Staff Report

Report To:	General Committee
Meeting Date:	June 20, 2023
Prepared By:	Phil Wood, Director of Operations Travis Raison, Project and Asset Coordinator
Report Number:	2023-110
Subject:	Reynolds Park - Boardwalk & Pavilion Design

Recommendation

THAT Council receive the detailed design for the Reynold Park Pavilion and Boardwalk; and,

THAT staff prepare a project scope based on the detailed design for Council consideration in the 2024 capital budget.

Background

Phase I of the Reynolds Park redevelopment project is currently underway. The first phase of the redevelopment project will see grassed park area, connecting sections of the Brock Trail, in-park parking, entrance way and, water Street parking re-alignment planned to be completed in the summer of 2023.

Phase II of the Reynolds Park redevelopment project includes construction of a new water side boardwalk and open air pavilion adjacent to the St. Lawrence River. In October of 2022 staff provided report 2022-204 to Council which, requested authorization to award the design of the pavilion and boardwalk to IN Engineering. Council approved the report and it's recommendations during the subsequent Council meeting on October 25, 2023.

Operations department staff have received the completed pavilion and boardwalk design and obtained a detailed cost estimation from IN Engineering .

The objective of this report is to obtain approval of the design with direction to prepare a project scope for consideration by Council during the 2024 capital budget.

Analysis

History of Project:

Prior to beginning construction of phase I of Reynolds Park redevelopment project, staff undertook a public consultation process to gather public feedback the proposed arrangement and future features of the park. Compiling the feedback from the public and stakeholder, staff provided report 2021-203 to committee in September 2021, seeking approval from Council to proceed with the finalized concept. The final concept drawing from report 2021-203 is attached to this report for reference. Report 2021-2023 was approved by Council during the regular Council meeting on September 14, 2021.

Design:

Following approval of report 2022-204 by Council in October 2022, staff awarded a contract to IN Engineering to provide a detailed design of the endorsed Reynolds Park pavilion and boardwalk concept and a comprehensive cost estimate for use in a future budget proposal. IN Engineering worked closely with staff and provided the design and detailed costs estimate in the spring of 2023. The cost estimates include options that vary based on the construction materials and methods proposed by IN Engineering.

Attached to this report are excerpts of the detailed design package that show the finalized design as it would be tendered for construction.

Construction Options:

The design from IN Engineering provided three estimates for construction with detailed costs based largely on the material and construction configuration. In all cases the structures are designed as supported by driven piles. The three construction options are as follows with the identified unique distinctions taken directly from the IN Engineering report:
1. Construction of wood joists and wood deck. This includes:

- Foundation - Concrete piers driven to bedrock
- Boardwalk - A deck structure make of wood joists and decking
- Superstructure - Timber framed structure for the pavilion

2. Precast concrete panels. This includes:

- Foundation - Precast concrete piers driven to bedrock
- Boardwalk - Precast concrete slab
- Superstructure - Steel framed structure for the pavilion

3. Poured concrete slab. This includes:

- Foundation - Poured concrete piers driven to bedrock
- Boardwalk - Poured concrete slab
- Superstructure - Steel framed structure for the pavilion

Although all three options are proposed as suitable forms of construction, IN Engineering provides the following recommendation in the Conclusion of the design report:

" It is recommended that the building be constructed with precast concrete for the boardwalk with a steel framed structure as seen in the concept drawings. This is preferred for longevity with the use of concrete and cost effective as compared with the poured concrete."

The cost breakdown for the three constructions options is provided in the Financial Implications section of this report.

Financial Implications

IN Engineering provided comprehensive cost estimates for the three modes of construction based on an AACE Class 5 Estimate method.

The cost estimations for each options are indicated below:

Construction Method:	Estimated Cost:
Boardwalk: Wood joists and wood deck Pavilion: Timber framed	$598,000
Boardwalk: Precast concrete panels Pavlion: Steel framed	$756,000
Boardwalk: Poured concrete slab Pavlion: Steel framed	$901,000

Conclusion

Operations staff have contracted IN Engineering to complete a detailed design with cost estimates for a future Reynolds Park pavilion and boardwalk project. IN Engineering completed the work providing detailed design with three construction options that vary in material and cost.

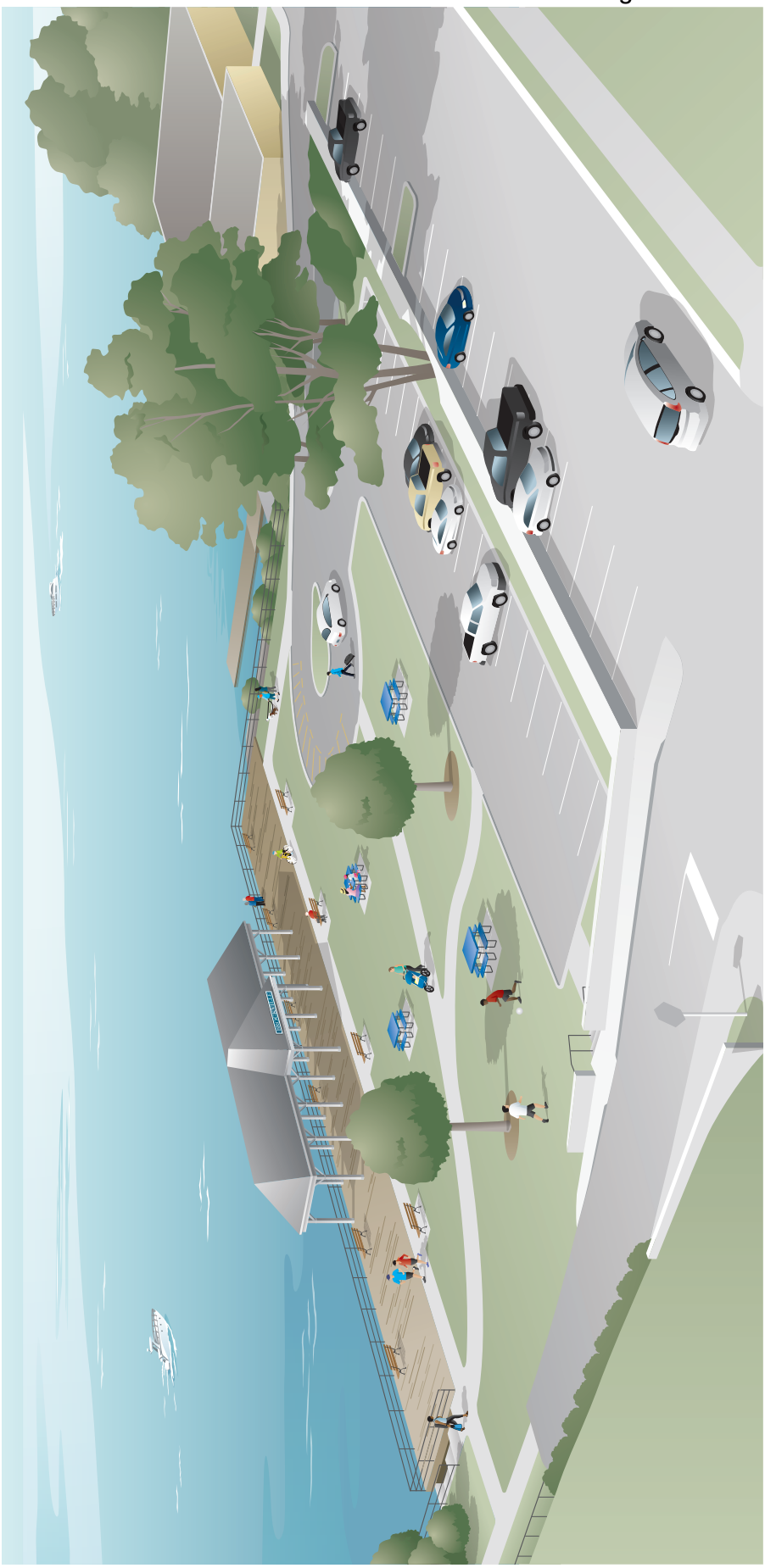
Staff recommend the design be received by Council and that a future project scope be proposed during the 2024 capital budget for Council consideration.

Approved by: Status:

Phil Wood, Director of Operations	Approved - 15 Jun 2023
Lynda Ferguson, Director of Finance & IT Services	Approved - 16 Jun 2023
Sandra MacDonald, City Manager/City Clerk	Approved - 16 Jun 2023

Attachments:

Appoved Concept
Design Page 1
Design Elevation 2 - Page 2
Design Laypout - Page 3



REYNOLDS PARK PAVILION

70 WATER ST. E, BROCKVILLE, ON
CITY OF BROCKVILLE





Ontario Building Code Data Matrix
Part 4: Structural Design

								Building Code Reference
Building Code Version: O.Reg. 332/12 Last Amendment: O. Reg. 191/14								
Project Type:	New Construction							Div. A 1.1.2.
	Description:	Open-Air Pavilion						
Major Occupancy Classification	Occupancy			Use				Div. A. 1.1.2.2.(1).a. Div. A. 3.1.2.1.(1)
	Group A			Assembly				
Building Area (m^2)	Description	Existing		New		Total		Div. A. 1.4.1.2.
	Main Floor	0		140.0		140.0		
	Total:					140.0		
Gross Area (m^2)	Description	Existing		New		Total		Div. A. 1.4.1.2.
	Main Floor	0		140.0		140.0		
	Total:					140.0		
Building Height	Storeys Above Grade:		1	Height Above Grade:		6.8m		Div. A. 1.4.1.2.
	Storeyes Below Grade:		0					
Importance Category	Normal							Div. B. 4.1.2.1.(3). Div. B. 5.2.2.1.(2)
Superimposed Dead Loads	Location	Description		Load (kPa)				Div. B. 4.1.4.
	Second Floor	Floor		1.9kPa				
		Walls		1.8kN/m				
		Partition		1kPa				Div. B. 4.1.4.1.(3)
		Soil Pressure		n/a				
Live Loads	Importance Factor:	1.0 (Normal)		(ULS)				Div. B. 4.1.5.1(2)
	Location	Description		Load (kPa)				Div. B. T.4.1.5.3
	Roof	Roofs		1				Div. B. 4.1.5
	Attic	Attic		0.5				
	Second Floor	Residential		1.9				
	Main Floor	Residential		1.9				
Snow Loads	Importance Factor, Is:	1.0(Normal)	(ULS)	0.9(Normal)	(SLS)			Div. B. T.4.1.6.2.
	1 in 50 Year Ground Snow, Ss:		2.2					S.B-1
	1 in 50 Year Rain Load, Sr:		0.4					
	Basic Roof Snow Load Factor, Cb		0.55					Div. B. 4.1.6.2.
	Calculation Method		Simplified (Part 9)					Div. B. 4.1.5.2 & Structural Commentaries
	Roof Area	Less Than 4550m^2 for Part 9						
	Typical of traditional wood frame residential construction							
Lateral Force Resisting System:	Low rise, Steel framed pavilion with structural redundancy and continuity. Prescriptive based lateral force resisting system to Part 9 OBC.							
Wind Loads	Importance Factor, Iw:	1.0(Normal)	(ULS)	0.75(Normal)	(SLS)			Div. B. T.4.1.7.1.
	Reference Velocity Pressure, q:							SB-1
	Exposure Factor, Ce							Div. B. 4.1.7.1.(5).
	Calculation Method:		Static/Dynamic					Div. B. 4.1.7.2.
Seismic Loads	Importance Factor, Ie:	1.0(Normal)	(ULS)	0.75(Normal)	(SLS)			Div. B. T.4.1.8.5.
	Seismic Data	Sa(0.2)=	Sa(0.5)=	Sa(1.0)=	Sa(2.0)	PGA		SB-1
		1	1	1	1	1		Div. B. T.4.1.8.4.(B)
		Fa:						
		Fv:						
	Calculation Method:	Static Analysis Procedure						Div. B. 4.1.8.7.
		Dynamic Analysis Procedure						
		((E Fa Sa (0.2)) ≥ 0.35 or Post-disaster)						
		Structural Irregularity						
		Fundamental Period, <2.0s						
	Seismic Force Resisting System							Div. B. 4.1.8.9.
Site Investigation	Type			Method		Value		
	Soil Bearing Pressure			Prescriptive Part 9		75kPa (clay soil)		
	Seismic Site Class	n/a						
Other Restrictions	Part 4 design required for:							
	Vertical and horizontal hydrostatic pressure.							
	Required for all reinforced concrete.							
	Soil conditions of peat, filled ground, sensitive clays							
	Soil bearing pressures less than 75kPa							
	Foundation is subject to surcharge							
	Floor live load excees 2.4kPa							

Ontario Building Code Data Matrix
Part 9 Housing and Small Buildings

						Building Code Reference
Building Code Version: O.Reg. 332/12 Last Amendment: O. Reg. 451/22						
Project Type:	New					Div. A 1.1.2.
	Description:	Open-Air Pavilion				
Major Occupancy Classification	Occupancy		Use			Div. B. 9.10.2.
	Group A		Assembly			
Building Area (m^2)	Description	Existing	New		Total	Div. A. 1.4.1.2.
	Main Floor	0	140.0		140.0	
	Total:				140.0	
Building Height	Storeys Above Grade:	1	Height Above Grade:	6.8m		Div. A. 1.4.1.2.
	Storeys Below Grade:	0				Div. B. 9.10.4.
Number of Streets & Firefighter Access	Streets: 2					Div. B. 9.10.20.
Sprinkler System	Not Required					Div. B. 9.10.8.2.-4.
	Proposed: None					
Fire Alarm System	Not Required					Div. B. 9.10.18.
	Proposed: Not Applicable					
Water Service is Adequate	TBC.					
	Description:	By Others				
Construction Type	Restrictions: Combustible Permitted					Div. B. 9.10.6.
	Actual: Combination					
	Heavy Timber Construction: No					
Post Disaster Building	Not a Post Disaster Building					Div. A. 1.1.1.2.2.(2).
Occupant Load	Floor Level/Area	Occupancy Type	Based On	Occupant Load (Persons)		Div. B. 3.1.17.
	Main Floor	A (Space with non-fixed Seats)	Factor (0.75)	187		
Barrier Free Design	No					Div. B. 9.5.2.
	Explanation:	Public Access Pavilion				
Hazardous Substances	No					Div. B. 9.10.1.3.
	Explanation:	N/A				
Required Fire Resistance Ratings	Horizontal Assembly	Rating (hr)	Supporting Assembly (hr)	Non-Combustible in lieu of rating?		Div. B. 9.10.8.
	Floors	45MIN.	45MIN.	Yes		
	Roof	45MIN.	45MIN.	Yes		

SHEET NUMBER	SHEET NAME
GA-0	COVER PAGE
GA-1	SPECIFICATIONS
C-2	BUILDING PERMIT SKETCH
F-3	FOUNDATION PLAN
S-4	MAIN FLOOR PLAN - PLAN & DETAILS
S-5	ELEVATIONS & WINDOWS
S-6	SECTIONS
S-7	STANDARD DETAILS
S-8	CONNECTION DETAILS

BCIN QUALIFICATION INFORMATION:
Andrew Melchers — 120803
NAME — SIGNATURE — BCIN #
REGISTRATION INFORMATION
HOUSING
IN DESIGNS LTD. — 122118
FIRM NAME — REGISTRATION #
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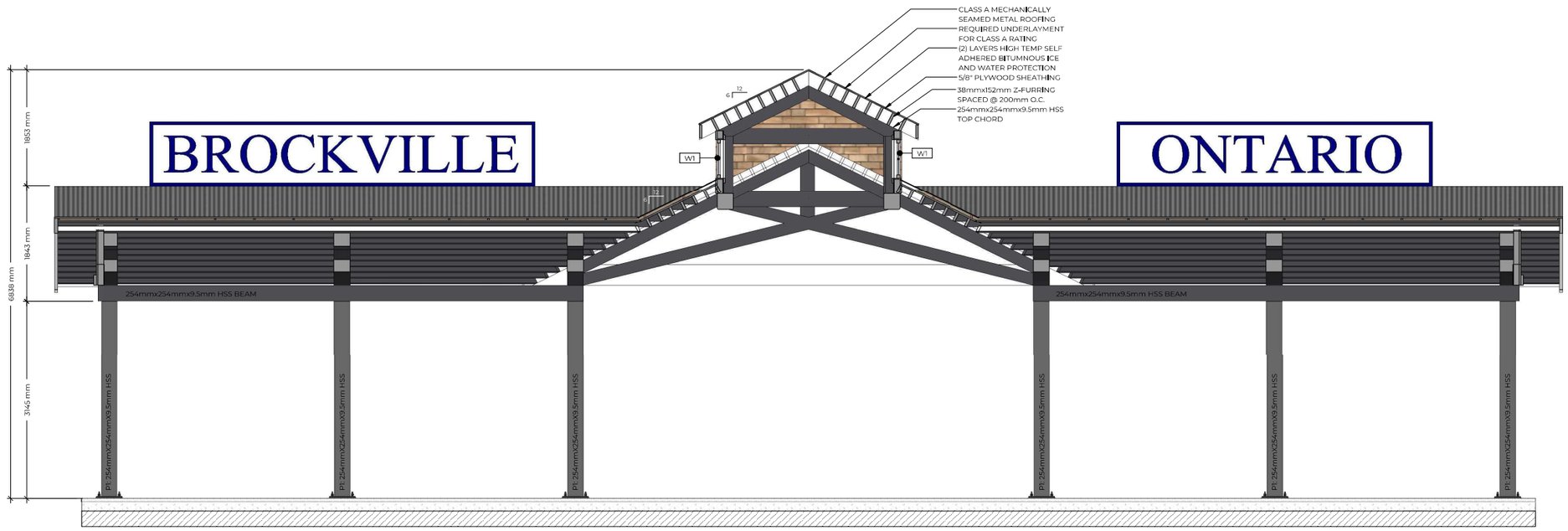
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GENERAL ARRANGEMENT

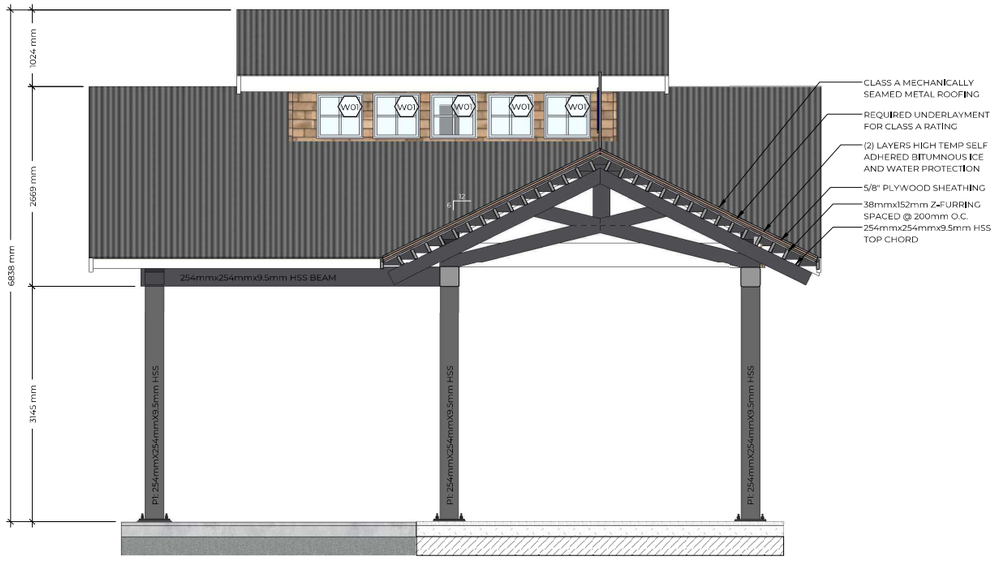
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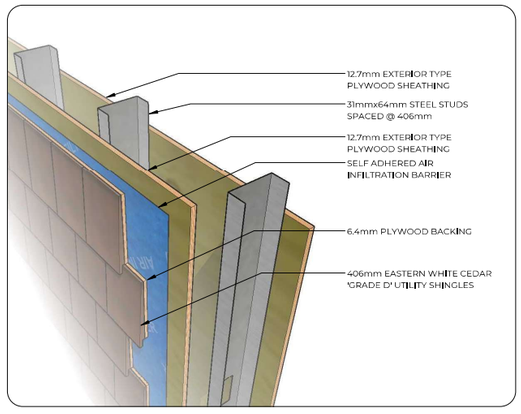
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SECTION 'A'
3/8" = 1'-0" (1:32)
1 S-6



SECTION 'B'
3/8" = 1'-0" (1:32)
2 S-6



W1 - FRAMED WALL ASSEMBLY
N.T.S.
A S-6

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NAME	SIGNATURE	BCIN #

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REYNOLDS PARK PAVILION
70 WATER ST. E, BROCKVILLE, ON
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STRUCTURAL

SECTIONS S-6

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BUILDING PERMIT SKETCH 1 / A-2
1/2" = 1'-0" (1:24)

ZONING	
BUILDING AREA	sq.ft (m2)
UPPER DECK AREA	sq.ft (m2)
USE	
LOT AREA	ft (m)
LOT FRONTAGE @ 6.0 m	ft (m)
FRONT YARD	ft (m)
EXTERIOR SIDE YARD	ft (m)
INTERIOR SIDE YARD (EAST SIDE)	ft (m)
REAR	ft (m)
DWELLING UNIT AREA	
DWELLING HEIGHT	ft (m)
LOT COVERAGE	%
WITHIN 197 ft (60m) OF WATER BODY	Yes/No
DWELLINGS PER LOT	
PARKING SPACES REQUIRED	
LOADING SPACES REQUIRED	
SNOW STORAGE	Yes/No
LANDSCAPED AREA	sq.ft (m2)
PAVED AREA	sq.ft (m2)

LEGEND :

VEGETATION

LOT / PROPERTY LINE

SETBACK

ROAD CENTER LINE

SURVEY DATA IS DERIVED FROM PLAN OF SURVEY BY IN SURVEYING LTD. (INS) DATED mmmm, dd, 202x AND UNDER THE PROFESSIONAL SEAL OF xxx, OLS.

PROPERTY IS UNSURVEYED CONTRACTOR TO CONFIRM ALL PROPERTY LINES, SETBACKS, LOT COVERAGE AND OTHER ZONING PROVISIONS.

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NAME | SIGNATURE | BCIN #

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CITY OF BROCKVILLE

CIVIL

BUILDING PERMIT SKETCH | C-2

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