

Amy Whelan, E.I.T
Project Manager, Infrastructure Approvals
Development Review, Central | Examen des projets d'aménagement, Central
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
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 26642, amy.whelan@ottawa.ca

From: Whelan, Amy
Sent: October 02, 2024 2:00 PM
To: Jeremy Chouinard <JChouinard@dsel.ca>
Cc: Adam Fobert <afobert@dsel.ca>; Brockman, Griffin <Griffin.Brockman@bgo.com>
Subject: RE: 1369 BGO - Bank / Walkley: Phase 2 Feedback Form

Hey Jeremy,

I want to preface that I cannot make any calls regarding whether the application will be deemed complete without having a chance to review the materials. In addition not having the boundary conditions would be considered a deficiency therefore the application would not be deemed complete with out this information. Please ensure that all other documents requested in the SPIL are provided with the application as well.

I also wanted to touch base with you regarding the fire flow calculations, can you please include confirmation from the relative disciplines about the assumptions used to determine the fire flow, please include confirmation in the appendix of the servicing report:

1. "all vertical openings and exterior vertical communications are properly protected in accordance with the national building code"
2. Construction coefficient < 1.0.
3. Fully supervised sprinkler system.
4. Reduction for Occupancy Type.

I spoke with modeling today regarding the boundary condition request and results should be provided this week.

Kind regards,

Amy Whelan, E.I.T
Project Manager, Infrastructure Approvals
Development Review, Central | Examen des projets d'aménagement, Central
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
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 26642, amy.whelan@ottawa.ca

From: Jeremy Chouinard JChouinard@dsel.ca
Sent: October 02, 2024 11:39 AM
To: Whelan, Amy <amy.whelan@ottawa.ca>
Cc: Adam Fobert <afobert@dsel.ca>; Brockman, Griffin <Griffin.Brockman@bgo.com>
Subject: RE: 1369 BGO - Bank / Walkley: Phase 2 Feedback Form

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Hi Amy,

Just checking in on this, are you able to give us feedback regarding the completeness of our proposed civil package as described below?

Thanks,

Jeremy Chouinard, P.Eng.,
Project Manager

DSEL
david schaeffer engineering ltd.

120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

Cell: 613-668-2585
e-mail: jchouinard@DSEL.ca
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From: Jeremy Chouinard
Sent: September 27, 2024 12:03 PM
To: 'amy.whelan@ottawa.ca' <amy.whelan@ottawa.ca>
Cc: Adam Fobert <AFobert@dsel.ca>; 'Brockman, Griffin' <Griffin.Brockman@bgo.com>
Subject: FW: 1369 BGO - Bank / Walkley: Phase 2 Feedback Form

Hi Amy,

BGO is preparing to make their first submission for the Draft Plan shortly. In addition to the clarifications in Adam's email below, I'd like to confirm that our Civil package will be deemed complete and acceptable for review.

We will be submitting a Functional Servicing Report and associated figures, consistent with our typical submissions at this stage, including:

- Discussion and analysis of:
    - Existing Conditions
    - Water Servicing
    - Wastewater Servicing
    - Stormwater Servicing
    - Erosion Control
- Figures to support:
    - High level servicing concept
    - Grading plan
    - Offsite sanitary Plan and Profile

The report will assess the adequacy of public services to support the development; however, we will need the City's assistance to confirm capacities in the existing sewers and water modeling will be required pending confirmation of the boundary conditions.

Can you please confirm that the items outlined above will be sufficient for the first submission without the modeling results and that we can check off the items related to #7 (Site Servicing) in the attached document?

Please let me know if you have any questions or concerns. Thank you,

Jeremy Chouinard, P.Eng.,
Project Manager

DSEL
david schaeffer engineering ltd.

120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

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From: Adam Fobert <AFobert@dsel.ca>
Sent: July 05, 2024 3:22 PM
To: Whelan, Amy <amy.whelan@ottawa.ca>
Cc: Jeremy Chouinard <JChouinard@dsel.ca>
Subject: 1369 BGO - Bank / Walkley: Phase 2 Feedback Form

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Hello Amy,

Would you be able to meet and discuss some of the items provided on the feedback form?

Specifically, I would like to make sure that we are on the same page with regards to the submission requirements for this application. BGO will be making an application for OPA, ZBA, and Draft Plan of subdivision. A number of these comments are specific to an application for site plan control. Such as:

- Item 37e – specifics on foundation drainage connections. – Can be submitted at site plan control
- Item 37i – Detailed grading requirements. – Master grading plan should be included as part of the subdivision application, and detailed grading plan should be submitted at site plan control.
- Item 37m – Provide detailed information on underground storage chambers if proposed. – detailed design of storage chambers used for site specific development (for example site plan for a proposed residential tower) can be submitted at site plan control.

- Item 37p - Provide a roof drain plan as part of the submission. – Can be submitted at site plan control.
- Item 40 – Snow storage – Can be included in the planning design brief at site plan control stage.
- Item 42 – Gas pressure regulating station location to be shown on plans. – Proposed location to be included on the grading plan at site plan control.

I'd also like to clarify what the City's intension under Item 33 "Storm water management infrastructure is not permitted on City Parkland." Is the City suggesting that the park itself will not be required to attenuate its own runoff? Storm water management infrastructure to manage the park block runoff is acceptable, the City park land can not be used to store storm water from the private site or proposed public road way.

Let me know if you have any availability next week to discuss.

Adam Fobert, P.Eng.

DSEL

david schaeffer engineering ltd.

120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

cell: (613) 222-9493
email: afobert@DSEL.ca

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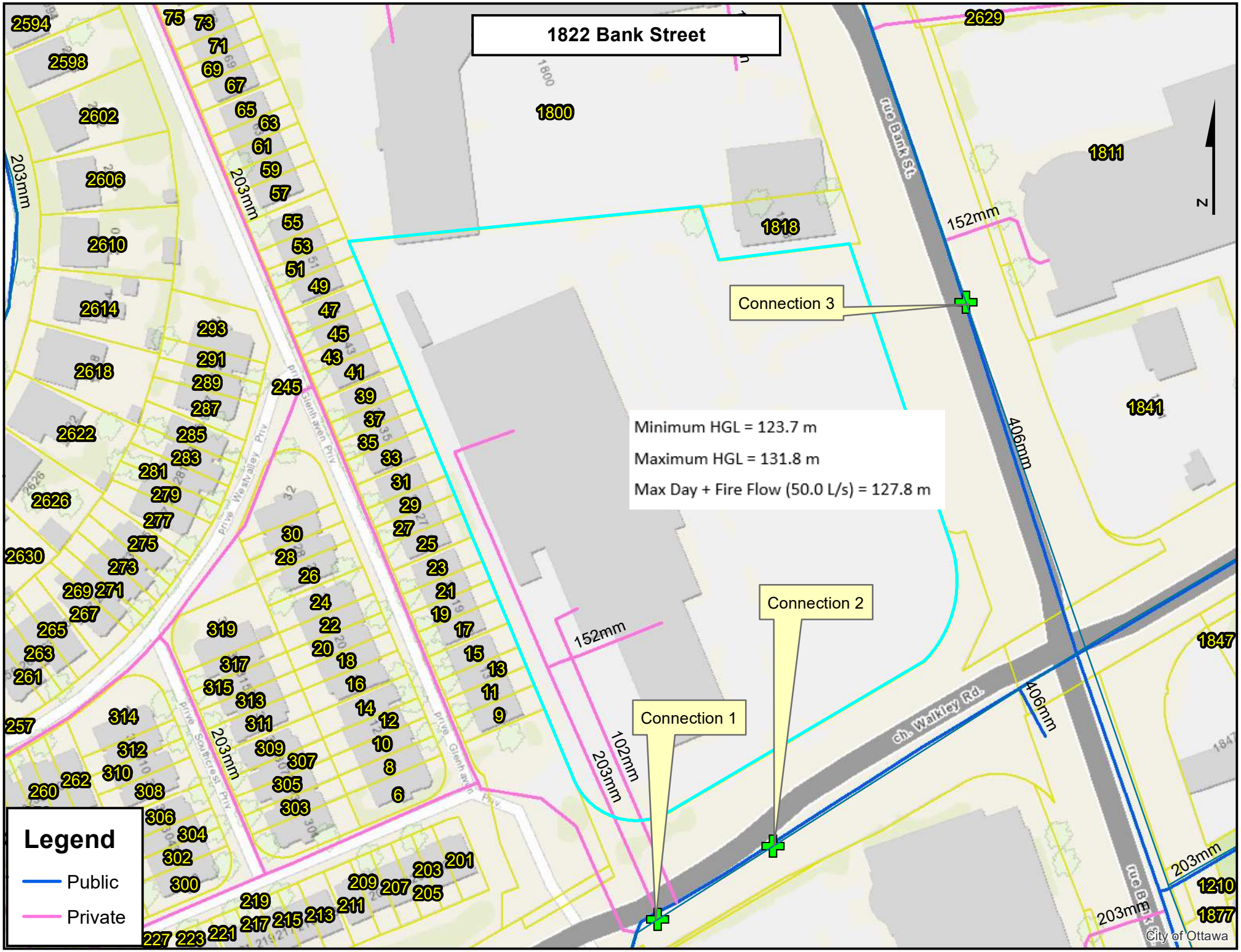
1822 Bank Street
Minimum HGL = 123.7 m
Maximum HGL = 131.8 m
Max Day + Fire Flow (50.0 L/s) = 127.8 m
Connection 1
Connection 2
Connection 3
Legend
Public
Private
203mm
152mm
406mm
102mm
rue Bank St.
ch. Walkley Rd.
City of Ottawa

Jeremy Chouinard

From: Doug Van Den Ham <dougv@hobinarc.com>
Sent: October 9, 2024 3:55 PM
To: Jeremy Chouinard
Subject: RE: 1369 BGO - Bank / Walkley: Phase 2 Feedback Form

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Hello Jeremy,

To quickly address your bullets regarding the fire flow calculation assumptions:

1- The buildings will be constructed in accordance with OBC which is more stringent than the National Building Code. – Correct. Non-combustible construction (and cladding), sprinklered. No issues anticipated with regards to limiting distances.
2- This will be confirmed at detail design for the site plan, but will almost certainly be met. – Less than 1.0. Likely 0.8 (Type II)
3- Same as #2. Supervised Sprinkler System
4- Given for residential development. Residential with ground floor commercial (retail and/or restaurant and/or personal services)

Hope that covers the questions.

Doug

From: Jeremy Chouinard <JChouinard@dsel.ca>
Sent: October 9, 2024 3:41 PM
To: Doug Van Den Ham <dougv@hobinarc.com>
Subject: RE: 1369 BGO - Bank / Walkley: Phase 2 Feedback Form

Hi Doug,

Can you review and comment on this tomorrow? The City asked we add your confirmation to our servicing report. Let me know if you have any concerns.

Thanks,

Jeremy Chouinard, P.Eng.,
Project Manager

DSEL
david schaeffer engineering ltd.

120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

Cell: 613-668-2585
e-mail: jchouinard@DSEL.ca

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From: Jeremy Chouinard
Sent: October 8, 2024 2:09 PM
To: dougv@hobinarc.com
Subject: FW: 1369 BGO - Bank / Walkley: Phase 2 Feedback Form

Hi Doug,

Please see below communication from the City. Can you please confirm the assumptions made in the email dated Oct 04, 2024?

Thanks,

Jeremy Chouinard, P.Eng.,
Project Manager

DSEL
david schaeffer engineering ltd.

120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

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e-mail: jchouinard@DSEL.ca
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From: Whelan, Amy <amy.whelan@ottawa.ca>
Sent: October 7, 2024 9:28 AM
To: Jeremy Chouinard <JChouinard@dsel.ca>
Cc: Adam Fobert <AFobert@dsel.ca>; Brockman, Griffin <Griffin.Brockman@bgo.com>
Subject: RE: 1369 BGO - Bank / Walkley: Phase 2 Feedback Form

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Good morning Jeremy,

Thank you for addressing the points below.

Can you please also have the architect confirm the assumptions and include their email response in the appendix of the site servicing study prior to submission?

Kind regards,

Amy Whelan, E.I.T
Project Manager, Infrastructure Approvals
Development Review, Central | Examen des projets d'aménagement, Central
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
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 26642, amy.whelan@ottawa.ca

From: Jeremy Chouinard <JChouinard@dsel.ca>
Sent: October 04, 2024 4:44 PM
To: Whelan, Amy <amy.whelan@ottawa.ca>
Cc: Adam Fobert <afobert@dsel.ca>; Brockman, Griffin <Griffin.Brockman@bgo.com>
Subject: RE: 1369 BGO - Bank / Walkley: Phase 2 Feedback Form

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Hi Amy,

To quickly address your bullets regarding the fire flow calculation assumptions:

1- The buildings will be constructed in accordance with OBC which is more stringent than the National Building Code.
2- This will be confirmed at detail design for the site plan, but will almost certainly be met.
3- Same as #2.
4- Given for residential development.

I believe the details provided in our report will be sufficient for the draft plan application.

Thanks,

Jeremy Chouinard, P.Eng.,
Project Manager

DSEL
david schaeffer engineering ltd.

120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

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From: Whelan, Amy <amy.whelan@ottawa.ca>
Sent: October 2, 2024 2:00 PM
To: Jeremy Chouinard <JChouinard@dsel.ca>
Cc: Adam Fobert <AFobert@dsel.ca>; Brockman, Griffin <Griffin.Brockman@bgo.com>
Subject: RE: 1369 BGO - Bank / Walkley: Phase 2 Feedback Form

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Hey Jeremy,

I want to preface that I cannot make any calls regarding whether the application will be deemed complete without having a chance to review the materials. In addition not having the boundary conditions would be considered a deficiency therefore the application would not be deemed complete with out this information. Please ensure that all other documents requested in the SPIL are provided with the application as well.

I also wanted to touch base with you regarding the fire flow calculations, can you please include confirmation from the relative disciplines about the assumptions used to determine the fire flow, please include confirmation in the appendix of the servicing report:

1. “all vertical openings and exterior vertical communications are properly protected in accordance with the national building code”
2. Construction coefficient < 1.0.
3. Fully supervised sprinkler system.
4. Reduction for Occupancy Type.

I spoke with modeling today regarding the boundary condition request and results should be provided this week.

Kind regards,

Amy Whelan, E.I.T
Project Manager, Infrastructure Approvals
Development Review, Central | Examen des projets d'aménagement, Central
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
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 26642, amy.whelan@ottawa.ca

From: Jeremy Chouinard JChouinard@dsel.ca
Sent: October 02, 2024 11:39 AM
To: Whelan, Amy <amy.whelan@ottawa.ca>
Cc: Adam Fobert <afobert@dsel.ca>; Brockman, Griffin <Griffin.Brockman@bgo.com>
Subject: RE: 1369 BGO - Bank / Walkley: Phase 2 Feedback Form

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ATTENTION : Ce courriel provient d'un expéditeur externe. Ne cliquez sur aucun lien et n'ouvrez pas de pièce jointe, excepté si vous connaissez l'expéditeur.

Hi Amy,

Just checking in on this, are you able to give us feedback regarding the completeness of our proposed civil package as described below?

Thanks,

Jeremy Chouinard, P.Eng.,
Project Manager

DSEL
david schaeffer engineering ltd.

120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

Cell: 613-668-2585
e-mail: jchouinard@DSEL.ca
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From: Jeremy Chouinard
Sent: September 27, 2024 12:03 PM
To: 'amy.whelan@ottawa.ca' <amy.whelan@ottawa.ca>
Cc: Adam Fobert <AFobert@dsel.ca>; 'Brockman, Griffin' <Griffin.Brockman@bgo.com>
Subject: FW: 1369 BGO - Bank / Walkley: Phase 2 Feedback Form

Hi Amy,

BGO is preparing to make their first submission for the Draft Plan shortly. In addition to the clarifications in Adam's email below, I'd like to confirm that our Civil package will be deemed complete and acceptable for review.

We will be submitting a Functional Servicing Report and associated figures, consistent with our typical submissions at this stage, including:

- Discussion and analysis of:
  - Existing Conditions
  - Water Servicing
  - Wastewater Servicing
  - Stormwater Servicing
  - Erosion Control
- Figures to support:
  - High level servicing concept
  - Grading plan
  - Offsite sanitary Plan and Profile

The report will assess the adequacy of public services to support the development; however, we will need the City's assistance to confirm capacities in the existing sewers and water modeling will be required pending confirmation of the boundary conditions.

Can you please confirm that the items outlined above will be sufficient for the first submission without the modeling results and that we can check off the items related to #7 (Site Servicing) in the attached document?

Please let me know if you have any questions or concerns. Thank you,

Jeremy Chouinard, P.Eng.,
Project Manager

DSEL
david schaeffer engineering ltd.

120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

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e-mail: jchouinard@DSEL.ca
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From: Adam Fobert <AFobert@dsel.ca>
Sent: July 05, 2024 3:22 PM
To: Whelan, Amy <amy.whelan@ottawa.ca>
Cc: Jeremy Chouinard <JChouinard@dsel.ca>
Subject: 1369 BGO - Bank / Walkley: Phase 2 Feedback Form

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Hello Amy,

Would you be able to meet and discuss some of the items provided on the feedback form?

Specifically, I would like to make sure that we are on the same page with regards to the submission requirements for this application. BGO will be making an application for OPA, ZBA, and Draft Plan of subdivision. A number of these comments are specific to an application for site plan control. Such as:

- Item 37e – specifics on foundation drainage connections. – Can be submitted at site plan control
- Item 37i – Detailed grading requirements. – Master grading plan should be included as part of the subdivision application, and detailed grading plan should be submitted at site plan control.
- Item 37m – Provide detailed information on underground storage chambers if proposed. – detailed design of storage chambers used for site specific development (for example site plan for a proposed residential tower) can be submitted at site plan control.

- Item 37p - Provide a roof drain plan as part of the submission. – Can be submitted at site plan control.
- Item 40 – Snow storage – Can be included in the planning design brief at site plan control stage.
- Item 42 – Gas pressure regulating station location to be shown on plans. – Proposed location to be included on the grading plan at site plan control.

I'd also like to clarify what the City's intension under Item 33 "Storm water management infrastructure is not permitted on City Parkland." Is the City suggesting that the park itself will not be required to attenuate its own runoff? Storm water management infrastructure to manage the park block runoff is acceptable, the City park land can not be used to store storm water from the private site or proposed public road way.

Let me know if you have any availability next week to discuss.

Adam Fobert, P.Eng.

DSEL

david schaeffer engineering ltd.

120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

cell: (613) 222-9493
email: afobert@DSEL.ca

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'

Doug Van Den Ham
Associate, Intern Architect, MRAIC

Hobin Architecture Incorporated
63 Pamilla Street t: 613-238-7200 x115
Ottawa, Ontario
Canada K1S 3K7 e: dougv@hobinarc.com

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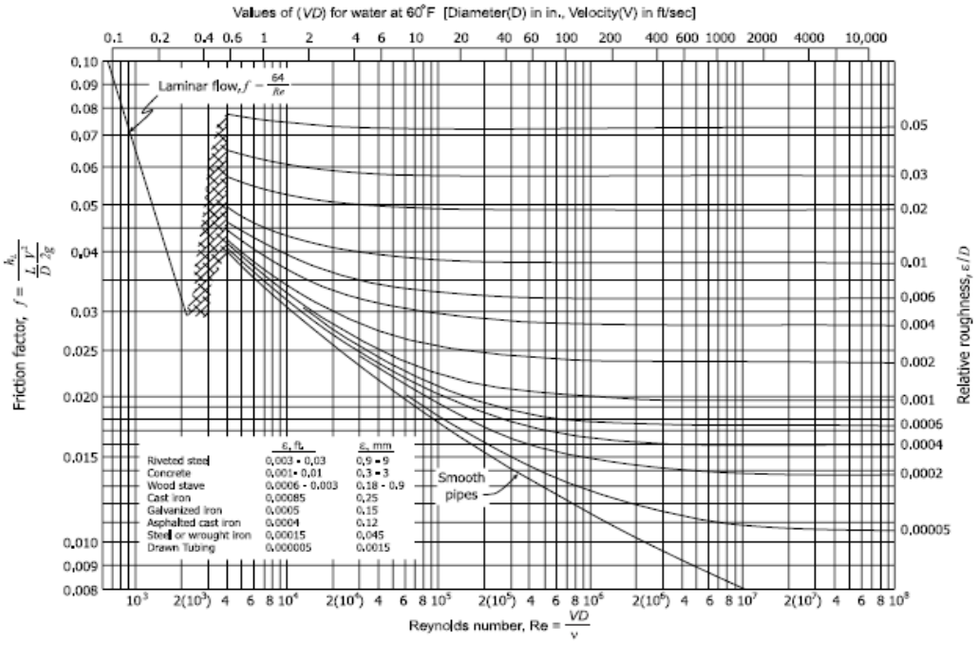
Estimated Head Loss per Darcy-Weisbach
Loss During Average Daily Demand

Service Size	200	mm
Service Length	175	m
Peak Demand	7.48	L/s
Relative Roughness	0.00006	
Kinematic Viscosity @ 4^{O}C, v	0.00000151	m^2/s
Velocity, V	0.238	m/s
Re	31,536	



Friction Factor, f 0.021 (From Moody Diagram)

Head Loss

$$h_f = \frac{fL}{D}\frac{V^2}{2g}$$

h_f	0.053	m H_2O
h_f	0.521	kPa

Head Loss Including Bends

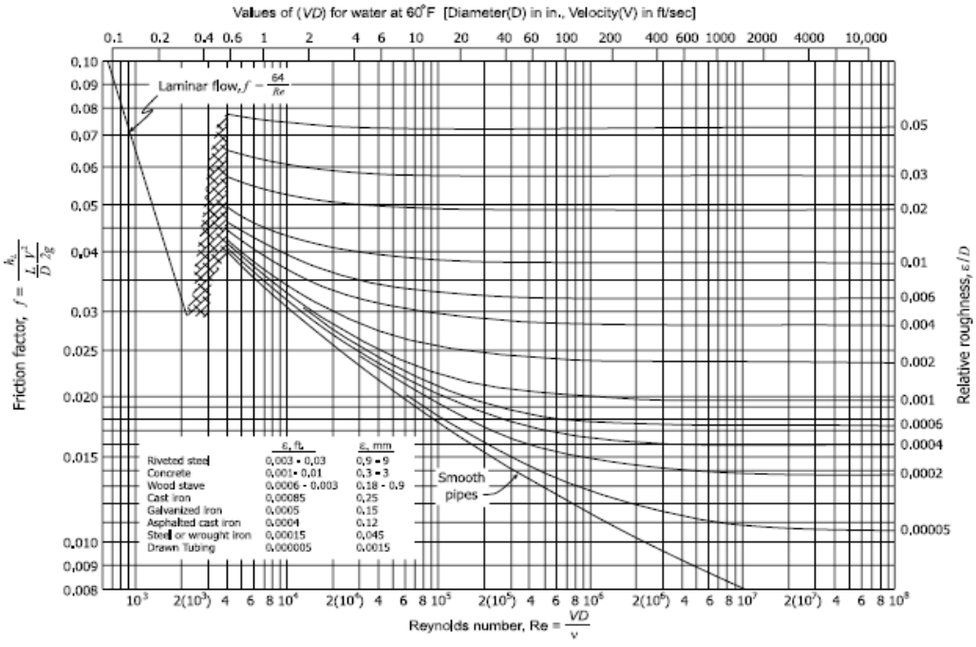
h_{bends}	0.001	m H_2O
h_{bends}	0.011	kPa

Total Loss

h_{Total}	0.054	m H_2O
h_{Total}	0.532	kPa

Estimated Head Loss per Darcy-Weisbach
Loss During Peak Demand

Service Size	200	mm
Service Length	175	m
Peak Demand	42.45	L/s
Relative Roughness	0.00006	
Kinematic Viscosity @ 4°C, v	0.00000151	m^2/s
Velocity, V	1.351	m/s
Re	178,970	



Friction Factor, f 0.021 (From Moody Diagram)

Head Loss

$$h_f = \frac{fL}{D}\frac{V^2}{2g}$$

h_f	1.710	m H_2O
h_f	16.775	kPa

Head Loss Including Bends

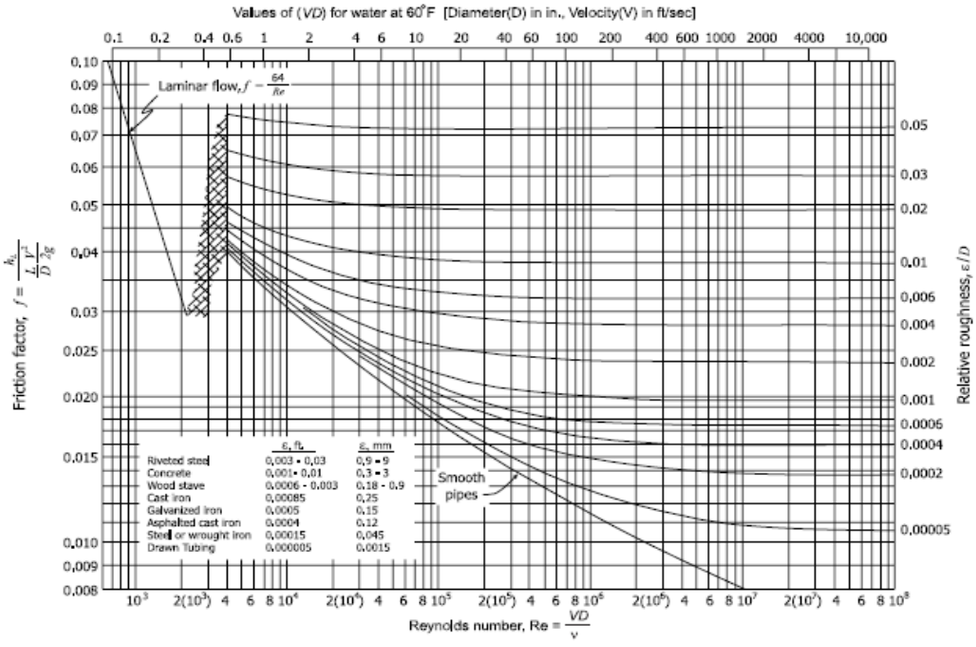
h_{bends}	0.037	m H_2O
h_{bends}	0.365	kPa

Total Loss

h_{Total}	1.747	m H_2O
h_{Total}	17.140	kPa

Estimated Head Loss per Darcy-Weisbach
Loss During Peak + Fire

Service Size	200	mm
Service Length	175	m
Peak Demand	68.63	L/s
Relative Roughness	0.00006	
Kinematic Viscosity @ 4°C, v	0.00000151	m^2/s
Velocity, V	2.185	m/s
Re	289,346	



Friction Factor, f 0.021 (From Moody Diagram)

Head Loss

$$h_f = \frac{fL}{D}\frac{V^2}{2g}$$

h_f	4.469	m H_2O
h_f	43.846	kPa

Head Loss Including Bends

h_{bends}	0.097	m H_2O
h_{bends}	0.954	kPa

Total Loss

h_{Total}	4.567	m H_2O
h_{Total}	44.800	kPa

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APPENDIX C

1822 Bank Street
Proposed Development

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

Site Area 1.734 **ha**

Extraneous Flow Allowances

Infiltration / Inflow **0.57 L/s**

Domestic Contributions

Unit Type	Unit Rate	Units	Pop
Single Family	3.4		0
Semi-detached and duplex	2.7		0
Townhouse	2.7		0
Stacked Townhouse	2.3		0
Apartment			
Bachelor	1.4		0
1 Bedroom	1.4	1012	1417
2 Bedroom	2.1	414	870
3 Bedroom	3.1		0

Total Pop **2287**

Average Domestic Flow **7.41 L/s**

Peaking Factor **3.03**

Peak Domestic Flow **22.47 L/s**

Institutional / Commercial / Industrial Contributions

Property Type	Unit Rate	No. of Units	Avg Wastewater (L/s)
Commercial floor space*	5 $L/m^2/d$	830	0.10

Average I/C/I Flow **0.10**

Peak Institutional / Commercial Flow 0.14
Peak I/C/I Flow **0.14**

** assuming a 12 hour commercial operation*

Total Estimated Average Dry Weather Flow Rate	**7.51 L/s**
Total Estimated Peak Dry Weather Flow Rate	**22.61 L/s**
Total Estimated Peak Wet Weather Flow Rate	**23.19 L/s**

DSEL©

SANITARY SEWER CALCULATION SHEET

Manning's n=0.013

LOCATION			RESIDENTIAL AREA AND POPULATION						COMM		INSTIT		PARK		C+I+I	INFILTRATION				PIPE					
STREET	FROM M.H.	TO M.H.	AREA (ha)	UNITS	POP.	CUMULATIVE AREA (ha)	CUMULATIVE POP.	PEAK FACT.	PEAK FLOW (l/s)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	PEAK FLOW (l/s)	TOTAL AREA (ha)	ACCU. AREA (ha)	INFILT. FLOW (l/s)	TOTAL FLOW (l/s)	DIST (m)	DIA (mm)	SLOPE (%)	CAP. (FULL) (l/s)	RATIO Q act/Q cap	VEL. (FULL) (m/s)	VEL. (ACT.) (m/s)
PRIVATE STREET 2																											
	200A	2A	0.69		1687	0.69	1687	3.1	17.02	0.06	0.06		0.00		0.00	0.10	0.75	0.75	0.25	17.37	14.0	200	1.00	32.80	0.53	1.04	1.06
To PUBLIC STREET, Pipe 2A - 3A						0.69	1687				0.06		0.00		0.00			0.75									
PRIVATE STREET 1																											
			0.51		600	0.51	600			0.02	0.02		0.00		0.00		0.53	0.53									
	100A	1A				0.51	600	3.3	6.51	0.05	0.07		0.00		0.00	0.12	0.05	0.58	0.19	6.82	15.0	250	0.65	47.94	0.14	0.98	0.68
To PUBLIC STREET, Pipe 1A - 2A						0.51	600				0.07		0.00		0.00			0.58									
PUBLIC STREET																											
Contribution From PRIVATE STREET 1, Pipe 100A - 1A						0.51	600				0.07		0.00		0.00		0.58	0.58									
			0.09		0	0.60	600				0.07		0.00	0.14	0.14		0.23	0.81									
	1A	2A	0.11		0	0.71	600	3.3	6.51		0.07		0.00		0.14	0.14	0.11	0.92	0.30	6.95	66.0	250	0.55	44.10	0.16	0.90	0.65
Contribution From PRIVATE STREET 2, Pipe 200A - 2A						0.69	1687				0.06		0.00		0.00		0.75	1.67									
	2A	3A	0.02		0	1.42	2287	3.0	22.47		0.13		0.00		0.14	0.25	0.02	1.69	0.56	23.28	17.5	300	2.70	158.90	0.15	2.25	1.59
	3A	4A	0.03		0	1.45	2287	3.0	22.47		0.13		0.00		0.14	0.25	0.03	1.72	0.57	23.29	9.0	300	3.00	167.49	0.14	2.37	1.66
	4A	5A	0.02		0	1.47	2287	3.0	22.47		0.13		0.00		0.14	0.25	0.02	1.74	0.57	23.29	19.0	300	3.00	167.49	0.14	2.37	1.66
	5A	6A	0.01		0	1.48	2287	3.0	22.47		0.13		0.00		0.14	0.25	0.01	1.75	0.58	23.30	6.5	300	0.35	57.21	0.41	0.81	0.76
	6A	7A	0.06		0	1.54	2287	3.0	22.47		0.13		0.00		0.14	0.25	0.06	1.81	0.60	23.32	32.5	300	0.35	57.21	0.41	0.81	0.76
To WALKLEY ROAD, Pipe 7A - SAN						1.54	2287				0.13		0.00		0.14			1.81									
WALKLEY ROAD																											
Contribution From PUBLIC STREET, Pipe 6A - 7A						1.54	2287				0.13		0.00		0.14		1.81	1.81									
	7A	8A				1.54	2287	3.0	22.47		0.13		0.00		0.14	0.25	0.00	1.81	0.60	23.32	100.5	300	0.20	43.25	0.54	0.61	0.62
	8A	EX MH				1.54	2287	3.0	22.47		0.13		0.00		0.14	0.25	0.00	1.81	0.60	23.32	12.5	300	0.20	43.25	0.54	0.61	0.62

DESIGN PARAMETERS

Park Flow =	9300	L/ha/da	0.10764	l/s/Ha				
Average Daily Flow =	280	l/p/day			Industrial Peak Factor = as per MOE Graph			
Comm/Inst Flow =	50000	L/ha/da	0.5787	l/s/Ha	Extraneous Flow =	0.330	L/s/ha	
Industrial Flow =	35000	L/ha/da	0.40509	l/s/Ha	Minimum Velocity =	0.600	m/s	
Max Res. Peak Factor =	4.00				Manning's n = (Conc)	0.013	(Pvc)	0.013
Commercial/Inst./Park Peak Factor =	1.50				Townhouse coeff=	2.7		
Institutional =	0.32	l/s/Ha			Single house coeff=	3.4		

Designed: A.S.	PROJECT: **BGO - 1822 Bank St**		
Checked: W.L.	LOCATION: **City of Ottawa**		
Dwg. Reference: Sanitary Drainage Plan, Dwg. No. 6	File Ref: **23-1369**	Date: **21 Feb 2025**	Sheet No. 1 of 1

David Schaeffer Engineering Ltd.
120 Iber Road, Suite 103
Stittsville, ON K2S 1E9
613-836-0856
dsel.ca

APPENDIX D

Project Name:	Bank and Walkley
Project Number:	1369
Designed By:	MH
Checked By:	MH
Date	16-Sep-24

David Schaeffer Engineering Limited
600 Alden Road, Suite 606
Markham, ON L3R 0E7

TARGET RELEASE RATES AND REQUIRED VOLUMES - PHASE 1

Total Allowable Release Rate

Drainage area 0.32 ha

Design Storm	Time of Concentration	Intensity	Target Outflow[1]
	(min)	(mm/hr)	m^3/s
2 Year Design Storm	22.6	48.2	0.021

[1] Based on a runoff coefficient of 0.5

Roof Storage and Release Rates

Design Storm	Peak Outflow	Storage Volume
	m^3/s	m^3
100 Year Chicago 3hr Design Storm	0.011	34
100 Year SCS 24hr Design Storm	0.010	29

Based on Zurn model Z105-5 Stage Storage Discharge

Cistern Storage and Release Rates

Design Storm	Target Outflow[1]	Peak Outflow	Storage Volume
	m^3/s	m^3/s	m^3
100 Year Chicago 3hr Design Storm	0.010	0.010	98
100 Year SCS 24hr Design Storm	0.011	0.011	98

[1] Based on the total Target outflow, less the Roof Release Rates

Project Name:	Bank and Walkley
Project Number:	1369
Designed By:	MH
Checked By:	MH
Date	16-Sep-24

David Schaeffer Engineering Limited
600 Alden Road, Suite 606
Markham, ON L3R 0E7

TARGET RELEASE RATES AND REQUIRED VOLUMES - PHASE 2

Total Allowable Release Rate

Drainage area 0.2 ha

Design Storm	Time of Concentration	Intensity	Target Outflow[1]
	(min)	(mm/hr)	m^3/s
2 Year Design Storm	22.6	48.2	0.013

[1] Based on a runoff coefficient of 0.5

Roof Storage and Release Rates

Design Storm	Peak Outflow	Storage Volume
	m^3/s	m^3
100 Year Chicago 3hr Design Storm	0.011	34
100 Year SCS 24hr Design Storm	0.010	29

Based on Zurn model Z105-5 Stage Storage Discharge

Cistern Storage and Release Rates

Design Storm	Target Outflow[1]	Peak Outflow	Storage Volume
	m^3/s	m^3/s	m^3
100 Year Chicago 3hr Design Storm	0.002	0.002	53
100 Year SCS 24hr Design Storm	0.003	0.003	54

[1] Based on the total Target outflow, less the Roof Release Rates

Project Name:	Bank and Walkley
Project Number:	1369
Designed By:	MH
Checked By:	MH
Date	16-Sep-24

David Schaeffer Engineering Limited
600 Alden Road, Suite 606
Markham, ON L3R 0E7

TARGET RELEASE RATES AND REQUIRED VOLUMES - PHASE 3

Total Allowable Release Rate

Drainage area 0.22 ha

Design Storm	Time of Concentration	Intensity	Target Outflow[1]
	(min)	(mm/hr)	m^3/s
2 Year Design Storm	22.6	48.2	0.015

[1] Based on a runoff coefficient of 0.5

Roof Storage and Release Rates

Design Storm	Peak Outflow	Storage Volume
	m^3/s	m^3
100 Year Chicago 3hr Design Storm	0.01	31
100 Year SCS 24hr Design Storm	0.010	34

Based on Zurn model Z105-5 Stage Storage Discharge

Cistern Storage and Release Rates

Design Storm	Target Outflow[1]	Peak Outflow	Storage Volume
	m^3/s	m^3/s	m^3
100 Year Chicago 3hr Design Storm	0.005	0.005	55
100 Year SCS 24hr Design Storm	0.005	0.005	58

[1] Based on the total Target outflow, less the Roof Release Rates

Project Name:	Bank and Walkley
Project Number:	1369
Designed By:	MH
Checked By:	MH
Date	16-Sep-24

David Schaeffer Engineering Limited
600 Alden Road, Suite 606
Markham, ON L3R 0E7

TARGET RELEASE RATES AND REQUIRED VOLUMES - PHASE 4

Total Allowable Release Rate

Drainage area 0.58 ha Includes External 0.05 ha

Design Storm	Time of Concentration	Intensity	Target Outflow[1]
	(min)	(mm/hr)	m^3/s
2 Year Design Storm	22.6	48.2	0.039

[1] Based on a runoff coefficient of 0.5

Roof Storage and Release Rates

Design Storm	Peak Outflow	Storage Volume
	m^3/s	m^3
100 Year Chicago 3hr Design Storm	0.017	59
100 Year SCS 24hr Design Storm	0.016	51

Based on Zurn model Z105-5 Stage Storage Discharge

Cistern Storage and Release Rates

Design Storm	Target Outflow[1]	Peak Outflow	Storage Volume
	m^3/s	m^3/s	m^3
100 Year Chicago 3hr Design Storm	0.022	0.022	174
100 Year SCS 24hr Design Storm	0.023	0.023	175

[1] Based on the total Target outflow, less the Roof Release Rates

Project Name:	Bank and Walkley
Project Number:	1369
Designed By:	MH
Checked By:	MH
Date	16-Sep-24

David Schaeffer Engineering Limited
600 Alden Road, Suite 606
Markham, ON L3R 0E7

TARGET RELEASE RATES AND REQUIRED VOLUMES - Park

Total Allowable Release Rate

Drainage area 0.14 ha

Design Storm	Time of Concentration	Intensity	Target Outflow[1]
	(min)	(mm/hr)	m^3/s
2 Year Design Storm	22.6	48.2	0.009

[1] Based on a runoff coefficient of 0.5

Required Storage and Release Rates

Design Storm	Target Outflow[1]	Peak Outflow	Storage Volume
	m^3/s	m^3/s	m^3
100 Year Chicago 3hr Design Storm	0.009	0.009	23
100 Year SCS 24hr Design Storm	0.009	0.009	24

Project Name:	Bank and Walkley
Project Number:	1369
Designed By:	MH
Checked By:	MH
Date	16-Sep-24

David Schaeffer Engineering Limited
600 Alden Road, Suite 606
Markham, ON L3R 0E7

TARGET RELEASE RATES AND REQUIRED VOLUMES - ROW

Total Allowable Release Rate

Drainage area 0.36 ha

Design Storm	Time of Concentration	Intensity	Target Outflow[1]
	(min)	(mm/hr)	m^3/s
2 Year Design Storm	22.6	48.2	0.024

[1] Based on a runoff coefficient of 0.5

Required Storage and Release Rates

Design Storm	Target Outflow[1]	Peak Outflow	Storage Volume
	m^3/s	m^3/s	m^3
100 Year Chicago 3hr Design Storm	0.024	0.024	140
100 Year SCS 24hr Design Storm	0.024	0.024	142

Project Name:	Bank and Walkley
Project Number:	1369
Designed By:	MH
Checked By:	MH
Date	16-Sep-24

David Schaeffer Engineering Limited
600 Alden Road, Suite 606
Markham, ON L3R 0E7

QUALITY CONTROL

Phases 1, 2 and 3

Roof tops: All drainage considered clean, therefore no quality control required

Parking/Drive Aisles: Will be conveyed to OGS units prior to cisterns and then to infiltration area A located immediately west of Phase 1

OGS Unit Sizing: To be sized for 80% TSS removal and credited 50% TSS Removal

Infiltration Sizing: Sized for 70% TSS removal as per MOE Table 3.2 as follows:

Drainage Area =	0.43	ha
Required Storage =	30	m^3/ha (MOE 3.2)
Provided Storage =	12.9	m^3

Total TSS Removal:

$$Total\ TSS\ Removal\ (\%) = 1 - [(1 - \%TSS\ Removal\ Method\ 1) \times (1 - \%TSS\ Removal\ Method\ 2) \times (1 - \%TSS\ Removal\ Method\ n)]$$

	Name	%
TSS Removal Method 1	Infiltration	70%
TSS Removal Method 2	OGS	50%
Total TSS Removal %	=	85%

Therefore, Total TSS Removal from Phases 1, 2, and 3 = 85 %

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QUALITY CONTROL

Phase 4

Roof tops: All drainage considered clean, therefore no quality control required

Parking/Drive Aisles: Will be conveyed to OGS unit prior to cistern and then to infiltration area B located immediately west of Phase 4

OGS Unit Sizing: To be sized for 80% TSS removal and credited 50% TSS Removal

Infiltration Sizing: Sized for 70% TSS removal as per MOE Table 3.2 as follows:

Drainage Area =	0.4	ha
Required Storage =	30	m^3/ha (MOE 3.2)
Provided Storage =	12	m^3

Total TSS Removal:

$$Total\ TSS\ Removal\ (\%) = 1 - [(1 - \%TSS\ Removal\ Method\ 1) \times (1 - \%TSS\ Removal\ Method\ 2) \times (1 - \%TSS\ Removal\ Method\ n)]$$

	Name	%
TSS Removal Method 1	Infiltration	70%
TSS Removal Method 2	OGS	50%
Total TSS Removal %	=	85%

Therefore, Total TSS Removal from Phase 4 = 85 %

Project Name:	Bank and Walkley
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QUALITY CONTROL

Park

Runoff from open space grass area is generally clean, therefore no quality control required

Road

Infiltration: It is proposed to provide the necessary quality control through infiltration/bioretention in the right of way. This is sized for 80% TSS removal as per MOE Table 3.2 as follows:

Drainage Area =	0.36	ha
Required Storage =	40	m^3/ha (MOE 3.2)
Provided Storage =	14.4	m^3

STORM SEWER CALCULATION SHEET (RATIONAL METHOD)

Local Roads Return Frequency = 2 years
Collector Roads Return Frequency = 5 years
Manning 0.013 Arterial Roads Return Frequency = 10 years

	LOCATION		AREA (Ha)														FLOW						SEWER DATA								
			2 YEAR				5 YEAR				10 YEAR				100 YEAR				Time of	Intensity	Intensity	Intensity	Intensity	Peak Flow	DIA. (mm)	DIA. (mm)	TYPE	SLOPE	LENGTH	CAPACITY	VELOCITY	TIME OF	RATIO
			AREA	R	Indiv.	Accum.	AREA	R	Indiv.	Accum.	AREA	R	Indiv.	Accum.	AREA	R	Indiv.	Accum.	Conc.	2 Year	5 Year	10 Year	100 Year										
Location	From Node	To Node	(Ha)		2.78 AC	2.78 AC	(Ha)		2.78 AC	2.78 AC	(Ha)		2.78 AC	2.78 AC	(Ha)		2.78 AC	2.78 AC	(min)	(mm/h)	(mm/h)	(mm/h)	(mm/h)	Q (l/s)	(actual)	(nominal)		(%)	(m)	(l/s)	(m/s)	FLOW (min.)	Q/Q full
PRIVATE STREET 2																																
			0.20	0.90	0.50	0.50			0.00	0.00			0.00	0.00			0.00	0.00														
			0.22	0.90	0.55	1.05			0.00	0.00			0.00	0.00			0.00	0.00														
	400	4	0.32	0.90	0.80	1.85			0.00	0.00			0.00	0.00			0.00	0.00	10.00	76.81	104.19	122.14	178.56	142	375	375	PVC	1.00	14.5	175.3301	1.5875	0.1522	0.811
To PUBLIC STREET, Pipe 4 - 5						1.85				0.00				0.00				0.00	10.15														
PRIVATE STREET 2																																
	3000	3	0.14	0.40	0.16	0.16			0.00	0.00			0.00	0.00			0.00	0.00	10.00	76.81	104.19	122.14	178.56	12	300	300	PVC	0.40	14.0	61.1589	0.8652	0.2697	0.196
To PUBLIC STREET, Pipe 3 - 4						0.16				0.00				0.00				0.00	10.27														
PRIVATE STREET 1																																
	200	2	0.05	0.90	0.13	0.13			0.00	0.00			0.00	0.00			0.00	0.00	10.00	76.81	104.19	122.14	178.56	10	300	300	PVC	0.50	15.5	68.3778	0.9673	0.2671	0.141
To PUBLIC STREET, Pipe 2 - 3						0.13				0.00				0.00				0.00	10.27														
PUBLIC STREET																																
	1	2	0.53	0.90	1.33	1.33			0.00	0.00			0.00	0.00			0.00	0.00	10.00	76.81	104.19	122.14	178.56	102	375	375	PVC	0.50	23.5	123.9771	1.1225	0.3489	0.822
Contribution From PRIVATE STREET 1, Pipe 200 - 2						0.13				0.00				0.00				0.00	10.27														
	2	3			0.00	1.45			0.00	0.00			0.00	0.00			0.00	0.00	10.35	75.49	102.39	120.01	175.43	110	450	450	CONC	0.50	11.0	201.6005	1.2676	0.1446	0.543
Contribution From PRIVATE STREET 2, Pipe 3000 - 3						0.16				0.00				0.00				0.00	10.27														
	3	4			0.00	1.61			0.00	0.00			0.00	0.00			0.00	0.00	10.49	74.96	101.66	119.15	174.17	120	450	450	CONC	0.35	50.0	168.6711	1.0605	0.7858	0.714
Contribution From PRIVATE STREET 2, Pipe 400 - 4						1.85				0.00				0.00				0.00	10.15														
	4	5			0.00	3.46			0.00	0.00			0.00	0.00			0.00	0.00	11.28	72.22	97.89	114.72	167.65	250	450	450	CONC	1.30	19.0	325.0710	2.0439	0.1549	0.768
	5	6	0.25	0.80	0.56	4.01			0.00	0.00			0.00	0.00			0.00	0.00	11.43	71.70	97.18	113.89	166.43	288	450	450	CONC	2.80	7.5	477.0738	2.9997	0.0417	0.603
	6	7			0.00	4.01			0.00	0.00			0.00	0.00			0.00	0.00	11.48	71.57	96.99	113.66	166.11	287	450	450	CONC	2.80	19.5	477.0738	2.9997	0.1083	0.602
	7	8	0.10	0.80	0.22	4.24			0.00	0.00			0.00	0.00			0.00	0.00	11.58	71.21	96.51	113.09	165.27	302	525	525	CONC	0.75	8.0	372.4449	1.7205	0.0775	0.810
	8	9			0.00	4.24			0.00	0.00			0.00	0.00			0.00	0.00	11.66	70.96	96.16	112.69	164.67	301	600	600	CONC	0.35	20.5	363.2541	1.2847	0.2659	0.828

Definitions:
Q = 2.78 AIR, where
Q = Peak Flow in Litres per second (L/s)
A = Areas in hectares (ha)
I = Rainfall Intensity (mm/h)
R = Runoff Coefficient

Notes:
1) Ottawa Rainfall-Intensity Curve
2) Min. Velocity = 0.80 m/s

Designed: A.S.	PROJECT: BGO - 1822 Bank St		
Checked: W.L.	LOCATION: City of Ottawa		
Dwg. Reference: DWG. 5	File Ref: 23-1369	Date: 21 Feb 2025	Sheet No. SHEET 1 OF 1