

1599 Adelaide St. N., Units 301 & 203 London, ON N5X 4E8

> P: 519-471-6667 www.sbmltd.ca

KITCHENER LOCATION

1415 Huron Rd., Unit 225 Kitchener, ON N2R 0L3

P: 519-725-8093 sbm@sbmltd.ca

Maverick Real Estate Inc. 521 Colborne Street London, ON N6B 2T6 September 10, 2021 SBM-21-0940

Attn: Mr.Craig Hansford

Re: Servicing Feasibility Study Commercial Redevelopment

600 Oxford Street West, London, Ontario

1. INTRODUCTION

This Servicing Feasibility Study (Study) has been prepared by Strik, Baldinelli, Moniz Ltd. (SBM) for Maverick Real Estate Inc. to address the servicing feasibility for the proposed commercial redevelopment located at 600 Oxford Street West London, Ontario. The area of the site is approximately 0.616 ha.

The subject lands consist of two (2) commercial buildings (former car dealership with internal car wash) along the southside of Oxford Street West with associated surface parking and landscaping. The site abuts the Oxford Street West Right-Of-Way (ROW) to the north, a fire station and commercial lands to the east, a car dealership parking lot to the south, and commercial lands to the west. The proposed redevelopment includes the renovation of the 2 existing commercial buildings. Please refer to the site plan by SBM dated August 18, 2021, appended to this Study.

This Study is to determine the adequacy of the existing City services in support of a Zoning By-Law Amendment (ZBA) for the proposed redevelopment.

Design requirements have been based on the City of London Design Specifications & Requirements Manual (DS&RM), updated March 2020.

2. WATER SERVICING

As per the City's record drawings 19273R1 dated June 2006, and the Record of Pre-Application Consultation comments dated April 6, 2021, there is an existing 400 mm PVC watermain in the Oxford Street West ROW and a 100 mm cast iron water service to the site.

2.1 Domestic Water Demand

The domestic water supply will be provided by the existing 100 mm diameter cast iron water service connected to the 400 mm PVC watermain in the Oxford Street West ROW. The maximum hour and maximum day domestic demand, as per the DS&RM for the site's commercial occupancy (0.616 ha at 28,000 L/day/ha) are 1.56 L/s and 0.70 L/s, respectively. See the attached domestic water demand calculations.

There is an existing internal car wash at the dealership, therefore the proposed car wash is not expected to drastically increase flows from current conditions.

A fire hydrant flow test (08-13 at hydrant H11029) was performed at the fire hydrant at the intersection of Oxford Street West and Capulet Lane on May 1, 2008. The flow test results show that the static pressure of the water distribution system in the area is 530.90 kPa (77 psi) and the residual pressure is 496.42 kPa (72 psi) at the test flow rate of 5,224 L/min (1,380 psi) and the residual pressure is 496.42 kPa (72 psi) at the test flow rate of 5,224 L/min (1,380 psi) and the residual pressure is 496.42 kPa (72 psi) at the test flow rate of 5,224 L/min (1,380 psi) and the residual pressure is 496.42 kPa (72 psi) at the test flow rate of 5,224 L/min (1,380 psi) and the residual pressure is 496.42 kPa (72 psi) at the test flow rate of 5,224 L/min (1,380 psi) and the residual pressure is 496.42 kPa (72 psi) at the test flow rate of 5,224 L/min (1,380 psi) and the residual pressure is 496.42 kPa (72 psi) at the test flow rate of 5,224 L/min (1,380 psi) and the residual pressure is 496.42 kPa (72 psi) at the test flow rate of 5,224 L/min (1,380 psi) at

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USGPM) and 482.63 kPa (70 psi) at the test flow rate of 9,312 L/min (2,460 USGPM). As per the attached document "Pipe Sizes for Water Distribution System Design", a 50 mm (2") plastic water service at a length of 54.86 m (180') and a static pressure of 482.63 (70 psi), can provide flows of 15.1 L/s (240 U.S. GPM). It is SBM's understanding that a 50 mm diameter water service can supply the required flows for a car wash, therefore the existing 100 mm diameter cast iron water service can provide sufficient flows for the proposed development.

2.2 Water Demand for Fire Protection

The current buildings are un-sprinklered and the proposed redevelopment will not change the building size, the number of storeys, or the number of facing streets, and will remain as Group 'E' occupancy, therefore the building classification remains unchanged. There is currently a hydrant fronting the site on the south side of Oxford Street West, therefore no fire flow calculations are required.

2.4 Water Supply Conclusions

As shown in the attached Domestic Water Servicing Calculations, the existing 100 mm diameter cast iron water service has sufficient pressure to meet the water demands of the site's proposed uses. Upgrading the existing water service is not required for this site.

3. SANITARY SERVICING

3.1. PRE-DEVELOPMENT CONDITIONS

As per the Record of Pre-Application Consultation comments, the site is currently allocated 100 ppl/ha and zoned commercial. The site is tributary to the 350 mm diameter sanitary sewer in the Oxford Street West ROW as per City record drawing 19273R1. The pre-development flows from the site are shown on the sanitary sewer design sheet attached to this Study. The pre-development flows are calculated as follows:

• A total site area of 0.616 ha (±6,160.27 m²) with the allocated density of 100 ppl/ha and a demand of 230 L/(cap.day) for commercial lands as per the DS&RM.

These parameters result in an anticipated sanitary total peak flow of 0.84 L/s.

3.2. POST-DEVELOPMENT CONDITIONS

The post-development flows from the site are shown on the sanitary sewer design sheet attached to this Study. The redevelopment's sanitary flow is calculated using a site area of 0.616 ha, density of 100 ppl/ha, and a demand of 230 L/(cap.day). This results in an anticipated sanitary total peak flow of 0.84 L/s, which is equal to the pre-development flows for the site.

Since the site area is not changing and the intended use remains as commercial (allocated 100 ppl/ha), no change in flows is expected to the sanitary sewer in the Oxford Street West ROW. Therefore, a review of the available sanitary capacity in the downstream sewer is not required for this redevelopment.

4. STORM SERVICING AND STORMWATER MANAGEMENT

Pre-development conditions for the site were obtained from the Severance Site Plan prepared by Bremor Engineering Ltd., dated July 2010. Under pre-development conditions, the site $(6,160.27~\text{m}^2)$ is made up of two (2) existing buildings $(1,774.66~\text{m}^2)$, existing parking area $(3,892.69~\text{m}^2)$, and landscaped areas $(492.92~\text{m}^2)$. The pre-development runoff coefficient for the site has been calculated to be 0.84 per the Runoff Coefficient Calculations attached to this Study. As per City record drawing 10731, the site is tributary to the 1200~mm diameter storm sewer located to the south of the existing building in a 7.315~m (24') easement.

Since there will be no demolition or expansion to the existing buildings, the post-development runoff coefficient for the site remains unchanged at 0.84. Therefore, no SWM quantity/quality controls will be required for the site.

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5. SUMMARY

Based on the above, the City's existing infrastructure and the site's existing services have sufficient capacity for the proposed uses.

6. LIMITATIONS

This Study was prepared by SBM for Maverick Real Estate Inc. (Owner) and the City of London. Use of this Study by any third party, or any reliance upon its findings, is solely the responsibility of that party. SBM accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made or actions undertaken as a result of this Study. Third party use of this Study, without the express written consent of the Consultant, denies any claims, whether in contract, tort, and/or any other cause of action in law, against the Consultant.

All findings and conclusions presented in this Study are based on site conditions as they appeared in the information presented to SBM and related to in this document. This Study is not intended to be exhaustive in scope, or to imply a risk-free development. It should be recognized that the passage of time may alter the opinions, conclusions, and recommendations provided herein, as well as any changes in the layout of the development.

The design was limited to the documents referenced herein and SBM accepts no responsibility for the accuracy of the information provided by others. All designs and recommendations presented in this Study are based on the information available at the time of the review.

This document is deemed to be the intellectual property of SBM in accordance with Canadian copyright law.

7. CLOSURE

We trust this Study meets your satisfaction. Should you have any questions or require further information, please do not hesitate to contact us.

Respectfully submitted,

Strik. Baldinelli. Moniz Ltd.

Planning • Civil • Structural • Mechanical • Electrical

Nelson Guiot, P.Eng. Associate II Civil Engineering Division Manager N.A. GUIOTRUBIANO TO 100147337

PROMOBEL 10, 2021

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Nicholas Paneras Civil Project Lead

Mameray

Encl: Site Plan by SBM dated August 18, 2021

City of London record drawing 19273R1 dated June 2006

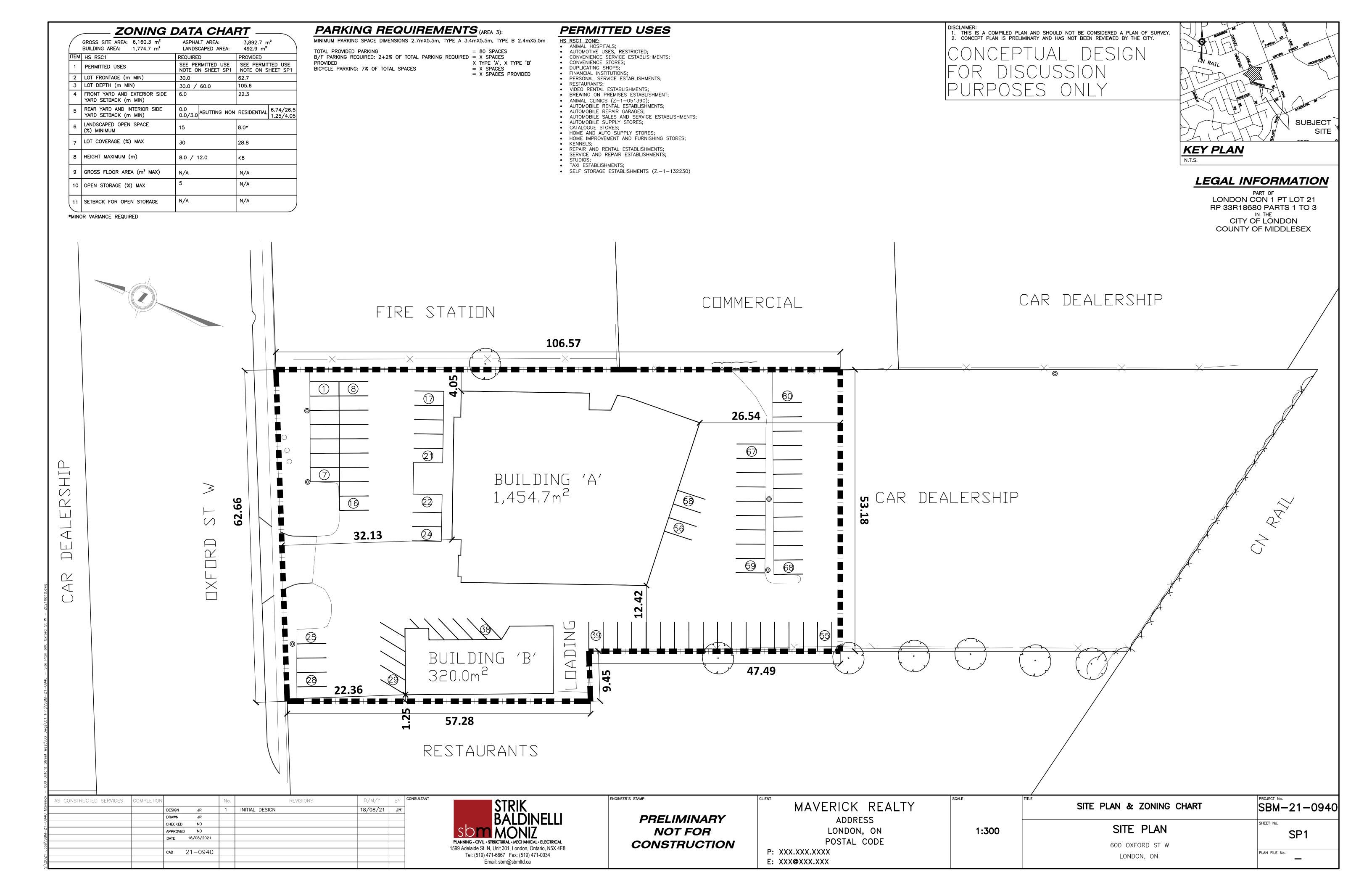
Domestic Water Demand Calculations

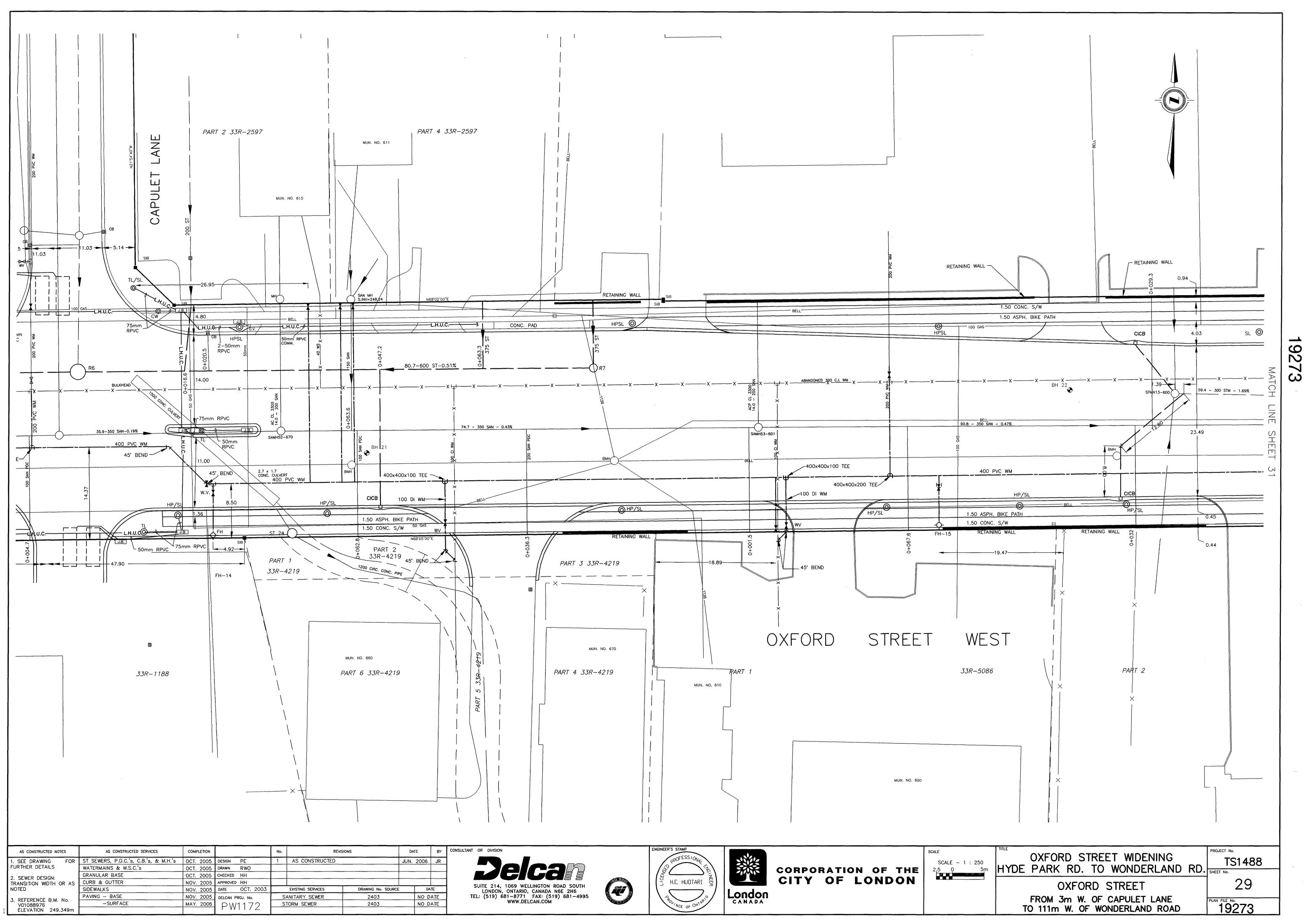
Hydrant Flow Test No. 08-13 dated May 1, 2018 Pipe Sizes for Water Distribution System Design

Sanitary Service Design Sheet

Severance Site Plan prepared by Bremor Engineering Ltd. dated July 2010

Runoff Coefficient Calculations







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DOMESTIC WATER DEMAND AND VELOCITY CALCULATION

DATE: August 30, 2021

JOB NO.: SBM-21-0940

Client: Maverick Real Estate Inc.

Project: Commercial Redevelopment

Location: 600 Oxford Street West, London, Ontario

DEMAND CALCULATION

*Commercial Area Allowance Average Flow = $28(m^3/(ha d) = 28000 L/day/ha$

Max. Day Peaking Factor = 3.5 Max. Hour Peaking Factor = 7.8

	Area (ha)	Population	Avg. Day (L/s)	Max. Hour (L/s)	Max. Day (L/s)
Commercial	0.616		0.20	1.56	0.70
To	tal	0.20	1.56	0.70	

^{*}Refer to MOECC "The Design Guidelines for Drinking-Water Systems

VELOCITY CALCULATION

Diameter (mm)	Demand (L/s)	Velocity (m/s)
100	1.56	0.198

Maximum allowable velocity of 1.5 m/s under maximum hour domestic flow conditions as per Section 7.3.6 of the City of London Design Specifications and Requirements Manual.

WATER SUPPLY DEPARTMENT FLOW TESTS

519-668 0070

08-13

DATE	May 1	- 2008			J (11021
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TEST	OUTLET	PITOT	INDIVIDUAL	TOTAL	RESIDUAL	STATIC
NUMBER	SIZE	READING P.S.I.	FLOW U.S.G.P.M	FLOW U.S.G.P.M.	PRESSURE P.S.I.	PRESSURE P.S.I.
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The attached information on City of London water services does not purport to set forth all information nor to indicate that other information does not exist. By issuing this information report, neither the City nor any of its employees makes any warranty, express or implied, concerning the location, type or extent of services described in this report. Furthermore, neither the City nor any of its employees shall be liable in any manner for any personal injury or property damage or loss of any kind arising from or connected with this information or incomplete information.

TableD-2. CapacitiesofCopperTubingandPlasticPipe(inGPM)(Continued)

LengthofPipe(inFeet)										
Pressureat Source(psi)	20	40	60	80	100	120	140	160	180	200
11/4lnch										
10	80	55	42	37	32	30	27	25	22	22
20	110	80	65	55	47	42	40	35	35	32
30		105	80	70	60	55	50	45	44	40
40		110	95	80	70	65	60	55	50	47
50			110	90	80	70	65	60	57	55
60				105	90	80	75	70	65	60
70				110	100	90	80	75	70	65
80					105	95	85	80	75	70
11/2lnch										
10	130	90	70	60	50	45	40	40	35	35
20	170	130	100	90	75	70	65	60	55	50
30		170	130	110	100	90	80	75	70	65
40			155	130	115	105	95	88	80	77
50			170	150	130	120	108	100	90	88
60				165	145	130	120	110	105	98
70				170	160	142	130	122	113	106
80					170	155	140	130	122	115
				2ln	ch					
10	280	180	150	145	110	100	90	85	80	70
20	320	280	220	190	165	160	140	125	120	110
30		320	280	240	210	180	170	160	150	140
40			320	280	240	220	200	190	175	160
50				320	280	250	230	210	200	190
60					300	280	260	240	220	200
70					320	300	280	260	240	230
80						320	300	280	260	240



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Sanitary Service Design Sheet

City of London

Residential & Commercial Population Densities

(A) Area Basis

Low Density Residential (Single Family/Semi-Detached)
Medium Density Residential (Multi-Family/Townhouse)
High Density Residential (Apartment Buildings)

Commercial = 100 people/hectare

= 30 Units/hectare @ 3 people/unit =75 Units/hectare @ 2.4 people/unt

=150-300 Units/hectare @ 1.6 people/unit

Daily Flow (L/cap/day) 230

Sewage Infiltration (Litres/hectare/day) 8640 Harmon Formula (Peaking Factor) $M = (1 + 14/(4+P^{0.5}))$

Uncertainty Factor 1.1

Date: September 1, 2021

Job Number: SBM-21-0940

Client: Maverick Real Estate Inc.

Project: Proposed Commercial Development **Location:** 600 Oxford Street West, London, Ontario

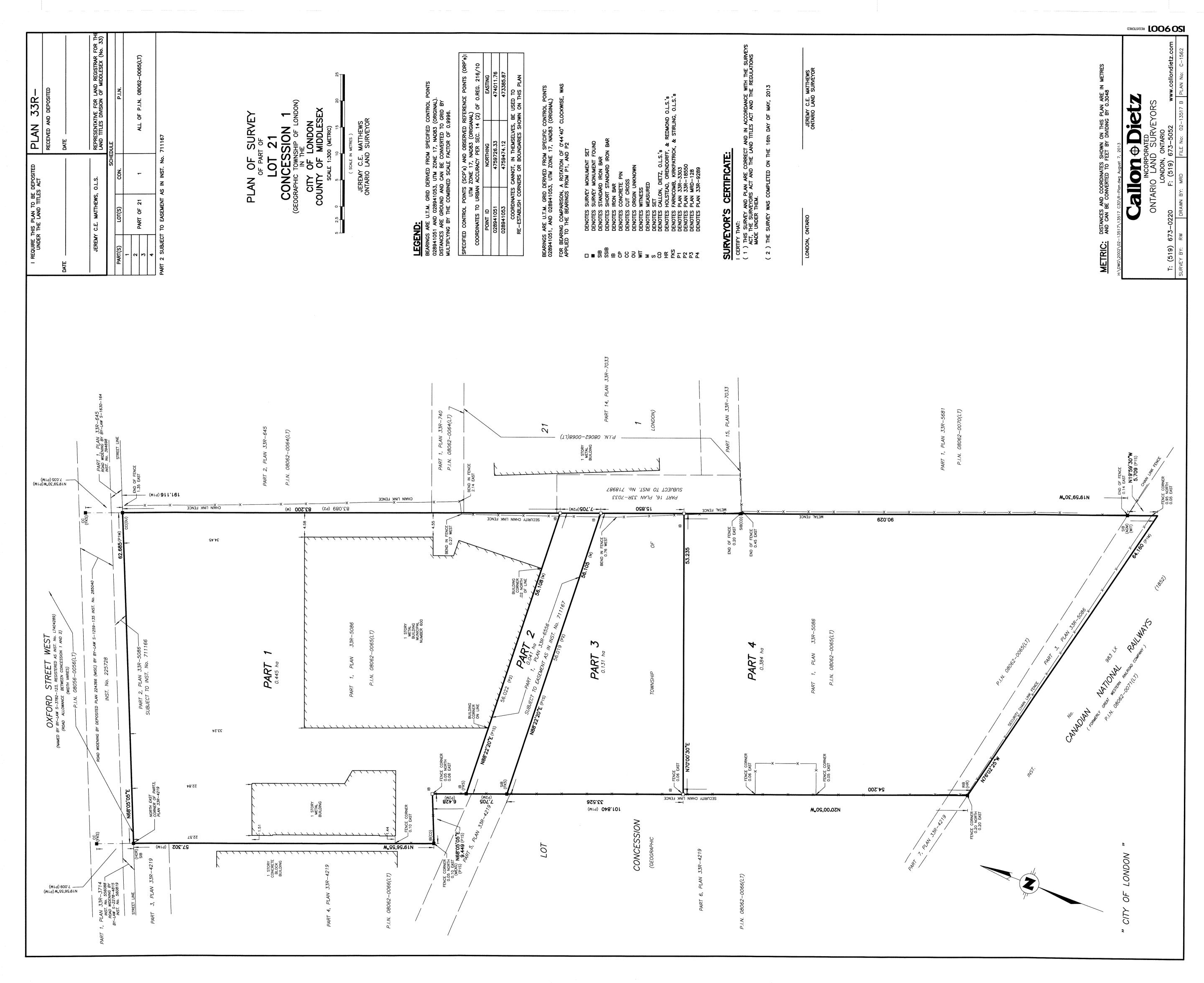
Designed By: NEP

Reviewed By: NGu

																vieweu by:		
Lo	cation		Ar	ea			Population	1			Sewag	e Flows					Sewer design	
Area No.	From MH	To MH	*Delta Hectare	Total Hectare	*No. of Units	People Per Unit	People Per Hectare	Delta Pop.	Total Pop.	Harmon Peaking Factor	Infilt L/S	Sewage L/S	Total L/S	n	Pipe Slope %	Dia. mm	Capacity L/S	Velocity m/s
Existing Conditions																		
Car Dealership			0.616	0.616			100.0	61.6	62	4.29	0.06	0.78	0.84	0.013	1.00%	150	15.24	0.86
Proposed Conditions			 															
Commercial Development			0.616	0.616			100.0	61.6	62	4.29	0.06	0.78	0.84	0.013	1.00%	150	15.24	0.86

Net Increase in Sewage Flows = 0.00 L/s

There is no net increase in sewage flows since the site will remain as commercial use, therefore a downstream sanitary capacity study is not required





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Runoff Coefficient Calculations

DATE: September 1, 2021

JOB NO.: SBM-21-0940

Client: Maverick Real Estate Inc.
Project: Proposed Commercial Development
Location: 600 Oxford Street West, London, Ontario

PRE-DEVELOPMENT CONDITIONS	*
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	Area (m²)	С	A*C
Total Area:	6160.27		
Building Area:	1774.66	0.9	1597.19
Asphalt/Concrete:	3892.69	0.9	3503.42
Gravel:	0.00	0.9	0.00
Landscaped/Open:	492.92	0.2	98.58
Totals:	6160.27	_	5199.20
$C_{eq} = Sum(A*C)/Sum(A) =$	0.84	1	

POST-DEVELOPMENT CONDITIONS **

	Area (m²)	С	A*C
Total Area:	6160.27		
Building Area:	1774.66	0.9	1597.19
Asphalt/Concrete:	3892.69	0.9	3503.42
Gravel:	0.00	0.9	0.00
Landscaped/Open:	492.92	0.2	98.58
Totals:	6160.27	-	5199.20
$C_{eq} = Sum(A*C)/Sum(A) =$	0.84		

Since the site layout is not changing, the proposed development will have a C-value of 0.84 which is equal to the pre-development C-value of 0.84, and therefore no SWM quantity controls are required.

^{*} Pre-Development Conditions were obtained from the Severance Site Plan prepared by Bremor Engineering Ltd., dated July 2010

^{**} Post-Development Conditions are based on the Site Plan prepared by SBM, dated August 18, 2021